

RxPlus – Just What the Doctor Ordered

When I first started this column over a decade ago I had to hunt long and hard to find any programs what were made for the general radio monitoring community. I sent lots of telephone calls, letters and postcards requesting information on monitoring software from people and companies. Most were just rumors and not many were answered. Unfortunately, most of the resulting programs were really not that good, but it was a start.

With the advent of the Internet, finding new monitoring programs became a bit easier. At least my telephone and postage costs went way down. However, quality-monitoring programs were still at a premium.

Now in the 21st century, the quantity of everything, including monitoring programs, seems to have exploded ... but quality is still elusive. There are many programs that do bits of the *total monitoring environment* – a phrase coined in this column around 1993. We defined it as a software package that does all the monitoring functions – no manual anything! This includes tuning, scanning, logging, decoding of digital signals and every other monitoring function.

A number of companies tried modifying their existing DOS and early Windows programs to create a total monitoring environment. In most cases the results were slow, hard to use, and buggy, to say the least. Times have changed, but some of these old timers are still trying to slog out-of-date code.

RxPlus

This month we'll try a program called RxPlus version 1.76, from Tele Data Inc. This program has been around about a year, but is still making a great impression with the monitoring community. Does it provide a total monitoring environment? Is it worth its rapidly gaining popularity?

The free 30 day trial version is available from their website at <http://www.cam.org/~noelbou/RxPlus/index.php>. The file weighs in at around 7 Meg, not quick for dial-up users. Is it worth the wait? Let's give it a try and answer some questions.

PC Requirements

We're not going to get by on a Pentium I with this program. RxPlus recommends that the minimum system be a Pentium III 800 MHz with 128M RAM and at least 1024 X 768 screen resolution. RxPlus ran great on a Pentium III 1GHz with 256M RAM under Windows XP with a screen resolution of 1024 x 768 and 32 bit color. If you intend to use the first-rate audio processor features of RxPlus, a full duplex soundcard is required. We used the Turtle Beach, Santa Cruz soundcard.

Lots of Supported Receivers

Currently, RxPlus version 1.76 supports a number of popular receivers. ICOM support includes R75, R7100, R8500, R9000, IC-756Pro and PCR-1000. For Drake users it's Drake R8, R8A and R8B. Ten-Tec users will be happy to see the RX-320 and RX-350. The two JRC receivers supported are NRD-535 and NRD-545. And finally, the Kenwood R5000 can be controlled by RxPlus v1.76. The list of supported radios is growing and contains some interfaces that are still in beta testing.

Each radio has its own unique and special features implemented in RxPlus. We tried it with a few receivers including an ICOM R75, a Ten-Tec RX-320, and the ICOM PCR-1000.

This article was written based on results with the ICOM IC-R75 via the RS-232 serial port connection. Most of the R75's operational commands for tuning, mode, filter, scanning and memory manipulation are available via RxPlus. Even its twin passband tuning is controllable via RxPlus.

Not Just Receiver Control

RxPlus gives its user more than twelve different, easy to use methods of tuning. How's that for choice? Its database(s) can be imported from a number of Internet sites, manually updated by the user, or a combination of both. RxPlus contains a signal decoder for RTTY, HF Fax, PSK31, PSK63 and Slow Scan TV.

Audio Processing

The program digitizes the audio from the receiver, via the PC's soundcard, and manipulates it using DSP (Digital Signal Processing) routines. These include notch and bandpass filters, noise reduction filters, and an audio spectrum compressor/expander. Each filter's parameters are user definable. Just about anything you care to do to the audio is available in RxPlus. For example, if your receiver doesn't have tone controls, never fear: A six band graphic equalizer is included for fine-tuning of the audio spectrum.

Never Miss a "Hit"

How many times have you wished your tape recorder was hooked-up and recording when you tuned to an unexpected and rare signal intercept? (For me, that would be many times.) RxPlus has a Memorize feature which stores the last 64 seconds of audio for instant playback.

Uniqueness

Among the unique features of RxPlus is its ability to demodulate the 12 kHz IF signal of receivers with this output. Using a Quadrature detector, the AM, USB and LSB signals have greater audio fidelity. In some cases, the difference in audio quality was startling.

And talking about unique, RxPlus' Chat System, which



Figure 1 – RxPlus' Display – Actually, three separate displays both in reduced display mode.

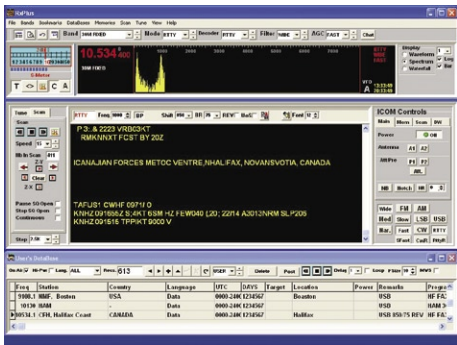


Figure 2 – Receiver control, database look-up, logging, DSP audio filtering AND decoding. RxPlus has it all.

enables the instant exchange of frequencies and comments over the Internet via a dedicated chat room is a real winner. It opens up a whole new dimension of radio monitoring.

❖ So Much to Cover

Clearly, RxPlus provides so many important monitoring functions (as a total monitoring environment should!) that we cannot cover all of them in this column. Many of RxPlus' features are intuitive, and a very easy to use and comprehensive pop-up Help File is included.

Instead of waiting to the end of the column for my humble opinion, let me just say here that after using RxPlus it has become my standard shortwave monitoring program against which all else will be judged. That said, let's look at some selected features of RxPlus version 1.76.

