PINPOINT APRS SETUP on a stationary Windows 7 Computer with IC7100 Basestation

Sunday, May 19, 2019   1:41 PM

This tutorial is about getting a digital base station set up as an RF Igate - that sounds technical but it just means that you will use your transceiver to listen for APRS transmissions and send them to the internet, an Igate is an "internet gateway" in APRS vernacular.   If your computer is set up for digital communications with your radio than it can be used to transmit and receive APRS packets.   Everything you hear and transmit will be stored and visible on the website at: http://www.aprs.fi which shows a map of your location and all APRS activity your area.

At a minimum you will need the following:
- A transceiver capable of 144.390 mhz tx/rx
- A soundcard or radio interface to the Transceiver
- The software based TNC or soundmodem by UZ7HO, this acts as a modem to translate the APRS packets which are transmitted in AX.25 coding
- APRS software, the one I am using is Pinpoint APRS and is free but appreciate Donations

Optional items:
- A USB GPS - not required for a stationary Igate system

To get started on APRS you want to be able to interact with the APRS network, in order to do so you need to request your APRS-IS passcode from APRS-IS, you can email them, instructions are here:
http://aprsisce.wikidot.com/doc:passcode

Email address: aprsisce-owner@yahoogroups.com

A shortcut is to use one of these forms and get it using your callsign - make sure it's just your callsign like this "AG7GK" no "-1" etc.

Navigate to either of these links and enter your call sign. The online passcode generator will return your personal passcode.
https://apps.magicbug.co.uk/passcode/

or
http://n5dux.com/ham/aprs-passcode/

The APRS IS passcode is used if you want to interact on any device with their network including your phone, computer, etc.

You will also need to register at http://www.aprs.fi which is the de facto APRS activity site.

Before you start go into your FLDIGI software and make note of your soundcard settings under "Configure > Soundcard", make note of your "PortAudio" capture and playback values, they will be needed later in your setup.
Note - mine are:

On your computer you will be connecting to, download the following software:

SOUNDMODEM SETUP
Download from: http://uz7.ho.ua/packetradio.htm
http://uz7.ho.ua/modem_beta/hs_soundmodem21.zip

Start up "soundmodem" and go into "Settings > Modem"
The settings below should be adequate for your configuration. Primarily we are setting that the modem is listening for 1200 baud ax.25 packets.
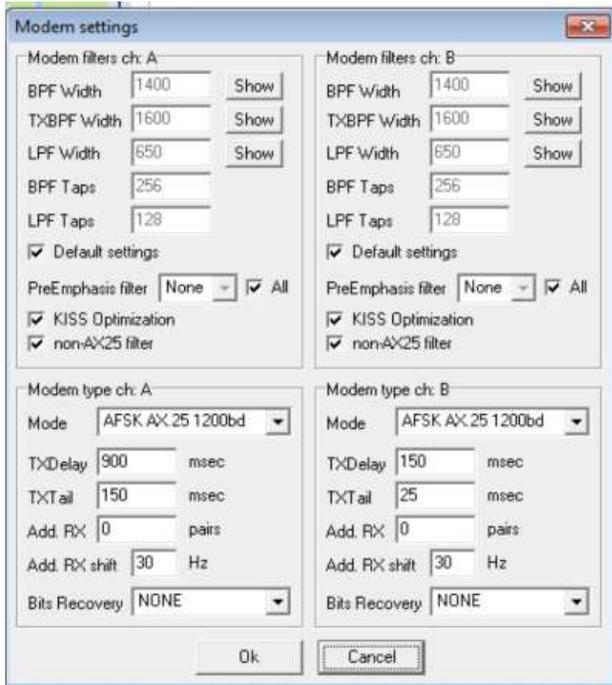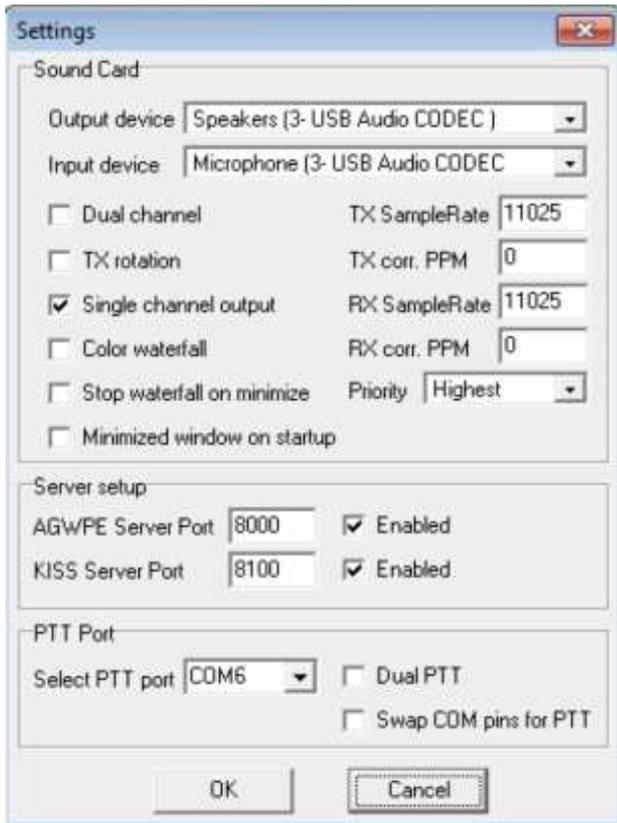
Next go to "Settings > Devices"
From the FLDIGI soundcard info, select your output device (the "Playback" device in FLDIGI)
Select the "Input device" as the "Capture" device in FLDIGI)
If you have Hardware PTT than select that, otherwise if you are using a Signalink, your signalink will handle PTT to the radio.

