

OREGON HamWAN

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<http://www.oregonhamwan.org>

Agenda



1. What is HamWAN?
2. HamWAN vs. WinLink
3. HamWAN vs. Mesh
4. Why HamWAN?
5. HamWAN Status?
6. Oregon HamWAN Status?
7. HamWAN Coverage in the Portland Area
8. Upcoming Event: Demo & Workshop
9. Tour of Oregon HamWAN Website
10. Q & A

What is HamWAN?



“Wide Area Network using Amateur Radio for Internet Access”

1. Access HamWAN using inexpensive Nodes (\$100).
2. Supports Web, Email, VoIP Phones, etc. (within limits of FCC Part 97).
3. Publicly routable IP addresses (44.x.x.x) support servers on HamWAN.
4. Star network, with multiple gateways to the Internet, for redundancy.
5. Network speeds up to 300 Mbps; up to about 10 Mbps for each Node.
6. Nodes consist of integrated Mikrotik antenna and transceiver.
7. Nodes connect to computer or router using POE (power over ethernet).
8. Easy to operate using 12 volt power.
9. Easy to share Internet connection with small group using wireless router.

What is HamWAN (continued)?



10. Nodes operate at 5.9 GHz (microwave) frequencies in the Amateur Radio band.
11. Nodes (and Sectors) require line of sight at least one HamWAN Sectors
12. Requires Technician or better license.
13. Sectors are deployed on towers, generally with three 120° antennas (for 360° coverage), plus an uplink, plus a router.
14. Sectors should have reliable emergency power.
15. In addition to the uplink, Sectors may have an Internet gateway for packet routing between HamWAN and the Internet.

HamWAN vs. WinLink



HamWAN

- Up to about 10 Mbps
- Mesh (shared) connections
- Varied services (web, email, VOIP phones)

WinLink

- 300 bps – 56 Kbps
- Point-to-point (non-shared) connections
- Single service (email only)

HamWAN vs. Mesh



HamWAN

- TDMA
- 5.9 GHz
- Cellular
- 44.0.0.0/8 address
- QOS for prioritization
- Up to 300 Mbps

Broadband-Hamnet

- Regular Wi-Fi
- 2.4 GHz
- Mobile Ad-HOC
- 10.0.0.0/8 address
- All traffic equal
- Up to 54 Mbps

Why HamWAN



1. Support Emergency Communication.
2. Easy to setup portable Nodes with long range.
3. Supports higher speed and more services than WinLink.

HamWAN Status



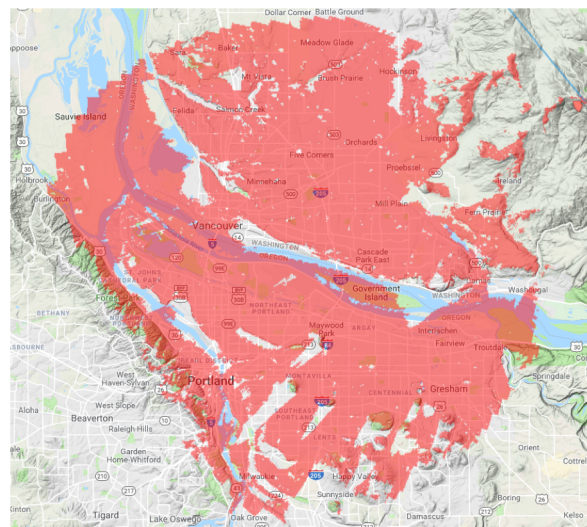
1. The Puget Sound Data Ring (PSDR) is widely deployed in the Seattle Area.
2. PSDR currently extends as far South as Larch Mountain, Washington.
3. HamWAN is available in parts of Portland via connection to Larch Mountain.
4. HamWAN is also deployed in Tampa Bay, Memphis, and British Columbia.

