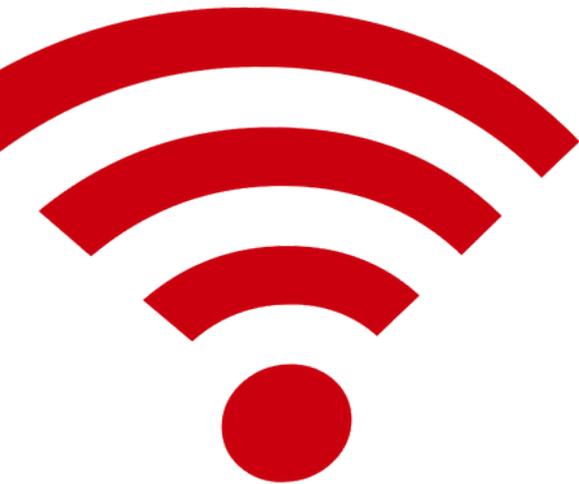


APPLICATION NOTE

Connecting an AEQ
Phoenix audiocodec to a
WiFi network through a
laptop.



AEQ PHOENIX AUDIOCODECS. APPLICATION NOTE 1

Connecting an AEQ Phoenix audiocodec to a WiFi network through a laptop

1. DESCRIPTION OF THE SCENARIO

Reporters or journalists covering an event usually carry a laptop or similar equipment with themselves allowing access to the Internet via a WiFi connection. Sometimes it can be useful to make IP calls with AEQ audiocodecs using this kind of network. This way, an Ethernet access point is not required at the location of the equipment.

In order to do this, an audiocodec (typically a Phoenix Mobile, although the same concepts are valid for a Phoenix Studio) and a laptop with WiFi and Ethernet capabilities are required, running Windows XP or Vista operating systems.

The laptop will connect to the WiFi network, that will provide access to the Internet. After that, we will configure the computer to share this Internet connections at the LAN (Ethernet) interface. Using this feature of Windows (called ICS, Internet Connection Sharing), we get not only an Internet access for the equipment connected to the Ethernet port, but also a DHCP server is enabled that automatically grants an IP address to that system, in this case a Phoenix audiocodec.

If the required ports (corresponding to SIP, RTP and RTCP protocols) are open in the firewall in the Internet connection, we will be able to make SIP calls between the Phoenix Mobile and other pieces of equipment registered in the AEQ SIP server.

Note that the WiFi network can even be provided by us: if you have a 3G Internet access, you can use a 3G router with WiFi as a bridge. You will only need to setup the WiFi part of the network the first time you use it and connect the laptop to this wireless network. The connection of a "USB dongle" or 3G modem also represents a similar scenario. The particular details of this connection are detailed in another Application Note.

Additionally, in this note a way to test that SIP connectivity is guaranteed is provided, without the need to connect a Phoenix audiocodec, using a free SIP Soft Phone running in the laptop.

