How do I?

An occasional series

This week: Getting Started with EchoLink

Introduction

Members and guests of the Cumberland Amateur Radio Club get together on-the-air each week for casual conversation and to share any noteworthy topics that may be of interest.

- The club operates a Two-Meter Net that meets each Sunday evening at 7:00 p.m. local time on 146.490 MHz FM Simplex. Frank Mellott, KB3PQT serves at Net Control.

- The club also operates a Ten-Meter Net that meets each Wednesday evening * at 8:00 p.m. local time on 28.400 MHz upper sideband.   Garry Fasick, K3EYK serves as Net Control.   * This on-the-air get-together does not take place on the third-Wednesday of each month, which is the date we hold our monthly club meeting on Zoom.

Many of the net participants live within the usable range of the other participants. In that sense, most of us can hear each other. We have a few participants who live on the fringe of our coverage area. Sometimes a "mid-range" station will step up and offer to relay on behalf of the more distant station. That relay usually gets the job done. At some point during my lifetime I learned that it is good to have friends in high places. Perhaps this relay station concept is what that saying is trying to tell us.

In addition to the time-honored concept of relaying messages from one station to the next, CARC Member AF3I has implemented an EchoLink Simplex Link node that can be used by anyone who wishes to participate in our on-the-air nets. The Station Name is AF3I-L. The Node Number is 259045.

The EchoLink Simplex Link node is activated about 15 minutes prior to the net start-time.

- Sunday Evening Two-Meter Net is activated about 6:45 p.m. in preparation for the 7:00 p.m. start of the net.

- Wednesday Evening Ten-Meter Net is activated about 7:45 p.m. in preparation for the 8:00 p.m. start of the net.

If any of our readers would like to conduct their own EchoLink verification tests prior to the net time please let AF3I know. Upon request (and availability of his time) he will open the EchoLink Simplex Link node earlier. eMail contact: **AF3I@RadioClub-CARC.com**

EchoLink Operational Concepts

For purposes of this document let's think of EchoLink as existing in three formats.

1.) EchoLink for the User who connects using a Personal Computer and the Internet
2.) EchoLink for the User who connects using a ham radio station.
3.) EchoLink for the System Operator (SysOp) who installs a Simplex Link or Repeater Node that other hams can access.

The primary target of this **How Do I…** article is the ham radio operator described on line #1 – someone who will use EchoLink from his or her personal computer and an internet connection..

- This operator might be a club member, or one of our guests, who lives out on the fringe of our coverage area.

- This operator might be a Snow-Bird to spends his or her winter months in a warm, sunny far-away spot such as Florida, or Arizona.

- This operator might be a newly licensed ham who has not yet made an investment in a ham radio transceiver, or an antenna, and wants to interact with other hams to learn the ropes.

- Our target operator could be someone who is affected by HOA restrictions that demonstrate little appreciation for the valuable public services provided by Amateur Radio Operators, or….

- Given the unusual weather conditions at the time I am writing this article, this operator might be someone whose antenna came crashing down during a storm and has not yet been restored.

Installation Overview – Individual Computer User

A brief and high-level description of what takes place after a ham radio operator (perhaps this is "you") chooses to set up EchoLink as an Individual Computer User format.

You will download, and install the EchoLink software on your personal computer. The software can be downloaded from the EchoLink website: www.echolink.org. The current Windows software version is 2.1.109

During the installation you will be asked to create a User ID and Password. Your User ID is your Call Sign. You will need this User ID and Password from time to time – make a record of your selection. And, you will be asked to validate or provide proof of your Amateur Radio Operator License which is done by uploading an Official Copy PDF of your FCC document.

I will share details of the configuration questions and answers later in this document.

Nothing else is needed -- No Radio Transceiver, No Antenna, No Coax Cable Feedline, No Sound Card Interface.

If you don't already use a media headset with your computer you might want to consider getting one. A media headset consists of earphones and a boom microphone, all in one with a USB connection to your PC.

Operational Overview – Individual Computer User

Shortly before the starting time of the net you will boot up your PC and launch the EchoLink software. You will click the STATION menu and then select CONNECT TO. Fill-in one or the other boxes telling the EchoLink application to connect with Station AF3I-L, or Node 259045. Upon connection EchoLink will play an audio confirmation message and display the name of the station in the Station Information panel.

At this point, your PC is connected to the AF3I-L EchoLink Simplex Link PC located in Dillsburg, PA. His EchoLink Simplex Link PC is connected to his ham radio transceiver, also located in Dillsburg, PA.

- Whatever Andy can hear coming in on his receiver, you can hear coming across your PC.

- Wherever Andy's RF signal reaches, your voice will be heard when you talk. This isn't a high elevation, mountaintop, clear to the horizon location so you may find some holes in the coverage – no different than if Andy was operating his rig.

When the net operation begins you will hear the Net Control Station introduce the net and solicit check-ins. You will hear the other participants as they talk. When it is your turn to talk, press the SPACE BAR on your PC as if it was the Push-To-Talk button on a ham radio microphone. You are transmitting -- say what is on your mind. When you finish talking, press the SPACE BAR which is the same action as releasing the Push-To-Talk button.

When the net has completed its business and the other users are closing down their stations you can click on the STATION menu and then select DISCONNECT to disconnect from the AF3I-L Node. At some point after the net has ended, the SysOp (AF3I) will close and shutdown the node. If stations remain connected long after the net has ended he may have no way of knowing whether they are actively using the EchoLink Node, or simply forgetful about disconnecting.

