

Sent: Saturday, April 30, 2005 13:02  
To: PropNet Online  
Subject: [PropNET-Online] PropNetPSK Primer

Since we have a number of new folks that have joined PropNet over that past few months, I'd thought I revisit the technical operations of the PropNetPSK program in terms a non-software person can understand. This may be a bit long, but worth the read.

The nuts and bolts of this program is a Data Link Library (dll) called PSKCORE.DLL that was developed by Moe Wheatly, AE4JY <http://www.qsl.net/ae4jy>. This is basically the same method used by a number of the Windows PSK programs on the market today. The DLL is actually a standalone application that runs independently of other programs once it is initialized by a calling program and handles all the DSP (Digital Signal Processing) from the sound card while providing data in various formats to the calling program, PropNetPSK (PPK) in this case. If you are interested in the technical and mathematical aspect of the DLL, Moe has a very informative PDF document that explains the inner workings of the DLL on his web site.

The communication between the DLL and PPK is via the Windows Message System. When the DLL is initialized, an identifying handle is sent to the DLL which identifies the calling program. This is a definite plus as it allows true multi-tasking along with multiple instance of PPK to run using multiple sound cards. The latest version of the DLL is 1.19 and should be found in the installation directory. If you have other PSK program that uses the DLL, you might find a copy of the dll in their installation directory or the Windows System directory.

PPK is the graphical interface between the human users and the DLL. It provides the necessary screens for configuration and display of data running between the DLL and the main program. The user unique configuration data is stored in a configuration file called propnetpsk.ini and resides in the installation directory. This files follows the standard Windows format for configuration files and can be easily edited using a standard text editor. CAUTION: editing this file and entering incorrect information will result in unstable operation or complete failure of the program.

So far, we have created a dumb PSK terminal that will send a receive digital data between two stations. By adding specific code we can make this dumb PSK terminal do just about anything we want (I'm still working on the code to get this program to accompany the XYL to the grocery store!!).

The basic concept of PropNet arose from an earlier endeavor called BeacoNet. As defined on the PropNet Web site (<http://www.propnet.org>), PropNET is an ad-hoc wireless network of digital Amateur Radio enthusiasts that provides a mechanism for real-time propagation discovery and keyboard-to-keyboard messaging with an Internet component that displays worldwide data on demand. We chose PSK as the modulation method as it is an exceptional weak signal digital processor and provides a much better indicator of when a band of frequencies is opening for worldwide communication. It also provides a great indicator of when the band is absolutely dead and receiving those hidden BPL signals that are popping up all over the US lately.

Reporting these propagation catches requires the use of the internet to send a specially formatted (APRS) data packet to a data storage server which formats the data for archival purposes and forwards that data to a special web server for further processing and display on a special web site (<http://propnet.findu.com>).

The most difficult portion of this whole project has been getting PPK to behave with the internet. When we first started using the internet, it was a simple matter of establishing a connection with a remote server and that was it. Over the past few years, there has been a rapid movement among a few unscrupulous individuals who find it to there liking to infiltrate and destroy any computer they can get into. This has cause a rapid increase in the amount of security that is now in place at all levels of an internet connection and makes it very difficult to troubleshoot to determine the reason for a failure to connect or transmit data across the internet.

If you are experiencing internet connection problems, before you chalk this up to a problem with PPK, please ascertain that whatever security measures you have implemented at the user end is function correctly and allowing PPK to access the internet, especially on ports 8911 and 2023. If you have a software Firewall such as Zone Alarm or the Windows Firewall running, please refer to the programs documentation to grant internet access to specific programs on specify ports. If you are able to send and receive email, then you can pretty much assure yourself that the connection to your ISP is working. If you can call up a web page such as any of the news services, this will assure you that the ISP server is directing you outside their network and the Domain Name Server (DNS) is functioning correctly.

To check your path to the Live Exchange Data Server (Livex) will require the use of a telnet program as the PING facility is not operational at the server and most ISP's are deleting ping request before they even leave the ISP gateway. To establish a telnet connection with the output of the Live Exchange Server, type the following into a windows command prompt box or at the Start | Run box:

```
telnet LIVEx.RochesterNY.org 2023 ( NOTE: this is not case sensitive)
```

You should get something that looks like this in the telnet window:

```
# KC2DMN LIVEX AHub 2.2.3 KC2DMN>APAH22,TCPIP*:>LIVEX/AHub 2.2.3,2 users,8 bps,6 Pkts UP=17.24d
```

This will tell you that you have a good connection to the Livex Server on port 2023 and port 8911 should be operational. Leave this telnet window open and launch PPK. If you have everything setup correctly, you will see your connection status message in the telnet window indicating that you connected on port 8911. With PPK as the active windows, type Ctrl-P to send a Propnet data packet over the air. When it has completed, it should report that as a self ID to the server and you will see it in the telnet window similar to my self ID below:

```
N7YG>HY,TCPIP*:[DM42nf]PHG513068/^DD7A{PSDM42nf0000000-0001---JSP2046}  
N7YG>HY,N5XYO,TCPIP*:[DM42nf]PHG513068/^DD7A{PSDM90qq0000000-0066-16JSP2  
N7YG>043}
```

The first line is my self ID, the second line is a report of a catch on N5XYO over in Texas. (I have NEVER worked Texas on 10 meters from Tucson - ain't this GREAT!!)

The data you see in this telnet window is the same data that is sent to the Findu server and should appear on the web pages within a few minutes of processing. If there is a failure along the way, it should be pretty easy to isolate where the failure occurred. At the bottom of the PPK GUI there are 2 status bars that are normally visible. The first of those status bars is a status monitor for the Livex Server. If you see a message that says Disconnected, then either you did not get a connection or the established connection you had disappeared for some reason. Once a disconnect has been established, there is a 2 minute wait period before a connection to the server can be reattempted. As long as you have Livex enabled in

the configuration, this 2 minute wait cycle will continue until a connection has been established. While you are disconnected from the Server, all data that is bound for the server is cached in the program and will be sent out once a connection has been re-established.

If you have a dial-up internet connection to your ISP, please note that this software was designed with a full time internet connection in mind. You can still use dial-up, but it will require manual intervention by the user to establish a connection to the Livex Server or the use of a Third Party Dialer to make that connection based upon user policy rules. Since I have no way to use dialup when I have a full time connection, I am unable to help with dialup issues. Rich, WD4RBX is the local dial-up guru. If you have a third party dialer that you are using, please feel free to introduce this product to the list as I am sure there are others who would like to try it.

If you experience a problem you can not solve, this list is where to get answers. There is no such thing as a dumb question - just dumb mistakes. If you think you have discovered a bug, then please report that directly, to me, in an email to [propnetpsk@earthlink.net](mailto:propnetpsk@earthlink.net) and I will add it to the bug list and work it as time permits. This email address is only for bug reports.

73

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