After you are set up -tune your radio to 144.390mhz which is the standard APRS frequency in all of North America (Canada, Mexico, the US and some of Central America)

You should hear some screeches and see text pop up in the soundmodem that looks like this when you hear and decode:

Decoding of an APRS signal

APRS signal
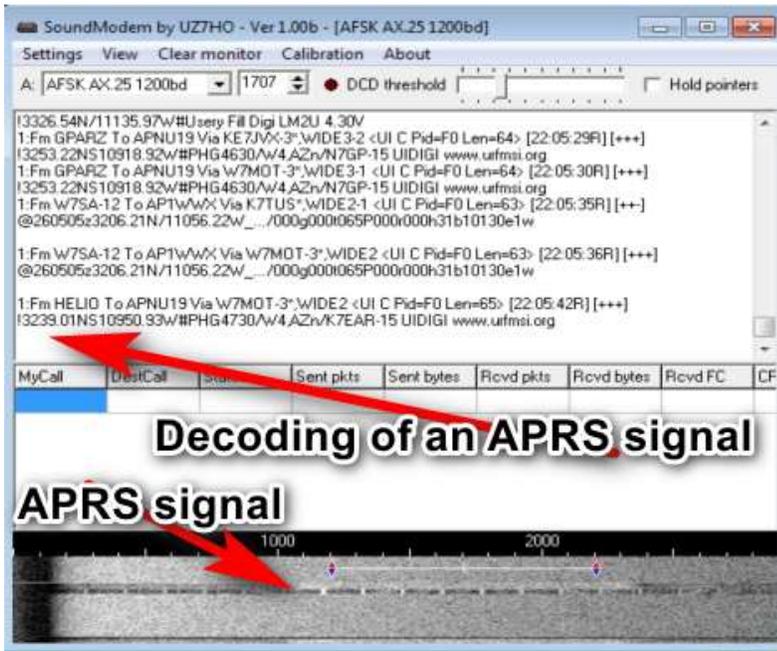
NOTE: when you minimize the SoundModem it goes into your systray as an Icon, it is still running, look for it by your clock like this:


VIRTUAL COM PORT (Required if using Rigcontrol - not required if you are using an external Soundcard interface with built in PTT like Signalink)
Download this virtual com port and point a new com port to your PTT port
http://www.cantab.net/users/john.wiseman/Documents/CAT7200.html

