**Presents**

# EchoLink



Mobile Stations in Area "A"

Mobile Stations in Area "B"

FM Transceiver

FM Transceiver

Station"A"

Station"B"
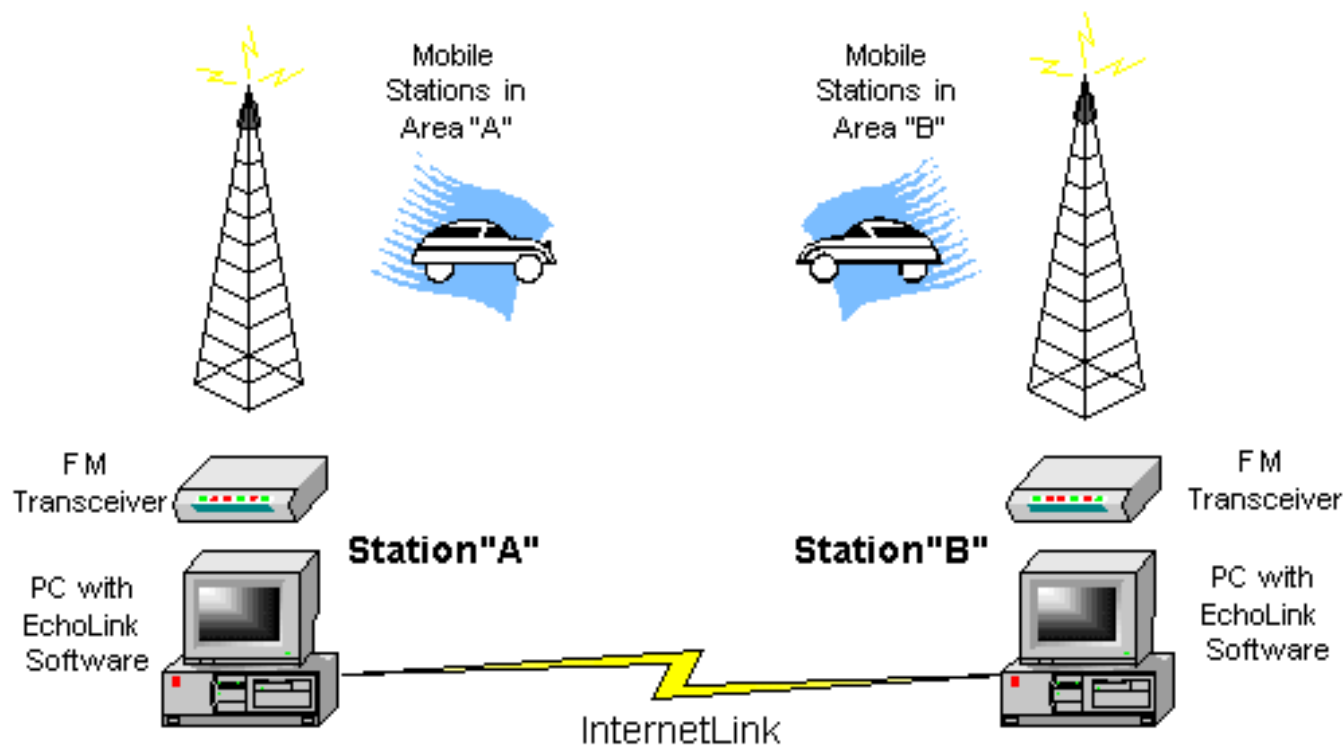
PC with EchoLink Software

PC with EchoLink Software

InternetLink

## Internet Linking for Amateur Radio

# General Topics

- What is EchoLink?
- Various Modes
- Configuring EchoLink Software
  - Computer to Computer via Internet
  - Transceiver to Computer to the Internet
- Physical Radio Interfacing
- Other Linking Software
- Is it really Amateur Radio?
- Questions

# What is EchoLink?

- EchoLink uses VoIP (Voice Over Internet Protocol) to allow licensed Amateur Radio Operators to communicate with other Amateurs via the Internet.

- It is primarily a Windows based application and is offered free of charge at http://www.echolink.org.

- There is also a new EchoLinux and EchoMac available.

- It was developed by Jonathan Taylor (K1RFD) in 2002 (*He received Hamvention 2003 Special Achievement Award*).
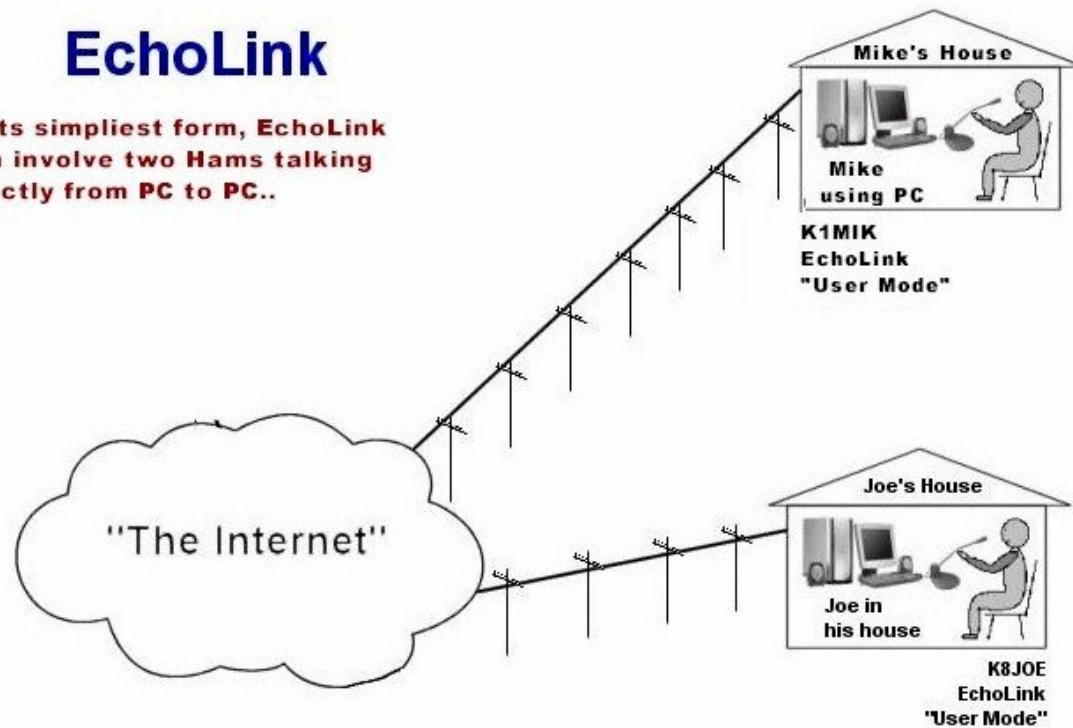
# What Modes are Available?

- EchoLink can be operated strictly between two computers connected to the Internet using the PC soundcard with Speakers and a Microphone.

- EchoLink can be interfaced to a standard FM transceiver as a "simplex link" from your home QTH.