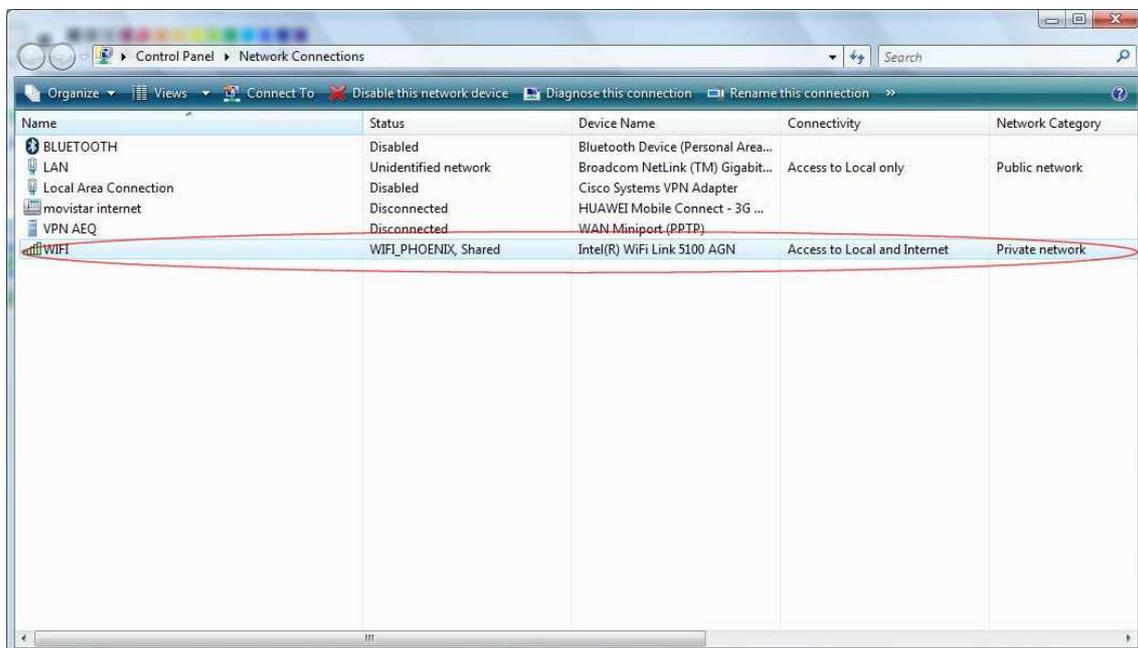


2. CONNECTIONS

The LAN port of the Phoenix Mobile must be connected to the Ethernet RJ45 port of the Laptop, using a Standard or, preferably, crossover cable (although most modern laptops automatically cross the connection allowing the use of a normal straight cable). No more connections are needed, only the audio input/outputs, of course.

3. PC CONFIGURATION

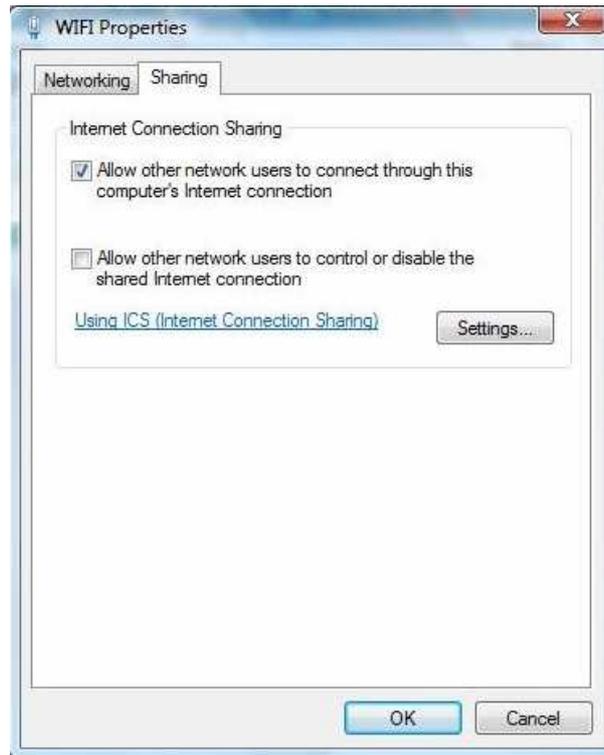
If we go to Control Panel, Network Connections menu, all the network connections available in the laptop will be displayed. We need to identify the WiFi and LAN connections.



In order to establish connection to the WiFi network, we will follow the standard procedure: open the corresponding connection and select among the networks that are reachable, the one we are interested in. It will probably be a Secure network, so we will need to configure this WiFi connection so it uses the proper security protocol and password. Once connected to the WiFi network, we will test that the equipment has access to the Internet by opening a browser and check that a common webpage is reached, such as Google. If so, we will follow the next steps.

NOTE: At this point, it is possible that the WiFi service provider asks for a password or subscription when we open the Internet browser, if it is a public place hotspot. We will first need to complete this step before having access to Internet, and then check that the required ports are open (see paragraph 5).

Next, we need to setup Windows "ICS, Internet Connection Sharing". In order to do that, just right-click on the WiFi icon (within the above shown Network Connections window) and select Properties. Then, select the Sharing tab and check the box that allows other users to connect to Internet through this connection. After that, click Accept.



