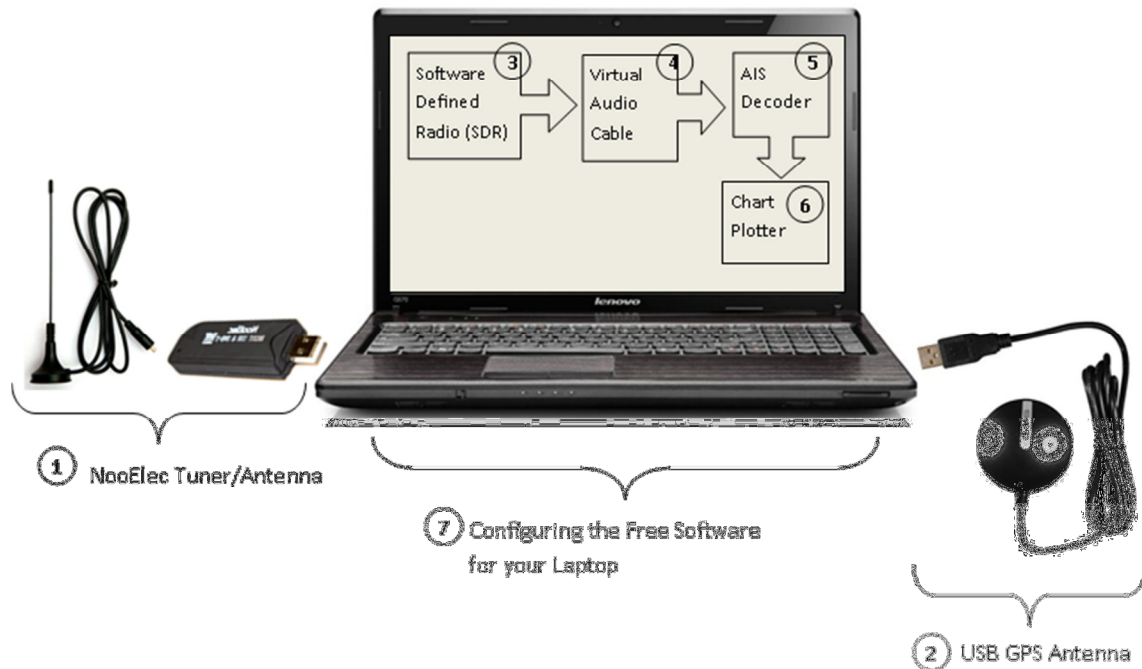
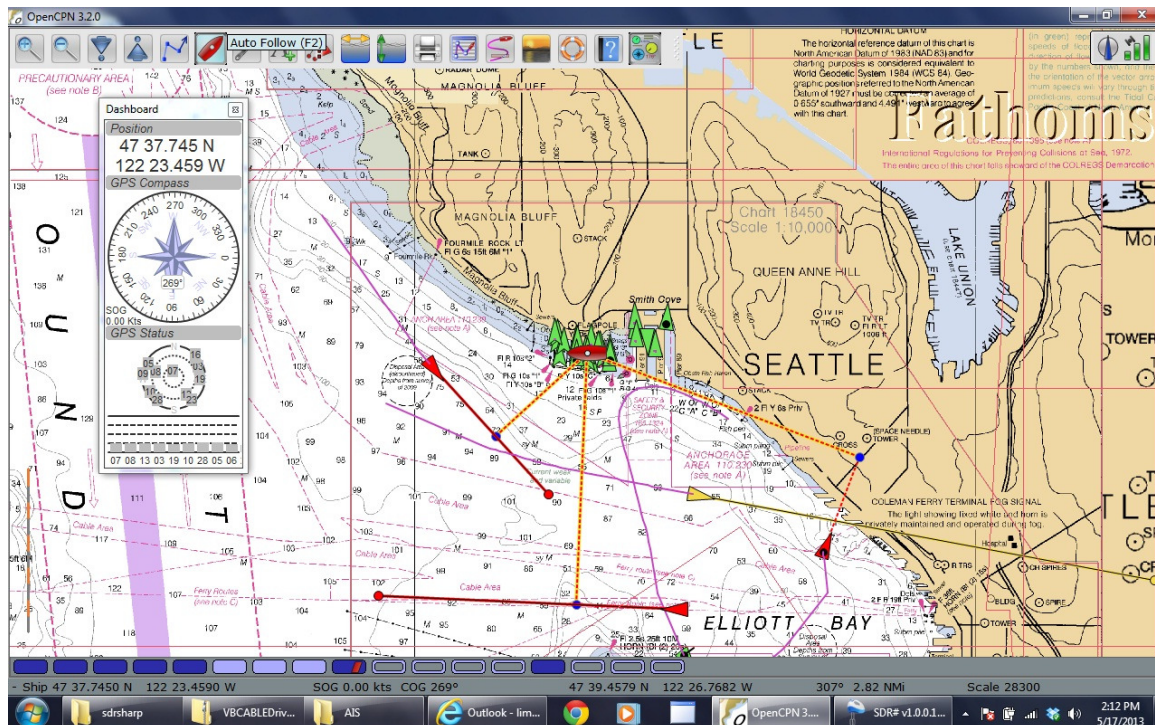


