

East TN Mesh Network- Progress Reports

Report #1 - December, 2022

- 60 nodes have been purchased, ~30 are flashed, configured and are online. These include:
 - hAPac lites+TCs, AirRouters, GLiNets-150,300,750, (indoor routers).
 - Rocket M2s & M5s with Rocket Dishes and Sector Antennas, (outdoor, long/medium-range).
 - Bullet M2s with Omni and Sector Antennas, (outdoor, short/medium-range).
 - LHG 2 & 5 Dishes, (outdoor, long-range).
 - LDF 2 & 5 Dishes, (outdoor, long-range).
 - NanoBeam, NanoBridge & Nano Loco, TP-Link 210s/510s (outdoor, medium/short-range).

- Switches:
 - Netgear GS108Ev3.
 - Ubiquiti Edgerouter X.
 - Mikrotik GB260 GSP.

- Phones:
 - Grandstream GXP 1610, 1625, 2135.
 - Cisco CP 7942.

- Power Supplies:
 - LiFePO4 batteries and solar panels are currently being tested before large purchases are made. Most nodes will be 100% on solar/battery, but ALL will have battery backup.

- Site Acquisition:
 - Several MOUs are already "in-hand" for strategic relay-node sites, while talks are still underway for BackBone sites, (where verbal agreements were already made). Several non-HAMs have also agreed to letting us place nodes on their property in various locations around Knoxville, TN.

- Served Agencies:
 - Our group is currently drawing up presentations for various potential served-agencies/clients. We believe it is prudent to be fully operational before approaching any possible clients. Our group member who is also a Fire Marshal will likely carry these presentations out, because he understands the language and needs of these agencies we will be serving.

This localized AREDN Mesh Network is underwritten by Off-Grid Auxcomm Radio Club, but participation in the mesh network does not require club membership or participation. The primary goal of the mesh network is to aid our local Emergency Services in the event of a devastating disaster that disrupts normal communications. OGARC was founded on the heels of the horrendous Gatlinburg Fires of 2016, when our founder KA1TOM was deployed for over 18 hours to aid several agencies with digital communication at the refugee center in Gatlinburg. We were created out of pure necessity, and share the AREDN Founders' vision of community participation in public safety.

Until Further Notice, We are operating on SSID: southmesh, 10 MHz so the SSID= southmesh-10-v3

East TN Mesh Network- Progress Reports

Report #2 - December, 2022

Despite the fact that recruitment is still not even open yet, (as we are making sure to have all our ducks in a row before bringing new operators on-board), Tom, K1KY, has helped get us in-communication with adjacent AREDN members, and has graciously introduced us to Les, N4LPK. Les is no ordinary HAM like me, he is veteran HAM, a veteran firefighter and extremely experienced with mesh networking. We couldn't have asked for a better partner in the founding group, who undoubtedly will save us time, money and stress due to his extensive working knowledge of building AND maintaining AREDN networks. He was instrumental in the operations in Sarasota FL, and after personally meeting with him, I'm confident that he will help ensure that the EAST TN mesh will be a glaring success. Barry, K4BLB, is also very excited to have such an asset on the team. Barry is a very experienced, top-shelf HAM, and fully appreciates the value of good people.

Also, I want to thank Randy, WU2S, who has been extremely patient, helpful and professional while helping me navigate this highly-complex space. He responds very quickly to any and all inquiries I have regarding this venture. I'm sure he's got to be annoyed by all the noob questions, but he does a great job of hiding it. Without all these guys, there is no way we would be this far along with the project. People absolutely make or break an organization or project, and with guys like these, there's no way this will fail. I'm extremely thankful to all the work everyone has put in, and I don't take a single detail of it for granted. Thanks guys, sincerely.

