

SERG VK5SR IRLP / ECHO-LINK / CLUB STATION OPERATING INSTRUCTIONS

IRLP

The Internet Radio Linking Project

SERG Node number 6875

If you wish to connect to a 70cm or 2 metre repeater anywhere in the world, you can via the SERG IRLP / Echo repeater system that is located in the SERG clubrooms in Mount Gambier. This can be done by using either a 2m or 70cm radio transceiver that has DTMF tone ability such as the ones here with numeric keypad or a DTMF audio generator.



To access our IRLP / Echo system repeater systems here in the South East, dial in to our :
2m repeater frequency 146.800 MHz offset -600KHz for Mt Graham or
70cm repeater frequency 439.825MHz offset -5.00MHz for Mount Gambier.

To locate list of nodes they can be found clicking on this link or typing in the email address;
<http://status.irlp.net/index.php?PSTART=3> these are in node ID Numbers listing eg,

IRLP Status Page as of 04/23/2017 13:33:19 UTC (04/23 06:33 PST)									
Summary	Reflector Usage	Connected Nodes	Nodes by Country	All Nodes	Mini All Nodes	Information	Lat/Long/US Zip	New Nodes	Credits
Last Update 04/23/2017 13:33:19GMT									
Nodes that have not checked in after 5 days, are NOT listed									
Node ID	Node Call	City	Province	Country	NodeFreq	LocalTime	Status	Length	
1000	VE7RHS	Vancouver	BC	Canada	145.2700	06:33	IDLE	22 Hours 10 Mins	
1003	VE7ISC	Nanaimo	BC	Canada	146.6400	06:33	IDLE	7 Hours 58 Mins	
1010	VE7RHS	Vancouver	BC	Canada	441.9750	06:33	IDLE	1 Days 15 Hours	
1011	VA7IP	Birken	BC	Canada	147.0000	06:33	IDLE	4 Days 6 Hours	
1015	VE7RNV	North Vancouver	BC	Canada	444.9500	06:33	IDLE	3 Days 8 Hours	
1026	VE7WOL	Abbotsford	BC	Canada	441.6000	06:33	IDLE	5 Days 9 Hours	
1027	VE7CUP	HOUSTON B.C.	BC	Canada	446.2000	06:33	IDLE	10 Hours 22 Mins	
1030	VE7VIC	Victoria	BC	Canada	146.8400	06:33	IDLE	3 Days 20 Hours	
1040	VE7QE	Penticton	BC	Canada	442.6250	06:33	IDLE	12 Hours 24 Mins	
1041	VE7BYN	Sicamous	BC	Canada	147.5400	06:33	IDLE	131 Days 21 Hours	
1050	VE7RVN	Vernon (SIRG)	BC	Canada	444.2750	06:33	IDLE	17 Hours 31 Mins	
1057	VE7SML	Tatlayoko Lake	BC	Canada	447.8500	06:33	IDLE	20 Hours 44 Mins	
1068	VE6HM	Edmonton - EchoIRLP #51068	AB	Canada	147.0600	07:33	IDLE	1 Hours 35 Mins	
1070	VE7NZ	Coquitlam	BC	Canada	224.9200	06:33	IDLE	17 Hours 0 Mins	
1076	VE7YYD	Smithers - EchoIRLP #888437	BC	Canada	146.4000	06:33	IDLE	6 Days 16 Hours	
1080	VE7TSI	Kamloops	BC	Canada	146.9600	06:33	IDLE	22 Hours 44 Mins	
1090	VE7NVI	Kelsey Bay/EchoPiRLP #233569	BC	Canada	146.5800	06:33	IDLE	46 Days 22 Hours	
1099	VE6MO	CAMROSE ECHOLINK/PIRLP #8137	AB	Canada	446.0000	07:33	Linked to 9222	21 Hours 3 Mins	
1111	*				0.0000	07:33	OFFLINE	453 Days 19 Hours	
1120	VE7KU	Port Alberni	BC	Canada	147.2400	06:33	IDLE	4 Days 13 Hours	
1121	VE4COR	St. Andrews	MB	Canada	146.6200	08:33	Linked to 9021	38 Days 2 Hours	
1122	VE6TRC	Fort McMurray EchoIRLP #590955	AB	Canada	147.0000	07:33	IDLE	6 Days 5 Hours	
1126	VE7RBH	Smithers	BC	Canada	147.3300	06:33	IDLE	10 Hours 33 Mins	
1130	VA7LPG	Nanoose Bay	BC	Canada	444.3000	06:33	IDLE	14 Days 10 Hours	
1133	VE7EDA	Mobile Node	BC	Canada	446.2500	06:33	Down	2 Days 19 Hours	

