

Easy to Follow Packet

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Abstract

This paper is a general introduction to packet radio. It explains how to setup your own packet station. Then, it explains connecting to stations and how to use Rose Switch, Texnet, and Nodes. Key Words: Packet, Rose, Texnet, and Nodes.

Introduction

When you hear someone on the radio talking about a topic unfamiliar to yourself, you immediately want to learn all about it. Have you ever heard someone talking about packet, rose, texnet, or nodes? What equipment do you need? What is packet, rose, texnet, and a node?

Setup

First, you have to get the proper equipment in order to communicate using packet. A typical packet station consists of a PC (dummy terminal), a two meter radio, and a tnc, a packet modem. If you don't already have a personal computer, an older model such as a 286 or 386 computer will run packet just fine. A 286 computer costs about \$20-\$100 (used) and a 386 computer costs about \$200-\$500 (used.). You won't find these types of computers brand new. A brand new computer (a pentium) costs \$1300-\$5000, Because of this high price, you can see why it's better to get an older computer. If you want speed and you have extra money, a 486 would be even better than a 286 or 386 (\$ 1000 for- a 486, 8 MB of Ram, 4x CD-ROM, speakers, 500 Mb hard drive, etc.) Basically any two meter radio will work. Even a handy talkyworks all right. You will also need a packet modem. A good beginner packet modem is the Kantronics KPC-3. Tuckers will sell one to you for \$117 plus tax (if you live in Texas or buy it at the store) plus shipping. Investigate Kantronics web page if you have access to the web (<http://www.kantronics.com>.) After you have the major components, there are: connectors (computer, radio, power, etc.). soldering irons, wire, etc. After you have the equipment connected, it's time to test it.

Connecting to Stations

Make sure everything is plugged in. You can't transmit well using a radio's antenna jack Hi Hi. Go ahead and start the computer program for the tnc; turn on the power, etc. If you haven't already, it's probably a good time to read the beginning of the TNC'S manual (setting up.) While you do this, check for a part that explains how to tell the tnc what your callsign is. Once you have your callsign set into memory, your call will be sent with each packet. Now that you have a general knowledge of the tnc you can precede into the fun of packet radio! Now you can connect to... hmm if you don't have someone there awaiting your connect packet; then you can't connect.. but wait there are PBBS's (Packet

Bulletin Boards.) Usually your first connect will be to a PBBS station. Some good stations to connect to are:

KFSMG (144.69) & (144.67)
K9MK (144.91) DX Cluster
W5AH (144.97)
N5TTU (145.01)
WGSE (145.01)
'GOKA (145.01) Node
WR5C-4 (145.05) Texnet
N5VGC-9 (145.05) Texnet
W05H (145.07)
CLEKA (145.07) Node
DFWKA (145.07) Node
N5AUX (145.09)
KC5COF-1 (145.09)

These are just a few of the packet stations in the area. Most of these stations on 145.01 can be reached using either Dallas Rose Switch numbers or using 8 17491. (They were chosen because they are easy to use and are great stations.) However these are in the Dallas area. When you connect to a few of these stations you could actually get the control operator. With my Baycom packet modem, I connect by typing "Tab" c "callsign." With the KPC-3 you edit a connect to list and then you can click on the station. Most of these stations can be used as your home BBS. Once you designate one station as your home BBS all your personal messages will be sent to this station. Make sure the station is dependable and doesn't take a rocket scientist to operate. The first time you connect to a station they may ask you for your home BBS so type in the **callsign** of what you want for your home BBS. However, in order to use any station as your home BBS you must be able to connect to that station to receive your messages. Every time a packet is distorted in route it will ask the other station for a retry (a retransmission of the previously sent data.) Now that you are connected to a station you have many options. To get a list of these commands and what they do you must issue a help command (Typically you type "help" or "?" and push the enter key to send the command.) Here are some basic commands:

L list all messages
LL list unlisted messages
R # read message #
KM erase all your personal messages
S send a message
B disconnect from the station

As with the frequencies of packet stations the commands are also numerous in many BBS and commands other than the basic commands (such as the ones I listed) usually vary depending on the system. When you are finished playing.. .umm...I mean learning you can issue the command b or bye to disconnect. That is basically all there is to it.