Thomas, KM4TBQ

Report #3 - January, 2023

Mid-January 2023

- The majority of the nodes are now flashed with the current firmware and properly configured.
- IP phones are operational and PBXs are in the process of being placed online.
- East TN Network is now linked to the Middle TN Network, and in constant communication.
- Numerous battery tests have been performed and have yielded impressive results, (~92-96% efficiency (wH/aH) on LiFePO4 batteries IN COLD WEATHER!).
- Preliminary area mapping has been completed.
- Necessary support equipment is continually being acquired and tested, (tools, cables, POEs, switches, phones, cameras, solar panels, servers, etc.).
- Two training videos for beginning AREDN are complete and online, accessible to new operators who are being recruited.
- Second-stage plans are being executed for node location acquisition, tower climbers, MOUs and contingencies.
- Planning meetings, (in-person and via telephone), are regularly taking place to ensure all core members share the same goals, vision and expectations.
- Website and credentials are under development and will be live within 60 days.

East TN Mesh Network- Progress Reports

- Potential member-operators & member-site-owners are being vetted for partnership.
- Safety guidelines, SOPs, etc. are near completion, and will be accessible within 60 days.
- Several influential community leaders are now aware of the project and are in full support.

Overall, the EAST TN Mesh project is going very smoothly and is picking up a lot of momentum. Again, we have not even started to recruit yet, and over 60% of our problems have been solved. A huge thanks to Les-N4LPK, Tom-K1KY and Mark-N2MH for helping us navigate around and avoid countless rookie mistakes with their guidance. There's zero chance we would be this far along without their expertise.

Standby for further updates...

Report #4 - February, 2023

Mid-February 2023

- Extensive battery/power-consumption testing is almost complete, and is being documented.
- 72 nodes are flashed, configured, tested and ready to deploy.
- 1200+ feet of outdoor, shielded, cat cable has been acquired.
- We have been meeting with several key people in the communications space regarding partnerships with the project.
- Various technical skills are being learned and mastered, (ie. terminating ethernet cables, soldering, software configuring, etc.).
- Area maps, brochures, videos, SOPs, inventory lists, websites, etc. are being constructed.
- Electrical boxes, batteries, switches and other equipment are being constructed, tested and reconfigured.
- Field day(s), presentation(s) and marketing plans are being drawn up and reviewed.
- Necessary tools and equipment for field operations are being acquired and tested.
- DMR and NPR-70 equipment has been acquired, configured and/or added to some nodes.
- IP cameras are being acquired and tested, some of which are now live on the mesh, (fixed and PTZ).
- PBX building will resume shortly, along with the few remaining radios that need to be flashed and configured.

Overall, the project is beginning to show tangible fruit from our labor. It's encouraging to see active nodes with advertised services actually functioning, which will be used to show potential participants in our upcoming recruitment campaign. Many of our previous questions are being answered through extensive trial and error, along with learning many major, critical lessons. (that are far less costly now, rather than when we are live on a tower somewhere). The entire core team is remaining cohesive, and despite some medical scares, are healthy and charging steadily forward.

More to come....

East TN Mesh Network- Progress Reports

Report #5 - March, 2023

- Addition of two IT/ISP professionals to the ranks, and other node operators.
- Succeeded in finding a suitable camera that will be purchased for the node sites, (Reolink TrackMix PTZ).
- Battery pack/solar design is nearly complete.
- Deployable emergency phone/data kits are under development.
- Final plans are being polished for our first two RF installs, (all components have been heavily used and tested for reliability).
- Cat5 cables measured/cut/terminated for first install.
- Website and domain names have been purchased and are under development.
- High quality business cards have been designed and purchased along with hats and pens for promotion.
- Promo video is well under way, script over 50% complete and 80% of the footage has been acquired.
- Remaining tools, components and equipment have been purchased.
- Inventory lists and logins have been digitized.
- Camera mounts have been constructed.
- Several different adapter-cables have been designed, constructed and tested for field use.
- Problem nodes have been sent to an expert to try and salvage.
- Emails to potential members have been sent out.
- Comprehensive plans are being put onto paper to better organize/communicate the "what/when/where/how/etc".

Basically, we are about to start the big game. There is very little to show for the work that's been done over the past several months. That's all about to change when we get our first few RF links properly installed, and the kinks are worked out. I don't think we will be able to keep up with the demand once the word gets out that the mesh network is operational. This is why I want several of us proficient, so new operators and clients aren't waiting around for months to get on the mesh. I'm very excited for the next few weeks, and can't wait to see these operators in action. This is their world, and I'm looking forward to learning from them. Hopefully this is my last update without a live RF connection.

Stay tuned...