

GEARS UHF Repeater AllStarLink Upgrade

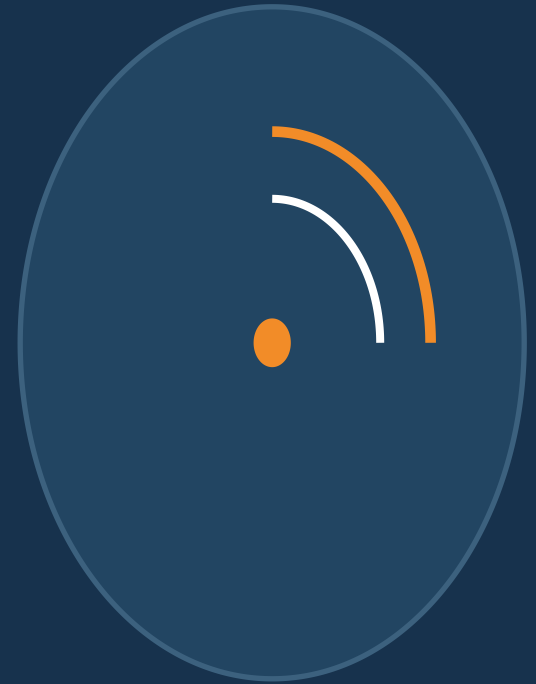
W6RHC • Node 56934

More capability for club members — with reliable
control for CERT nets and emergencies