You can see here the Node ID, Call Sign, City, Country and even status of the node and much more. You will find this site very useful locating the city or country you're wishing to access. Nodes by country is a useful tab.

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Procedure to follow making an IRLP DTMF call,

Step (1) Listen to the radio frequency for any traffic and confirm it's not in use,

Step (2) If no traffic is heard announce your call sign and that you are wishing to use the IRLP,

*Step (3) Check the link is either Active or Inactive by holding the transmit button PTT and pressing DTMF number 0
You will hear if the link is active or not by an announcement from the IRLP system.*

Step (4) Once you find the link is inactive then go ahead and dial in the code for the remote station you wish to contact and remember to hold down the PTT button when entering the digits.

(If for some reason you accidentally dial the incorrect code you can cancel the link by sending DTMF 73 code to cancel the link. After cancelling a link please announce your call sign to listeners on the repeater.

Step (5) Once you establish a link to another node be patient for there are delays in the system, listen and if no traffic put out a general CQ call out to see if someone is monitoring that frequency. You should always leave a 3 second gap before transmitting to allow for the delays otherwise the other end may not hear the start of your transmission.

Step (6) When you have finished your contact, as a courtesy, thank the suppliers of the system and sign off with your call sign and where you're from, then while holding the PTT dial DTMF tone 73 to close the link. You will hear an announcement saying link is closed from the node you visited.

Step (7) Finally announce your call sign and state that you have finished with the IRLP so that others may use the facility.

And that's how easy it is to use.

Echo-link for Dummies

Seriously, if I can do it, so can you.

What is Echo-link?

- A method for digitally linking transceivers or repeaters, regardless of location.
- A method for accessing remote nodes –Sort of like remote control
- Echo-link uses the internet to pass digitized packets of sound from one node to another.
- This is more like Skype, which sends Audio from one Skype location to another.
- This is known as “Voice over Internet Protocol” (VOIP)



Three ways to connect

Echo-link connects in three different ways :

- Direct User using an Internet enabled smart phone or Internet enabled computer with speaker and microphone
- Echo-link enabled Repeater where the audio feed of the repeater is received by Echo-link node and relayed onto the echolink system
- Echo-link enabled simplex link using an audio feed of a single transceiver (NE8K-L on 145.570 Mhz)

Direct Connect User

Smartphone offers Echolink app.

Like using a cell phone, but your audio is ported onto the echolink system over the internet.

Enables you to in essence, remotely control a host transceiver anywhere in the world

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Direct Connect Via internet connected computer if you have broad band internet (cable, DSL, etc.)

Uses your computer's speakers and internal microphone

Enables you to connect to a remote transceiver and participate in (inter)national nets and conferences.