From the Top

RxPlus' main display is really three separate screens in reduced mode, as seen in Figure 1. In the top section are two lines of RxPlus Commands, S-Meter, and audio graphing display. Here we are monitoring the 22 meter shortwave broadcast band, as can be seen at the top right of the screen in the BAND window. For me, the BAND drop-down menu is the most convenient method of tuning. It provides instant access to over seventy (70!) frequency bands from 0.1 to 59.999 MHz.

JFC Tuning Method

When I am in the mood to "tune around the SW band" I use RxPlus in the following manner. First, I select the Memories menu at the top where I have stored standard time stations from around the world. By listening to each of these, I can get an idea of propagation conditions and the optimum frequencies to tune for my desired stations. Then, I go to the BAND menu and click on the appropriate frequency bands. Finally, clicking the third icon from the right under the S-Meter will make my receiver scan that band for active frequencies.

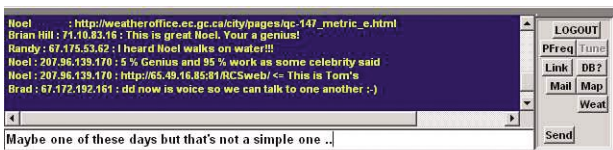


Figure 3 – An example of the chat mode screen – a very unique feature.

The result of the scan is displayed in the middle section of Figure 1. Here we can see that in the 22 meter shortwave band, 13.570 to 13.870 MHz, six major signals, indicated by peaks and darker lines in the graph, have been detected. Tuning is accomplished by clicking under a peak. In this case we have clicked on 13.690 000 MHz.

Single Click IDing

A number of databases, including the user's own logs, are available for identifying a signal in the bottom section of Figure 1. The HFCC database is easily obtainable from the Internet at their website at <http://www.hfcc.org/>. RxPlus also supports the ILG database that can be downloaded at <http://www.ilgradio.de/>. Check the RxPlus Help file for importing details. Here we have selected the HFCC database, as indicated by the HFCC in the top center of the bottom section of Figure 1.

Pressing "Control-K" searches the selected database(s) for a "match" to the currently tuned station in frequency and time. In the bottom section we can see that an arrowhead has been placed next to Family Stations, Inc. Also note that this is not an exact match in frequency, since we are tuned to 13.690 and Family is listed at 13.695. Careful re-tuning confirms that the signal is actually 13.695 MHz. *Very impressive!*

Now Hear This

In the middle display, seen in Figure 1, are the audio processor controls. When the audio processor is started, a graph of the received audio is displayed in the top section, see Figure 1. Purely as a demonstration, we have chosen, among other filters, a Notch filter centered at 1600 Hz and 200 Hz wide. These parameters are set in the middle section at the right side. Interestingly, the filter's effect can be seen as a blank region in the graph in the top section.

Look between the 1000 and 2000 marks for the blank region being "notched" out. Had there been annoying, interfering whistles at 1600 Hz, they would be gone. The audio processor feature of RxPlus works very well and is well behaved. I did not experience any program crash, a common problem with other DSP programs.

A Decoder Too!

Figure 2 says it all. Here you see RxPlus decoding RTTY. The decode mode (in this case, RTTY) is chosen in the top section of Figure 2. Detailed decoder parameters are set in the middle section above the display region.

The source of this RTTY signal, as seen by the "Look-Up" database arrow in the bottom section, is CFH Canadian Forces Halifax at 10.5341 MHz. The actual tone at around 1000 Hz is visible in the audio graph in the top section. You can also see that my choice of filtering has cut off the audio above 1300 Hz.

And, as if we need more verification of the signal, the display in the middle section displays the decoded data, "Canadian Forces Metoc Ventre, Halifax". This decoded text is filed to disk by clicking

the very small icon next to the "UoS" box located above the decoded text display.

Chatting Up DX

Starting with Version 1.76, RxPlus opens a new dimension of communication to radio monitors. Instantly sharing your DX "finds" with other enthusiasts can bring you rewards that greatly multiply your efforts. Collective computing, strength in numbers, community spirit, the whole being greater than the sum of its parts – Whatever you want call it, the feature has the potential of providing up-to-the-minute station and propagation data from all over the world.

An example of what you can expect when you click the Chat button (situated in the top sections' right side) is shown in Figure 3. Here, in this example from RxPlus' website, we can see that the user, Noel, has downloaded data from the weather office which is now available to all RxPlus users. And now discussion is taking place on the subject. The Chat feature of RxPlus could take an entire column ... and it may in the future. Suffice it to say that it opens up all sorts of real-time possibilities for the radio monitoring community.

❖ My Wish List

Never being totally satisfied, there are a few additions I would like to see in the next revision of RxPlus. An automatic signal parameter determining routine in the digital signal decoder would be nice. Setting the shift and rate manually is tedious, even with the audio display.

RxPlus' list of supported receivers is good sized and growing. However, it would be nice to create a universal interface selection, which allows users with minimal programming experience to add their non-list receiver or transceiver. For most ICOM radios, this could be as simple as filling in the ICOM address of the desired radio. Clearly this option could not support all radio functions and would have a simplified universal display.

And finally, a minor point, but one I feel is important: The revision number or date of creation of each database should be prominently displayed when in use to avoid confusion. I know – picky, picky, picky.

❖ A Real Total Monitoring Environment

RxPlus is very well behaved and never crashed no matter how I abused it. Each time I run RxPlus I discover more of its capabilities. We have just touched the surface, leaving out such features as its automatic ECSS tuning.

Technically and operationally, the feature-rich RxPlus has a lot going for it. Add to this the fast, helpful customer support and a Yahoo Group dedicated to RxPlus and you have monitoring software that's hard to beat. As I said at the beginning, RxPlus has become my standard shortwave monitoring program against which all will be judged.

The fully registered RxPlus v1.76 costs \$79.99 – in my opinion well worth it for this Total Monitoring Environment.