- EchoLink can be interfaced to a VHF or UHF repeater for more coverage.
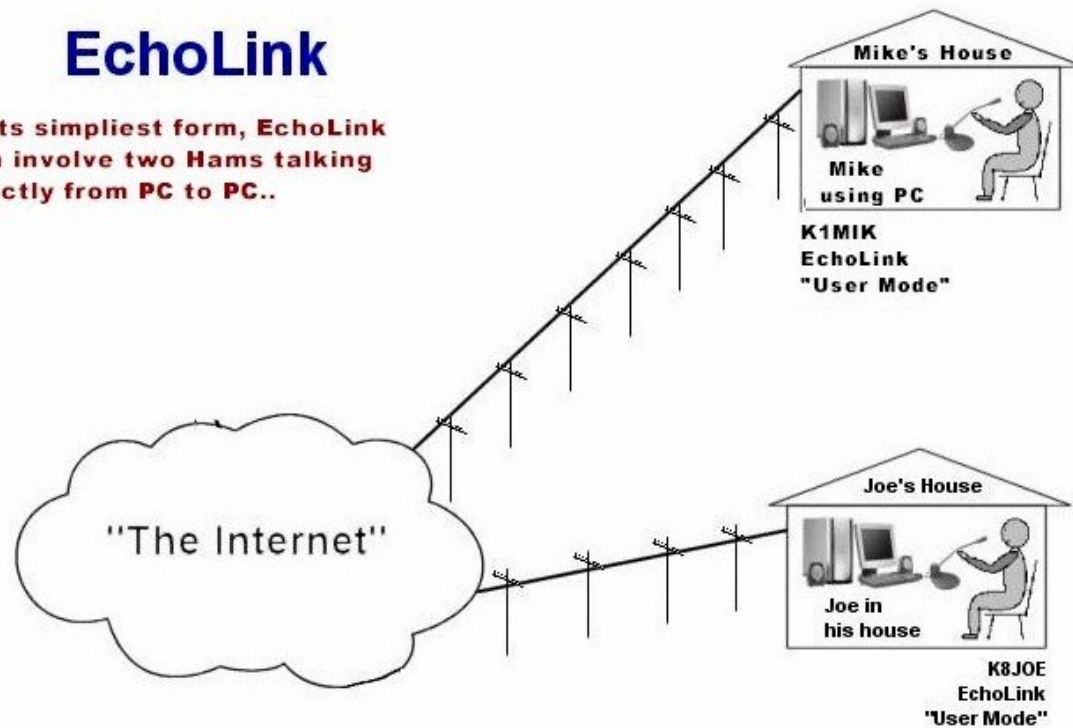
# EchoLink "User Mode"
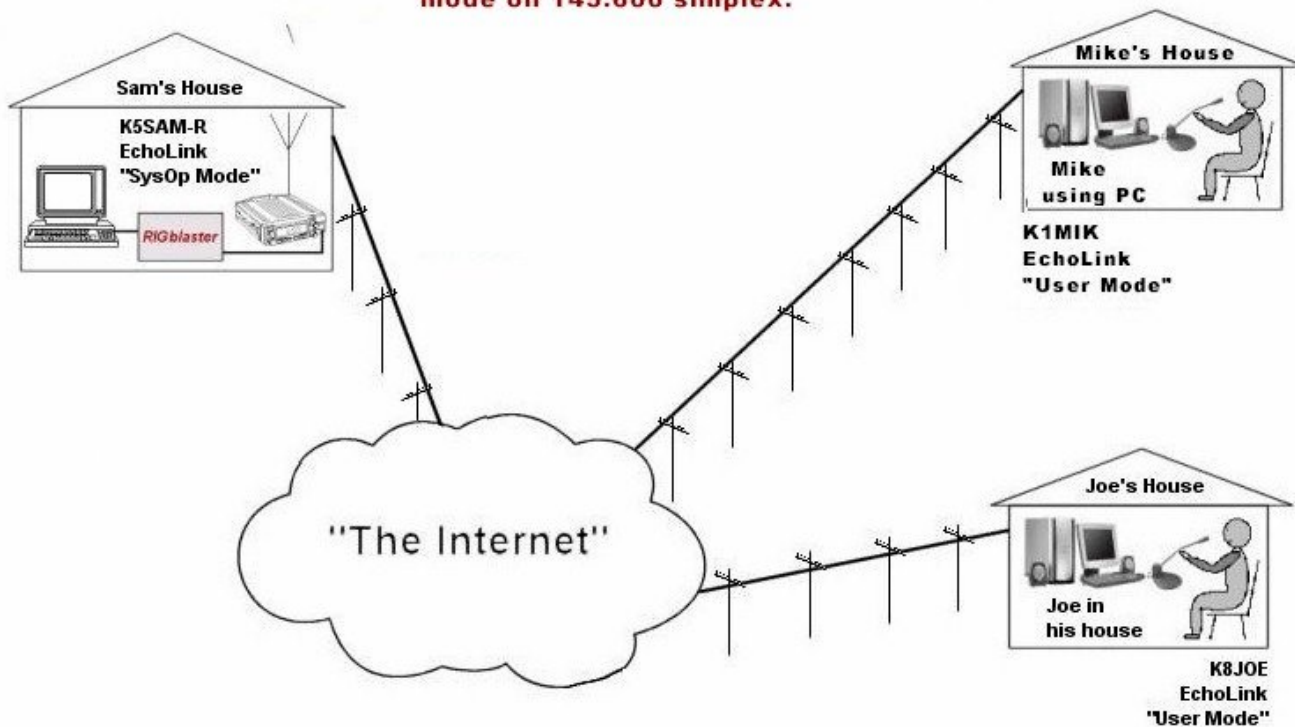
# Is this really Ham Radio?

# It Depends upon how you "use" it!!

- Single User PC to PC involves no RF
  - It is just another Internet "Chat Room"

- A Simplex-Link or Repeater connection now makes it a "new" Amateur Radio Mode.
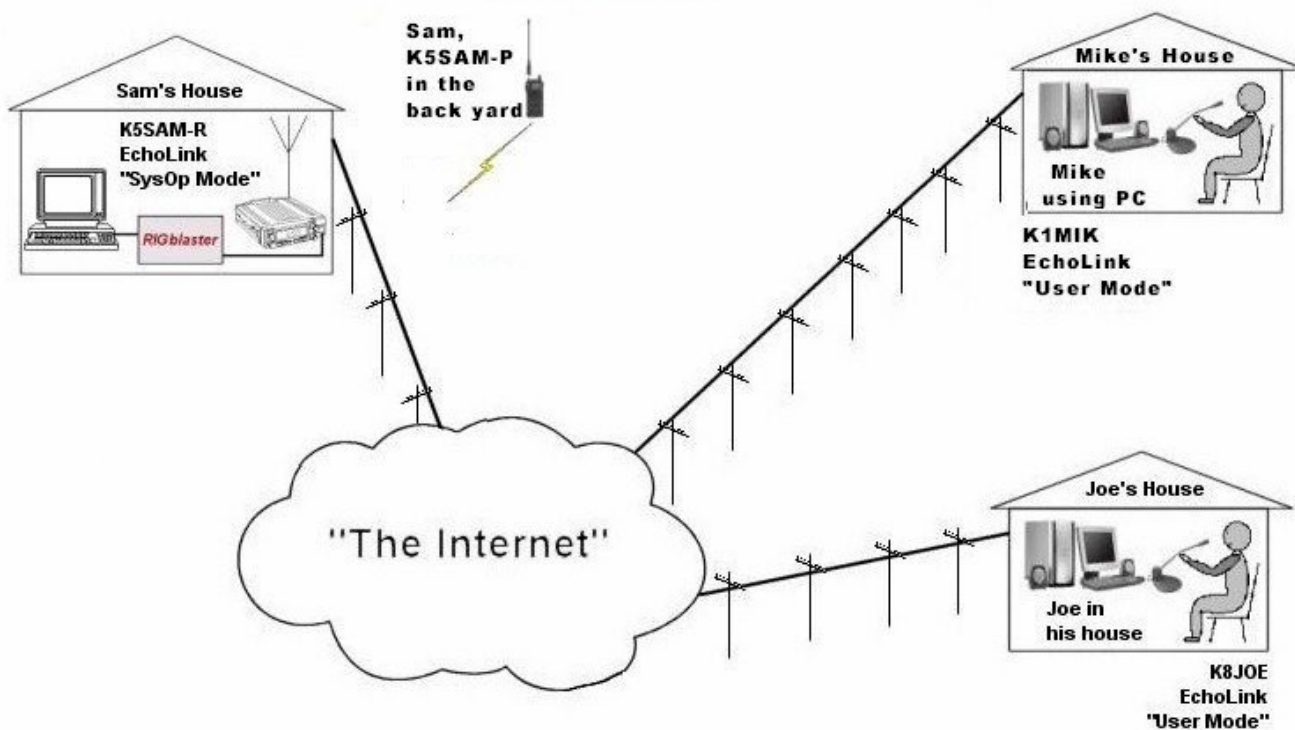
# Adding a "Simplex-Link"