'Special thanks to Barry/N5TTU for helping me when I didn't understand something and for the listing of Rose Switches.

Rose Switch (shortened to Rose) is a network of packet stations acting similar to repeaters. There are a few differences: they transmit and receive on the same frequency; there isn't a PL tone, and they are packet stations not typical repeaters transmitting data. There are Rose Switches in eight states: Texas, Oklahoma, Louisiana, Arkansas, Florida, Minnesota, Illinois, and New Mexico. Rose is a good way to extend the range of your station. A neat feature of this is that in Texas every Rose Switch is on 145.01. You can use this to talk to your friend in Austin (or anywhere in the eight states) on packet from here with just a handy talky and a rubber duck. Rose is a little more complicated than a typical connect message. Example: C KC5NAS V WB5CQU-9, 8 17491 This says: connect to kc5nas through the switch of 8 17491 from the station close to me of WB5CQU-9. Broken down a little more it is similar to a regular connect until the v (via), the callsign is the callsign used by the rose switch near you (WB5CQU-9 is just an example) and then the rose switch number near your buddy. The computer then looks up where the signal should go (by using the 6 digit number) and it then uses the appropriate antenna, radio, etc After you get a connect, it will say call being setup and then it will acknowledge that you got a connect or it will give you a message saying why it couldn't connect. Although going through another station should typically slow down your messages, it does not. It can speed up your packets because there are less rejects than when your message goes directly instead of using a relay. Rose uses either a telephone line or a 9600 baud packet station on 70 cm. Usually, it uses 70 cm but occasionally it will use a telephone line. Here are the Rose Switches in the US:

(Texas)

Carthage	903693	KA5HSA-2	
Cleveland	713592	KB5NX-2	
College Station	409845	W5AC-2	
Dallas North	214234	N5BCA-2	
Dallas Texnet	214050	N5BCA-6	connect to WR5C-4 for texnet
Dallas/Ft. Worth	214223	N5BCA-4	
Double Mtn.	915735	AB5GE-5	
Double Oak	817491	WB5CQU-9	
Double Oak	817105	WB5CQU-15	
Dublin	817445	WB5MAT-2	
Elmo	903560	WA5YTD-12	
Gainesville	817668	WB5CQU-4	
Kilgore	903984	W5KPZ-1	
Littlefield	806299	KA5AJA-3	
Lubbock	806745	WA5TBB-3	
Olney	817564	N5OLP-5	
Sevmor	817888	N5ENS-5	
Sherman	903429	K5KQG-4	
Temple	817778	W5JEH-5	
Tyler	903561	N5YPB-2	
Waco	817863	N5BCA-1	
Westcamp	806272	K5RKL-3	
Wichita Falls	817691	W5VAC-5	

(Oklahoma)		
Ardmore	405226	WA5YOM-5
El Reno	405262	AC5C-5
El Reno 145.07	405263	AC5C-6
Lawton	405248	WJ5Y-5
Midwest City	405732	K5JB-5
Noble	405872	WD5IAT-5
Pauls Valley	405238	WB5CQU-5
Velma	405444	KB5OJR

(Louisiana)		
Bastrop	318281	KE5L-3
Monroe	3 18323	N5PXW-3
Ruston	318257	W5HGT-2
Shreveport	318996	N5JH-2

(Arkansas)		
Camden	501836	

(Florida)		
Brooksville	904799	WA3YMV-8
Clear-water	813442	KC5FF-7
Iverness	904233	K4GBB-3
Sarasota	813371	WA3LKW-7
St. Leo	904567	AA4RV-7
Tampa	813040	KOZYF-4
Tampa	813878	KOZYF-9

