



## Packet Radio: Why Packet Radio?

- Why Packet Radio
- Introduction to Packet Radio
- Links and References
- APRS and GPS
- TAPR Software Library
- Digital Communications Conference
- Publications
- Packet Radio: What? Why? How?
- TAPR BBS Sysop Guide
- AX.25 Link Access Protocol
- TAPR's Spread Spectrum Update
- TAPR Software CD

What is packet radio? A primer.

### Could be, You are Missing Something Fun.

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 Listen to [Packet Radio for the Beginner](#) a '94 Dayton talk.

 Listen to [The History of Packet Radio and TAPR](#).

#### Contents

- [Why Packet?](#)
- [What is Packet Radio?](#)
- [Packet Bulletin Boards](#)
- [Keyboard Packet Operation](#)
- [DX Packet Cluster](#)
- [RACES/ARES/NTS and Emergency Communication](#)
- [Packet Networks](#)
- [Satellite Communications](#)
- [Conclusion](#)

Don't forget to take a look at: [A Introduction to Packet Radio](#)

Packet radio has been around since the mid-1960's, but was first seen on the amateur bands in 1978 through research done in Montreal, Canada in 1978, the first transmission occurring on May 31st. This was followed by the Vancouver Amateur Digital Communication Group (VADCG) development of a Terminal Node Controller (TNC), also known as the VADCG board, in 1980. This was then followed by TAPR (Tucson Amateur Packet Radio) with the creation of the TNC-1 in 1982 and then the TNC-2 in '84-'85. In 1985, the packet radio revolution ignited when TAPR sold over a thousand TNC-2 kits. The TNC-2 was what was needed to make this mode, that a few experimenters were playing with, into something that every amateur could enjoy. From its humble beginnings, where it was good luck to have more than three packet operators in the same city, packet radio now has thousands of amateurs using it daily, various manufacturers making and selling TNCs (terminal Node Controllers), and over a hundred thousand TNCs having been sold to date. What growth! No other mode of amateur radio has seen such explosive growth!

Like the title says, 'Why Packet Radio ?' Like any mode in the amateur service, it provides a group of amateurs with a way of having fun and meeting one of our primary aims, 'improving the radio art.' Packet radio was a new mode in the early 80's that many of the outstanding amateur experimenters worked on and developed. The result, ten years later, is something that provides a lot of different operating opportunities. No longer is it just packet radio, but now it is bulletin board systems, DX Clusters, chat bridges, networking, emergency communications, satellite operations and much more. But what are these ? and is one of these, something that you want to do? How do you know? Let's start off with a basic question.

**What is packet radio?** The good thing about packet radio is that you don't really have to know a lot about how it works or find it necessary to memorize a whole new set of technical terms. Find a friend who is using packet, buy your TNC (terminal node controller), hook up your unit, and then ask for help. The nice thing these days is that almost every town has someone on packet radio who can help. A basic TNC allows your computer to use your radio to talk to another computer, thus combining two popular hobbies Q computers and radios. The cost of the TNC is going to depend on what you want to do. The question that you should ask before 'What TNC do I want?' is 'Why do I want to invest in new equipment?' Let's spend the rest of the article talking a little about the most popular uses of packet radio. After you read this, find someone locally on packet and ask for a demonstration. Since amateur packet radio is different in every fifty mile radius, then what I can do here in Austin, Texas is going to be different from what you can do where you are. Find out what you are going to do before spending your money, unless you want to blaze a new trail of services in your area.

**Packet Bulletin Board Systems (BBS):** Most cities have one or more packet Bulletin Board Systems, or BBS for short. BBSs do two main things: send and receive personal messages for their local users (like yourself) and send and receive messages or bulletins intended for people locally or around the world. Since the BBS is part of a national system of other BBSs, it has the ability to pass information or messages to any other BBS in the US or the world. This allows you to send messages to friends locally, to someone located in the next state, or to someone on the other side of the world. The second thing that BBSs do is pass local and national bulletins, which are messages intended to be read by everyone. In this way, amateurs can read the latest messages about the ARRL, AMSAT, TAPR, propagation, DX, and other bulletins on varied topics. Message passing is the primary purpose of a BBS system, but BBSs can also support callbook programs, help references, Internet access, and more. Operators of BBS systems are a good place to start when you first get on the air. Because of the service they provide, they have to know how packet is working in the local area.