# Expanding the "Link"

# Adding a Repeater



N5AMY/M
Amy in her Car

AA5BJ/P
BJ

K5SAM/R
Repeater

**EchoLink**

And now, Sam connects his Transceiver to the local 2 meter Repeater

Sam's House

K5SAM-R
EchoLink
"SysOp Mode"

RIG blaster

Mike's House

Mike using PC

K1MIK
EchoLink
"User Mode"

"The Internet"

Joe's House

Joe in his house

K8JOE
EchoLink
"User Mode"
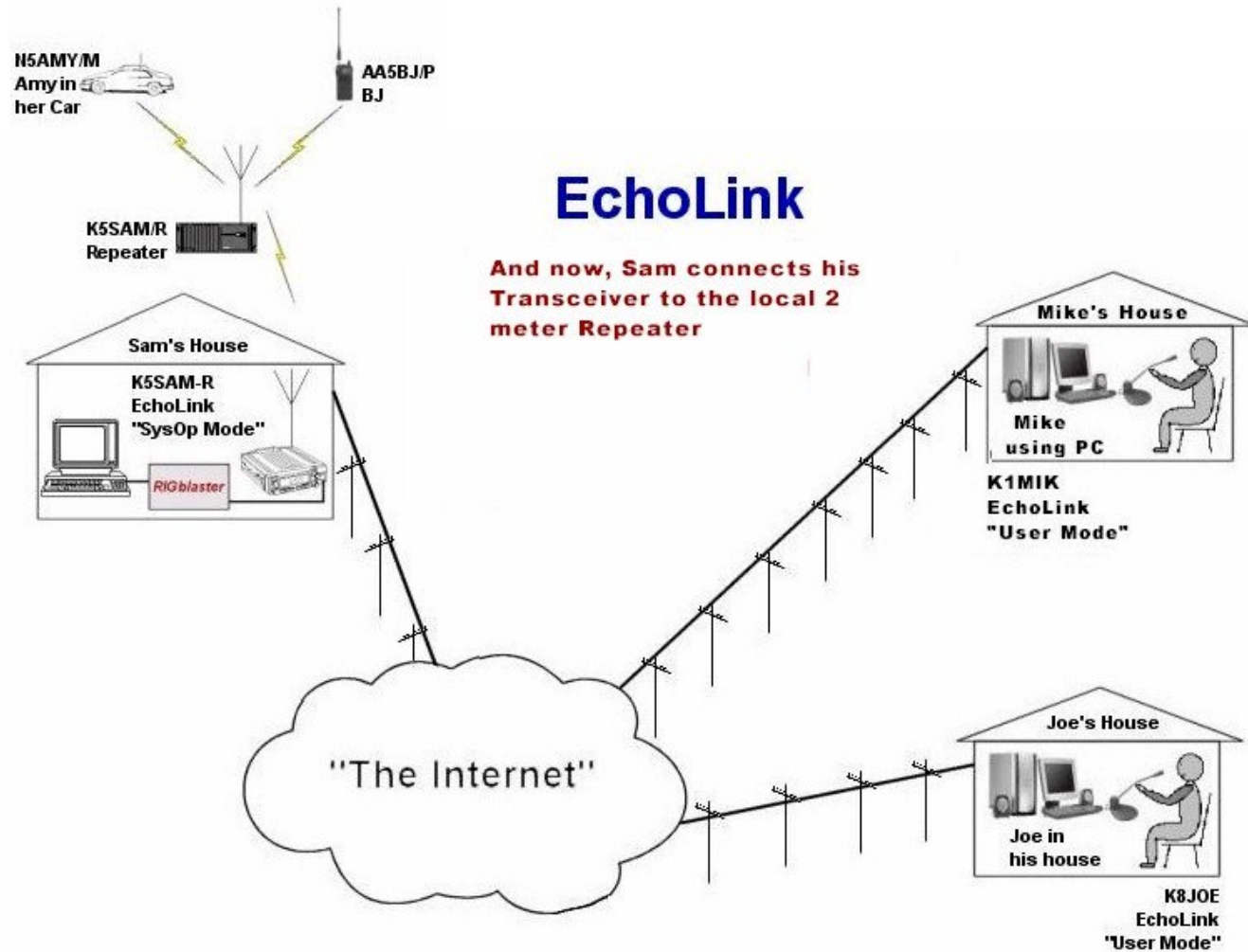
# Bringing it all Together
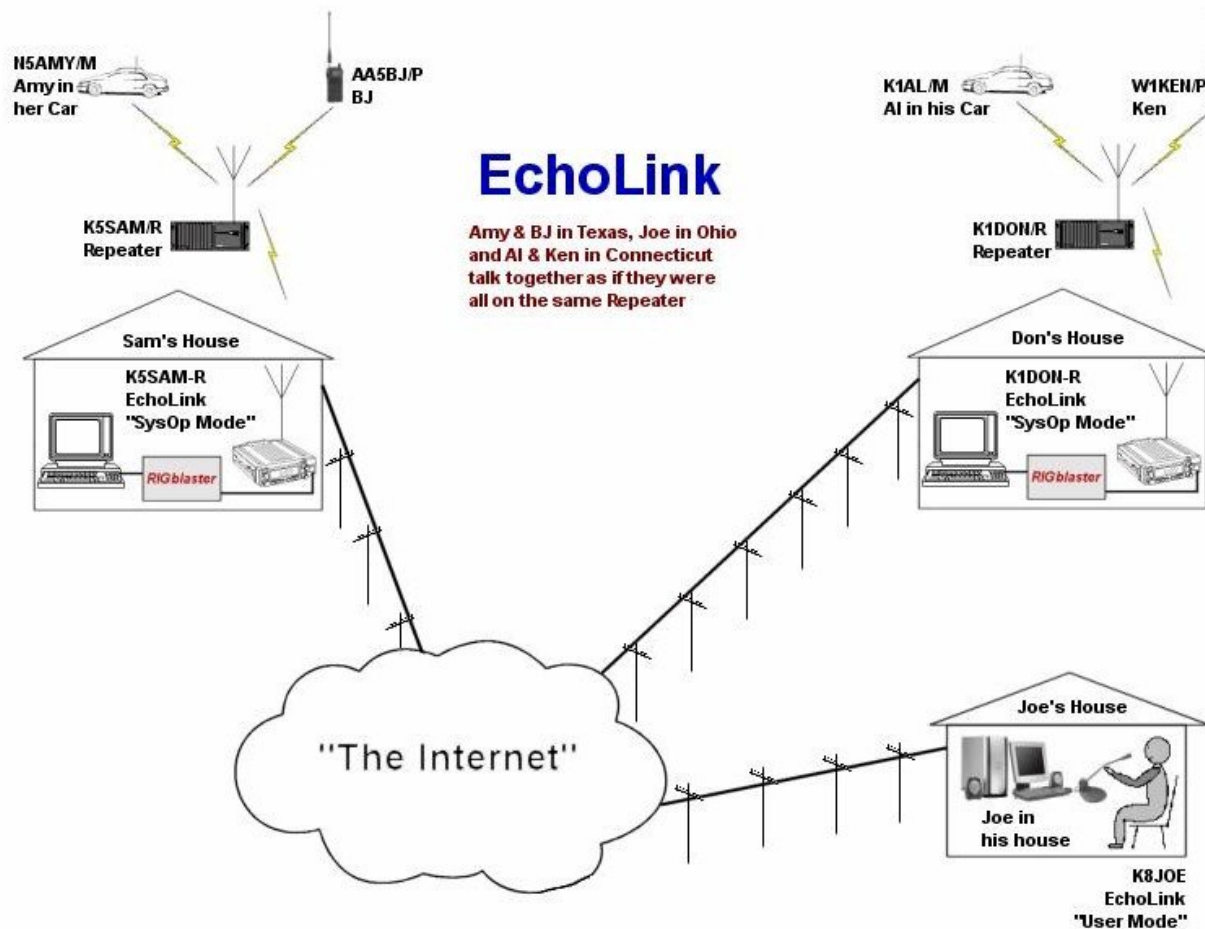
# EchoLink Software… It's Free !



