**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.



**Tuner/Antenna:**

**1**

1. Buy the NooElec Tuner/Antenna (I ordered it Friday and received it Monday):
2. [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](http://www.amazon.com/NooElec-RTL-SDR-RTL2832U-Software-Packages/dp/B008S7AVTC/ref%3Dsr_1_1?ie=UTF8&qid=1365112054&sr=8-1&keywords=sdr)
3. TBD – Modify the antenna

**USB GPS Antenna**

**2**

1. 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](http://www.amazon.com/GlobalSat-BU-353-USB-GPS-Receiver/dp/B000PKX2KA/ref%3Dsr_1_1?ie=UTF8&qid=1388107039&sr=8-1&keywords=gps+puck)

**Software Defined Radio (SDR):**

**3**

1. Download the software and drivers:
2. <http://sdrsharp.com/downloads/sdr-install.zip>
3. Unzip it
4. Run install.bat (downloads all of the SW into the same folder)
5. Install the driver
6. Run ZADIG.EXE (downloaded above)
7. Follow instructions here: <http://rtlsdr.org/softwarewindows>

**Virtual Audio Cable (VAC):**

**4**

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>

**AIS decoder (AISMON):**

**5**

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/>

**Chart Plotting software (OPENcpn):**

**6**

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/>

**Configuration (putting it all together):**

**7**

1. Receiver
	1. Audio output: Cable Input (VB-Audio Virtual)
	2. Select device: RTL-SDR/USB
	3. Select frequency: 161.975
	4. Select NFM
	5. Start



1. AISMon
	1. Select audio input: Cable Output (VB-Audio Virtual)
	2. Select and enable UDP output: 127.0.0.1:10110
	3. 48000 sample rate
	4. Start Monitoring



1. OpenCPN
	1. Options-Connections:
		1. Add Connection
		2. Network
		3. Protocol: UDP
		4. Address: 127.0.0.1