That is the high-level view of EchoLink for the Individual Computer User. On the next few pages I will provide step-by-step installation instructions and screen snapshots of the configuration screens.

Catch 'ya on the air!
Andrew Forsyth, AF3I

EchoLink Software Installation and Setup – Step-by-Step

Note: The screen displays described in the following steps are based on a Windows 7 installation. If you are using a newer version of Windows you may see different screens or different wording. If you are experienced and comfortable with Windows software installations continue based on your own experience.

Num	High Level Description	Detailed Description	Status
1	Determine whether you have an OFFICIAL COPY of your FCC License saved as a PDF. If you have this information readily available it will help you avoid an interruption/disruption later on. Note: The REFERENCE COPY is not acceptable for validation purposes.	If YES, you are in good shape for a later question. If NO, this would be a good time to visit the FCC website and submit a request for an OFFICIAL COPY downloadable document. You will need your FRN and its password. EchoLink provides a step-by-step procedure you can use for requesting your OFFICIAL COPY license. Details can be found on their website at: https://secure.echolink.org/validation/uls/	
2	Download the EchoLink software installation file. The current version is: 2-1-109 Note: If the Developer offers a newer version after this document was written, take it.	Visit www.echolink.org Find the DOWNLOAD link on the left side of the screen. Click it.. A new screen will be displayed. Look for this headline and link: **EchoLink for Windows** *(Vista/7/8/8.1/10)* EchoLinkSetup-2-1-109.exe Click on the link. The download takes only a few seconds.	
3	Install the EchoLink software on your PC	On your PC, go to the place where your downloaded files are saved. The file name you downloaded is: EchoLinkSetup-2-1-109.exe. Click on the file name. When asked: "Do you want to run this file?" , Click the RUN button.	
4	Your PC screen will show the ECHOLINK SETUP box…	…and the EchoLink graphic, as well as the word EchoLink. Click INSTALL The screen will update to also show: SETUP PROGRESS	

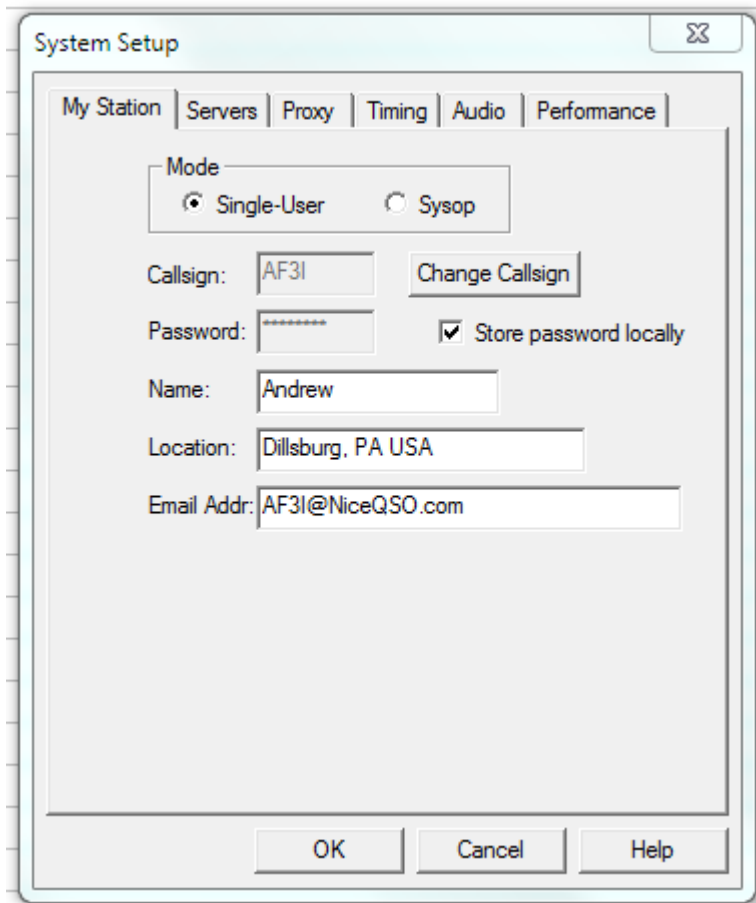|			
5	Your PC screen will show the USER ACCOUNT CONTROL box…	…and ask: Do you want to allow the following program to make changes to this computer?. If the Program Name shown below this question is EchoLink and if the Verified Publisher name is Synergenics, LLC, click YES.	

6	Your PC screen will show SETUP PROGRESS	The screen will show a rapid succession of installation mileposts such as:
		       Initializing
		       Preparing to install
		       Ready to install EchoLink
		
		When this work has finished the screen will automatically advance to the next view.	

7	Your PC screen will show **Welcome to the EchoLink Setup Wizard**	There will be a few words on the screen. Read them if you wish., then… Click NEXT	
8	Your PC screen will show END USER LICENSE AGREEMENT.	Read as much of the agreement as you wish. When you are ready to agree, click the check box located next to the words I ACCEPT Click NEXT.	
9	Your PC screen will show DESTINATION FOLDER	The default location is okay. If you have no overriding preferences you may use the default. Otherwise, change the destination to suit your needs. Click NEXT	
10	Your PC screen will show READY TO INSTALL EchoLink.	Click INSTALL Your PC screen will show a rapid succession of installation activities and mileposts.	
11	Your PC screen will show COMPLETED THE ECHOLINK SETUP WIZARD.	Do not place a checkmark in the box labeled **Launch EchoLink**.. Leave the box empty. Click FINISH Observe the message: INSTALLATION SUCCESSFULLY COMPLETED Click CLOSE	
Optional Pause	This is a good point to stretch your legs or take a coffee break.	Come back to this point whenever you wish.	

| 12 | Launch the EchoLink application | Find the EchoLink icon on your Windows desktop.