This makes a new Port available to point to the "actual" PTT com port of my USB soundcard. In this case the PTT Port for the IC7100 is COM3
If you are using a signalink you should not need to use this
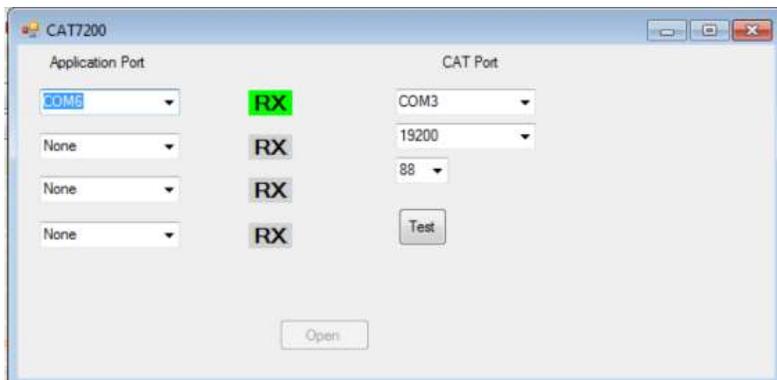
PINPOINTAPRS SETUP

Download and install:

http://www.pinpointaprs.com/

This software is the brains for your view into APRS on your computer. All of the above is just infrastructure. In Pinpoint APRS you will be able to see all of the weather stations in your area, hear and see mobile and stationary APRS stations, and send and receive messages to APRS users whether RF or Internet based.

The Map window shows stations / reports as they come in
The data drops off after a few hours per settings
Be patient, it will fill up over time as you hear stuff

Communications Monitor
Shows yoru incoming RF packets AND APRS-IS
Network Packets; cool way to see what's going on as it happens.
Mainly used for troubleshooting.

Last Heard Window
This shows
positition reports,
messages, and
Weather reports
Heard over the
Radio

The APRS-IS reports show:
The same as above but from
data posted by other
Igates connected to the APRS
Network

Setup:

Go to "Tools > Options"

Change your Callsign and pick an SSID, here's a listing of SSID's and what they mean.

SSID	Description
-0	Your primary station usually fixed and message capable
-1	Generic additional station, digi, mobile, wx, etc
-2	Generic additional station, digi, mobile, wx, etc
-3	Generic additional station, digi, mobile, wx, etc
-4	Generic additional station, digi, mobile, wx, etc
-5	Other networks (Dstar, Iphones, Androids, Blackberry's etc)
-6	Special activity, Satellite ops, camping or 6 meters, etc
-7	Walkie talkies, HT's or other human portable

-8   Boats, sailboats, RV's or second main mobile

-9   Primary Mobile (usually message capable)