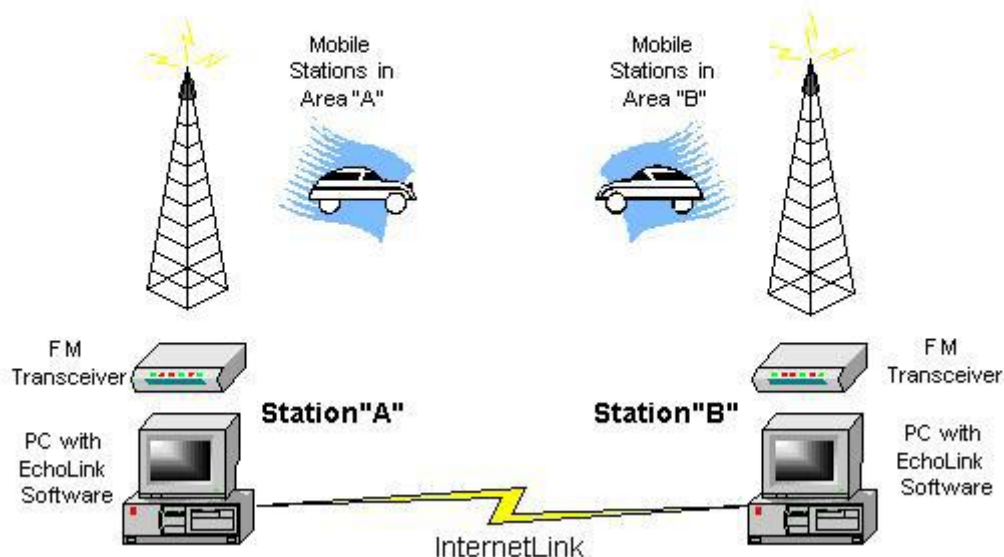
What is a conference?

A conference is a linking of various repeaters, links, direct connect users and other conferences. Like a big party line. Audio streams in from all the various connected nodes, users, and conferences. Echo-link sorts it out to prevent doubling. Currently our system is experiencing problems with digital blips when using conference nodes so until further notice we urge you not to use conference mode so we don't get permanently banned.

Echo-link enabled repeater. A local repeater that has its audio streamed onto the internet.

Echo-link users from anywhere in the world can connect and transmit onto the repeater. An Echo-link connection may be physically located at repeater, or may be remotely located.

Linking Example



Installing Echo-link

Go to <http://echolink.org/> to download and install the software.

Ensure that your computer has an operational mic and speaker. Most laptops already have these features. Desktop computers will need some kind of mic. Many are available from local suppliers or over the Internet.



Registration of Echo-link

Scan your licence, photograph it, email or fax it for proof of licence. Echo-link requires proof that you are a ham. Save the graphic on your computer. Instructions are found on echolink.org website.

<http://www.echolink.org/validation/>



Validation

EchoLink opens a world of new communications possibilities by joining Amateur Radio stations over the Internet. Since the Internet is a shared, public resource, security is naturally a very important part of the system.

Each new user of EchoLink must provide proof of license before access is granted. This is to ensure that only licensed Amateurs have access to the system, and to ensure that each user is using a valid callsign that he or she is authorized to use.

There are several different ways you can provide proof of license. These options vary somewhat by country. The various options will be explained on the pages that follow.

First, please be sure that you have downloaded, installed, and **run** the EchoLink software. This registers your callsign with the system. Then, please enter your callsign below, and click Continue.

Callsign:

Each connection type needs validation. Here's a USA example.



Validation - Choose Callsign

The callsign you entered is: **NE8K**

EchoLink can be set up with any of several different callsign suffixes. The callsign **NE8K** (with no suffix) is used in Single-User mode, and the callsigns **NE8K-L** or **NE8K-R** are used in Sysop mode. (Sysop mode requires connecting a radio to your computer's sound card using a special interface device.) Each of these three is considered a separate callsign, and must be validated separately for EchoLink.

The following callsign(s) are registered with EchoLink:

Callsign	Status	Date Registered (UTC)
NE8K	Already validated	25-Jul-2011
NE8K-L	Already validated	27-Jul-2011
NE8K-R	Already validated	24-Aug-2011

Configuring your router

Your router may work straight away. If it doesn't, like if you run a firewall, you may need to configure the port.

Access your router and set up a pass-through.

Open ports 5198 through 5201 for echolink access.

Some routers will "trigger" on echolink, and open the port via port range triggering.

If you are really stuck, See:

http://portforward.com/english/applications/port_forwarding/Echolink/Echolinkindex.htm

Port range triggering

LINKSYS®
A Division of Cisco Systems, Inc.

