

All Things Digital

Amateur Radio for the 21st Century

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APRS PART 3: TRACKERS

Not everyone can afford those “all-in-wonder” APRS enabled radios or an iPhone (iPad or iPod Touch)—for a lot less money, you can take any old 2m transceiver and connect it to a separate “black box” APRS tracker. There are several companies selling these devices in kit form or built, and I’ve picked a couple of good representatives (a detailed list is provided at the end of this column).

I like kit building and “one-stop” Internet shopping, so my first choice would be a family-run company called “Byonics” (<http://byonics.com>), owned/operated by Byon Garrabrant, N6BG, and provides everything you need to get started with add-on APRS trackers and other related accessories. The most well-known of his products is the famous TinyTrak, a small but powerful device combining an APRS tracker with a simple TNC (terminal node controller) plus a host of other features; its programmable chip can be flashed with new updates to add more features, functions, or fix problems. You simply take your 2m transceiver and hook it up using the proper radio interface cable, plus an external GPS (all available from Byonics). You need to program it with your APRS parameters but Byon is more than happy to help newbies and can program one with your callsign and most commonly used APRS parameters. Besides being a smorgasbord of APRS delights, Byonics is also a very Ham friendly outfit; it’s a rare thing when you can email/phone the chief design engineer and CEO, and Byon provides excellent customer service and doesn’t mind answering the same-old questions over and over.

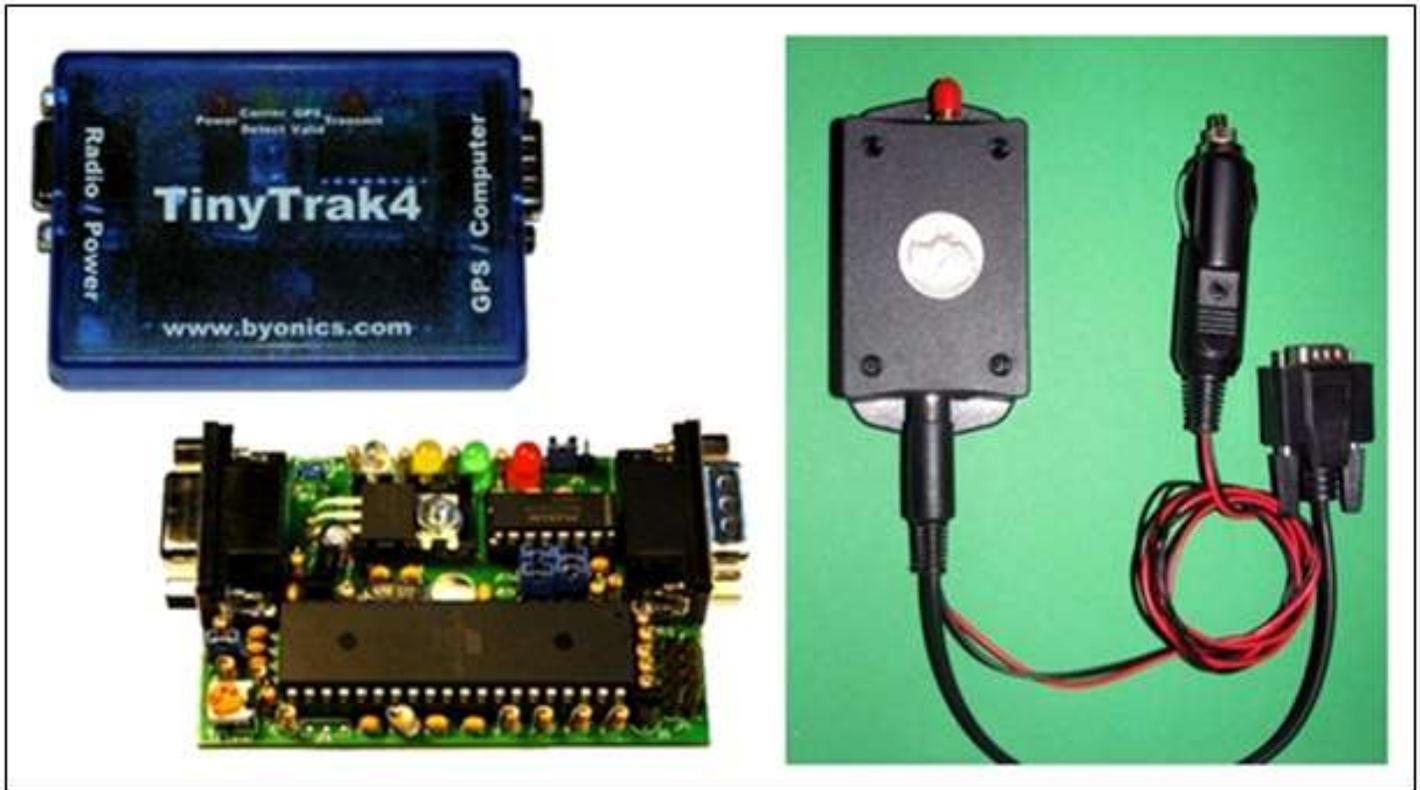


Figure 1: Byonics APRS Trackers (images used with permission)

Left is the TinyTrak4 in its plastic case and below is the circuit board. You can buy it in kit form or already built. Just connect your transceiver (with appropriate cables) and an external GPS. Right is the Micro-Trak RTG (Ready-To-Go) APRS transceiver, add an external antenna, GPS, and go!