Cheap AIS Plotter – David DeLong – 12/27/13

This document describes how to build an AIS plotter using a \$20 tuner/antenna, a USB GPS receiver, and a laptop computer. The way the unit connects together is shown in the diagram below. The instructions to build each component/download each software package then follow.



Here is the result you get when the AIS system is fully up and running.



① Tuner/Antenna:

- A. Buy the NooElec Tuner/Antenna (I ordered it Friday and received it Monday):
 - i. http://www.amazon.com/NooElec-RTL-SDR-RTL2832U-Software-Packages/dp/B008S7AVTC/ref=sr_1_1?ie=UTF8&qid=1365112054&sr=8-1&keywords=sdr
 - ii. TBD – Modify the antenna

② USB GPS Antenna

- A. If you do not have GPS on your computer, here is a cheap one that works fine:
http://www.amazon.com/GlobalSat-BU-353-USB-GPS-Receiver/dp/B000PKX2KA/ref=sr_1_1?ie=UTF8&qid=1388107039&sr=8-1&keywords=gps+puck

③ Software Defined Radio (SDR):

- A. Download the software and drivers:
 - i. <http://sdrsharp.com/downloads/sdr-install.zip>
 - ii. Unzip it
 - iii. Run install.bat (downloads all of the SW into the same folder)
- B. Install the driver
 - i. Run ZADIG.EXE (downloaded above)
 - iv. Follow instructions here: <http://rtlsdr.org/softwarewindows>

④ Virtual Audio Cable (VAC):

Each "cable" is like a sound device allowing applications to use it as an input or output device. All applications use a cable as an output device get summed together and routed to all applications using the cable as an input device. You can choose either option below:

- Free one!: <http://vb-audio.pagesperso-orange.fr/Cable/index.htm>

⑤ AIS decoder (AISMON):

An application that decodes AIS burst in software and sends the information as NMEA sentences to serial or UDP port. Download and install from here: <http://groups.yahoo.com/group/aismon/>

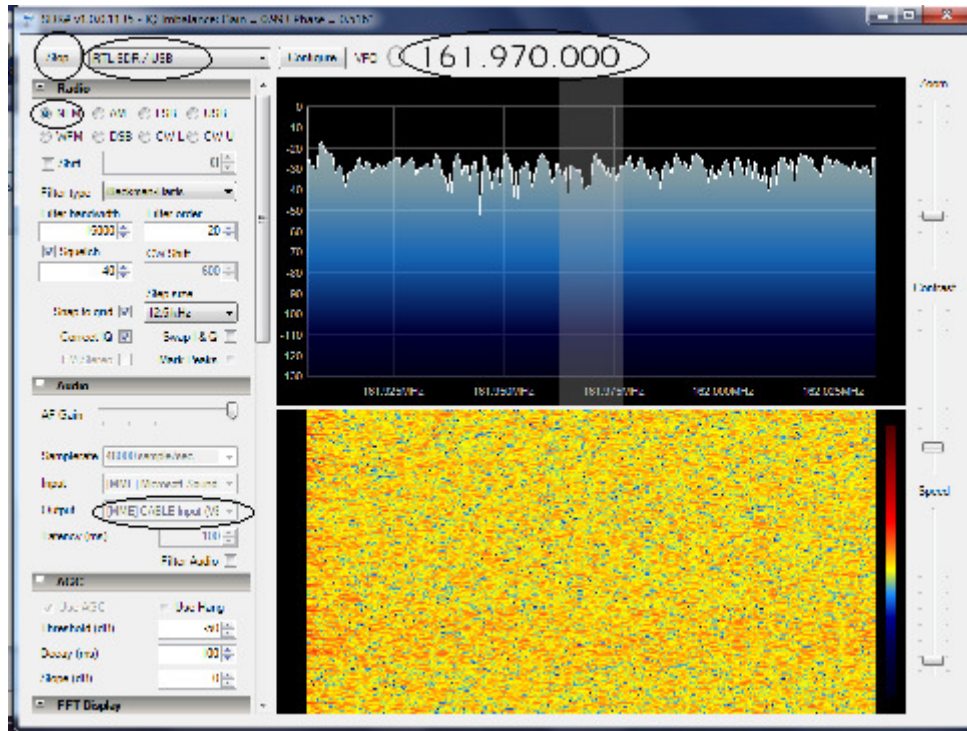
⑥ Chart Plotting software (OPENcpn):