Firmware Version: v1.02.2

Wireless-N Broadband Router WRT160N

Applications & Gaming

Setup | Wireless | Security | Access Restrictions | **Applications & Gaming** | Administration | Status

Single Port Forwarding | Port Range Forwarding | **Port Range Triggering** | DMZ | QoS

Port Range Triggering

Application Name	Triggered Range	Forwarded Range	Enabled
echolink	5198 to 5201	5198 to 5201	<input checked="" type="checkbox"/>
Winaprs	10150 to 10151	10150 to 10151	<input checked="" type="checkbox"/>
	0 to 0	0 to 0	<input type="checkbox"/>
	0 to 0	0 to 0	<input type="checkbox"/>
	0 to 0	0 to 0	<input type="checkbox"/>
	0 to 0	0 to 0	<input type="checkbox"/>
	0 to 0	0 to 0	<input type="checkbox"/>
	0 to 0	0 to 0	<input type="checkbox"/>
	0 to 0	0 to 0	<input type="checkbox"/>
	0 to 0	0 to 0	<input type="checkbox"/>

[Help...](#)

Save Settings **Cancel Changes**

CISCO

Okay, so far...

You've installed the software

You've a microphone & speakers

You have an internet connection

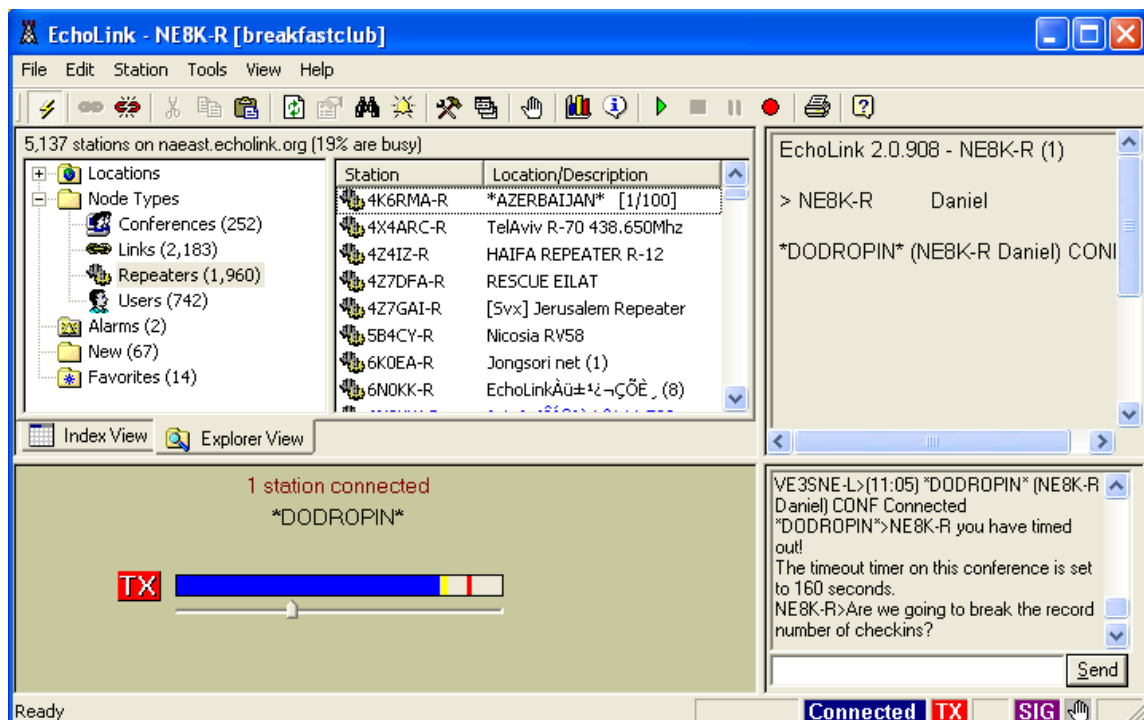
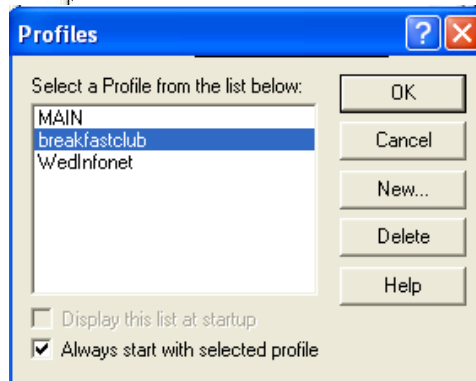
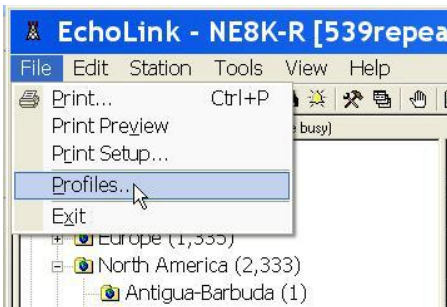
You have validated via echolink

Now what??

