A cruisers review of OpenCPN electronic navigation software

by Lee Longstreet

Free Download References: http://www.OpenCPN.org
http://www.nauticalcharts.noaa.gov
AIS descriptive info: http://en.wikipedia.org/wiki/Automatic_Identification_System

This local review is based on my longtime use of Nobeltec's Navigation Suite which is a recognized rock solid legacy navigation program for PC's. My older version did not support AIS and had no economical upgrade path.

The whole process of looking for an alternative navigation program began with the realization that AIS (automatic identification system) was indeed a very desirable safety tool. My quest for AIS is based upon the desire for stretching every dollar.

My experience with not having AIS took place in 2008 while returning from the Grand Bahamas back to West Palm Beach in the middle of the night. For those of you who might not understand the timing the realization is that some people wait weeks, even months for a desirable (relatively calm) time to cross the Atlantic Gulf Stream. So when you get a local knowledge report, in this case a sport fisher that just made the crossing, that you have a crossing window in an otherwise unstable weather period you are thinking "lets go for it". We had both radar and electronic navigation interfaced with the autopilot to take care of gulf stream current drift. We had DirecTV tuned to the Weather Channel to look for any unscheduled changes in weather. The boat also had stabilizers which eliminates sea state roll. The boat had proven itself extremely reliable and we had logged prior Gulf crossings as well as been to the Bahamas before and were experienced with the Lake Worth anchorage near West Palm Beach. Confidence was and still remains high.

We departed West End Grand Bahamas about 6pm in very nice ocean state conditions. After an hour or so darkness was coming, the sunset beautiful and waves like a good day on Lake Pontchartrain. We were in the Atlantic Ocean and Everything was perfect.

About 2am (when it's usually the weather that goes bad) we were about 2/3 the way back to the US when a huge radar blip showed up about 8 miles away. No problem - the Atlantic certainly has large ship traffic. Having an old radar, I tracked his approach the old way by marking the screen directly with a grease pen every few minutes. The problem is that this blip kept coming towards us - our target bearing never changed and it was coming fast - maybe 30mph. 6 miles out, four miles out, then 3 miles out and still coming - fast. Of course the first thought is are we under pirate attack or are we being pursued by the Coast Guard as we have heard happens to others.

Not knowing the type of vessel approaching or the intent I put out a Security, Security, Security call on VHF-16 giving the name of our vessel, the type (pleasure power yacht), our position, speed, destination and the collision risk concern. Fortunately the bridge watch on the vessel of concern not only was listening but spoke English (he sounded Dutch). I advised him of my concern that we were in a displacement pleasure vessel that cruised at 7-knots and that I was

concerned we might not be able to get out of the way fast enough if needed to do so. I also let him know we did not have AIS and that our radar was old and could not make the precision calculations like he could and asked him to how to proceed. He told us to keep our course and he would advise if we needed to make any changes.

It seemed like only a few minutes when a huge ship was in sight and yes, it was moving fast. We probably had 1/2 mile between us at the crossing point. Wow! After that I was really alert for the rest of the way in. But that was not the last vessel we came upon. Probably around 3am we were getting closer to the Lake Worth / West Palm Beach ship channel when again I did not like what I saw on the radar. Although this time the target vessel was much smaller and also obviously at displacement speed. Again I gave a general call and again a commercial vessel answered and we agreed to keep an eye on each other. As time went on he started getting concerned and actually berated us for threatening his "stand on" course and that he was having to take evasive action. We never saw this other vessel even though it was a perfectly clear night. As time went on I realized we were not the vessel threatening him. If we would have had AIS we would have known this and not been a part of the conversation.

AIS sent by commercial vessels gives you the name of the Vessel, its speed, its bearing, the type of vessel, its call sign, DSC / mmsi# and most of the time its intended destination. Wow now I know the importance of AIS. But can a pleasure vessel afford it? This brings me to the year 2015 and the core of my article.