(Double) Click the icon to start the application.

As part of this initial running of the program you will be shown a SETUP WIZARD screen.

Click NEXT | |
| --- | --- | --- | --- |
| 13 | You will be asked what type of installation you wish to perform. | Specify COMPUTER USER
Click NEXT | |
| 14 | You will be asked to provide five pieces of identifying information:

CALL SIGN
PASSWORD - your choice
FIRST NAME
LOCATION – TOWN, STATE, COUNTRY
EMAIL ADDRESS | Provide the requested information.

Your Call Sign drives everything about the way you appear online to other EchoLink Users, and how your activity is logged. This call sign must match the FCC OFFICIAL COPY of the license you will submit as validation.

Write Down Your Password:

_____

When finished, Click NEXT | |
| 15 | You will be asked for your geographic area.

This is used to help distribute the EchoLink server processing loads. | Confirm that NORTH AMERICA EAST has been pre-selected. If your call sign "number" is outside the first, second, or third call area districts you may need to change the pre-set value.

Click NEXT | |
| 16 | You will be offered the option of performing a Firewall/Router test. | Click the button labeled: FIREWALL TEST
Observe the outbound test results.
At a later step there will be an important INBOUND TEST for you to perform.
If any test failed, take down the exact wording or capture a screen snapshot.
Click CLOSE to remove the Test Results
Click NEXT to advance to the next step. | |
| 17 | You may be shown a Tip Of The Day offering to connect your PC with the EchoLink Test Server. | The **Tip of the Day** message or the **Setup is now complete!** message mentioned in the next step may overlay on your screen.

If so, read the Tip Of The Day and then Click CLOSE | |
| 18 | You should see a completion message: "Setup is now complete!."

If EchoLink detects that your call sign has not previously been validated you should see a message to that effect. | Click FINISH

Visit www.EchoLink.org and click VALIDATION on the left side menu.

This is the time and place where you will use the FCC OFFICIAL COPY of your Amateur Radio License.

Follow the instructions that EchoLink shows you. | |

Pause	Once you have provided your License Validation credentials to EchoLink you have reached a **stopping point** while awaiting an eMail notification that the EchoLink Administrator has accepted your request.	The eMail confirmation you receive from the EchoLink Administrator should include your Node Number. That is something you should keep. When you receive the eMail notification resume your installation at the next numbered step.	
19	Launch the EchoLink application on your PC.	(Double) Click on the EchoLink icon.	
20	This is a good opportunity to confirm that your call sign appears in the Station List.	Until or unless your call sign is listed you will be unable to make EchoLink connections. Navigate to STATION > FIND Type your call sign into the search box.	
21	Check the EchoLink configuration settings by comparing each of the screen snapshots shown on the following pages to the same screen on your PC.	The names shown above the screen snapshot refer to the menu bar selections that will lead you to that screen. Navigate to the TOOLS > SETUP menu. Select one tab – the first tab is a good choice. Compare the information displayed on your screen with the printed screen snapshot. Make a change to your PC configuration where your comparison checking reveals a difference. Continue until all tabs in this area have been compared. Click OK when finished. Navigate to the TOOLS > PREFERENCES menu and perform the same type of activity. Click OK when finished.	
22	Conduct an Outbound Router Test	Navigate to TOOLS > OUTBOUND ROUTER TEST Look for the test results to say: Outbound Ping Test Results: PASS Click CLOSE Take steps to resolve any failed tests.	

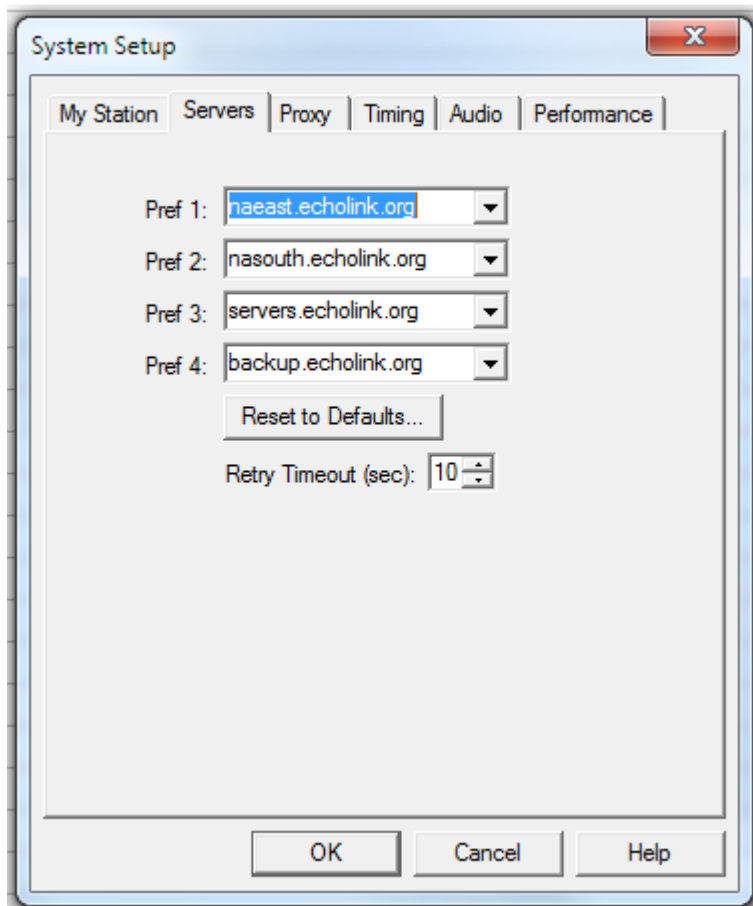| 23 | Conduct an Inbound Router Test | Navigate to TOOLS > INBOUND ROUTER TEST
Your call sign should be pre-populated.
Enter your EchoLink Password.
Click **Run Ping Test**.