Open the Echo-link software.

- Log into your profile.
- Pick your preferences.
- Set the sysop settings.
- Try connecting to conference *ECHOTEST*
- Adjust your audio.
- Echo-test is an audio echoing conference. It will echo back whatever audio you stream to it.

Choose your profile – these are American profiles, choose New



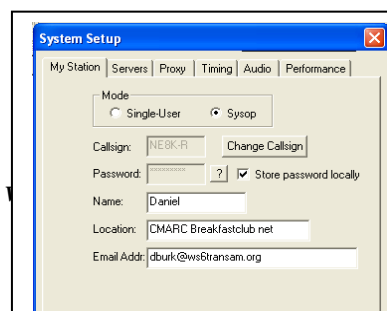
Echo-link setup

Your setup will depend on how you use the software,
Use it as standalone for direct connection, No physical radio.

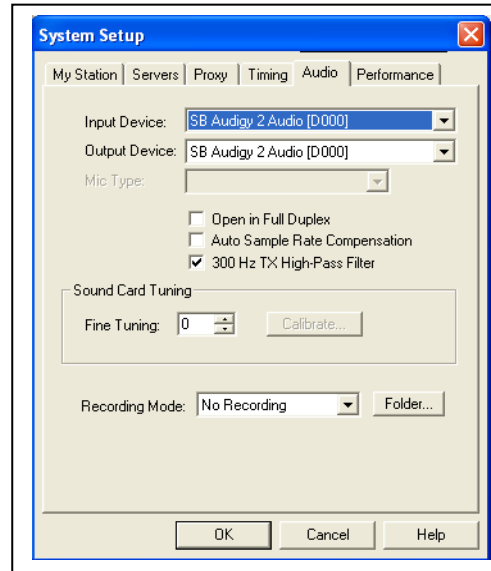
Use it as a transceiver controller either to control a repeater or a simplex link.

System setup determines how you will use Echolink.

- Single user for direct connect
- Sysop for links and repeater use

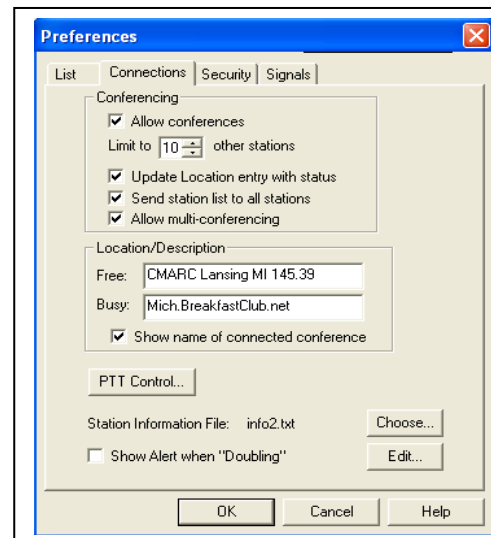


- Audio is critical: You must select the input device, which is your sound card but could also be a set of USB headphones.
- The output device might be your sound card or it might be your microphone.