-10   Internet, Igates, echolink, winlink, AVRS, APRN, etc

-11   Balloons, aircraft, spacecraft, etc

-12   APRStt, DTMF, RFID, devices, one-way trackers*, etc

-13   Weather stations

-14   Truckers or generally full time drivers

-15   Generic additional station, digi, mobile, wx, etc

From <http://aprsisce.wikidot.com/doc:ssids>

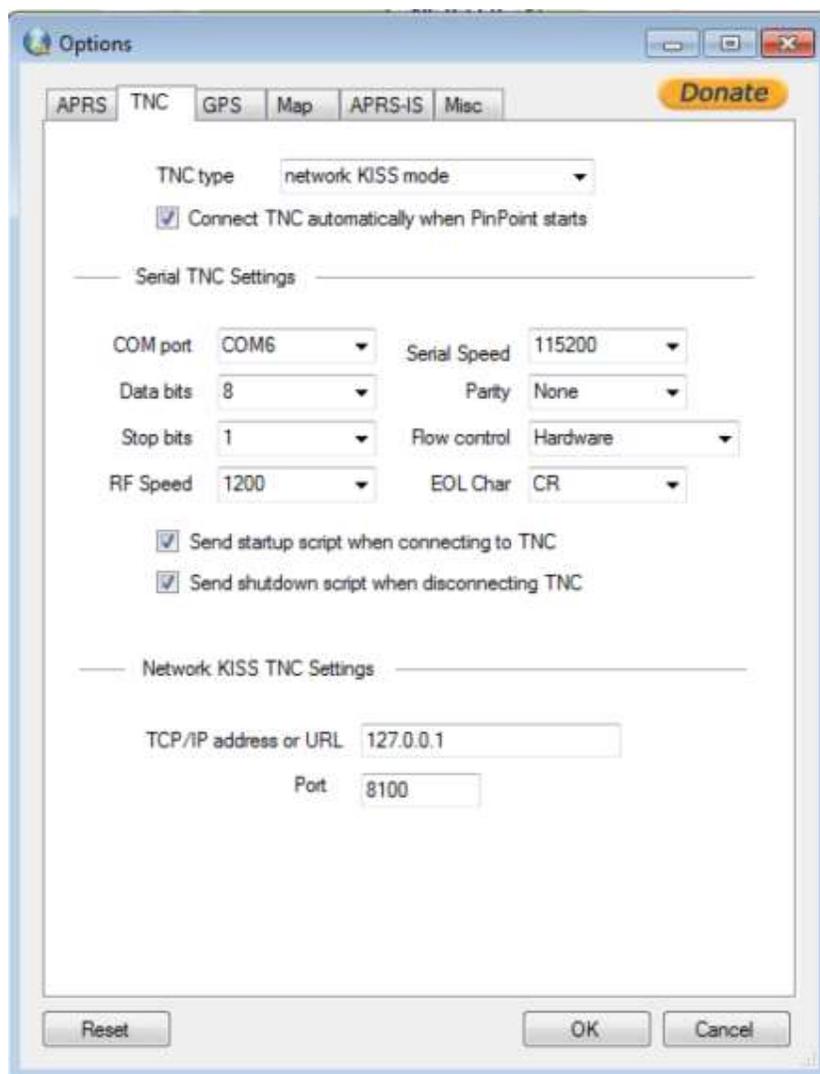NOTE - you cannot use -0 in this software, I used -1 to indicate my home QTH
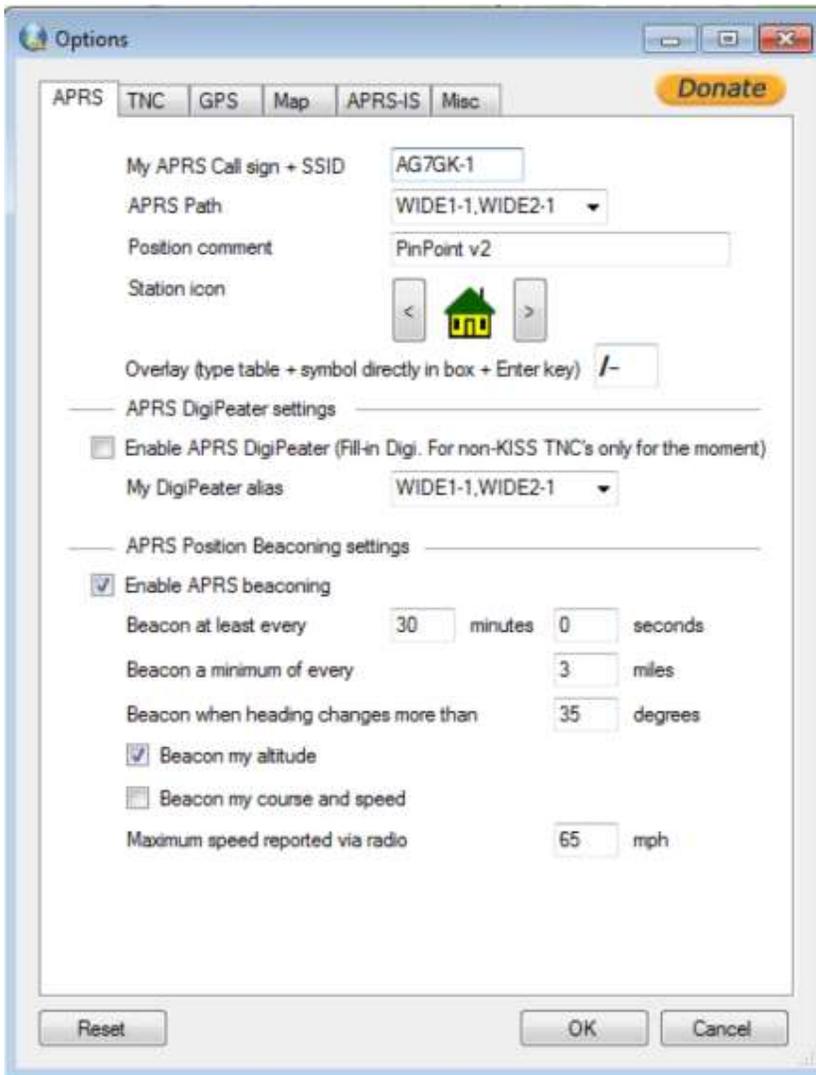
Next Tab - TNC