440.650 MHz

+ Offset

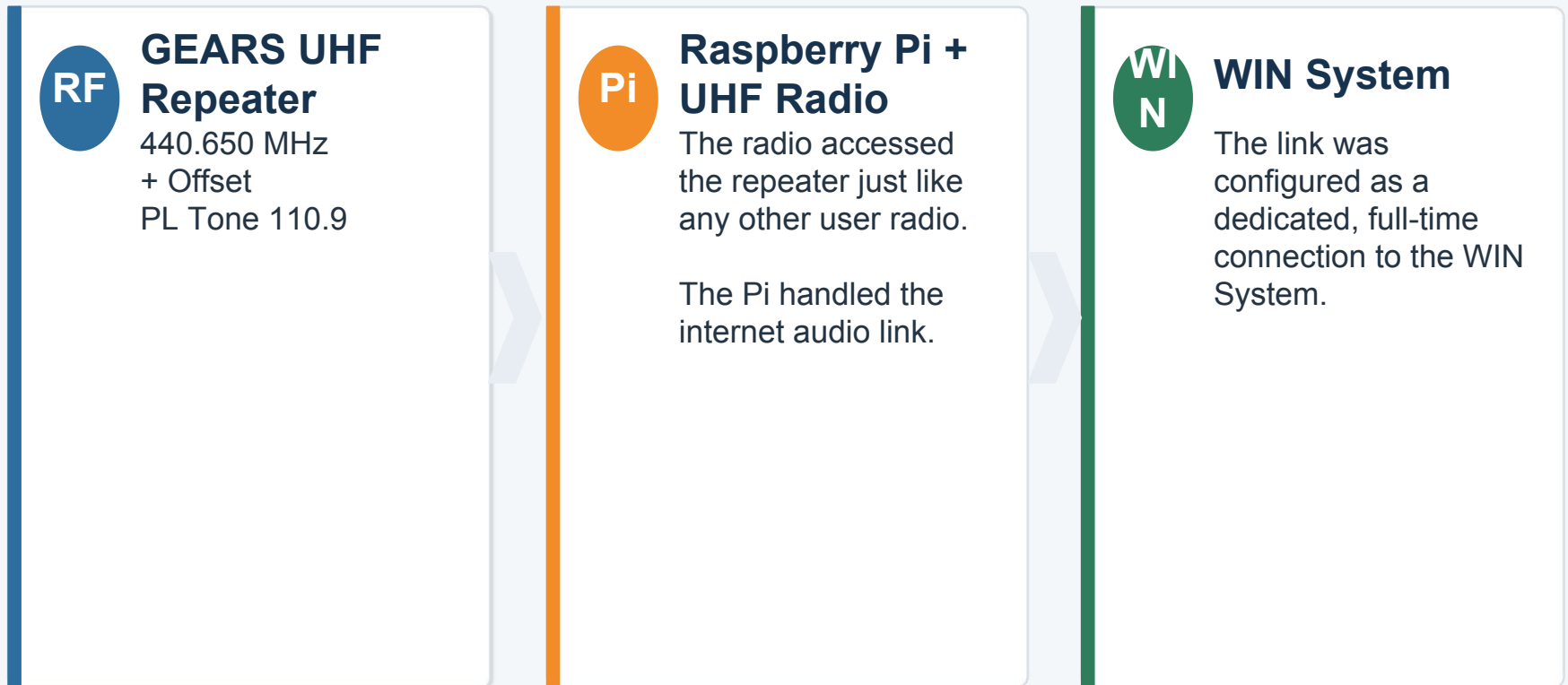
PL 110.9



Presented to the GEARS Radio Club

The Original GEARS Link Setup

A Raspberry Pi and UHF radio operated as a user radio on the club repeater



Problem: The system worked, but no current club member knew how to log in, control it, or disconnect it when needed.

Why Control Became Important

CERT now uses the repeater for emergency communications, training, and scheduled nets

1

CERT Nets

Net control needs a clear local channel without unrelated linked traffic.

2

Emergencies

The link must be disconnected quickly so local emergency traffic has priority.

3

Training Exercises

CERT members need a predictable way to prepare the repeater before an exercise begins.

Required capability: Authorized members must be able to ENABLE or DISABLE the internet link without affecting normal local repeater operation.

The New GEARS Solution

The Raspberry Pi has been rebuilt as a modern AllStarLink node



Official AllStarLink Node

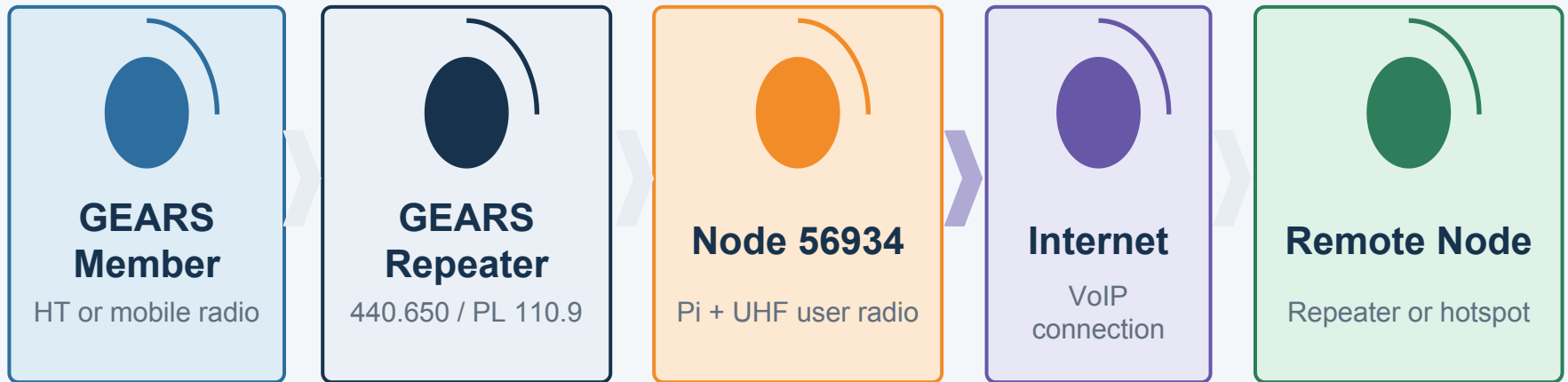
Registered under the GEARS
club call sign

What changed

- Reconfigured with the AllStarLink 3 (ASL3) operating system
- Assigned AllStarLink Node 56934 under W6RHC
- No longer limited to one permanent network connection
- Can connect to AllStarLink nodes across the United States and worldwide
- Can still connect to the WIN System whenever users desire

How AllStarLink Works

Radio audio is carried between linked nodes over the internet



When nodes are linked, everyone on either system hears the same conversation. Local audio goes out through the remote node, and remote audio comes back through the GEARS repeater.