- Here is the main Screen, listing the Stations currently on the Link, by Country, Call Zone etc.

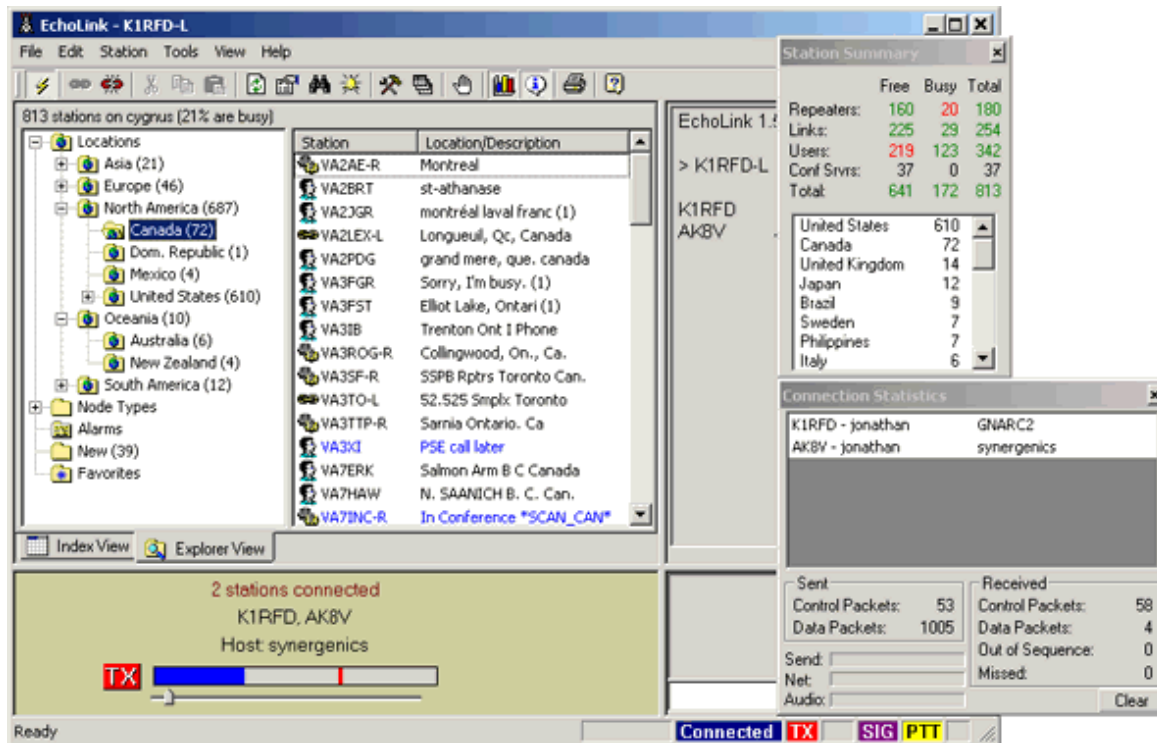The Bottom of the Screen shows the current Transmit and Receive Audio levels in a colored bar graphic.

# Basic Setup
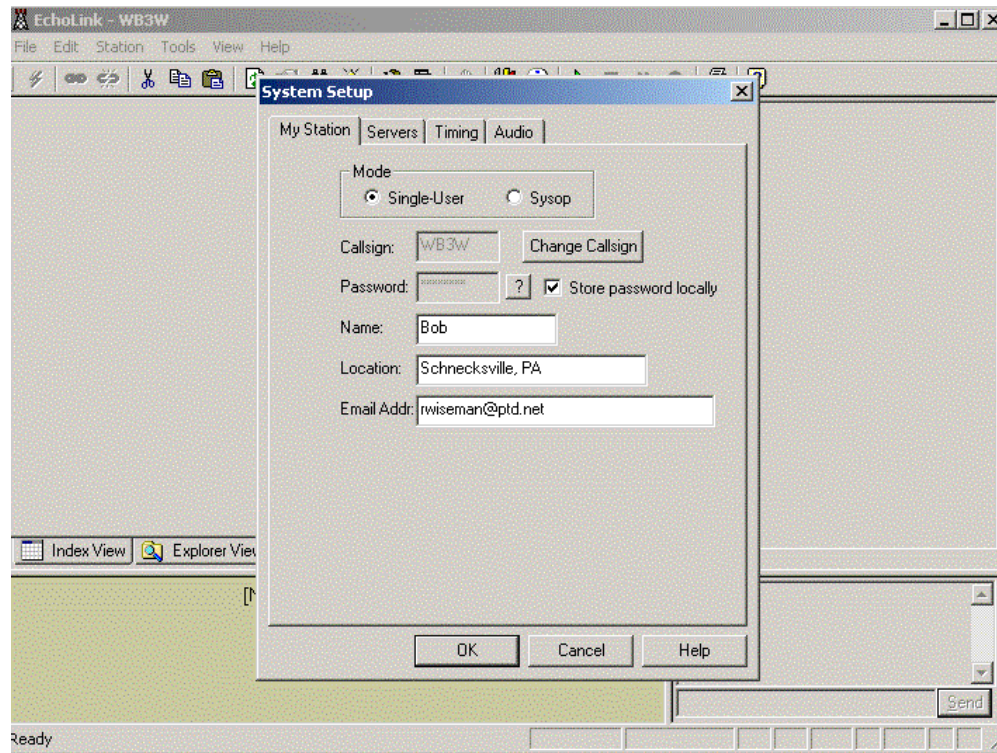


- The first thing to do after installing the software is to configure your Station Setup.

*The first time you use Echolink, you will have to wait to be validated, before you are connected to the EchoLink server.*