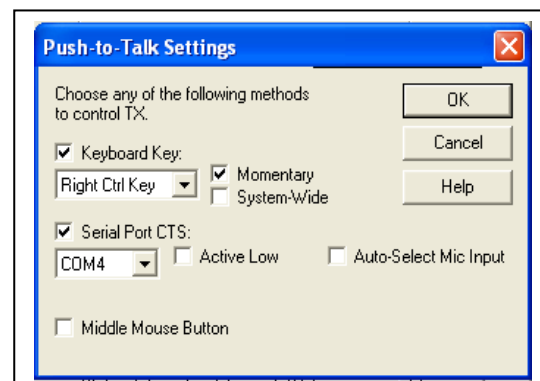
Choosing your preferences

- Here's the nuts and bolts of your Echo-link.
- If you are setting up a link or repeater, enable conferencing but limit the max number of stations to 2 to 5 unless you have lots of bandwidth



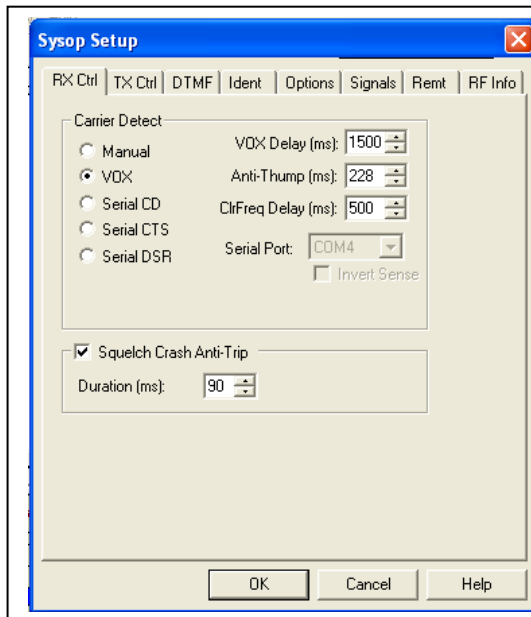
PTT Control

- Some like the control key but you can use the space bar.
- Be sure to click "Momentary"!
- The serial port is for when you use a TNC and an actual radio



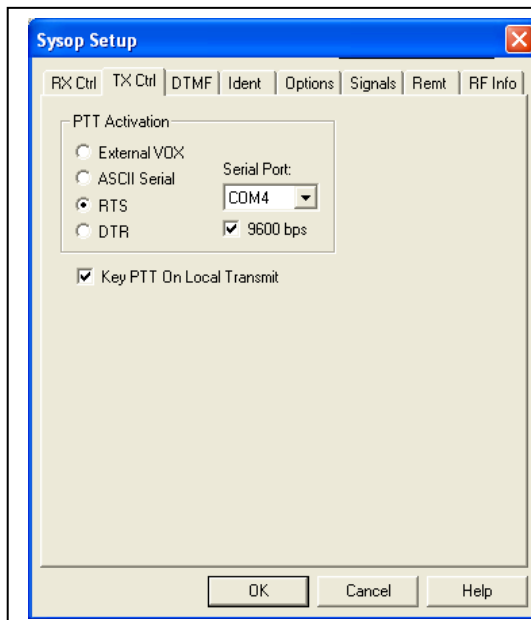
Sysop settings: RX control

- Receive control is an important window.
- Use VOX if you are bringing audio in from a receiver. Squelch must be aggressive to prevent open air transmit the net.
- Use Manual if you are connecting direct with your computer



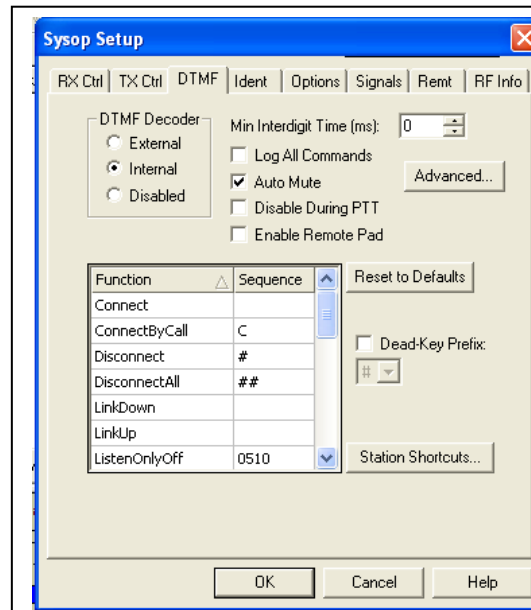
TX Control

- When transmitting from echolink onto your local transceiver, PTT activation will enable the echolink traffic from remote users to key up your radio .
- RTS seems to work best when using rig-blasters.



