

Repeater Book

- Free to join as a member
- Data on “Repeaters” in US and Worldwide
- Caution – don’t rely on that the information is always current
 - Go look up Station’s Internet page to confirm
- As a member you can download repeater information for upload into your radio
 - Data can be uploaded in several popular formats for your specific radio
 - [Repeater Book](#)

Some Popular Digital Modes on Repeaters

- These modes use the internet to overcome long distances
 - Echolink – Computer to Computer, can pop out of the internet to reach radio world
 - IRLP- radio to radio system using nodes and reflectors (servers)
 - DMR- Digital Mobile Radio; developed in Europe and is a digital radio standard for clear voice communication over 2-way radios
 - Dstar – Developed by JARL; Allows amateur radio operators to connect globally using digital voice and data transmission through a network of interconnected repeaters
 - Allstar - Digital linking network used to connect repeaters or nodes over the Internet to other repeaters or nodes.
 - WiresX - a system developed by Yaesu that allows amateur radio operators to communicate over the internet using a "node" station connected to the internet (Fusion is brand name that utilizes C4FM technology)

IRLP (Internet Radio Linking Project)

“Radio to Radio System”

- Enables VHF and UHF radios (HT, Mobile, Base Station) to connect to repeaters across the world as long as your radio can send DTMF code
- The IRLP system consists of RF gateways (called nodes) and reflectors (Reflectors are essentially servers on the Internet with appropriate capacity behind broadband Internet links that interconnect many repeaters together).
- If using a Repeater it has to support IRLP
 - (IRLP Finder App on iPhone or IRLP.net to locate Local IRLP repeaters world wide)

How to connect to IRLP

- An IRLP Repeater
- Create your own IRLP node at home (computer, such as a Raspberry Pi or a PC An interface board)



- Similar to Allstar, DSTAR and DMR

Procedure to establish an IRLP Link via a supported IRLP Repeater

- 1) Find local repeater that supports IRLP (IRLP Finder App)
- 2) Look up node of IRLP repeater you want to connect to (IRLP net or App)
- 3) Listen to your local repeater to insure not in use and call out to state intentions on using IRLP
- 4) Press PTT and press 7 and 3 keys to insure repeater is released and ready to use
- 5) Press PTT and enter number of node you want to go to
- 6) Confirm connected to desired IRLP repeater (you will hear message connected to for example Erie PA via IRLP link)
- 7) Call CQ and find operators to chat with
- 8) When done notify linked repeater you are disconnecting
- 9) Press PTT and press 7 and 3 keys to Disconnect/Unlink

Bottom line is with minimal effort and equipment you can talk around the world with IRLP with a HT, Mobile or Base Station! (Other new digital modes require more effort). See YouTube for examples.

Echolink

- What is the difference between EchoLink and IRLP?
 - The primary difference between EchoLink and IRLP is that EchoLink allows direct computer-to-computer connections through the internet, while IRLP is strictly a radio-to-radio system
 - You can not hook the radio up to EchoLink. EchoLink is a program that you put on your Computer, Tablet, or Phone to communicate to Repeaters that has internet connected to them with the EchoLink software on them.
 - * The radio is only using the repeater, not EchoLink.
 - * The Repeater and your Computer, Tablet, or Phone is the only thing that's using EchoLink.
 - * Your only talking on EchoLink through the repeater with your radio.
 - 1) The BaoFeng UV-5R communicates to a repeater that support EchoLink.
 - 2) The BaoFeng UV-5R communicates to a repeater.
 - 3) The repeater communicates to EchoLink user.

Cannot be used with GMRS, Strictly ham (2M, 70cm or 1.25)

Midland Repeater

- Located on M-20 on Animal Hospital tower (~ 6 miles out on M-20)
- Covers Midland County; not sure of overall coverage map
- ***IMHO very limited usage (Isolated - Midland Hams primarily)***
 - How many Operators had a QSO on the Midland Repeater this week?
 - How many QSO over the past month?
- *The Repeater landscape is evolving. The various repeater mode technologies (Linking and digital) are exciting, extending reach of repeaters, and present new opportunities for us to communicate.*

I believe we have opportunities to increase utilization of the repeater and attract potential interest for new operators.

- ***Here are some ideas to consider***
 - Incorporate digital modes
 - IRPL, AllStar, Dstar, DMR, (Echolink ????)
 - “Link it to other repeaters”
 - Saginaw and or BAARC (Bay Area Amateur Radio Club)
 - W8IRA Linked repeater system
 - W8CMN (mostly Emergency Aligned)

My Experience Using Linked Repeaters

I have used W8IRA, W8CMN, Northern Michigan and UP linked systems

I have made many contacts

Rag Chew, participated in their nets, hearing where operators are located

20,604 licensed operators in Michigan

- Midland County ~ 400 licensed operators

Extended range is welcomed

Just recently Drove from Traverse City to Midland – Snow Storm

Hams moving to other Michigan Cities

Still dead Cell phone spots in Michigan

Becoming a part of the Linked Repeater System

“Pros”

- Extended Range
 - May be useful for wide range emergencies
 - Public service events
 - Rag chew
- Linked systems fosters a larger community of users
- More Net opportunities
- Might be able to Hand-off Repeater Responsibilities
 - Midland Clubs has amazing experts but very few of them
 - Not sure about succession plan to train new experts
- Financial costs should decrease depending on Linking agreements
- Potential more digital opportunities
- Might be a conduit for future collaborations (Example one large Ham Fest)



More Utilization

Becoming a part of the Linked Repeater System

“Cons”

- Might be Giving up Control
- Legal issues may arise (Current tower owner may not approve)
- Control and Coordination Complexities
 - Managing a linked system requires careful coordination and adherence to established protocols. This can be complex, especially in large systems.
 - Ability to easily Disconnect linking for local Emergencies
- Lose a Long Time Historical Part of the Club
- Dependence on System Infrastructure
 - If the linking infrastructure (whether radio or internet-based) fails, the entire system can be disrupted

Upcoming Presentation Potential Topics

- Long Island CW Club
- Home QTH Equipment Bench
- Clips on YouTube with Unique Ham Radio setup
- Emergency Network Amateur Radio
- Field Day Alternative Power
- Show & Tell Ice Cream Night
- Building your own Nuclear Reactor
- Allstar
- Electronics build for Balloon Flight
- Mobile Installations
- Building Antennas
- Quansheng HT Radio (Review of HT Ham Radios)