(Minnesota)		
Minneapolis	612341	WAOCQG-1

(Illinois)		
Chicago	3 12245	KA9ODA-3

(New Mexico)		
Elida	505274	KA5BAT-3
San Jon	505357	W5CXP-3

Now just because Texas uses 145 .01, doesn't mean all these other states will. Most of Louisiana, however, uses the same frequency. This should not cause a problem unless you want to use rose in another state. If you don't know the frequency of your area, just ask someone on a repeater and if they don't know the answer they can probably refer you to someone who knows the answer. Again, you must know what station to connect. If the PBBS is on 145 .O 1 or on the appropriate frequency in another state, you can use Rose to act like a better antenna and radio. Now you are curious...why use a 6 digit number and why those numbers. That is a good question. You will, however, notice that the first three numbers are typically the area code (for a telephone) of where the switch is. Such as 214

being in the 214 telephone area code. A good way to find a station is to connect to heard.. For example c heard v local switch call, local switch number. Also, IPCQU is a good place for heard stations and for information about rose. c IPCQU v local call, 817105.

Texnet

Texnet is something similar to Rose Switch. However to get into texnet you use a typical connect message. In the Dallas area turn your radio to 145.05 and connect to WR5C-4. Once you are in, the texnet part starts. There are different names for places such as NDALLAS for north Dallas. To connect to kf5mg you can type c ipgate v iplink @ Denton "enter" and when wr5c-4 receives that message, it will attempt to connect. If you want to connect to a node or PBBS somewhere else just type c "callsign" v callsign @ and the location near that place. Only use v and a callsign if you want to use a relay station. After you are connected to texnet, you can go to any of the locations that exists unless that particular link is broken. You can only connect to the station if they are on the proper texnet frequency such as for Rose. Texnet is usually easier to use, but you can be connected link after link sometimes. An example of this is typing c gvl @ greenvl and then typing c 7 KSDBBS. This will take you to a station around Greenville, but because you have 2 digipeaters the process is slowed down. You transmit to WR5C-4; he transmits to gvl and gvl transmits to KSDBBS. Also after you connect to gvl, you can type c 2 KS1G to take you to a DX Cluster (a place where you can receive information on DX stations that are currently on the air, the frequency, call, and time, and also get sunspot information.) As soon as you type bve or b, you will be disconnected from all digipeaters and returned to WR5C-4. The nice thing is that you get back to the WR5C-4 so that **you** don't have to reconnect to him (Everytime you use rose you have to first connect to local switch. Then, it can connect elsewhere. Once you are in Texnet you are there until you say good-bye at the texnet screen. As you can see, Texnet is a little easier to use than rose switch.

Nodes

A node is almost identical to Texnet, There are few exceptions. When you type c "callsign" you don't have to type a location (N-DALLAS.) This is because Nodes are stand alone: they aren't really built to link between each other. You can however, connect to your local node and link to another node and so on. Of course, this means that you can only connect to another station in the nodes particular coverage area. Also when you disconnect from the linked station, you are completely disconnected from everything. You will also be disconnected from the main node unless issue a special connect command when you connect to the other station. Nodes are also handy because there is not a specific frequency. They are on many frequencies. Although you can't link around [different frequencies, there is a node or two on many frequencies. Many nodes are on 145.01 and 145.07. When you connect into different packet stations, you can find lists of frequencies for stations. Nodes like Rose and Texnet are designed to help extend your stations coverage area. Unlike Rose and Texnet which are multiple stations setup as links, Nodes are stand-alone stations.

Conclusion

As you can see there is much more to packet than just telling your station to connect directly to one station. In fact if you were limited to connecting directly, you would not have too many stations to connect to unless you had great antennas and massive power. With all these "extras" you are able to

have a small station with little power and a small antenna. This allows you to connect to many stations throughout greater distances. Like repeaters are good for asking questions and getting help packet is great for getting help with your computer. The next time someone says I can connect to you via Rose you can say, "I'll connect to you via Rose if you tell me your local switches number."

References

There are no references; most of this knowledge was gained from experimenting.