

## Strays – Computers and ham

It's difficult to find a fixed amateur radio station today, especially one that occasionally operates HF, without a computer screen nearby. From logging software to propagation forecasts, having a computer in the shack is quickly becoming a necessity. Looking up [call signs](#), displaying [band privileges](#), [logging contacts](#), and browsing [online swap meets](#) can be done today with a few mouse clicks.

One or more computer screens on the desk beside a transceiver give the shack a clean, modern, and appealing appearance. The orange glow of vacuum tubes that had once provided a level of comfort and emotional reassurance in bygone days, have been largely replaced by brighter, more active displays that provide as much, if not a different kind of visual satisfaction.



A number of devices and programs can “interface” with ham radio transceivers by a **digital** connection, which is the foundation for computer communication. Through the years, we’ve used sound cards, TNCs (terminal node controllers), [pan adapters](#), and even custom-made hardware to complete the setup. Also, pre-made computer interfaces, such as [Arduino](#) and [Raspberry Pi](#) have given electronics hobbyists more advanced digital tools for the job. Many can connect by USB port, of which the latest USB-C type is becoming ubiquitous (omni-present) and is found on most newer devices.

Utility software such as [Winlink](#), [fldigi](#), and [EchoLink](#) can be used to perform the communication program-



ming and basic internal “wiring” of the interconnection between transceiver and other devices, even other amateur radio stations. For example, [FT8](#) is a weak-signal digital radio protocol that connects your transceiver through a TNC to other online TNCs worldwide, and has recently become a hugely popular amateur radio contacting and contesting mode.

Auxiliary software such as [AirSpy](#) and [SDRplay](#) can enhance your existing hardware with not only a techno-appearance, but can provide additional tools for rapid information lookup. Besides basic (local and UTC) time-of-day and weather (temperature, humidity, pressure, wind, etc.) information, many display [trends and patterns](#) in the past and forecasts for the near future. Furthermore, many include mapping features that can display great circle arcs drawn between your QTH and all your contacts, if you choose to see them.

Also much of our [instrumentation](#), such as meters, oscilloscopes, analyzers, and monitors, have largely gone digital, which offers high-speed signal processing (for signal enhancement, noise reduction, data compression, and other advantages) with fewer components at lower costs. One im-



## *Strays – Computers and ham, continued*

portant feature of computerized instrumentation is the ability to store the data they measure, along with the date, time, operator name, and ambient conditions that are important to the measurements. Some can even analyze the data to display trends and produce predictions based on the data, a feat once thought impossible.

Some transceivers themselves are computers, as SDRs (software-defined radios) using direct-sampling instead of analog superheterodyning. Display, network, GPS, and peripheral (formerly serial, but today usually USB and Bluetooth) connectivity are often selling points on newer models, just as they are with laptop computers. Even some modern HTs (handheld transceivers) are miniature versions of larger units, being essentially ham radios on a few microchips; in other words, computers.

The types of computers are many, most within the categories of desktop, laptop, and tablet. One very popular business computer is the [mini PC](#), also known as POS (point-of-sale), thin client, zero client, AIO (all-in-one), and SFF (small form-factor). The mini PC is the little black box attached to the backside of a monitor in grocery stores, genealogical centers, doctor offices, polling booths, and other kiosks. Any and all of these can be used for amateur radio operations, especially if they connect to the internet and possess a USB port, and most do.

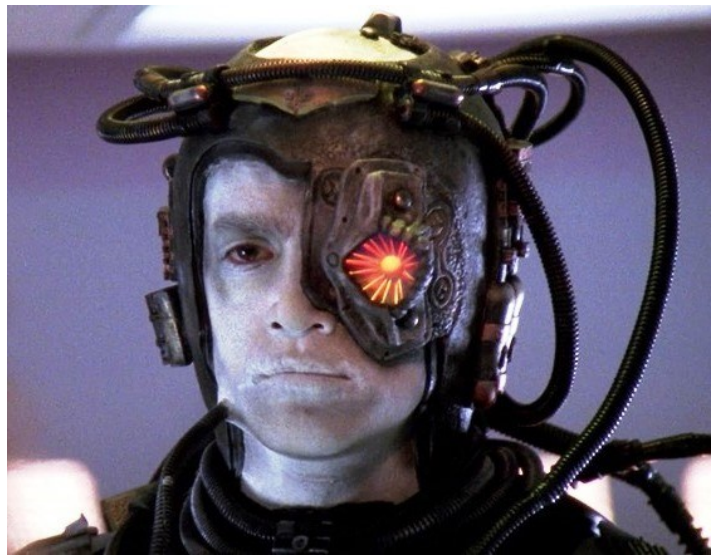
When talking about computers in the 21st Century, we can't ignore the one in most people's hands, the smartphone. Today, one can do just about everything on a phone that can be done on a conventional computer, and much more, including interfacing with an amateur radio transceiver and other gear. The Bluetooth capability of a phone can be used to connect an external microphone, speaker, or even headset to a radio, for example.

Some say that they and computers don't get along. Well, the good news is that a licensed ham really doesn't need to have a computer to operate their RF magic. The bad news is that it's becoming increasingly difficult to do ham radio effectively without them, as more and more contests require online uploads of logs, modern radio awards require online confirmations, and sharing of information often requires digital formats such as ADIF and Cabrillo.



### **Finally**

Today, digital components can be found in surprising places, and have become so integrated with every-day devices and appliances that it's becoming increasingly difficult to find something that does not possess a computer-type connection. Washing machines, ovens, refrigerators, cars, pets (think [RFID](#)), TVs, thermostats, musical instruments, security systems, robotic vacuum cleaners, remote controls, even things as simple as [cabling](#) often include digital circuitry that monitor or enhance it in some way.



It's not completely necessary to have a computer run alongside a transceiver; in fact, many amateurs still operate without one. Once a person becomes acquainted with its utility, however, the gates are open, and resistance becomes futile.