**Keyboard-to-Keyboard:** Like other amateur modes (SSB, FM, etc), packet radio can be used to talk to other amateurs directly. Amateurs can talk to each other simultaneously using their keyboards when they can directly communicate with each other. With the use of networks (see a little later), amateurs can talk at a distance

beyond the reach of their own stations by using the network. Keyboard-to-keyboard communications is one of the least frequent methods of packet communications, because amateurs are rarely on packet at the same time. Many packet operators send electronic mail using either personal mailboxes or a local BBS. In this way, messages are read when the amateur is on the air. Another limitation to direct keyboard-to-keyboard packet is that you can only talk to one packet station at a time Q no easy way to hold round-table discussions like on a voice repeater. Some areas support chat or conference bridges, which allow for more than one amateur to talk to each other Q much like a voice repeater. If a chat is supported over a network, then you can talk to someone as far away as the network reaches.

**DX Packet Cluster:** Many cities have DX (foreign amateur) spotting nodes or networks. HF (High-Frequency) operators connect to their local DX Packet Cluster in order to receive reports on the latest DX. This type of packet came about from those interested in 'chasing' DX. Many amateurs like to frequent the HF bands looking for rare international operators to contact. A DX Cluster allows many HF operators to be connected over packet radio at the same time while operating HF and hunting for DX. When someone finds a DX station, they send a packet message to the DX Cluster, which then sends the information to all other packet operators using the DX Cluster. In this way, you have several stations monitoring the band, looking for DX. Often an amateur will 'spot' (hear) a DX station and then distribute the DX report almost instantly. DX Clusters allow everyone to operate many more hard to find DX stations in one evening than was possible operating by oneself. Some amateurs have been known to attain enough contacts to qualify for DXCC in a matter of weeks. One point though, if your HF station is not a 'big-gun', then it is sometimes best to operate the DX station before posting your spot for others to find. There is a good chance that a pile-up will occur as soon as you make your spot to the DX Cluster and then you will not be able to work the DX station that you found!

**RACES/ARES/NTS and Emergency Communications:** Packet radio is being used in many emergency services. Whether packet is used to pass a message accurately and in large quantities or to handle messages passed by the National Traffic System, it can provide an important function like any other amateur mode when used correctly. A new application called APRS combines GPS (Global Positioning Satellites) with packet radio to allow a master station to plot on their computer the location of all other stations in the field. The purpose is to coordinate the exact position of weather spotters or searchers, without having to waste radio time informing the control station of their locations. Recently, amateurs in Oklahoma have been distributing Doppler Radar images via the packet network. The small weather image file takes but a few minutes to retrieve and display. This helps those amateurs outside of the local ATV coverage to get an accurate weather picture from the Doppler Radar.

**Networking:** Since amateurs use radios to transmit their data, their [range of communications is limited to approximately line of sight](#). An average packet station talks in a radius of about 10-30 miles. Packet Networks allow amateurs to widen the area of communications past their line of sight, by having a series of packet stations linked by radio, that can be used to get their packet messages to where ever the network goes. Much like the telephone system, networks provide long distance service outside the local area. There are a number of amateur networks which allow amateurs to travel from one area to another. Network types include: [Net/Rom](#), [TCP/IP](#), [TexNet](#), [G8BPQ](#), [ROSE](#), [KaNodes](#), and many more. These networks are typically built by a local or regional group that allows packet operators to get outside of their area. Amateurs get hooked on building and maintaining such networks, just like some amateurs operate DX or handle emergency communications. The type of network you use locally will depend on your area. Much depends on the network philosophy the local group has chosen when developing their network.

**Satellite Communications:** Many of the amateur radio satellites in orbit contain computer systems that provide packet capability. Most packet satellites provide BBS-like functions for messages to be passed to anywhere in the world within 24 hours. Several contain CCD cameras, which allow amateurs to download images of the earth and some allow users to retrieve data from the onboard experiments. Most satellites use [AX.25](#) with special software developed for satellite communications. DOVE, Digital Orbit Voice Encoder, can be received with any normal VHF/FM 2-meter packet station, but most of the packet satellites use SSB and require more complex equipment in order to operate them. Just something else to spend your amateur dollars on.

**Conclusion:** These are just some of the things you can do with packet radio. Once you find something that you can do with packet radio, then you have a reason to purchase the equipment necessary to get on the air. A good place to start is to find a friend who uses packet and go visit. See what your local area has to offer. As already stated, packet radio changes every 50-miles. What is being done where I operate is probably slightly different than what you can do where you live.

Finding a local Elmer is an important first step.

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