You should see: Running Test #1

Note: Test #1 sometimes fails.
If that occurs, the app will automatically retry by launching Test #2

Look for the test results to say:
Replies Received from 5198 5199

There may be additional text displayed describing any workable but less-than-perfect test results with a sense of warning expressed.

Click Home
Close the Window.

Note: The type of network traffic you are likely to use when connecting to the AF3I-L Simplex Node as a CARC Net Participant should work despite the tone or the wording of the "warning" text.
I
f you intend to take part in more complex EchoLink operations you may want to take the "warning" message advice to heart and learn about Port Forwarding.

If needed, take steps to resolve any failed tests. | |
| 24 | Take some initial steps to ADJUST SOUND DEVICE | Navigate to TOOLS > ADJUST SOUND DEVICE.

Select PLAYBACK on the first round.
Select RECORDING on the second round.

Click on the device you intend to use with EchoLink. (Speaker or Headphone perhaps)
Click on Properties
Click on LEVEL
Adjust up or down depending on what you see.
Click OK
(I started my RECORDING LEVEL and PLAYBACK LEVEL settings at the midpoint (50).)

Navigate back to where you were.
Click on ADVANCED.
Set the sample rate and bit depth to 16 BIT, 48000 Hz, DVD Quality.

Repeat for the Recording device. | |

| 25 | Use the **Test Server** connection to provide EchoLink audio traffic that may help you ADJUST SOUND DEVICES under actual conditions.

You may wish to visit the EchoLink.org website and familiarize yourself with the SUPPORT AND FAQ pages.

There are good instructions describing topics such as how to set your audio for best results.

The EchoLink SUPPORT AND FAQ pages cover much more material than I can present to you in this format. | Navigate to STATION > CONNECT TO TEST SERVER

The Test Server should announce itself when the connection is established. If you hear the announcement then your PC is able to receive incoming EchoLink traffic. This is PLAYBACK.

The PLAYBACK audio level is your choice. Think Goldilocks and the Three Bears. Too Loud, Too Soft, Just Right.

Adjust your PLAYBACK device using Properties and Level. Repeat the test as often as needed.

At the end of the Test Server announcement you can press the SPACE BAR and talk to the Test Server as if you were transmitting. In Windows PC terminology this is RECORDING.

When you have finished talking press the SPACE BAR to stop transmitting/recording. At this point you should hear the Test Server repeat your recorded voice audio back to you.

The RECORDING audio level is mostly your choice. However, your setting has to work for the people on the other end of your EchoLink QSO.

Think Goldilocks and the Three Bears. Too Loud, Too Soft, Just Right.

Adjust your RECORDING device using Properties and Level. Repeat the test as often as needed.

Please be sure to disconnect from the Test Server when you have finished your tests. Navigate to STATION > DISCONNECT

Note: If pressing the SPACE BAR does not put your EchoLink into Transmit mode (TX) you may need to perform a Mouse Click in the green box near the bottom of your EchoLink screen. I am not completely sure where you will find the sweet spot. If your first attempt did not improve results click somewhere else on that screen. | |

TOOLS > SETUP > MY STATION

These answers should reflect your personal information.

North America East should appear in the PREF 1 slot for our intended Central Pennsylvania audience.

If you are located elsewhere adjust these settings to suit your environment.