# Audio Setup

This includes your Audio details, for the PC Speakers and Microphone.
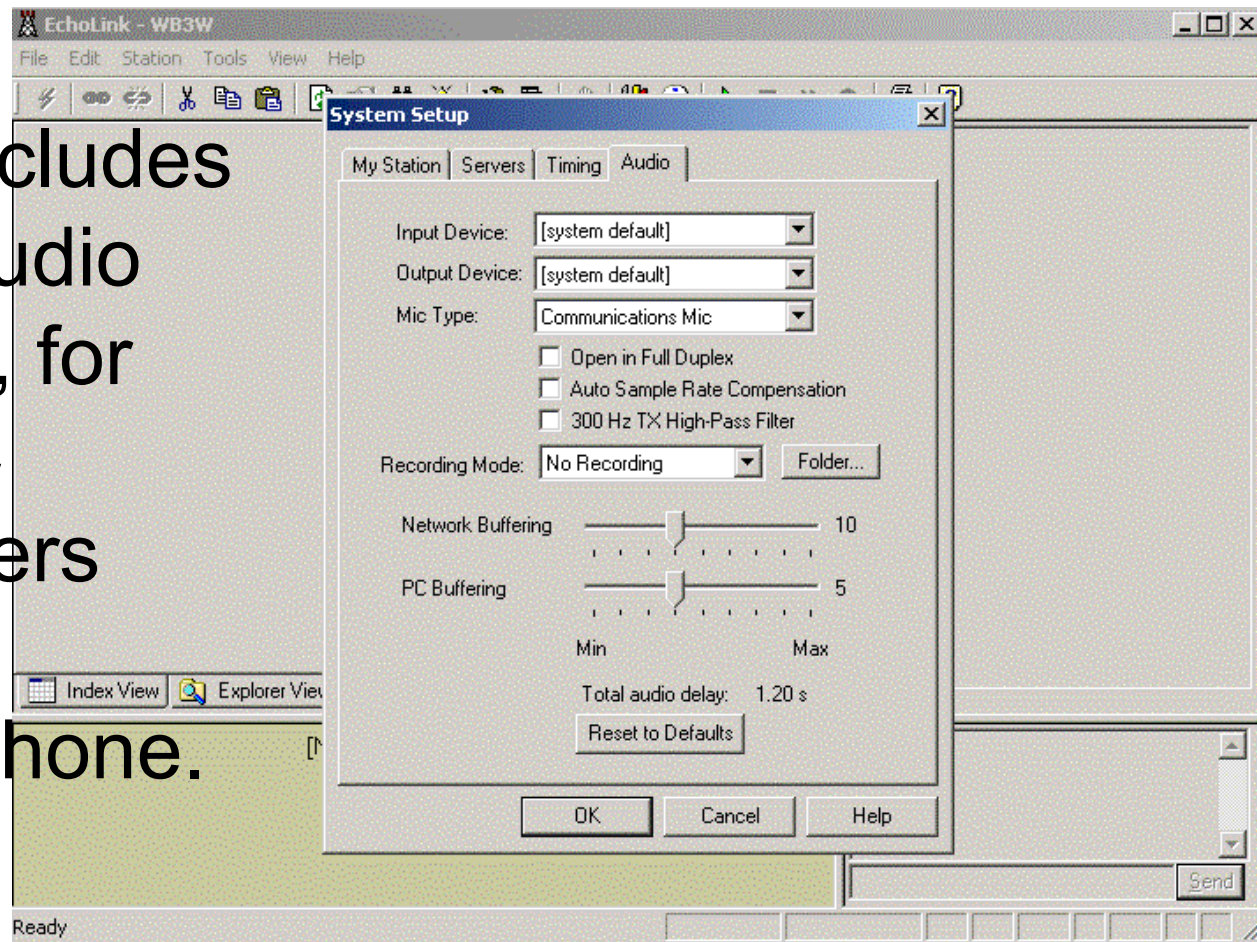
# Connection Setup
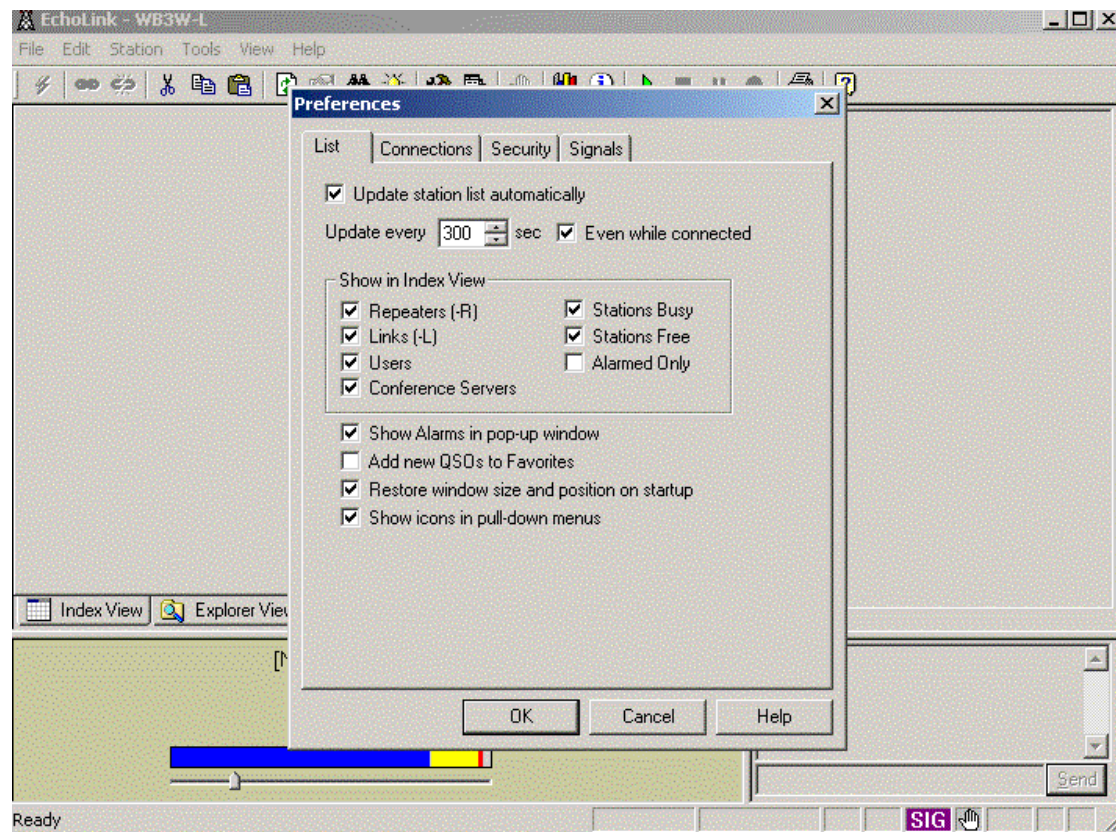


This Screen allows you to configure the various Internet connections you are willing to accept.