Note the last field for "Port" should be equal to the "Kiss Server Port" from the soundmodem:
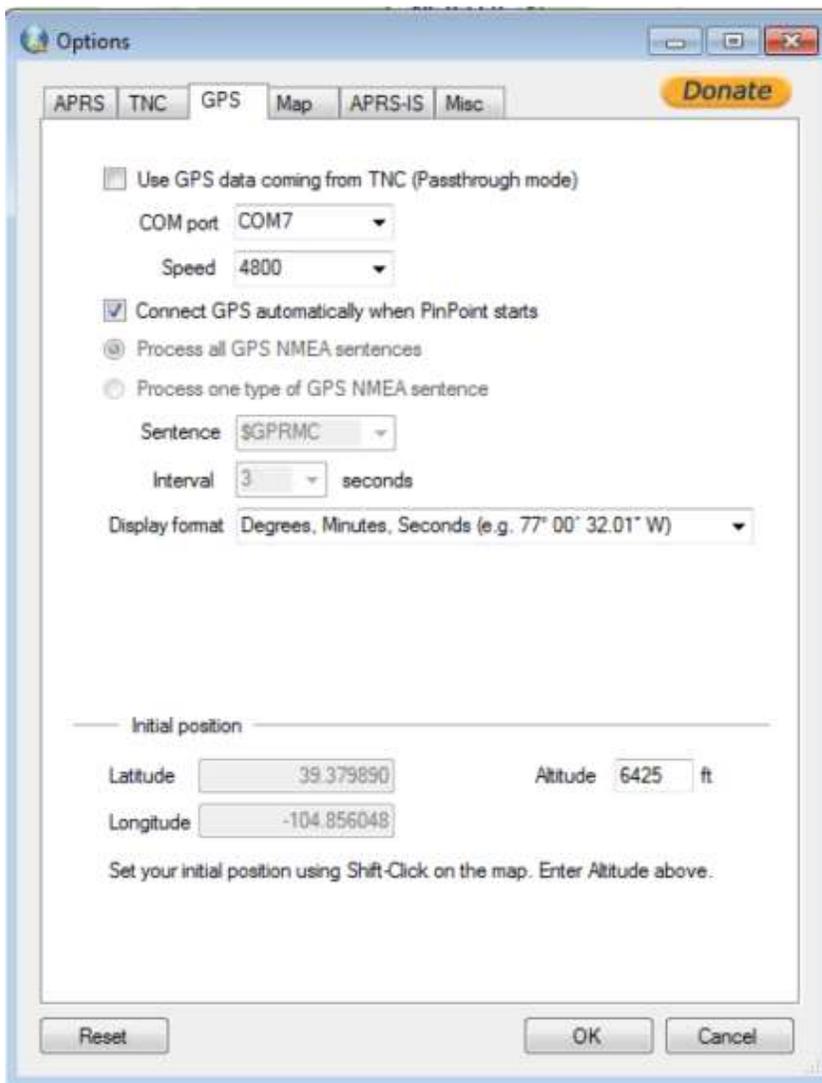