Oregon HamWAN Status

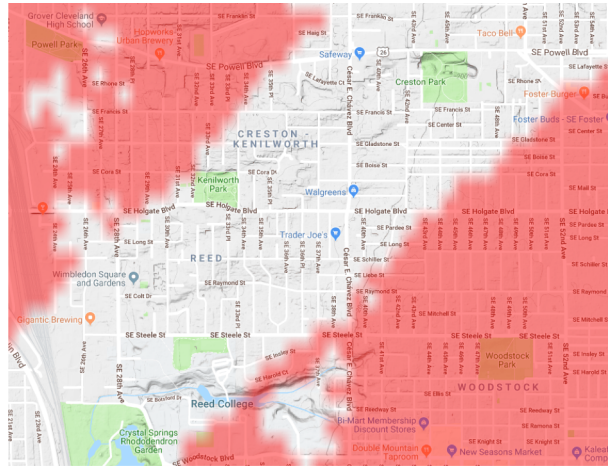


1. Oregon HamWAN is currently being funded by Clackamas County ARES, Washington County ARES, and CARS (Cascade Amateur Radio Society).
2. HamWAN frequencies registered with ORRC.
3. Have complete equipment for Sectors on two towers.
4. We plan to deploy our first Oregon Sector at Sylvan Tower (KGW).
5. We hope to deploy additional Sectors in Portland, and eventually Salem.

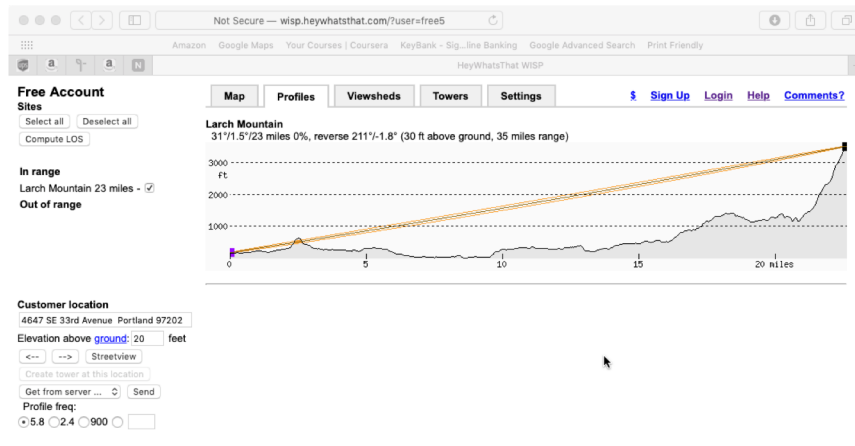
Portland Area HamWAN Coverage



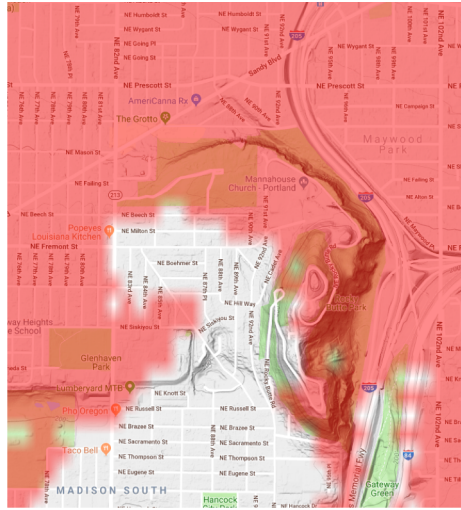
No HamWAN Coverage



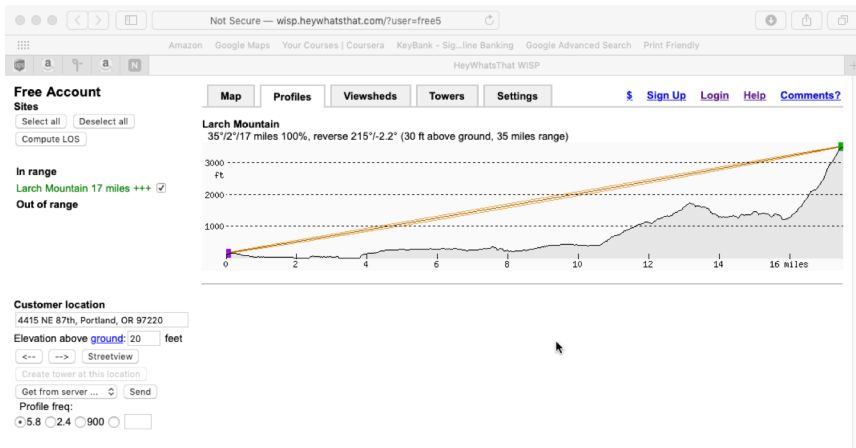
Elevation Profile: No Coverage



Should have HamWAN Coverage



Elevation Profile: Should Have Coverage



Upcoming Event: Demo & Workshop

HamWAN Demo & Workshop, Saturday, April 20, 9 AM – Noon (?)