# The Two Pc Audio Screens
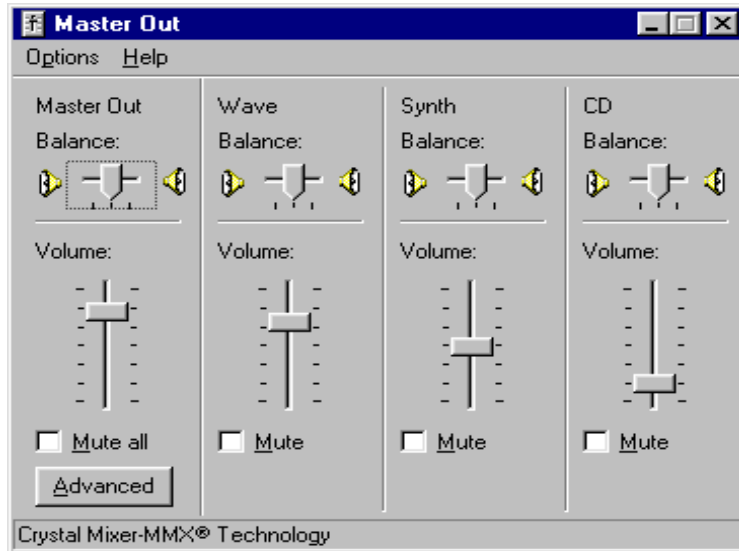
This is the Output

This is the Input

# SysOp Receive

SysOp Mode is used when interfacing a Transceiver, and requires additional setup parameters.
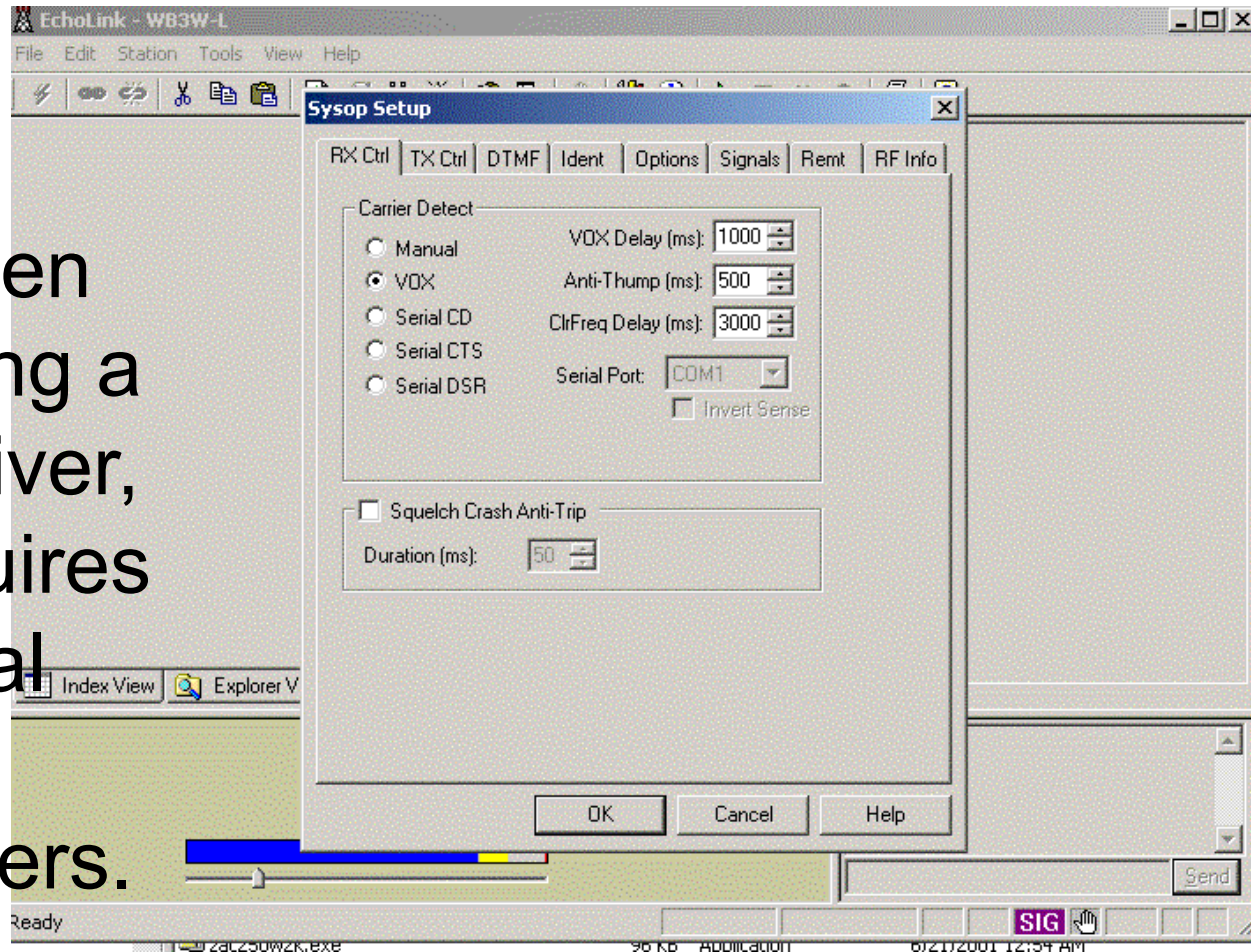
# SysOp Transmit
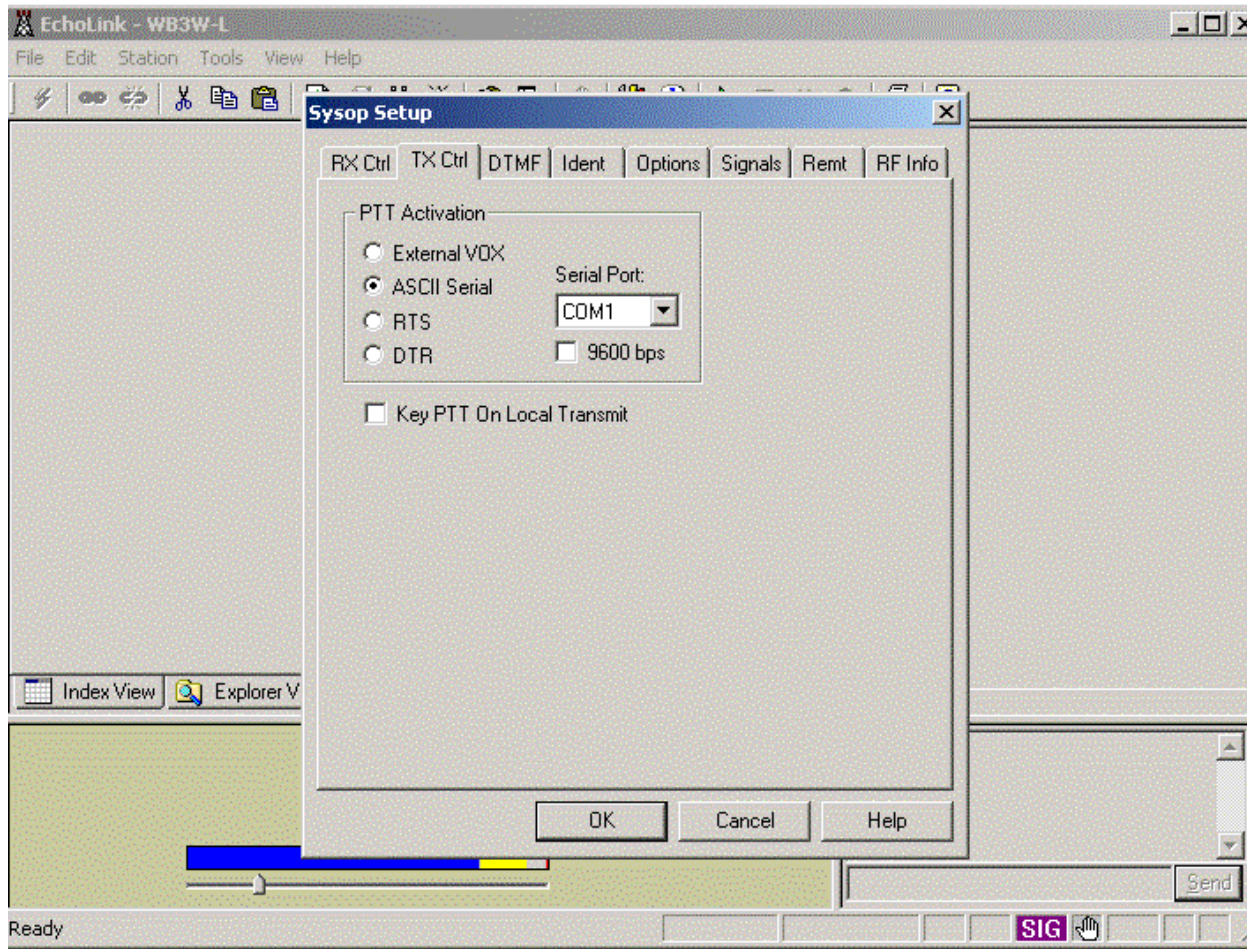


There are a number of choices for triggering the PTT interface to the Rig.

