Central Point Mesh

(CPmesh)

A.R.E.D.N

Amateur Radio Emergency Data Network

In keeping with the purpose of the North Rogue Valley Repeater Group's mission of providing emergency communications during disasters or communication outages, we have begun building a data network to enhance our repeater network.

The plan for the emergency data network is to establish network nodes throughout the valley providing data communications to emergency groups and first responder organizations. RF "Backbone" nodes are currently in operation on Blackwell Hill, Roxy Ann, Central Point and Baldy. Additionally, a backbone link was placed on Fielder to connect Josephine County with the "CPMesh" network via Blackwell. Expansion plans are in the works to improve coverage in the Rogue Valley.

We will train how to load current AREDN firmware and maintenance of your node(s). The AREDN website has information on how to update your node radio and covers the most popular manufacturer's and models.

A PBX is available to provide telephone service to some nodes. Those nodes will usually be at places such as homes, hospitals, police and fire departments, Mercy Flights, etc.; see CPMesh PBX Instructions and hints on the website.

Other services are available on the network in support of gathering network performance data, providing cameras, network mapping, Rogue Valley International Airport traffic, Chat Messaging, wiki's, etc.; see CPMesh Services for a list and instructions & hints on the website.

There are no dues or membership requirements except having an interest in Amateur radio and willingness to experiment. We may have meetings to discuss expansion plans and/or node placement. An informal "net" is held periodically on repeater 145.330-T123.

A list of members recognized by NRVRG belonging to the "CPMesh" AREDN mesh network is available on the website www.w9pci.com/digital/digital.htm.

If you want to join this project, please contact KL7VK, Kirby at kwheeler@ccountry.com or W9PCI, Arlen at w9pci@w9pci.com to learn how to become a member.

Please read the following policies & guidelines for getting involved in the project.

CPMesh AREDN POLICY & GUIDELINES

1. The "North Rogue Valley Repeater Group" shall maintain complete control of the network in terms of nodes that wish to join "CPmesh". Our goal is to provide the best emergency communications to all users with reliability and a high degree of performance. We seek to provide a robust AREDN mesh network so that everyone is able to communicate and use the services offered on the network for the benefit of all users. It is also our goal to provide connectivity to neighboring counties and states to achieve a high speed wide area Emergency Communication data network using the latest hardware and firmware offered by the AREDN developers.

2. Members will provide equipment such as radios, antennas, cables, IP-phones, cameras, mounting hardware, etc. Members must have some sort of back-up power source such as battery, solar or UPS.

3. We currently use Ubiquiti, MikroTik and GL-inet radios. More on these radios when we meet with you to detail the project.

> Node "Dashboard Title" construction:

KL7VK-hAPacl-CP-15-307 (example only)

Call sign*-type radio-Radio-#* (if more than one)-location*-height above ground-antenna compass heading* if directional or 0360 if vertical.
NOTE: the * indicates a mandatory entry; limit to 22 characters total.

NOTE: AREDN OLSR protocol asks that the "Dashboard Title" be kept short as this information is propagated throughout the mesh network. "OLSR is a proactive link-state routing protocol, which uses hello and topology control (TC) messages to discover and then disseminate link state information throughout the mobile ad hoc network. Individual nodes use this topology information to compute next hop destinations for all nodes in the network using shortest hop forwarding paths." Additionally, the add-on tunnel package (vtun) has a character limitation on the client node name which could prevent a tunnel from connecting. Keep node names as short as possible in order to avoid this issue; suggested max is 22 – 25 characters. The "Notes" section in the "Dashboard" is a good place to provide a more detailed description of your node and clarify info such as location, intended link to other nodes, etc.

4. Firmware must be current on all nodes; however, some nodes will be selected to test new releases prior to updating all other network nodes. We understand that some legacy radios may not be supported with new releases of f/w. In these cases, the radios cannot be updated and should be retired from the network.

5. To achieve the goals of the "CPMesh" AREDN network, when possible, all node owners must post their intentions to update node firmware and coordinate with Network Administrators (NAs). To accomplish this, send an email to all current NAs; include the reason for the update and your desired date / time to apply the update. NAs will coordinate with all CPMesh "members" by email; the official members list is posted on www.w9pci.com/digital/digital.htm under AREDN.

Node "re-boots" which result in brief node down-time do not need to be

coordinated; these outages are recorded to KI7ONK's "Mesh Info" database and reported by node downtime reports. "Services" added to nodes are to be coordinated with NAs and need to include a description of the service along with instructions for use. Advertised "notices" such as IPPhone PBX / IP #, camera access info, IP Power Switches, etc. are requested to be coordinated with NAs with any specific information about the "notice" so they may be included on the website.

NAs expect that most node members will want to update their nodes locally. NAs will perform remote updates when requested by node members where possible or may delegate a node member with acceptable link quality closest to the remote node. It is "best practice" to perform node updates with a local network connection and not over "RF". This is not practical in some cases (such as remote mountain top nodes) and come with the risk of extended down-time should the update result with a node disconnect from the network.

IMPORTANT: AREDN may release a MAJOR update which require reprogramming of all radio f/w. These updates will require a coordinated "network-wide" update which needs to be performed as quickly as possible since it will bring down the entire network due to incompatibility with the existing network. Migration to a "Major" AREDN update will be accomplished on a single day if possible. NAs understand that this may be difficult for some node members and will perform updates to "backbone", tunnel and key nodes as priority. All node members will be notified as to date and time of upgrade by email. If node members are not able to update on the date indicated, they should notify NAs as soon as possible so that arrangements can be made to assist with remote updates where possible.

6. All nodes must be coordinated with the group prior to joining the network. "Network Administrator(s)" will review all node types, verify setup

configuration and manage access security.

7. Node "Function/Purpose" must be declared and coordinated with the network administrator. For example, node is intended to serve as a "hub" or "spoke". Hub nodes are generally placed to provide a backbone for the CPMesh network whereas "spokes" may include end of network user radios as well as provide "RF" paths to other nodes.

8. AREDN tunnels may be used to provide connections to nodes that have no "RF" path to the mesh network. In keeping with the intent of the AREDN mesh networks, tunnels may not be available during an emergency. This will break communications with nodes served only by tunnels.

9. Node passwords are important. Initially, all nodes with the exception of nodes that have access to a user's LAN will have a unique password assigned by the network administrator(s). It is recommended that each node user configure a managed device with VLAN to isolate AREDN network nodes from their personal LAN and "Public" Internet. Use of a hAPacl type device that permits WiFi connection and managed VLANs may be an option for users to access the AREDN mesh network.

10. Broadcasted "Services" and node "IP reservations" are to be discussed with the network administrator(s) to determine potential mesh network loading.

11. "Public" Internet availability over the CPMesh network is prohibited. Any node offering "Public" Internet over the mesh network shall be removed upon discovery by Network Administrator(s) or Network Support Team members.