DTMF control

- On-air control of Echolink is possible with DTMF commands.
- Connect, disconnect, system status, etc.
- Turn on "auto mute" to keep your DTMF commands off the echolink.



Identity

- When using Echo-link with a transceiver, your link can auto-identify for you.



RF Info

- This is information that is presented to other users of Echolink. It describes the physical location of your echolink node.



Echo-link setup summary

Set up your profile as either user, link, or repeater
My Station tab of system setup,

Set up your sound card

Audio tab of system setup, Set up your preferences

Set up your preferences

Connections tab of Preferences

PTT Control

If transceiver is used, set up your Sysop settings

RX Control

TX Control

DTMF Control

Identity

RF Information

Time to tune.

- Once you are set up, try to connect to *echotest* conference.
- Echo-test will echo back anything you transmit.
- Enables you to hear yourself and to tune both your transmit and receive audio.
- Once Echo-test is working you are good to go.

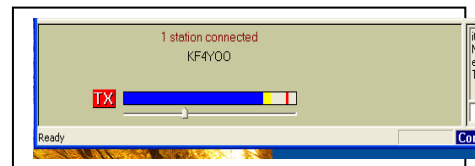


Audio adjust

- Click on start > control panel > Sounds and Audio
- Sound playback is for the sound coming OUT of your computer, i.e. audio from Echolink
- Sound recording is for the sound going IN, namely, your audio.



- Watch the bar on the lower-right. Blue represents instantaneous audio level. Red bar represents the momentary peak.
- The object is to adjust the red bar has high up as possible without hitting the very top.



Exploring Echo-link

Echo-link lets you connect to repeaters across the world. Some are in English, many are not.

http://echolink.g4eid.co.uk/status/all_conferences.html

This link shows you instantly which conferences are hot; i.e. lots of users. Other buttons show which connections have multiple connections.

Echolink – short summary

Echolink is more flexible than IRLP in that you can also use your computer, mobile phone or tablet to access an Echolink node. Otherwise the system is similar. The other difference is that you need to get approval to use the system and this involves proving to the managers of Echolink that you are a licensed amateur. Full information is available at <http://www.echolink.org/>.

Our lock node is VK5WSR-R and its node number is 749891.

What can I do with EchoLink?

EchoLink allows licensed Amateur Radio stations to connect to one another over the Internet. You can use EchoLink to connect your station (or your computer) over the Internet to other amateurs using the same software, and carry on a voice QSO. This greatly enhances the range and utility of mobile and portable VHF/UHF-FM stations, and also allows computer-equipped hams to access distant repeaters directly.

You can access EchoLink either with a radio or a computer. If you are in range of an FM repeater or simplex station equipped with EchoLink, you can use DTMF commands from your radio to access the EchoLink network. If you are a licensed amateur with an Internet-connected PC, you can access EchoLink stations directly from your PC.

How do I get started using it?

First, [download](#) the software from this Web site. You will be asked to provide your callsign and e-mail address. Then, install the software on your PC, be sure you have a good Internet connection (56k modem or better), and start it up to register your copy of the software. The final step is to provide proof of licence so your callsign can be added to the system; see [Validation](#) for details. Then, you're ready to go.

Software is also available for the major mobile phone platforms such as Android and iPhone. Go to their respective APP stores to download a copy. Personally I find the Android phone software a breeze to use and prefer it over the desktop software for searches and general ease of use.

Using Echolink on your radio is *almost* identical to using IRLP. When using your radio to connect to VK3RBN-R (a repeater station) just send a DTMF sequence like this: *290511 then after you have finished the QSO use * to hangup.

Note that Echolink contacts on **our system** require a * before the node number and a * to finish the connection. The presence of a * helps separate Echolink from IRLP in our clubrooms. Operating from other locations may not require the *.