This means that Pinpoint APRS is simply getting the decoded packets that the soundmodem makes available over a simple locally based
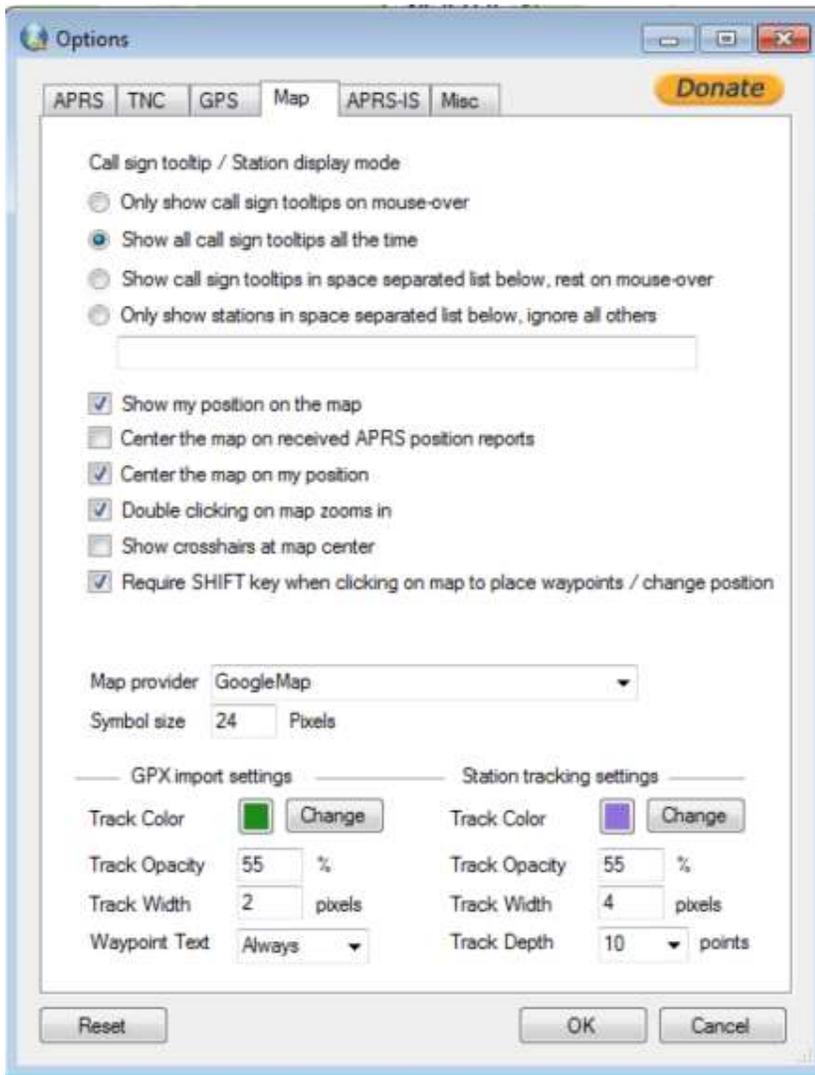
webservice on your computer.