TOOLS > SETUP > PROXY
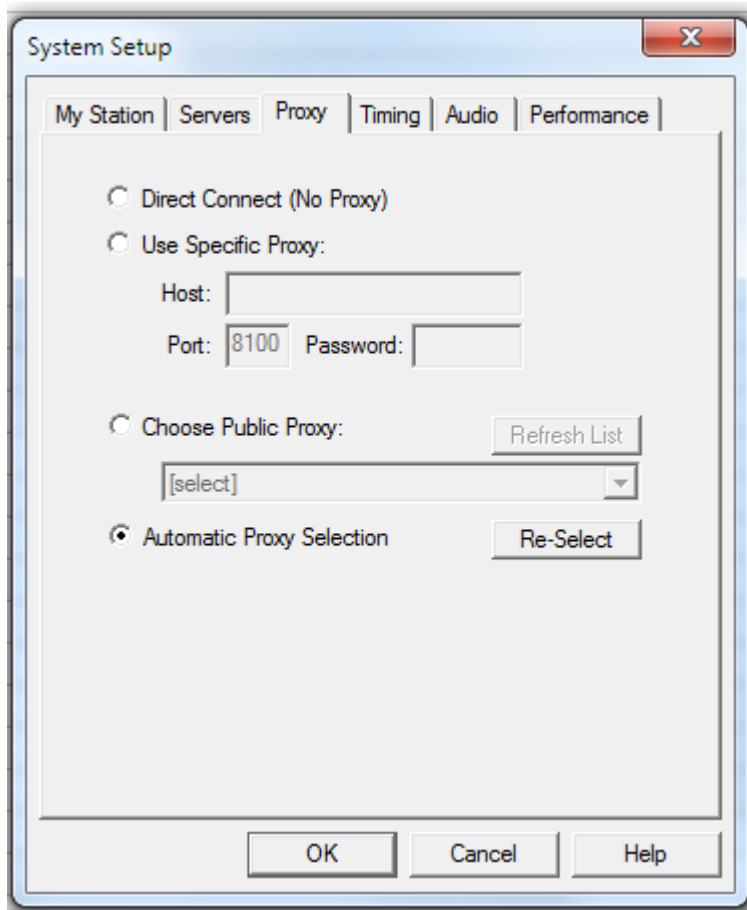
Note: The default installation setting is Direct Connect (No Proxy).
Change the setting to Automatic Proxy Selection, as shown on the screen snapshot.

If you encounter a dysfunctional proxy station you can force the application to make a new selection by pressing the RE-SELECT button here.

If you are confident in your ability to diagnose/modify FIREWALL and/or ROUTER Port settings you might obtain faster results by selecting DIRECT CONNECT NO PROXY.

TOOLS > SETUP > TIMING
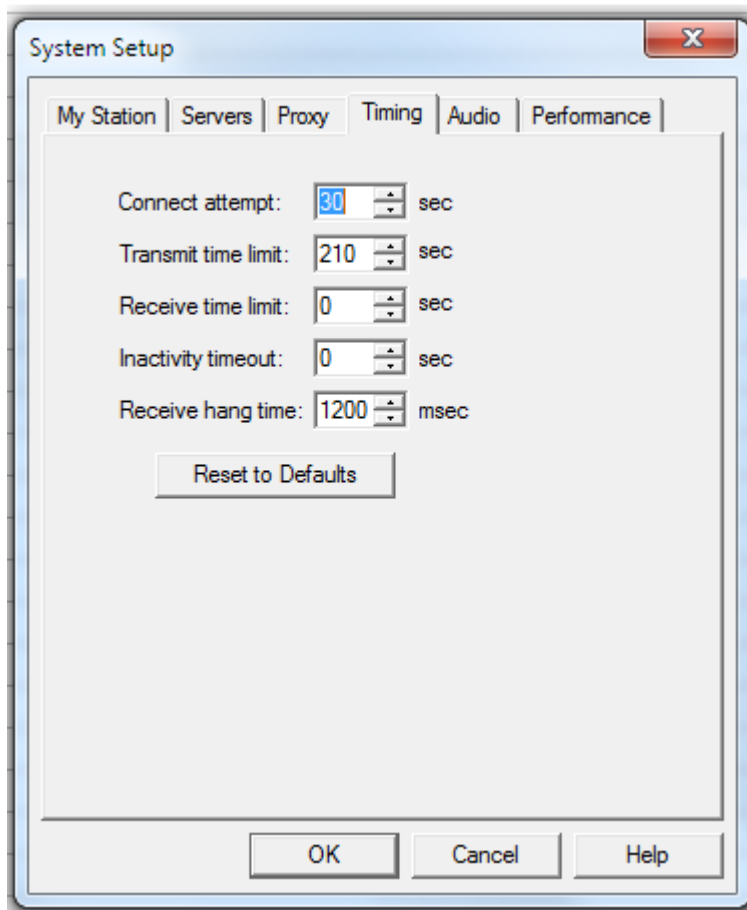
The settings in this area may benefit from changes if you encounter unique situations at your location. e.g. slow internet speeds, long-winded conversations, dead air

Refer to the www.EchoLink.org website for an explanation of the setting and advice.

