Wires-X can be confusing

As the activity increases on the various System Fusion resources, I have been confused myself and detected some confusion on the part of other users – especially those who are new to the various configurations. I thought this would be a good time to toss out some explanations from a non-node operator's perspective.

Wires-X Nodes

When you tune onto a Wires-X node – say 147.550 simplex – and call another radio amateur, one of two things could happen; (1) you could get a response from another local amateur who is also on 147.550 MHz simplex, or (2) you could get a response from a non-local amateur who is using the Wires-X node transmitter to reach you via the internet. **The only time a Wires-X node transmitter is activated is when the node detects an incoming signal from the internet.** Whenever the signal comes to the node via its receiver, it sends that data to the internet, but the transmitter is not used. A node is not a repeater.

Two local amateurs who are using the frequency – say 147.550 simplex – will be able to communicate only if they are within range of each other. The Wires-X node has nothing to do with their ability to talk to each other.

If a Wires-X node is also listening on that same frequency, it will send the signals of those amateurs who are within its range to the internet. That could be just one of the amateurs who are in QSO or it could be both.

Remember – two amateurs who are using a simplex node frequency to talk to each other on simplex are not using the node at all. The node only comes into play, if other users enter the QSO from the internet.

Uses of Wires-X Nodes

Locally, Wires-X nodes can serve a multiplicity of functions. While all nodes are simplex unless they are programmed into a Fusion repeater, I will use the term simplex only to represent a stand-alone node.

Here is a brief description of the kinds of Wires-X nodes and some of the features that they support.

1. **Simplex Wires-X Nodes** are used to connect amateurs who are local to the node to amateur who are remote. That connection is made via the internet between the simplex node and other nodes throughout the country. Connections may be static (fixed) or they may be dynamic (variable) depending upon the owner's choice. Simplex Wires-X nodes transmit and receive on the same frequency.

2. **Gateway Wires-X Nodes** are used to connect IMRS (Internet Multi-linked Repeater System) repeaters to the Wires-X system. In this instance, the Wires-X node is simply another repeater user. Its receiver is set to the repeater's transmit frequency and it's transmit frequency is set to the repeater's receive frequency. This is exactly the way your personal radio are set in order to use the repeater. As such, the repeater is the only user of the Wires-X node. The repeater then grants node access to all other users who are within range of the repeater. Note: users do not have to be within range of each other with such a configuration. Gateway nodes are often identified with "-GW" after their callsigns, for instance: K0BAD-GW.

3. **Wires-X Digital Nodes** are the most common, however **Wires-X Analog Nodes** may be used as part of a common communications system. For instance, a Wires-X Analog Node could be gatewayed to an analog repeater – say 146.64 MHz – and then connected to a gateway node of a digital repeater. This

allows analog users to communicate with digital users via two different repeaters. Analog users of course will not be able to send location information or DG-ID information with their transmissions.

4. **Repeater-sourced Wires-X Nodes** are much like gateway nodes and are possible with all DR-1 Fusion repeaters and with DR-2 Fusion repeaters that are not configured for IMRS. Repeater-sourced Wires-X nodes do not require a node radio, as that function is performed by the repeater itself.

5. **Wires-X Nodes can send and respond to DG-ID (digital nodes) or tone squelch (analog nodes) information.** The DG-ID information is set in the node radios only. It is not sent over the internet. This can be handy, however. Say the node it to be activated only under certain conditions (EMCOMM, training nets, the desire of an operator). The node could have a DG-ID of – say – 19 that is not otherwise used in the system. Under EMCOMM or a training net, all users could be instructed to switch to DG-ID 19. Then all transmissions would be passed through the Wires-X node to the internet. Similarly, a single user on the Witoka repeater could switch to DG-ID 19 to call a station running analog on 146.64 and that station would hear the call. A tone squelch on the analog node can be used to allow analog users to redirect their calls through the analog node. This combination of DG-ID and tone squelch settings prevents undesired interference between the two systems.

The flexibility of Wires-X digital and analog nodes combined with System Fusion digital repeaters offers reliability and flexibility of communications on the VHF/UHF bands that is unmatched by other systems.

And by the way – the audio is fantastic!