

## Technomad Wireless Military PA Systems

### Quick Wireless Link Kit Configuration

#### Overview:

In a Technomad Wireless Audio Network, a Wireless Link Kit is installed in the Audio Source Pack (the sound generation rack) and in each Output Pack (PA system that actually generates sound). To make adjustments to your Technomad Wireless Audio network, you must connect a computer to any ONE of these Link Kits - from this single connection, you will be able to change the settings for all the Link Kits on the network. Technomad's wireless Link Kits can be configured using a web page interface, so no special software is required - any web browser can be used to make settings changes to the Encoder Boxes. Note that you have to be physically connected to one of the Technomad Link Kits to make changes - so don't worry about someone on the Internet making changes to your Link Kits.

#### Example PA Setup:

For the current example, we will assume you are working with a simple PA system consisting of one Audio Source Pack and two Output Packs. All three elements have a Wireless Link Kit installed in them.

#### Physical Connection:

Technomad Link Kits consist of a white transceiver/antenna unit on a tripod, which is wired to a 1 rackspace, black "Encoder Box" which is installed in the flightcase of the Audio Source Pack or Output Pack. Notice that there is an open Ethernet (10-BaseT) connector on the front of the Encoder Box. Using a standard (not a crossover) Ethernet cable, connect a computer to this Ethernet Port. For the current example, we'll assume you are connecting to the Encoder Box installed in the Audio Source Pack - but you could just as well connect to any of the other Encoder boxes and the results would be the same.

#### Changing Your Computer Settings:

An IP Address is printed on a label on the rear of the Encoder Box. This is typically in the format 192.168.XXX.1 - for example, 192.168.27.1. On your computer, set the network settings so that your computer is set to a fixed IP address the same as the Encoder Box IP Address, but with the number 3 on the end instead of 1. In the current example, you'd set your computer to the fixed IP address 192.168.27.3. Set your subnet mask settings to 255.255.255.0. Set your Router address to the IP address of the Encoder Box - in this case, 192.168.27.1.

Having done this, apply your computer's new network settings. Depending on your operating system, it may require rebooting the computer to make the new network settings work.

#### Connecting To the Local Audio Hardware:

You are now ready to connect to the local audio hardware - that is, to make changes to the way the Encoder Box you have plugged into works. To do this, open a Web Browser such as FireFox, Internet Explorer, Opera, Safari, or other. Then enter the IP Address of the Encoder Box, but with the number 2 on the end instead of 1 in the address bar of the browser and hit return. In the current example, you'd enter 192.168.27.2 in the address bar of the browser. Note that you should not enter "www" in front of this address, and that "http://" is generally not needed either - just enter the numbers and dots, and hit return. This connects you to the configuration web page of the local Encoder Box. Here you can make settings changes (see additional information below and in the Technomad IC configuration documents). In the current example, you'd be making changes to the behavior of the Encoder Box of the Audio Source Pack.

Note that IP numbering pattern is the same for all Technomad Wireless Link Kits - the wireless Routers that create the network have IP addresses ending in 1. The Encoder Boxes have IP addresses ending in 2.

### **Connecting to Remote Audio Hardware**

One very convenient feature of the Technomad Wireless Link Kit system is that you can configure ALL of the Encoder Boxes on the wireless network just by connecting to one Encoder Box. All you have to know is the IP Addresses of the other Encoder Boxes, and enter those address in your web browser to configure them. In the current example, we have connected our computer to the Wireless Link Kit network, and have made settings changes to the local Encoder Box using the IP address 192.168.27.2. Now, look at the IP addresses written on the back of the Encoder Boxes in the two Output Pack Control Racks. Let's assume these are:

First Output Pack PA System: 192.168.81.1  
Second Output Pack PA System: 192.168.93.1

To configure the first Output Pack PA Encoder Box, you'd enter 192.168.81.2 in your web browser address bar - that's the IP address of the Audio configuration web page. Similarly, to configure the Second Output Pack PA Encoder Box, you'd enter 192.168.93.2 in your web browser.

In a larger network, the same logic applies - to configure the audio parameters of each part of the system, simply login to XXX.XXX.XXX.2 for each Encoder Box IP.

### **Audio Quality / Playback Delay Settings**

A number of settings can be configured by the user to adjust audio quality and the speed with which remote PA systems start playing after the system operator begins generating audio. There is always a short delay between when audio is generated at the Audio Source Pack (i.e. from someone speaking into a microphone) and when the sound is actually heard coming out of the remote Output Pack PA system(s).

The reason for this delay is the "Play Buffer". In a wireless network, packets of data can be lost. The Play Buffer is a safety net that prevents stuttering or silences in case of short network outages or other problems. Very large Play Buffers make the audio connection between the Audio Source Pack and the Output Packs VERY robust - so even in highly degraded environments, audio will still play smoothly and with good quality. The downside is that large Play Buffers will create a noticeable delay (1-2 seconds) between when the operator starts speaking and when audio is actually projected out of the Output Packs, or between when a Warning Tone Generator is triggered and when the siren is heard.

So, the goal is to set the SMALLEST Play Buffer necessary to ensure a robust connection. The necessary Play Buffer in a highly degraded, lots of RF noise, long-distance Wireless Link configuration may be much larger than is needed for a shorter-range setup.

Technomad sets the default Play Buffer to 10,000 bytes. This is on the high side for many applications, but ensures smooth audio playback even in very degraded environments. CONUS applications may perform well with Play Buffers set to 4,000 bytes or even less.

### **How To Change the Play Buffer:**

First, note that you only need to change the Play Buffer for Output Packs - there's no point in adjusting the Play Buffer of an Audio Source Pack, because it is only sending data, not receiving it and playing it back.

In the current example, enter the IP Address of the first Output Pack PA ( 192.168.81.2 ) in your web browser and hit return. Note that your computer must be setup according to the Changing Your Computer Settings section above. The control interface web page will appear.

Hit "Configuration". The Configuration web page will appear.

Hit "Settings". The Settings web page will appear.

Click the "Streaming" sub-menu. The Streaming settings web page will appear.

Enter the desired Play Buffer value in the Play Buffer field, then hit the Apply button.

You have now changed the Play Buffer for the first Output Pack. Now enter the web address 192.168.93.2 (for the second Output Pack) in your web browser. Repeat the procedure described above to change the Play Buffer for the second Output Pack.

**IMPORTANT NOTE:** If you change the Play Buffer of one Output Pack to a different value than another, then the Output Pack with the lower Play Buffer will ALWAYS play audio before the other one - creating an "echo" effect which is very bad for speech intelligibility. We suggest setting all Play Buffers in your PA system to be the same.

<end>