If you are using a computer or phone and after entering your approved callsign and password you will be offered a list of locations on the screen. On your phone just click on the area you want. E.g. choosing Oceania brings up a choice of Australia or New Zealand with about 100 nodes for Australia. Click on the one you want. That's it. Keep the mike level down. Buttons will appear on screen to switch between receive and transmit. You'll work it out. The computer software is less obvious but a little experimenting will get you on the way.

If you want a complete list of links use <http://www.echolink.org/links.jsp> and then manipulate the search boxes to narrow down the search for the node number.

The Remote Station

This station enables you to use the Kenwood TS2000 in the clubrooms. The rig has antennas for 80,40 and 20 available and at a later date we hope that VHF/UHF will be available once the antennas are replaced.

The 80/40 metre dipoles are on Ant1 while the 20 metre beam is on Ant2. These are the defaults.

The setup relies on Ham Radio Deluxe and a driver program called Shacklink. In addition if you want to control the beam you need a copy of VK5DJ's VK5SRbeam.exe

Here is the RigExpert WTI interface website.
<https://rigexpert.com/products/interfaces/wti-1/>

This is where you get the various items of software:

VK5SRrotate <http://www.vk5dj.com/VK5SRrotatesetup.exe>

HRD free final copy <https://www.egr.msu.edu/msuarc/software/ham-radio-deluxe/>

WTI Internet driving software <https://rigexpert.com/products/interfaces/wti-1/downloads/> then click on the installer file. Or else use this direct link: <http://www.rigexpert.com/files/install/SetupWTI-1.8.exe>



Once you have run the Installer file (SetupWTI-1.8.exe) you will go to the TOOLS menu and Settings.

Under serial ports choose the following

Serial port for CAT: COM7

Serial port for PTT etc: COM8

Serial port for PSK: COM9

Serial port for RS485: COM10

Serial port for Winkey: None

Click on the Network tab and enter

WTI address: 119.18.29.115

WTI password: Full01

WTI audio buffering 200msec on the slider

Command port TCP: 11001

Audio port UDP: 11002

PTT/CW port UDP: 8766

Now click on the Audio tab

Audio input: Microsoft Sound Manager input (note you might have different drivers in use)

Audio output: Microsoft Sound Manager output (note you might have different drivers in use)

Audio RX buffering: 1940msec (in my case)

Sample rate: 12000

Codec PCM

Now click on the General Tab and select English.

Click OK and you will return to the main interface WTI screen. If you have set things up OK you should be able to hear the radio's audio if it is turned on. If you don't hear it don't be too concerned the radio may be remote controlled off. HRD will turn it on for you. You can control the audio levels on this screen. For starters we suggest that the left knob (Main RX) on the WTI interface be set to 11 o'clock, the Secondary receiver at 7 o'clock and the TX at 1:30 o'clock.

Running the program HRD you will need to setup the interface to the TS2000. In the setup menu choose

Company: Kenwood

Radio: TS2000

Comport: Com 7

Speed: 19200

The CTS, RTS and DTR boxes are unchecked.

I have "Always connect to the radio when starting" ticked.

You should now be able to use HRD to control the radio.

Mind your licence conditions. The previous user may have the power set higher than your licence permits so check the power slider in HRD. Always use your callsign not the club's when using the remote station.

SERG VK5SR IRLP / ECHO-LINK / CLUB STATION OPERATING INSTRUCTIONS

When you are finished with your contacts HRD will ask if the radio should be shut down – choose YES. The radio will be turned on automatically by HRD when the next user logs in.

Using VK5SRrotate

When downloaded from John's site and you have the WTI loaded and operating run this program. You will see a rotator controller screen. Check the serial port (top right) is set for Com10. Click Select port to change.

The needle should now move to show the position of the beam when using 20, 15 or 10M. To control the beam you can either use the Clockwise or Anticlockwise buttons to move the beam or type in the desired heading (or use the up/down buttons to change the reading) and then click Go to Heading. As there is no error checking the beam may not immediately move and you may have to hit the button several times. This is due to collisions amongst all the data going to and fro.

The rotator has 410 degrees of movement with the stop at south when ACW is used and a stop at 410 when the rotator is moving clockwise.

Finally

If this help document doesn't answer all your questions contact John VK5DJ or Tom VK5NFT and we'll add further comment.