# SysOp Identification

Both CW and Voice ID are available, along with the method and time interval for the ID's
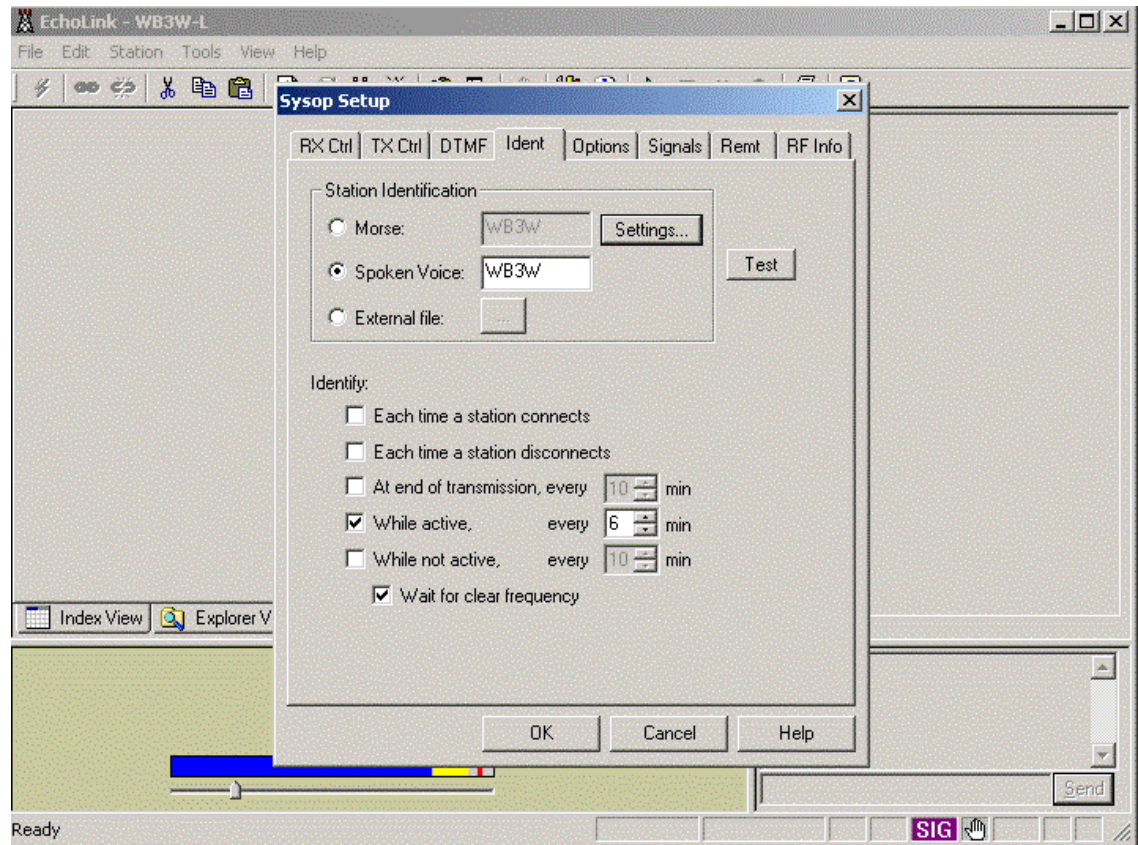
# What's Needed for SysOp Mode?

Transceiver

Computer and Software

Interface

N7YLA ECHOLINK SYSTEM
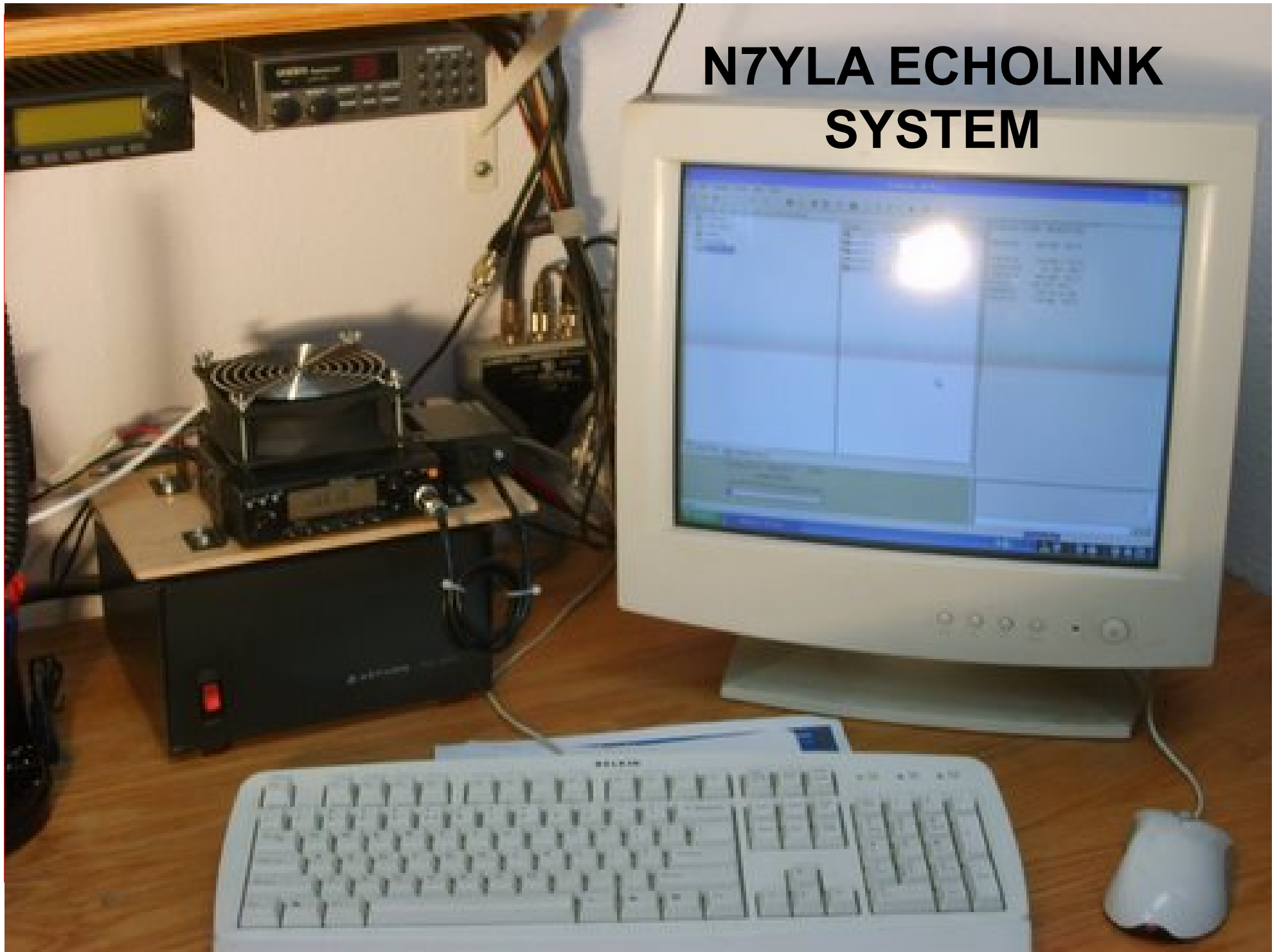
Cooling Fan

Sound Card

Interface

Transceiver
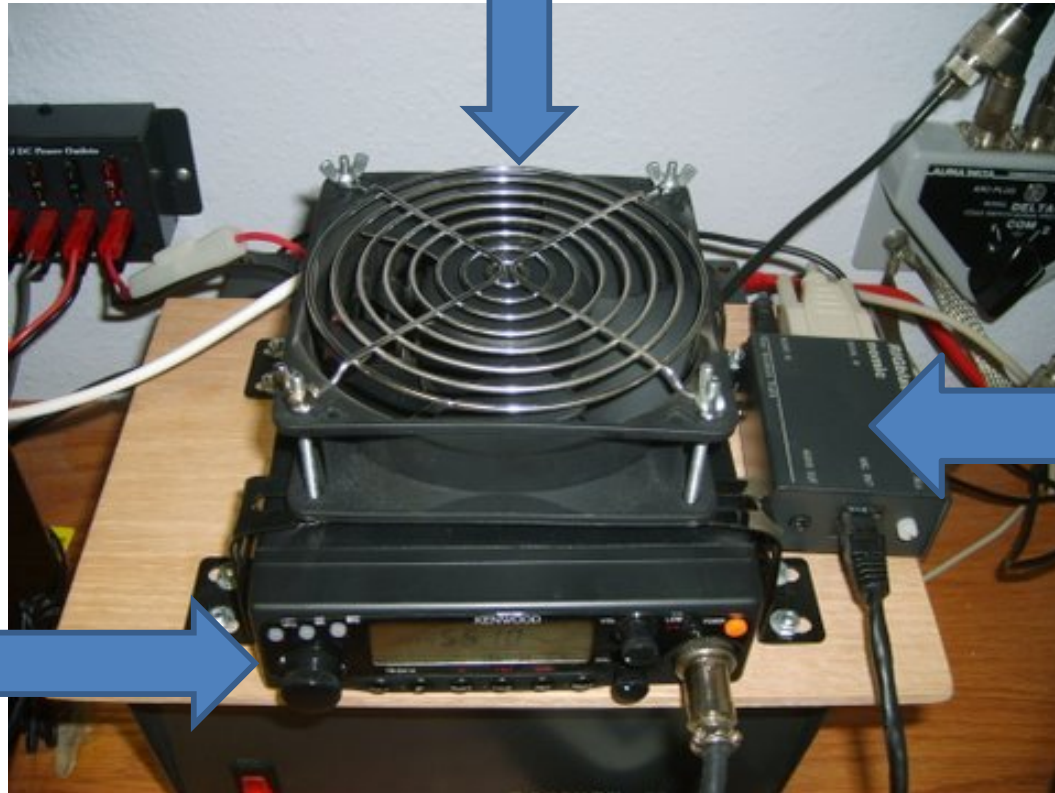
# Dedicated Echolink System



TM-241A

Sound Card Interface = Rigblaster "Nomic"