What Club Members Gain

The node is now flexible instead of being locked to one full-time connection

A

Connect Beyond Chico

Reach participating repeaters and hotspots across the USA and around the world.

B

Choose the Destination

Connect when desired, monitor a node, check status, and disconnect when finished.

C

Keep the WIN Option

The WIN System remains available as one of the networks that Node 56934 can join.

The GEARS repeater continues to work normally for local RF communication even when no AllStarLink connection is active.

CERT and Authorized Remote Control

Selected CERT members can manage Node 56934 through secure internet access



Authorized members

Access is limited to people approved to control the club node.



Allmon3 Dashboard

View node status and connect, disconnect, enable, or disable the link.



Protect the Net

Before a CERT net or emergency, the internet link can be removed while the repeater stays on the air.

Disabling Node 56934 does not disable the GEARS repeater — it removes the internet-linked radio path.

Using AllStarLink from Your Radio

Node 56934 uses the standard AllStarLink DTMF commands — no custom commands

1 Listen first

Make sure the repeater and any existing link are not in use.

2 Key and send DTMF

Hold PTT and enter the command. The function normally begins with the * key.

3 Wait for confirmation

The node will announce whether the connection succeeded or failed.

4 Disconnect afterward

Always remove the link when finished unless the club has agreed to leave it connected.

DTMF Formula

*** command
node number**

Example

***3 12345**

Connect to Node 12345
in two-way transceive
mode

Find AllStarLink node numbers: <https://www.allstarlink.org/nodelist/>

Standard Commands: Linking and Status

These mandatory commands are supported by standard AllStarLink nodes

***1 + node Disconnect that node** Example: *112345 disconnects Node 12345

***2 + node Monitor mode** Listen to the remote node; your audio is not sent

***3 + node Transceive mode** Normal two-way connection — talk and listen

***4 + node Remote command mode** Advanced use; sends following DTMF to the remote node

***70 Local connection status** Announces the current links on Node 56934

Helpful shorthand: Node number 0 means “the last node used.” For example, *10 disconnects the last node that was operated on.

Additional Default Commands

Common status and control functions typically included in an ASL3 installation

*71	Disconnect all links	Useful before a scheduled net or when clearing the node
*72	Last active node	Announces the most recently active linked node
*73	System-wide link status	Announces connected nodes across the linked system
*74	Reconnect all links	Reconnects links that were previously disconnected by the macro
*80	Force station ID	Immediately sends the configured node identification
*81	Say system time	The node announces the current time

Note: The node's actual configuration file is the final authority. Node 56934 is presently using the standard defaults with no custom DTMF commands.

Example: A Complete Connection

A normal user session from the GEARS repeater



Example command sequence: *3 12345 →
 talk → *1 12345

Good Operating Practices

AllStarLink works best when users treat every connection as a shared multi-repeater system

- Listen before connecting and before transmitting.
- Announce your call sign and the node or system you are connecting to.
- Leave a short pause after keying and between transmissions.
- Remember that your audio may be heard on many repeaters at once.
- Do not connect or disconnect during an active conversation.
- Disconnect when finished, especially before scheduled GEARS or CERT nets.
- During an emergency, follow the direction of Net Control and authorized CERT operators.



CERT Priority

Emergency and net traffic always takes priority over casual linked operation.

GEARS Node 56934 — Quick Reference

The three commands most members will use

CONNECT

***3 + node**

Two-way transceive
connection

STATUS

***70**

Hear the current
local connections

DISCONNECT

***1 + node**

Remove the
selected link

**For CERT nets or emergencies: authorized operators can
disable the AllStarLink path while keeping the GEARS
repeater available locally.**

Questions?

Technical References

Official AllStarLink documentation used for this presentation

AllStarLink 3 Manual

allstarlink.github.io

Explains the AllStarLink network, ASL3, Raspberry Pi support, and VoIP linking.

Standard Commands

[allstarlink.github.io/basics/standardcomm
ands](https://allstarlink.github.io/basics/standardcommands)

Lists mandatory link commands and commonly configured optional commands.

Configuration reminder

The command list in `/etc/asterisk/rpt.conf` is the final authority for any individual node. Node 56934 is currently configured with the standard command set and no custom commands.