TOOLS > SETUP > AUDIO
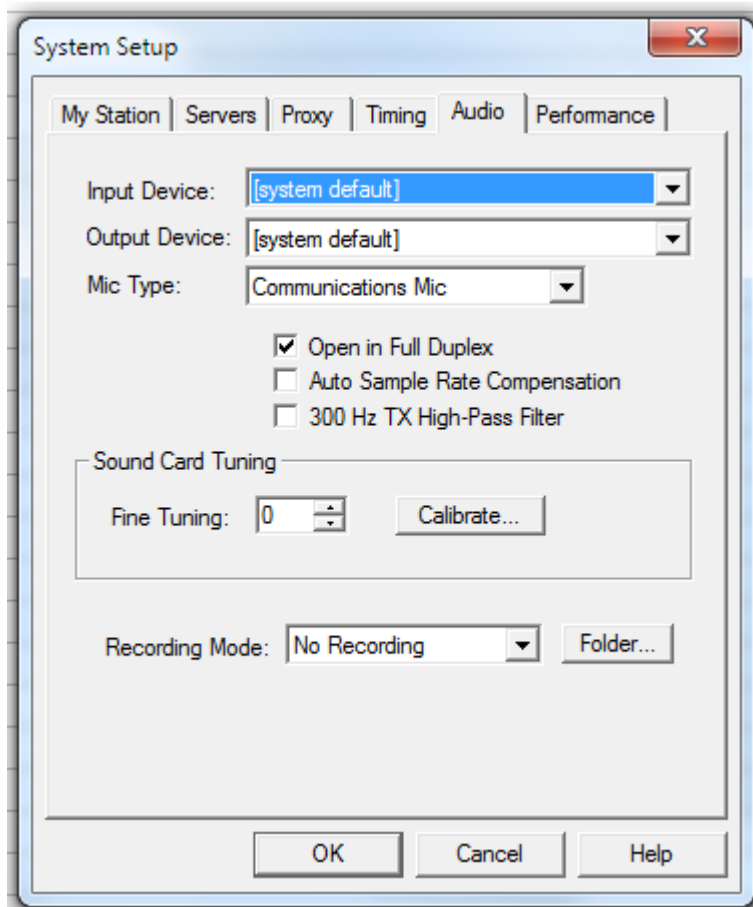
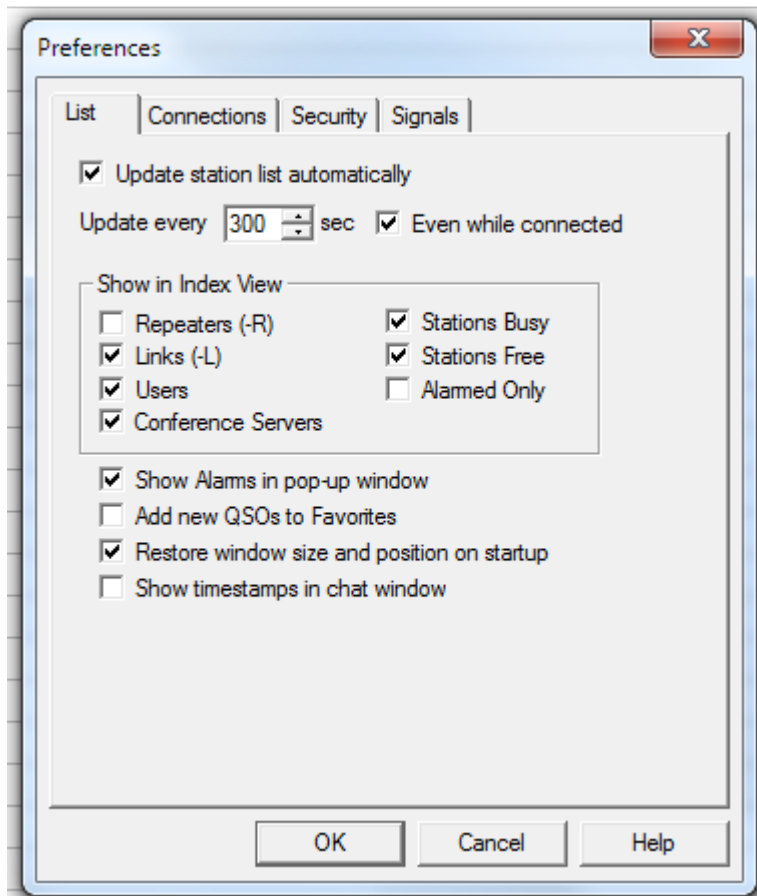You may need to customize your INPUT DEVICE and OUTPUT DEVICE settings.

TOOLS > SETUP > PERFORMANCE
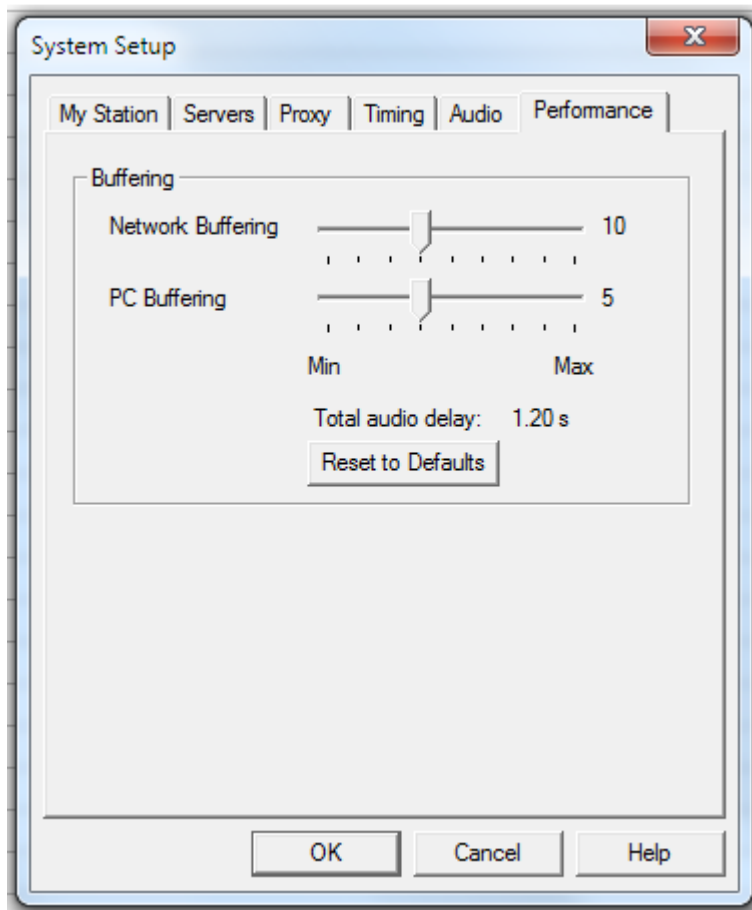
This is the last tab among the TOOLS > SETUP selections.