OPENcpn is a free open source chart plotting application. It has powerful data multiplexing capabilities allowing the GPS and AIS NMEA data to be combined and repeated for other devices. A simple application is repeating the data for other computers on the network to use for chart plotting and displaying AIS traffic. Download and install from here: <http://opencpn.org/ocpn/>

7 Configuration (putting it all together):

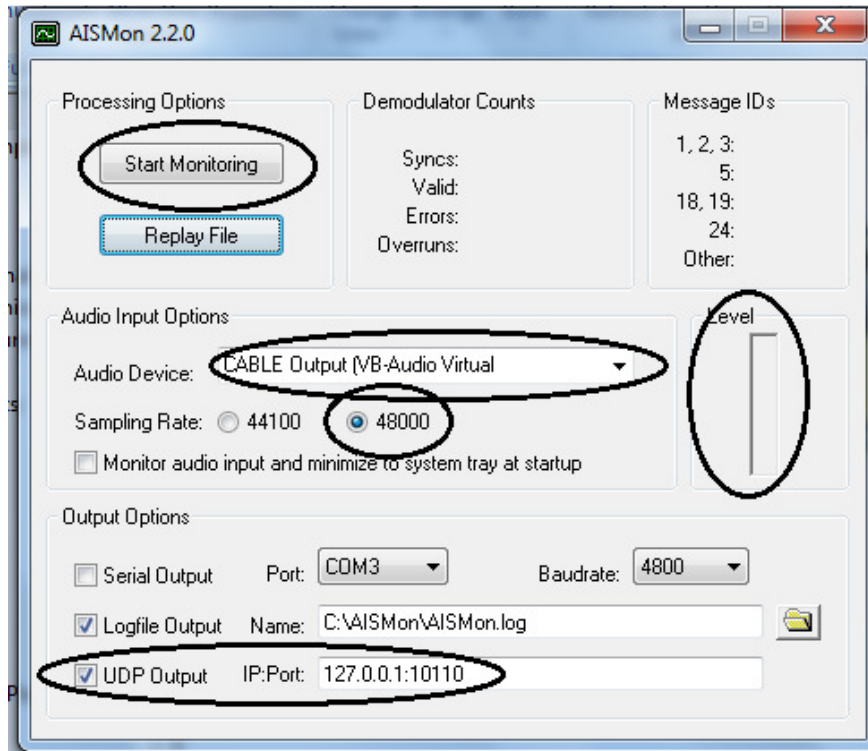
A. Receiver

- Audio output: Cable Input (VB-Audio Virtual)
- Select device: RTL-SDR/USB
- Select frequency: 161.975
- Select NFM
- Start



C. AISMon

- a. Select audio input: Cable Output (VB-Audio Virtual)
- b. Select and enable UDP output: 127.0.0.1:10110
- c. 48000 sample rate
- d. Start Monitoring



E. OpenCPN

a. Options-Connections:

- i. Add Connection
- ii. Network
- iii. Protocol: UDP
- iv. Address: 127.0.0.1

