

Installing AIS Receiver on STB B860H

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Objective: STB as *AIS Receiver* using USB Soundcard or SDR Dongle

1. Start with a properly working APRS igate using Direwolf 1.5 on STB

2. As newer direwolf requires cmake, need to install cmake

```
apt install cmake
```

3. Save the previous good working direwolf

```
mv direwolf direwolf-1.5
```

4. Download the latest direwolf

```
apt install cmake
git clone https://github.com/wb2osz/direwolf.git
cd ~/direwolf
```

5. Change to development build, compile and install

```
git checkout dev
mkdir build
cd build
cmake ..
make -j
make install
cd ../../
```

6. Create a simple config file:

```
vi ais.conf
```

that contains the following 2 lines

```
ADEVICE plughw:1,0
MYCALL <urcall>
```

7. Radio setup:

- Hookup: take the flat audio from the radio, typically labelled as “9600 bps data” and wire it to the USB soundcard *Mic Input*
- Tune the radio to AIS freq of either 161.975 Mhz or 162.025 MHz

8. Kill the existing direwolf that is running in the background

```
ps ax | grep dire
kill <pid of direwolf>
```

PID is process ID, the leftmost number

Example:

```
root@AIS-YB8XM:~# ps ax | grep dire
1525 pts/0    Tl        0:02 direwolf
3823 pts/0    S+        0:00 grep dire
```

In this example the command would be:

```
kill 1525
```

9. Test the new direwolf

```
direwolf -B AIS -r 48000 -T "%H:%M:%S" -c ais.conf
```

Confirm on the first line it shows Dire Wolf version 1.6

```
Dire Wolf DEVELOPMENT version 1.6
```

Then after several seconds you'll see scrolling data of various ships

```
root@Satgate-B860-2: ~
Opening log file "2020-06-18.log".

AIS audio level = 14(+23/-5)  _|_
[0.2 08:49:45] AIS>APDW16:{DA!AIVDM,1,1,,A,171chupP007aCwMtRHVb`?wH0<2b,0*5B
AIS 1: Position Report Class A, "525005047", Power boat (ship) side view
S 06 03.0950, E 106 53.5150, 0 MPH, course 272

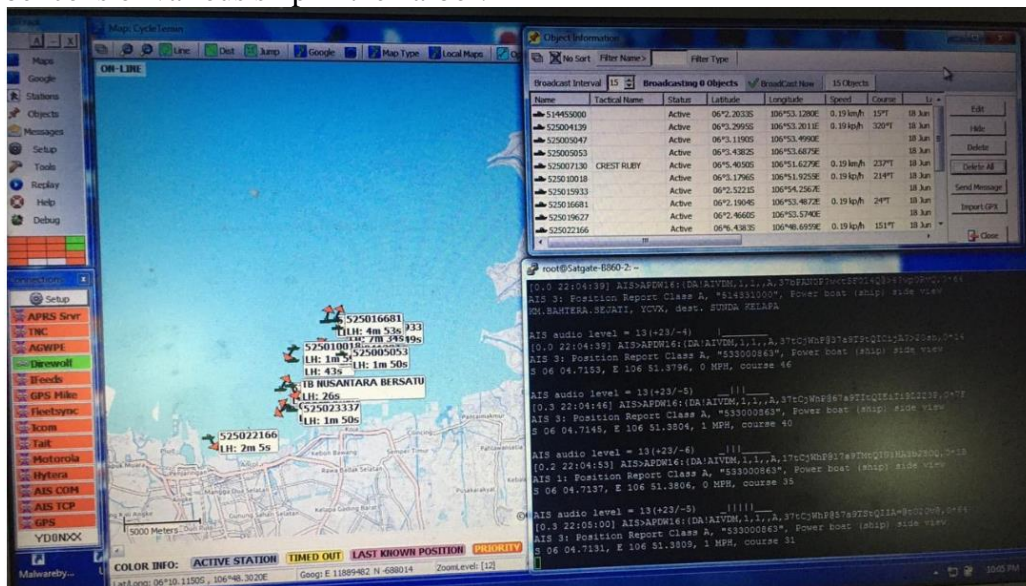
AIS audio level = 14(+24/-4)  _|||_
[0.2 08:49:47] AIS>APDW16:{DA!AIVDM,1,1,,A,171dpJ@0017a;dEtPr`JbnCN04;4,0*59
AIS 1: Position Report Class A, "525023337", Power boat (ship) side view
S 06 05.5007, E 106 51.8154, 0 MPH, course 273

AIS audio level = 13(+21/-4)  _||||_
[0.5 08:49:55] AIS>APDW16:{DA!AIVDM,1,1,,A,571dpJD2CK6a0qTJ2205<j1HuT4LE:222222
20W1pe975SAN<UOCRUCQp44RCjp8888882,2*0C
AIS 5: Static and Voyage Related Data, "525023337", Power boat (ship) side view
ASL VOYAGER, PNYF, dest. TANJUNG PRIOK

AIS audio level = 14(+23/-5)  _||||_
[0.2 08:50:07] AIS>APDW16:{DA!AIVDM,1,1,,A,171dpJ@0017a;datPrWbbnB@0@4?,0*1D
AIS 1: Position Report Class A, "525023337", Power boat (ship) side view
S 06 05.5010, E 106 51.8164, 0 MPH, course 273
ASL VOYAGER, PNYF, dest. TANJUNG PRIOK
```

10. Connect with application on Laptop to STB

Download SARtrack (<https://www.sartrack.nz/>), and configure the direwolf parameter with the IP number of the STB, and on the map of SARtrack there will be icons of various ship in the harbor:



11. Using SDR Dongle as the receiver (this is still experimental)

```
apt install rtl-sdr      (if required)
rtl_fm -f 161.975M -s 48k - | direwolf -B AIS -r 48000 -T "%H:%M:%S" -c sdr.conf
```

with sdr.conf contains

```
ADEVICE null null
MYCALL <urcall>
```

Note:

- Might need to add `-p` for the SDR dongle *ppm* adjustment

12. Revert back to Stable Version

If required, here is the commands to revert back to version 1.5

```
cd direwolf-15
make install
```

End of file