

# A COMPARISON OF NAVTEX DECODERS:

By W. Curt Deegan

Over the last several days I have been doing comparisons of NAVTEX decoders. To do this I have used a pair of receiver/antenna arrangements, feeding two audio digitizers, and then on to an XP Windows PC running four instances of decoders, concurrently.

I ran two copies of **SeaTTY v1.7.1**; one to compare with the other decoders and one as a reference fed by its own data stream.

For the comparison I ran the free **NAVTEX v2.1.0** program and **SkySweeper Standard 3.10**. To be fair, I must state that I had only just begun using SkySweeper when I ran this test. As a result my own unfamiliarity with the program may account for some issues mentioned later in this review.

The receivers were both tuned to the 518kHz NAVTEX channel (actually tuned to 4518kHz because the shared antenna translates up 4MHz).

The three different decoders were all watching the output of one receiver:  
JRC NRD-535D; LF Engineering L-111; MFJ-784B DSP

The reference arrangement was SeaTTY fed by:  
Ten-Tec RX-320D; LF Engineering L-111 (split of above); no DSP

The following are my observations:

Both Free NAVTEX and SkySweeper had a tendency to stream garbage during low signal periods. They also had decoding idiosyncrasies. Neither was as effective at decoding the shared stream as was SeaTTY, by a significant margin.

In addition to low signal translation errors, there were also translation errors during strong signal periods. For example, Free NAVTEX frequently translated a sequence like:

**2. CANCEL AT TIME//281730Z SEP 06XX**

instead of with the // closing marks.

Upon further inspection I found several instances where digits were being mistranslated. Take for example:

**BEGINNING.**

**B. FROM 28-34N 80-27W TO 28-31N 80-10W TO 28-13N 80-14W TO 28-1IN**

**80-32W TO BEGINNING.**

**C. FROM 27-36N 77-18W TO 27-12N 76-21W TO 26-46N 76-32W TO 27-1EN**

**77-32W TO BEGINNING.**

**D. FROM 19-31N 57-52W TO 15-38N 52-08W TO 13-02N 54-30W TO 17-0WN**

In each line above, the final digit is unshifted producing an incorrect alpha character.

The correct reception as decoded by both instances of SeaTTY is:

**BEGINNING.**

**B. FROM 28-34N 80-27W TO 28-31N 80-10W TO 28-13N 80-14W TO 28-18N**

**80-32W TO BEGINNING.**

**C. FROM 27-36N 77-18W TO 27-12N 76-21W TO 26-46N 76-32W TO 27-13N**

**77-32W TO BEGINNING.**

**D. FROM 19-31N 57-52W TO 15-38N 52-08W TO 13-02N 54-30W TO 17-02N**

This appears to be a systematic error which will probably be easier to find and correct that would be a random one. It has been reported to the author but no response has been received so far.

Neither Free NAVTEX nor SkySweeper provide time annotated raw files, which I have found very useful in comparing reception reports. In fact, those are the only files I inspect with SeaTTY, otherwise valid receptions could easily be overlooked.

SkySweeper is very much more than a NAVTEX decoder and has features I may have missed even for this limited test environment, but from what I can tell, SeaTTY is far more capable for this particular application.

Free NAVTEX has a nifty upload-to-database feature which could be useful to NAVTEX DX'ers. Two problems are the lost messages due to less than optimal translations, and a tendency to not upload all received messages. I've not yet quantified this as to when and what messages are missed. It would really be nice if there were a manual method of uploading messages which get lost in the automated process. I do know if the Internet connection is not available at the time a message reception completes, that message will not be uploaded to the on-line database. Of course the fact Free NAVTEX is FREE, is also much in its favor for the less than fanatical NAVTEX'er.

**SeaTTY v1.7.1** has one glaring problem. When left to run for extended periods of time, it may lock up. On my machine that means pushing the CPU into a 50% utilization loop. This causes the processor to heat up with resulting fan motor speed-up and increased audible noise. The more messages that are received, the sooner the program will fail. I have tested this on my machine -- Windows XP, Dell Dimension 3000 system audio type is: AC97, Sound Blaster Emulation, ADI 1980 audio controller with 2.1 implementation as one audio source; and a Behringer UCA202 USB/Audio Interface Device as the other audio source. Despite the author's insistence that this lock-up is the fault of "bad device drivers", I have reproduced the failure on both audio digitizers and in a way I am convinced it is related to buffer management and display scrolling. This lock-up problem began with a version of SeaTTY which employed new window scrolling routines. Severe scrolling problems that were introduced have been mostly corrected but some still persist, and the lock-up problem has been demonstrated -- I believe by running parallel copies of SeaTTY -- to be related to this buffering/scrolling issue. Not everything I have most recently observed has been shared with the SeaTTY author, but he has been very reluctant to accept that the problem is anything but someone else's, even though several others have reported some of the same observations I have.

Then to summarize: What I observed is that SeaTTY is far and away the best decoder of the three, and has the best message and raw file local saving procedures. Even without the advantage of DSP, the reference copy of SeaTTY was far more accurate decoding messages than the other two candidates which enjoyed the best processed input signal. So long as it is being used in attended mode, it is the superior decoder.

As much as I like the price and auto-upload of Free NAVTEX, and the flexibility of SkySweeper, I'll always run SeaTTY to be sure I get as much of every NAVTEX message as possible.

I have no affiliation with any of the above mentioned software or hardware. This review is offered as my opinion for whatever value the reader may find.

None of my comments are intended to suggest that any of the three programs is seriously flawed or not a viable tool for NAVTEX Dx'ing.

Other concurring and opposing opinions are encouraged so as to create the most complete review of these three remarkable offerings.

If there are any questions as to my process, procedure, or hardware/software configuration please just ask.

I do intend to try one more time to convey my observations regarding problems, to both the SeaTTY and Free NAVTEX program authors.

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PS: Almost as if on cue, one of the SeaTTY instances I had running, just locked up and had to be forced off with the Windows Task Manager. It was the instance I started second, having already had the same problem with the other one. Hence my conviction the problem is buffer management related. After the forced shut-down, the instance can be immediately restarted and will work just fine, until the next time.