Click OK to save any changes you may have made and return to the main menu.

TOOLS > PREFERENCES > LIST

The default installation settings have ❑ Repeaters (-R) checked.
You can leave that setting checked.

The following unchecked questions could just as well be checked:
     Repeaters
     Add new QSOs to Favorites
   Show timestamp in chat window

TOOLS > PREFERENCES > CONNECTIONS
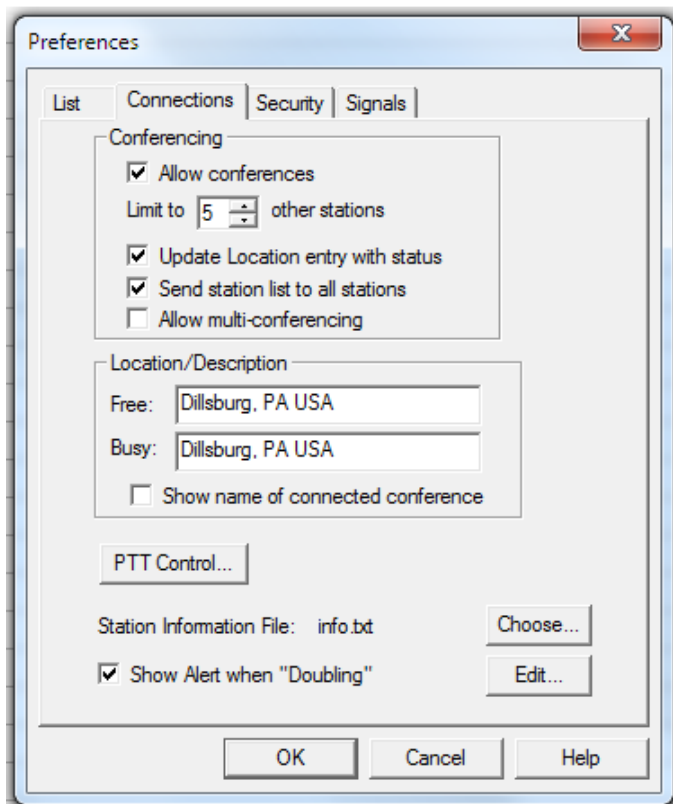
The default installation settings have the ❑ Allow Conferences box unchecked, and Limit to 2 other stations. Please change these settings as shown in the screen snapshot.

The Location/Description answers should reflect your personal information.
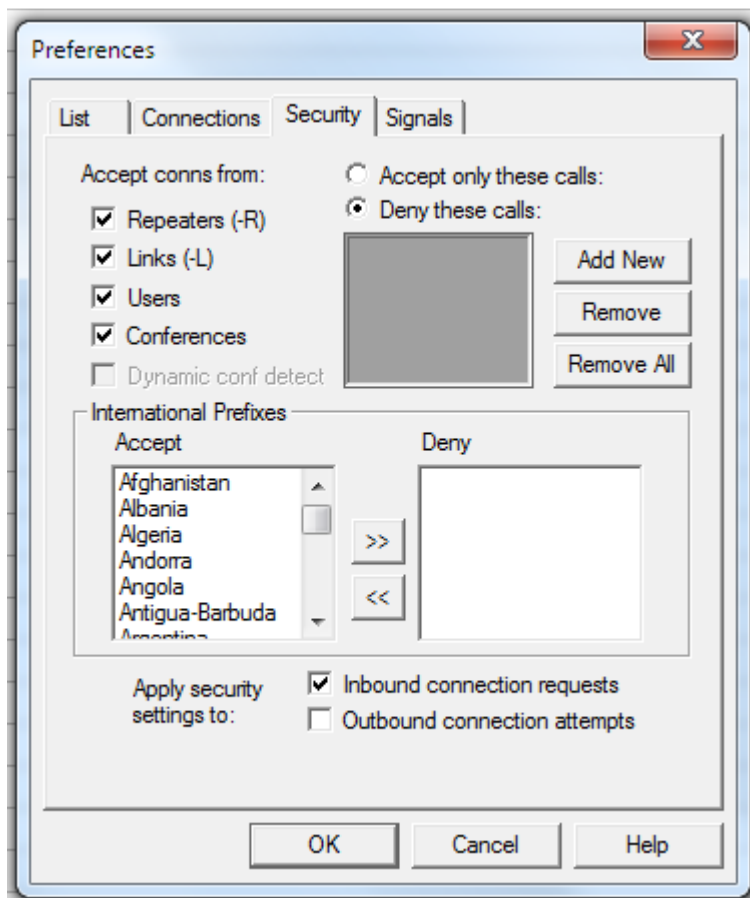

There is another screen accessible by pressing the PTT CONTROL button.
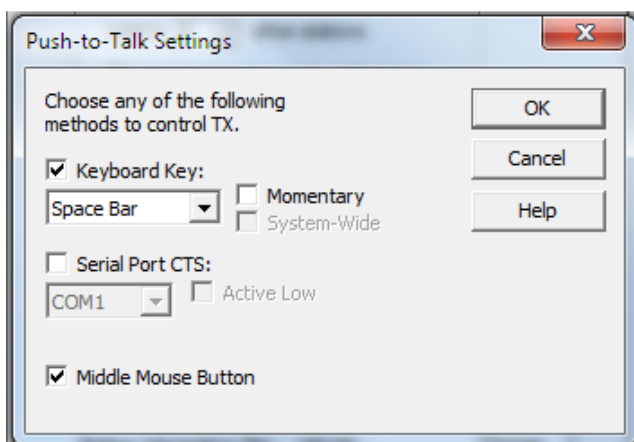
The default installation settings have the ❑ Middle Mouse Button unchecked. Please check that setting.