LDS Church, 9901 SE Carruthers Street, Portland, Oregon 97216

(Just East of I-205, just north of Division Street)

1. HamWAN Demo.
2. Opportunity to Purchase or Rent HamWAN Node.
3. Configuration Workshop: Leave with a fully configured and working Node.

Tour of Oregon HamWAN Website

<http://www.oregonhamwan.org>

Q & A



<http://www.oregonhamwan.org>

Portable Node Setup

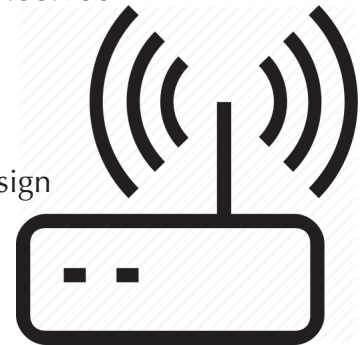


Mikrotik LHG 5

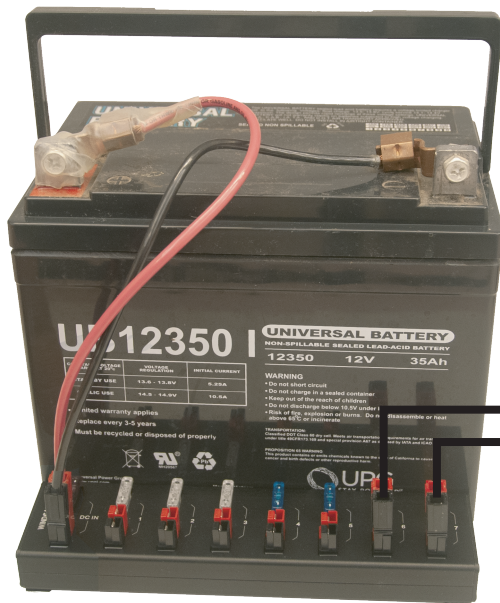
Gets Wireless IP Address 44.x.x.x from Sector.
Configured with Ethernet IP Address 192.168.88.1.
Gets Power over Ethernet from 12 volt sealed lead acid battery.

Wireless WiFi Router

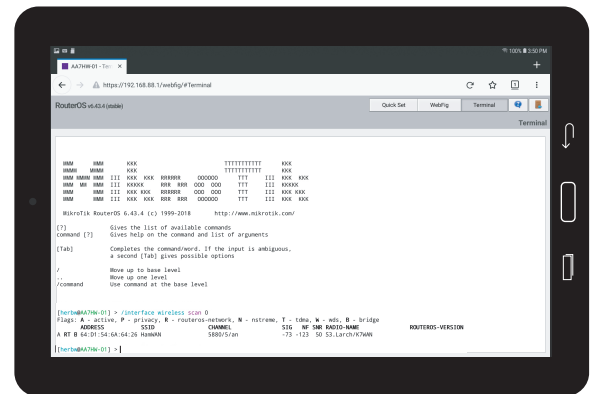
Gets power from 12 volt sealed lead acid battery.
Internet Port connected to Mikrotik LHG 5.
Gets IP Address 192.168.88.100
via DHCP from LHG 5.
LAN side of Router
configured with
IP Address 192.168.0.1.
Router uses DHCP to assign
IP Addresses to WiFi
and Ethernet LAN Ports.



Power over Ethernet Injector



12 volt battery with Anderson PowerPole Connectors can power both LHG 5 and WiFi Router.



Tablet

Connects to WiFi Network
provided by WiFi Router.
Gets IP Address (e.g 192.168.0.2)
via DHCP from Router.
Web Browser can connect to
<https://192.168.88.1> to configure LHG 5.
Router routes from 192.168.0.x
network to 192.168.88.x and 44.x.x.x networks.

Setup for Configuration