Optional GPS settings: If you have a USB GPS receiver connected on your computer use these settings, otherwise set your Initial position manually from your known lat/Lon and altitude.
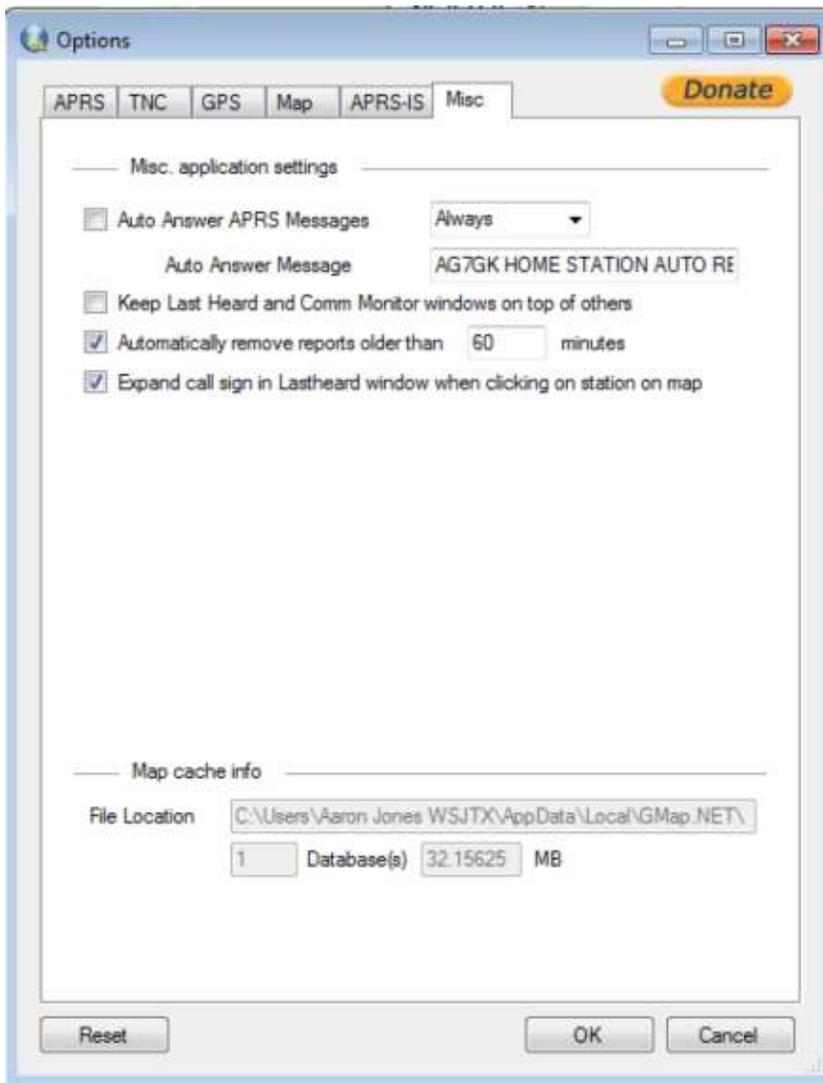
Map settings - change as you see fit