File   Edit   Station   Tools   View   Help

4,228 stations on nawest.echolink.org (18% are busy)

- ⊞ 🌐 Locations
- ⊞ 📁 Node Types
- 📷 Alarms
- 📁 New (35)
- 🌐 Favorites (5)

| Station | Location/Description |
|---------|---------------------|
| KB6OZX-R | Riverside Ca (1) |
| KF6ZAF-R | In Conference N6WZK-R |
| KF6ZTY-R | In Conference N6WZK-R |
| KI6HWQ-L | Tustin CA (1) |
| N6WZK-R | Mt. Wilson, Calif, U (6) |

EchoLink 2.0.908 - N6WZK-R (6)

| | |
|---|---|
| N6WZK-R | 449.360 - 167.9 |
| KF6ZAF-R | 144.895 + 151.4 |
| KG6GCG-R | 147.180+ 186.2 |
| KB6OZX-R | 445.060 - 162.2 |
| N7YLA-L | 145.510  156.7 |
| KI6HWQ-L | 144.310 pl 100 |
| KF6ZTY-R | 224.540 - 203.5 |

**Six stations are simultaneously connected with  N6WZK. Up to eleven stations may remain in conference together.**

**N7YLA Link is connected to the N6WZK repeater**

📋 Index View   🔍 Explorer View

Connected to:  N6WZK-R      CONF
United States
cpe-76-171-224-74.socal.res.rr.com

The sponsoring organization for the linked repeater system is the *Southern California Intermountain Repeater Association*, or SCIRA, Inc.

| Station | Frequency | Location | Owner |
|---|---|---|---|
| N6WZK-R | 449.360 MHz | Mt Wilson | J. Parrino |
| KF6ZAF-R | 144.895 MHz | Running Springs | SCIRA, Inc. |
| KG6GCG-R | 147.080 MHz | Chatsworth Pk | Berj Hakimian |
| KB6OZX-R | 446.060 MHz | Riverside | Ray Hageman |
| KF6ZTY-R | 224.540 MHz | Palos Verdes | Mid Cities ARC |
| KI6HWQ-L | 144.310 MHz | Tustin | Mike Sorensen |
| N7YLA-L | 145.510 MHz | Glendora | Mark Hayden |

# Making Your Own Interface

- Stereo patch cord with 1/8" plugs from receiver audio to PC "Line-In".

- Patch cord from PC "Mic-Out" to Transmitter Audio input (should be attenuated).

- Serial PTT circuitry from COM port.



RTS Line
pin4 on DB25
pin7 on DB9

2N2222

PTT Line

REF:C

4k7

1N4148

4k7

Ground
pin7 on DB25
pin5 on DB9

1N4148

GND
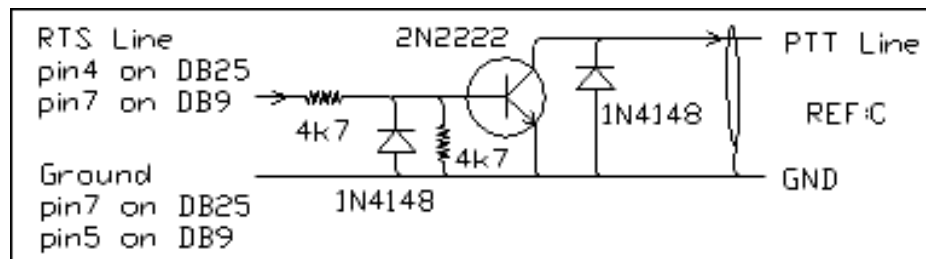
# But, a "Good" Interface should:

- Isolate the computer audio from transceiver.
- Attenuate the speaker/line level output.
- Provide matching of audio to mic level.
- Isolation of all grounds.
- Be easy to hook up, and leave in-line.

# Some Soundcard Interfaces







The RIGblaster is the more common interface, with jumpers to configure any brand of microphone and rig.

# A good Choice for the Interface



The **RIGblaster** from West Mountain radio is probably the most versatile.

Simple "jumper" configurations to interface to "Any" radio microphone wiring scheme.

It includes a software CD for most popular Soundcard programs including PSK, SSTV, etc.

West Mountain Radio provides excellent Internet, email and phone support.

# *RIGblaster Features*

- Opto-isolation prevents ground loops.
- Adjustable PC speaker level output to mic input.
- Plugs directly into the mic jack on your transceiver with an included 8 pin round to RJ45 adapter.
- It includes a Serial cable, along with stereo speaker and microphone input cables.
- It uses the existing jacks on computer and rig.
- It can be used with almost any brand and model of radio, using internal microphone jumpers.
- It can stay in-line at all times.
- Four different models available.

# EchoLink Pros and Cons

- Allows Hams traveling away to stay in contact with Hams back home through a Repeater link.

- Allows Technician licensees a chance to experience DX Contacts.

- QSL's are not valid for things like DXCC.
  - The "middle" connection is the Internet, and this is a "wired" connection – not wireless RF…

# Support: EchoLink users have contributed many add-ons to EchoLink. Here are just a few:

**EchoProducer** -The Aim of this program is to enhance an EchoLink node to allow regular news and other related broadcast at pre-programmed times and days, and allowing a MP3, WAV of any bit rate to be transmitted through the node radio in high quality.

**Conference Controller** - The Conference Controller is a simple to use utility that allows the Sysop/Owner of a conference or their admin controllers to send some of the commands with a click of a button.

**EchoBeacon** - Allows your EchoLink system to send a periodic CW ID, but also allows continuous PTT of your radio - Making it ideal for testing setups, checking levels and finding out how hot the radio gets!

**EchoButton**s - EchoButtons is a program that provides you with fourty "Buddy Buttons" for quick and easy connections thru EchoLink.

**EchoCell** – Allows you to use Echolink on your cellphone.

**EchoTranslato**r - *EchoTranslator is a simple to use Windows XP utility that allows the EchoLink user to send via the text box translated Language text.*

# But Again – *"Is it Ham Radio?"*

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- As long as there is a Simplex or Repeater Link involved it is a new "mode" – It is that simple!

- Worldwide Regulatory agencies like the FCC, ART, IBPT, OFCOM, SRR, etc. have recognized it as another Ham "tool" like SSTV or PSK31.

- Using these "links" you must still ID and follow all regulations, including International rules and Third party agreements.

- If we don't keep using our Radios in as many modes as we can, we are going to lose some of the band allocations we have worked so hard for.

# Some Comments

- EchoLink allows us to expand upon our different Ham activities, and gives Amateur Radio a new dimension with a new technology….

- Hook your Transceiver up to it and use it.
  - Other new technologies like Cell Phones, RFID, (BPL?), are competing for our bandwidth, so lets utilize it with all the modes available..

## B U T  Remember…………..

- Although Amateur Radio has grown to embrace new technologies and has now become more than just "Radio" , it is really "*nothing*" without "Radio"….

# THE END