

# ***ALL ABOUT WIRES™***

## ***Wide-coverage Internet Repeater Enhancement System***

### **What is WIRES™?**

WIRES™ is a system of networking up to ten repeaters, using Internet voice-forwarding technology, to expand the coverage area of a user's hand-held or mobile radio. Ideal for emergency communications, "sister-city" link-ups, or the simple enjoyment of being able to talk to a repeater in a faraway country, WIRES™ (like IRLP and other Internet-linking projects being explored) utilizes common DTMF tones to enable access to a repeater or repeaters in a WIRES™ network.

### **What Equipment Makes WIRES™ Work?**

The **HRI-100** Interface Box provides the control circuitry that interfaces your repeater controller and a personal computer. Driven by the **AP01** Windows®-based software supplied with the **HRI-100**, the Interface routes audio, PTT, and squelch-control signals according to the path appropriate for the moment. Computer requirements include an IBM-compatible PC with a Celeron® 300 MHz processor, 64 Megabytes of RAM, up to 30 Megabytes of free hard drive space, a CD-ROM drive, a Mouse or other pointing device, 256-color display adapter (24-bit color recommended), a 56 kb flex modem, and a sound card. Interconnections between the computer, **HRI-100**, and repeater controller are simple, and can be accomplished in minutes.

In the United States, the computer must be located at the repeater site for 29 MHz, 50 MHz, and 144 MHz systems. For 222 MHz and higher systems, however, you may use a "link radio" (configured as though it were a user) at someone's home to interface to a computer and an **HRI-100** so as to simplify the setup. Just set your repeater's controller to pass incoming DTMF tones, and you'll be set!

### **How Do I Operate on a WIRES™ Repeater?**

There are up to ten repeaters in a WIRES™ network, so you preface each transmission with a brief DTMF tone (single digit) to bring up the link. For example, if you are on "Repeater 3" in a network, and wish to call "Repeater 5," just press the **[5]** key on your radio's keypad at the beginning of the transmission. The responding station will then press the **[3]** key to page back your repeater, and you carry on the conversation.

If you want to make a quick call to someone locally on your repeater, just transmit normally (without pressing a DTMF key). The Internet link will not be engaged, and you can answer a quick question and then return to the link. If you want to talk to different people on different repeaters worldwide, just hit a different DTMF key at the beginning of each transmission! Therefore, in an emergency-communications operation, a "headquarters" repeater can get answers quickly without having to bring up and drop individual links. In an emergency, you can also page "all repeaters" in a network, if the repeater owners have included their machine in the "All Call" loop during software setup.

## **How Does My Repeater Get Connected to a Network?**

The WIRES™ host server maintains all networks. By prior arrangement, you are configured in a network and are informed of its unique identifier, which you then enter into your **AP01** software during set-up. When your computer is turned on, it auto-boots into the WIRES™ software and dials your Internet Service Provider; once the Internet connection is established, your computer links automatically to the host server, advises the host of your IP address and e-mail address, and then goes into the “stand by” mode awaiting calls from other stations in the network.

When a call comes in from a faraway repeater, the connection via the host server changes to a peer-to-peer connection, and PTT control and voice packets are then exchanged directly.

## **What Kind of Link Quality May I Expect?**

The voice quality is generally excellent, and it frequently is impossible to tell the difference between a linked voice and a direct (local) one. If you use a link radio with high-quality audio, that will ensure best audio quality.

The transmission speed, despite the fact that WIRES™ does not require a T1 or DSL line, is similarly quick. At times of very heavy Internet traffic, there may be some delay as the packets are transmitted, but the packets are transmitted intact, so “disrupted” transmissions are very rare.

## **Will I Interrupt an Existing Conversation on a Repeater?**

No! The WIRES™ protocol includes the equivalent of a “busy signal” to advise you if the squelch is open on a repeater you’ve just called. And if the repeater you called is not in the network for whatever reason, the calling station will also get appropriate feedback.

## **What about Support and Software Updates?**

A great feature about WIRES™ is the ability for the host server to perform updates to your software remotely. So if there are “tweaks” to the software, it will be administered remotely! In the event of major upgrades, you will be supplied new CD-ROMs free of charge.

## **Where can I get More Information?**

Send an e-mail to [wires@vxstdusa.com](mailto:wires@vxstdusa.com) with your questions. Or write to WIRES, c/o Vertex Standard USA, 10900 Walker Street, Cypress CA 90630.

At Hamvention® 2002, be sure to fill out an application to be considered for receipt of a *free* HRI-100 Interface Unit and software!