APRS-IS settings: Enter your APRS-IS passcode you got over email if you want to post reports you hear from other stations. This is "good practice" and helps strengthen the information for all users as you fill in gaps in RF signals.
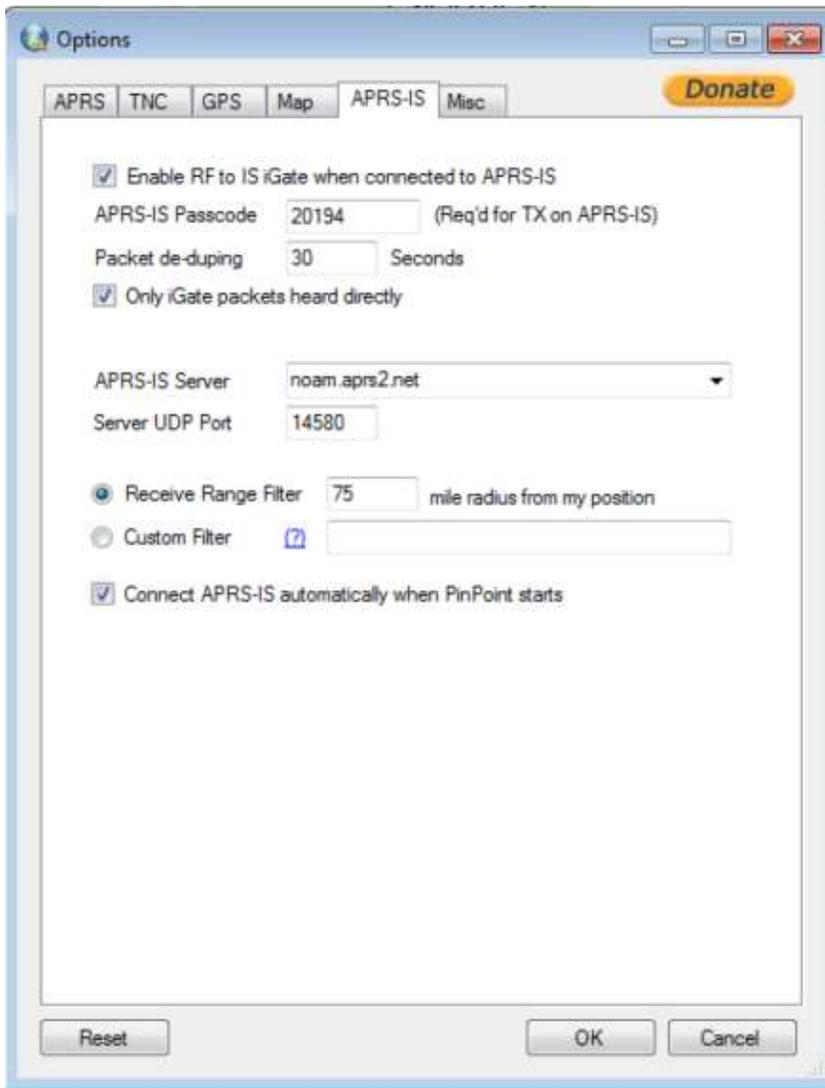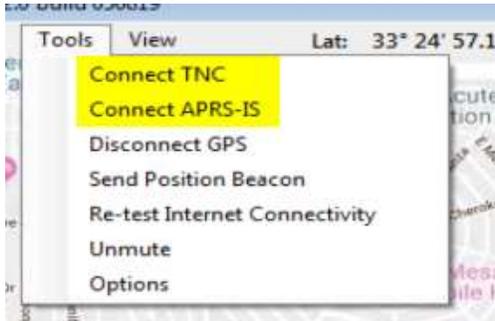
Misc: Change as you see fit.   You might want to keep reports for more than 60 minutes, experiment with it.

Start up Everything:

Start up your APRS-IS Connection and your TNC connection (GPS if you have one connected)

Go to "Tools > Connect TNC" and "Tools > Connect APRS-IS" to get things moving

Give it some time and you'll see all the stations you hear pop up on your map view.

Something to try:

Send a message to someone on the APRS network.

Find a friend that you see live on the network, like AG7GK-1 which will be running 24x7 for the next week or two. Go to "Messages" and right click the "Inbox" and click "New message"

Enter the SSID (Callsign + "hyphen" + "suffix") of the station you want to send a message to. IN this case I will be sending to my mobile rig from my base station: AG7GK-9
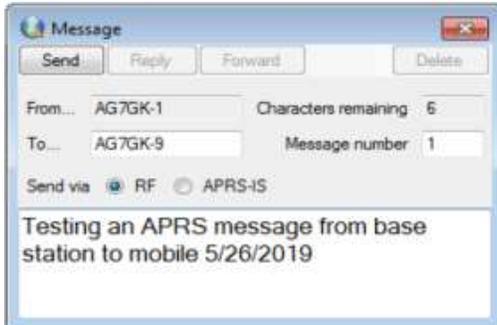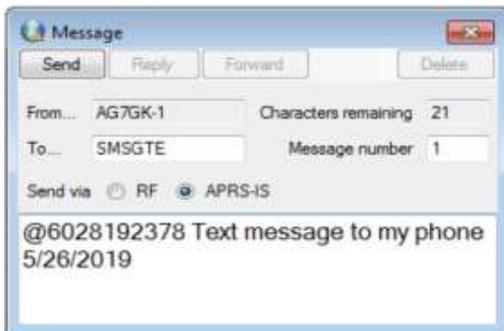

Then click "Send"

If you are going to send the message over the internet, than pick "APRS-IS"

Try sending an SMS message from your station to your phone by entering it like this:

To: SMSGTE
In the message body type your cellphone after an @ symbol and a short message like this:

You can now text your base station back and forth from your phone.

Good luck with your experimentation in this excellent systems.

https://www.nowsms.com/doc/submitting-sms-messages/send-sms-from-a-command-line-interface