Two things happened in 2015 to make AIS quite affordable. The Standard Horizon model GX2200 VHF radio with GPS and a AIS receiver built in with data outputs for both signals. See http://www.standardhorizon.com/indexVS.cfm?cmd=DisplayProducts&DivisionID=3&ProdCatID=83&ProdID=1769 I did not find the tiny AIS screen on the radio very helpful but having the data available started me thinking. Upgrading from my old Nobeltec software to their current version would cost over $600 and be restricted by software to just one computer. Computers break and sometimes you just want a better one. I did not want the hassle of transferring license restricted software.

I looked at Garmin chart plotters. They were expensive, required pay charts and every few years become obsolete. So my quest for a better and cheaper PC application was on. I tried several low cost PC programs one of which was PolarView which had been recommended by an experienced cruiser. Although it worked and I tried to like it, I could never get past the point that it just did not have the user friendleness of my old Nobeltec software. Note, Nobeltec was eventually bought by Furuno and integrated into their charting systems and now know as Furuno's TimeZero. Very good stuff. Then I tried a "free" program called OpenCPN. (Google is wonderful for finding all sorts of stuff) This one looked pretty good but at least for my system which was a mix of old and new it had bugs. Other than bugs it kept my attention because the core features of the program worked closer to Nobeltec than the other ones I tried. I kept following OpenCPN for about a year and with each update it just kept getting better. I finally posted my problems to their fourm and the core programmer (there are several) contacted me. Within a week he had modified the OpenCPN software and all my problems were fixed. Of course I sent in a contribution which is encouraged on their website if you find their software useful.

In my opinion OpenCPN has reached prime time status.

OpenCPN ver. 4.0 is free and uses the free downloadable and updated NOAA raster and vector charts. What's better than free? Something that works and OpenCPN is both. I highly recomend this graphics intensive software be installed on a fast quad core processor system running windows 8 if you want it to operate without being sluggish. OpenCPN supports AIS, Autopilot (even the old ones), and even Garmin radar overlay on the display.

There are additional reasons you may want to run PC based navigation.

Interface boxes are cheap. An 8-port serial multiplexer will be in the $100 range allowing you to hook up all sorts of devices that will display on your navigation screen. OpenCPN supports multiple concurent GPS's with automatic fallback in case one fails, AIS, Electronic Compass Heading, Depth, Autopilot output, even outputs for driving a remote NEMA display. The program even supports devices that interface via the Ethernet port. The software will even allow custom filtering and retransmission of NEMA data streams to other devices like the data displayed on modern radars.   You can set an alarm for waking you up if the keyboard has not been used for a user specified number of minutes. (Important for those 20-hour overnight gulf crossings).

You may also have a PC for interfacing with your Ham Radio equipment, doing email, writing letters, surfing the web keeping up with finance, etc. In essence you will most likely have a PC on board so why not use it for navigation.

In my case an extremely important (read as cheap) reason to have PC based navigation is that you can have a second station with full control for around $200. With the advent of good inexpensive (under $100) LED TV's with an HDMI port a really nice second station for the flybridge is now very affordable. I had a custom canvas cover with an Isinglass front made for my TV / Monitor. With this cover you can mount the TV/monitor outside and leave it there. You can get a "Logitec" wireless keyboard ($39 at Wal-Mart) for controlling everything from the flybridge. Both the second monitor and second keyboard can be used simultaneously without any conflict. I can even check my email & watch Netflix from the flybridge right on my navigation screen (not while navigating! or ?)

I feel I have an electronic navigation system with autopilot & AIS that competes with the best of the commercial products for a fraction of the price.

For those technical types full downloadable source code is available and you may write your own enhancements and plugins. There is a programmers forum to facilitate the exchange of technical enhancements which is why the software is so feature rich. The development community that made OpenCPN possible is made up of brilliant software developers who just happed to be cruisers that wanted great navigation software while being on a cruising budget.

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Note, OpenCPN will also run on Linux, Mac & Android devices

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