My second pick, is another family-run Ham shop based in India called “Fox Delta” <http://www.foxdelta.com>, owned and operated by Dinesh Gajjar, VU2FD. Dinesh’s shop caters more to DIY kit builders and experimenters (but he also has ready built products). His store is another virtual smorgasbord but covers a wider field of radio and electronics to include astronomy and meteorology. If you like to tinker and experiment, you can have a lot of fun with Fox Delta’s offerings, and Dinesh maintains another website (<http://www.hamradioindia.com>) which has lots of information geared towards Amateur Radio kit builders.



Figure 2: Fox Delta FoxView3

Fox Delta sells several different variations of APRS trackers. The FoxView3 has a built-in TNC with a 4-line display. It can be used as a mobile tracker by attaching a GPS, as a stand-alone digipeater by connecting a VHF transceiver, and can be connected to a computer for programming. It's available as a kit (expert skills required) or already built. I highly recommend spending the few extra dollars and getting the built version as there's no "hand-holding" or incremental testing during the build; it will work or it won't!

SOUNDCARD INTERFACES

There are various soundcard interfaces available, and all are very good and easy to use. You can build (designs can be found on the Internet) or buy one. Sure, you can get by with the basic acoustic coupling or patch cord method for decoding (even transmitting some digital modes), but you really want and need a device to handle transmit and receive switching between your computer and transceiver for serious digital modes work. *Note: Most soundcard interface designs are trending towards VOX switching to activate the PTT versus the older serial port keying method.*



Figure 3: Soundcard Interfaces

Left is the KH6TY interface kit. It uses your soundcard to create an audio VOX PTT via an onboard voltage doubler circuit and requires no external DC power. The blue and yellow isolation transformers keep your radio and computer isolated from each other to prevent ground loops. Audio level control is via your computer's soundcard audio mixer. Inexpensive, very light and small, and with the added 5-pin DIN socket modification, it's easy to swap-out different transceiver cables.

Right is the Tigertronics Signalink USB external soundcard radio interface. It also provides an audio VOX PTT but draws power from your computer via a separate USB cable. It uses surface mount components and has internal isolation transformers with an onboard soundcard and audio amplifier with external transmit/receive level controls and doesn't use or need the soundcard audio mixer. It also has a variable PTT delay control for digital modes that require slower turn-around switching.

APRS CLIENT PROGRAMS

I've only used one APRS client software package in my Ham Radio "career", but it must be the most popular— UI-VIEW32 (<http://www.ui-view.org>), and it has thousands and thousands of worldwide users. It was the creation of Roger Barker, G4IDE (SK), who was a brilliant computer programmer. While there are newer client programs (commercial and free), UIVIEW has set a standard none have yet surpassed, in my opinion.

For those of us who enjoy computer programming, Roger provided an API (applications programming interface) to so you can “hook” into UI-VIEW, and this has allowed for the creation of some amazing extensions, new features and functions added to “plain Jane” APRS.