When finished Click OK to close this box and return to Preferences > Connections.
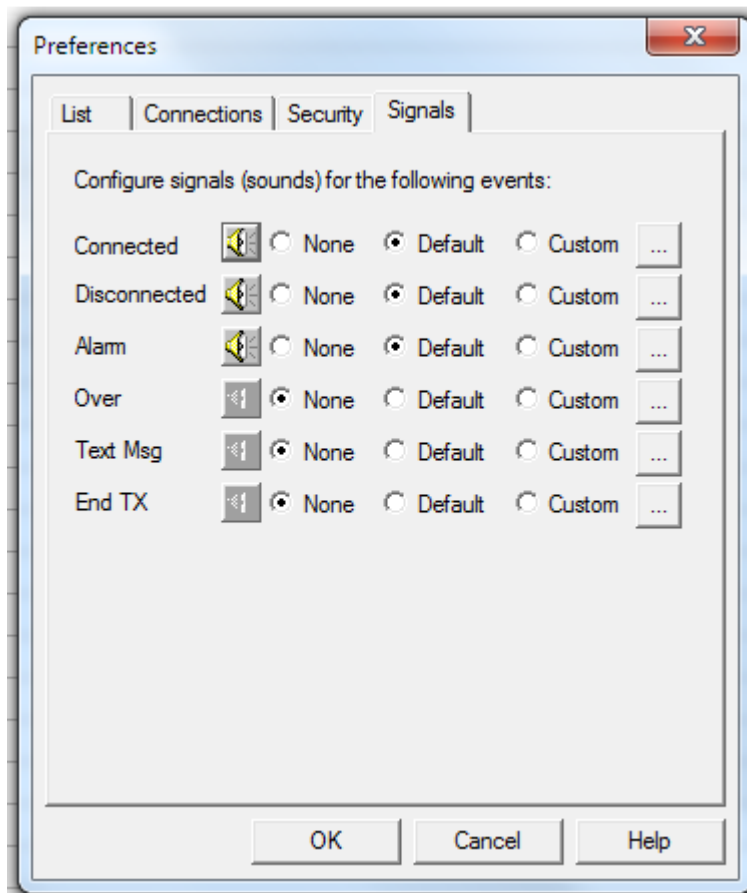
TOOLS > PREFERENCES > SECURITY

The settings shown here are pretty much "Wide Open".
If you wish to limit the types of stations that can connect with you this is the place to make those types of changes.

This is the last tab among the TOOLS > PREFERENCES selections.
Click OK to save any changes you may have made, and return to the main menu.
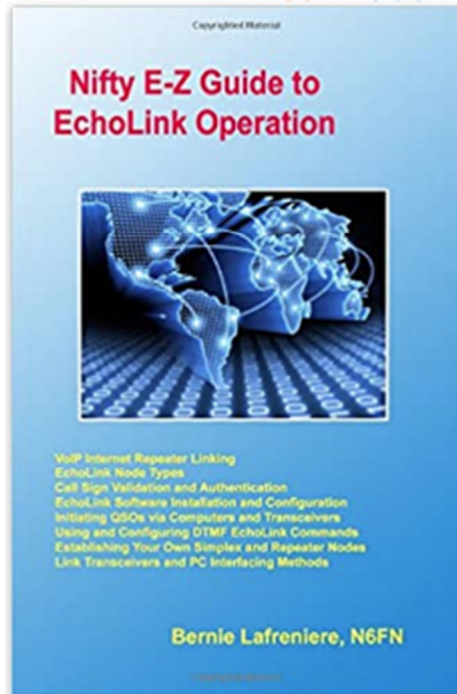
TOOLS > PREFERENCES > SIGNALS

These settings are "Off-The-Shelf" defaults.
I have not investigated any settings other than these.

Reference Materials:

EchoLink Website   www.EchoLink.org

Book written by Bernie Lafreniere, N6FN
Nifty E-Z Guide to EchoLink Operation

List Price $15.95.

Available from DX Engineering   www.dxengineering.com

Available from Ham Radio Outlet   www.hamradio.co

Available from Giga Parts   www.gigaparts.com

Available directly from Nifty   www.niftyaccessories.com

Using easy to understand explanations and illustrations, this book describes how the EchoLink system operates and how contacts are made using computers, RF Simplex nodes and Repeaters.

Provides full installation, setup and operating information for those that want to install EchoLink on their own computers. Additional information is provided for those wishing to use their DTMF equipped transceivers for making EchoLink contacts on existing RF Simplex and Repeater nodes while mobile or walking around.

This is the first comprehensive reference for EchoLink installation and operation ever published. An ideal resource for installing and setting up single user, RF Simplex and Repeater based EchoLink nodes. Experience the wonder of world-wide EchoLink communications!

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