Mark Aaker, K6UFO / k6ufo@arrl.net

Remote Contesting

We've talked about some of the remote contest winners, and we've talked about the importance of following the rules, so now let's think about the basic requirements for remote contesting:

1. Good audio.
2. Radio control.
3. Connection to logging software.
4. Control of "everything else" at the station.

Digging Deeper

Good audio is a top requirement for contest operating. How else can you pull out that weak multiplier station calling you? Mono audio is adequate for single-radio operators, but many contesters want stereo audio to allow SO2V and SO2R operation.

The audio transmission hardware or software should not apply any noise reduction or automatic volume control functions unless you verify that these will not harm your radio operating. For example, Skype has been used for remote audio, but Skype has built-in noise reduction designed for voice that sometimes degrades CW and digital signals.

Our audio bandwidth requirements for voice are less than those needed for music streaming, so most services designed for music streaming would have adequate fidelity, but they have too much buffering and delay. Audio services designed for voice-over-IP (VoIP) telephony work better, as they are designed for more rapid two-way conversations. There is also "voice chat" software designed for online game players, such as *Mumble*, **mumble.info**. And there is even software designed specifically for Amateur Radio use, such as *RemAud* by DF3CB, **df3cb.com/remaud/**.

Radio control is needed to set the radio's band, frequency, mode, filters, etc. This can be done by software with an on-screen "virtual" front panel such as *Win4K3Suite*, **va2fsq.com**, or *Ham Radio Deluxe*, **hamradiodeluxe.com**. Most contesters prefer to use their favorite logging software for simple operations like changing frequency, but you'll need additional radio control for other features that are not accessible via the logging software (e.g., filter bandwidths, notch filter, AGC).
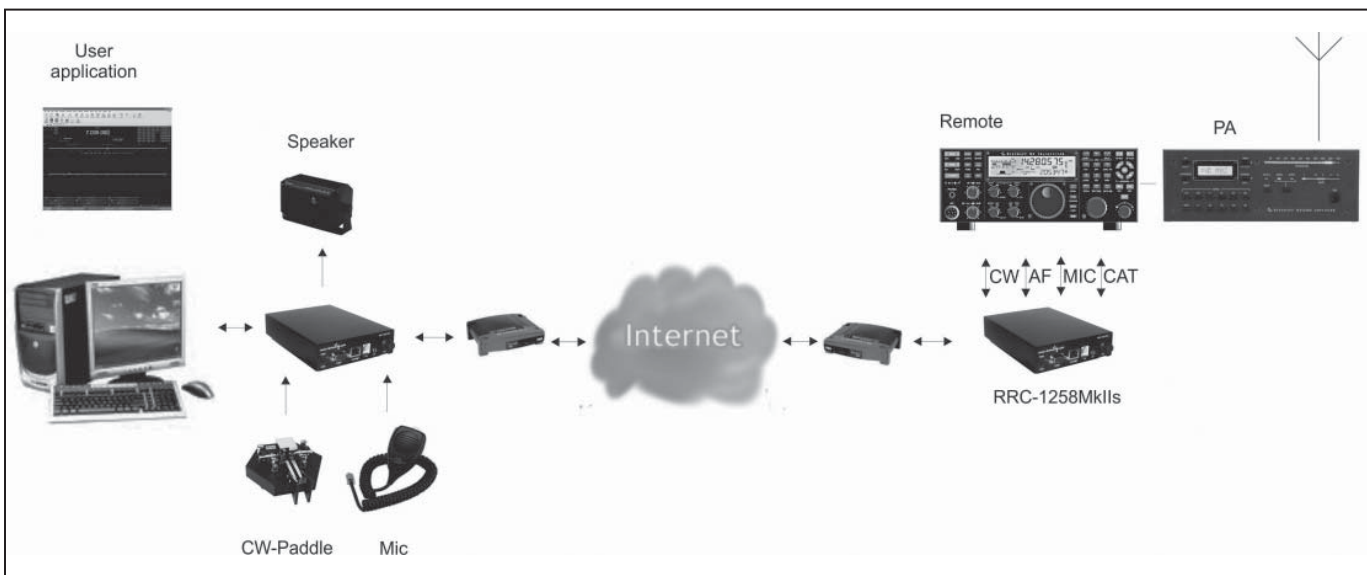
Connection to logging software is needed for automated sending and for frequency tracking. Automated sending is sending stored messages in CW, voice files, or digital messages. Frequency tracking is needed for logging the QSO frequency, building a band map, and — when operating "assisted" — for jumping to DX cluster spots. Few contesters would go back to "manual" logging without the logging program having some radio control. This connection is done via a real (hardware) or virtual (software) serial port. Our popular contest logging programs (e.g., *N1MM Logger+*, *Win-Test*, *WriteLog*, etc.) know how to talk to a serial port for basic control of a radio, and really don't care if the radio is local or remote, although some polling settings may need to be slowed and timeout settings may need to be lengthened to avoid occasional error messages.

4. **Control of "everything else"** at the station is needed to allow the contest operator to change to alternate antennas, rotate antennas, and monitor and control an amplifier. Other useful functions include control of the ac and dc power supplies, and receive-only antenna switches. To the extent a device is not fully automatic (e.g., automatically selected by band), there needs to be remote control of the device. This is often the hardest part of setting up a station for remote operation, as each device and function is somewhat different (e.g., switching versus rotating versus monitoring), and no single common solution can be universally applied.

Sometimes the radio control, logging, and "everything else" control will be done on a computer at the station site. The remote operator comes in via remote desktop software and sees the station as if there in person. In cases where it is inconvenient to try and keep a computer running at the radio site, the radio control, logging, and everything else will be extended across the internet to a computer located with the remote operator. One popular method of extending radio and station function across the internet are a pair of RemoteRig

The RemoteRig system for control of an Amateur Radio station across the internet. [Courtesy RemoteRig and SM2O]

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RRC-1258MkIIs units. The RemoteRig, **remoterig.com**, system allows control of an Amateur Radio station across the internet. Sometimes a function can be controlled directly over the internet without involving a computer at either end (e.g., the RemoteRig RC-1216H web-based control for amps or rotators).

In some remote solutions, two or three of our contester requirements can all be met by one hardware solution (e.g., RemoteRig), or by one piece of software, such as FlexRadio's *SmartSDR*, **flexradio.com/ssdr-for-windows/**, leaving only "control of everything else" to be completed. These combined solutions can greatly reduce the complexity and increase the reliability of your remote station.

There are remote control solutions designed to work with smartphones and tablets, but I do not consider these as suitable for contest operation, which needs a keyboard and a logging program. Other solutions also allow for the addition of a remote front panel or control head to provide additional knobs and buttons; and these are desirable but not necessary for remote contest operation.

Now that we've thought about the contester's requirements, we can better evaluate the remote solutions we may hear and read about. For example, DTMF tone control of a radio and station through a hand-held radio or cellphone (i.e., **RemoteShack.com**) will *not* meet a contester's needs for radio control and logging; it will be too slow at changing frequency or radio settings, and does not connect to logging software.

Our first column in *NCJ* November/December 2018 mentioned Hal, W1NN, who connects from Japan to his station in Ohio using RemoteRig units. The RemoteRig units *do* meet our requirements for audio and rig control and logging. Hal has implemented control of "everything else" at the station, such as antenna switching, with a web-controlled power switch. He uses this setup extensively for contest operating, so we know it works.

Next time, we'll look further at additional solutions that do meet our contest requirements for audio, radio control, logging and station control.