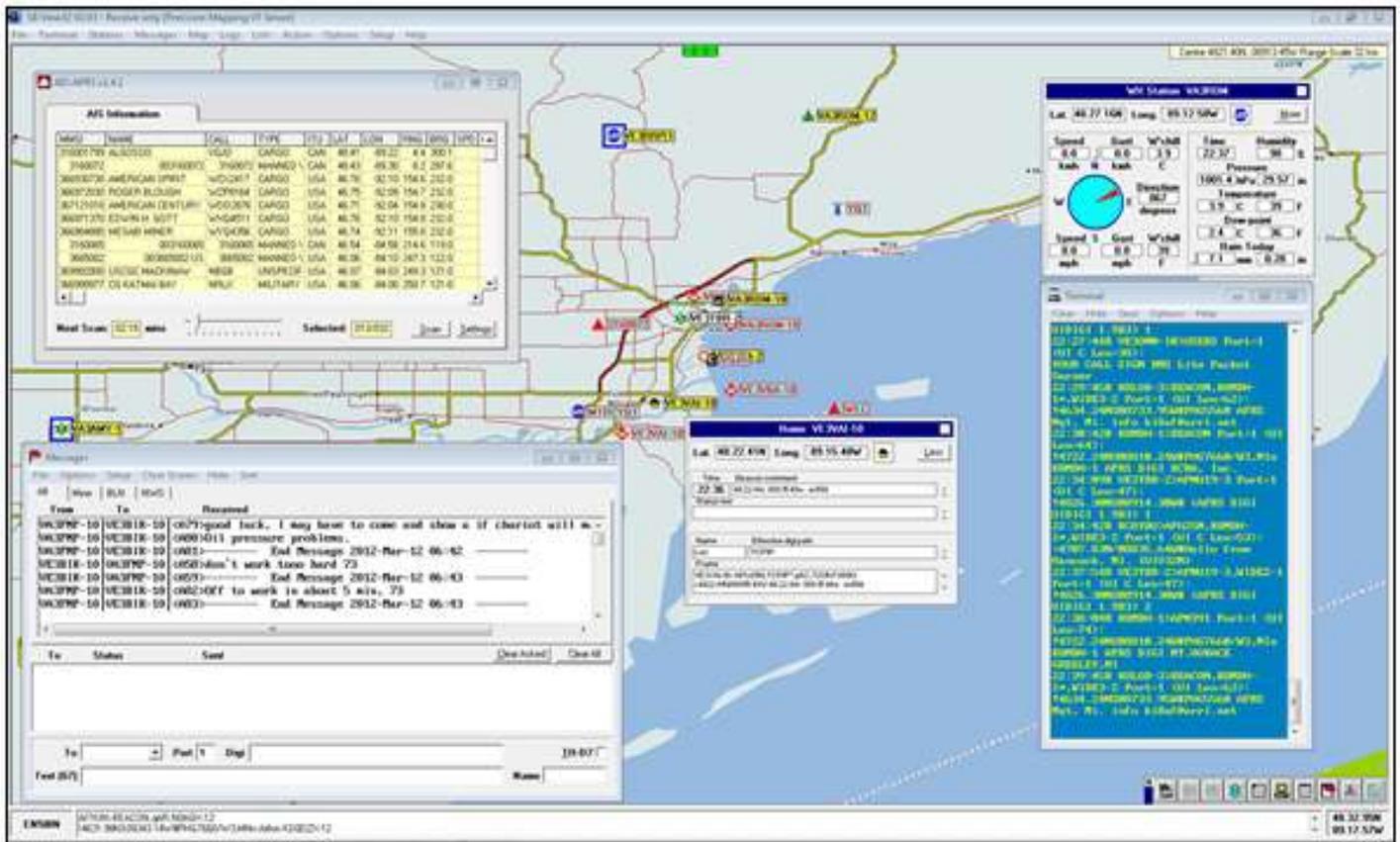


Figure 4: UIVIEW Display

APRS view around the Thunder Bay area using dynamic maps created Precision Mapping software. Upper left is my AIS ship tracking add-on program that sends data to the Firenet experimental server; lower left is the messaging screen for viewing/sending point-to-point and APRSLink SMS or “tweet” emails, texts, bulletins, etc. Centre is an info box with details on APRS station VE3VAI-10. Upper right is my PWS (personal weather station) data uploaded to the APRS, CWOP (Citizen’s Weather Observing Program) and Weather Underground webservers. Lower right is the 144.390MHz APRS radio real-time packet radio decode display. There’s a lot more information that UIVIEW can display but I didn’t want to clutter up the screen 😊

The best UI-View source with up-to-date information is written by Stephen, WA8LMF, and available at http://wa8lmf.net/aprs/UIview_Notes.htm. There's a steep learning curve with these client programs and setting up digipeaters and I-Gates, so for most Hams I recommend starting out with a 2m transceiver plus add-on APRS tracker. The APRS.FI (<http://aprs.fi>) or OpenAPRS (<http://www.openaprs.net>) websites can act as a simple APRS clients programs until you decide just how deeply you want to go. There are a couple of Yahoo UIVIEW/APRS user groups <http://groups.yahoo.com/group/ui-view> and <http://groups.yahoo.com/group/APRS> providing a lot of help to newbies.

MY FINAL

Whew! I really need to take a break from APRS and perhaps you do, too! The next column will look at a much older digital radio mode popular with newswire services (pre-1950's) called "Hellschreiber". It's a member of the CW (continuous wave) family of pseudo-digital or "fuzzy logic" modes which includes Morse code.—73

ADDITIONAL HARDWARE ADD-ON TRACKERS

ARGENT DATA	OpenTracker+	http://www.argentdata.com/products/otplus.html
CCW	Digi Tracker	http://www.crosscountrywireless.net/aprs_tnc.htm
GCTELECOMAR	Smart Tracker	http://www.gctelecomar.com
RPC	RTRAK	http://rpc-electronics.com/rtrak-lite.php
TIGERTRONICS	TM-1/TM-1+	http://www.tigertronics.com

SOUNDCARD INTERFACES

BUXCOMM	Rascal	http://www.packetradio.com/catalog
DCC	Donner	http://tinyurl.com/7z2oxs3
KH6TY	KH6TY SCM	http://tinyurl.com/7kq5wbj
TIGERTRONICS	Signalink USB	http://www.tigertronics.com/slusbmain.htm
WEST MOUNTAIN	RIGblaster	http://tinyurl.com/86ha6kf

APRS SOFTWARE (VARIOUS PLATFORMS)

<http://info.aprs.net/index.php?title=Software>