NOTE: When doing this, the current LAN IP, mask, etc. will be lost, and an automatic configuration will be setup automatically. This, it may be convenient to record this data before establishing ICS.

4. PHOENIX CONFIGURATION

After the laptop configuration is ready, connect the Phoenix Mobile using the Ethernet cable and set it up to work in SIP, just as you would do if we were directly connected to Internet: enable the SIP Proxy, check that the Proxy IP is correct, and fill the account information (user and password). Make sure that the channel used (Program or Coordination) is assigned to the Ethernet Slot.

Go to Menu → Communications → Ethernet Config, and enable DHCP.

Now you can make a call (it is recommended that a test call to phoenixMaster is made first, checking that you can connect and listen to the audio properly).

NOTE: Depending on the Internet connection speed, in particular the upstream speed that is lower, we will be able to work comfortably at relatively high bit rates (256Kbps) or we may need to reduce it to 128 or even 64kbps in order to avoid cuts or artefacts in the audio.

5. TESTING SIP CONNECTIVITY

Sometimes the ports used to establish an Audio over IP connection (the one used by SIP, usually 5060 or 5061), and the ones used for RTP and RTCP (5004 and 5005) may be blocked by the firewall that grants access to the Internet via WiFi. In this case, the only option is to contact the network administrator so he can open these ports for the IP assigned to the laptop.

In order to check that this connectivity exists, that is, all the necessary ports are open before connecting the Phoenix Mobile or even setting up ICS, we can use a SIP soft-phone such as Xlite, that is free available in its basic version. We will install it in the PC. If this test is successful, the connection using the Phoenix audiocodec is guaranteed if we follow the above mentioned steps.

Installation of SoftPhone Xlite:

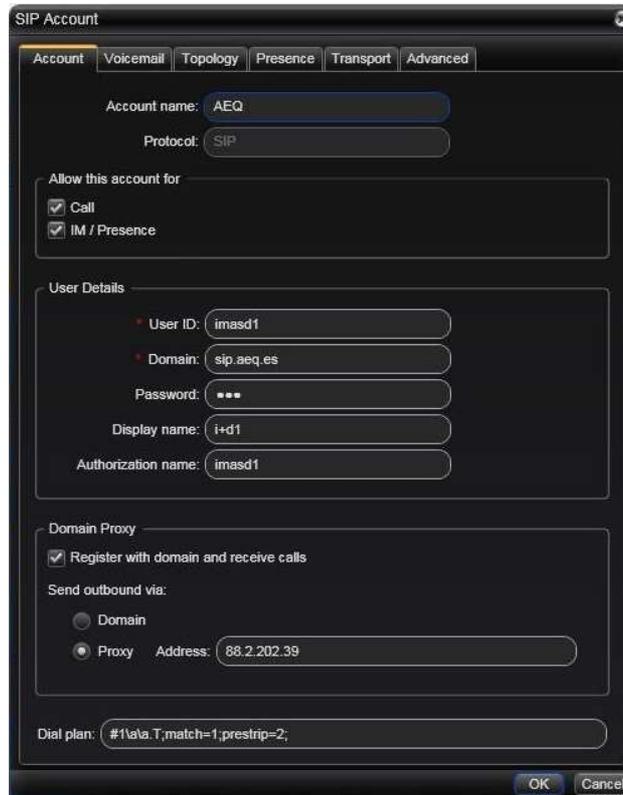
Download the application from the following URL:

<http://www.counterpath.com/x-lite-4.0-for-windows-download.html>

Once installed (default install), open the application, that has the following appearance:



Next, we must open the menu Softphone → Account Settings and create a SIP account with the next example parameters:



As a last step, we need to create the phoenixMaster contact, by clicking in the icon with an user with a "+" over it. The parameters to configure are the following ones:



If you call to the contact you have just created, you should be able to establish a connection and listen to the audio coming from the Phoenix Master. This guarantees that the WiFi network is adequate for carrying Audio Over IP service, an essential requirement for Phoenix to be able to work.



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