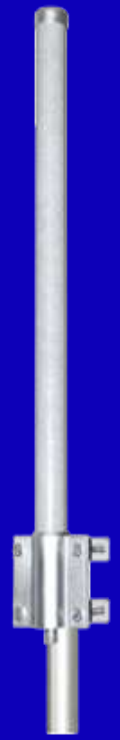
Broadband-Hamnet

HSMM-MESH



What is Broadband-Hamnet?

- Formerly HSMM-Mesh
- Utilizes off the shelf hardware with custom firmware
- Self discovering, self configuring, self advertising and fault tolerant network
- Self-sufficient network that does not require any other infrastructure
- Utilizes the 13cm band

What hardware is needed?

- Linksys devices
  - WRT54GS version 1.0 -3.0
  - WRT54GS version 4.0 *
  - WRT54G version 1.0 – 4.0 *
  - WRT54GL version 1.0 – 1.1 *

    * Limited memory. Will not run latest build of HSMM-Mesh firmware
- Ubiquiti devices
  - AirGrid M2 HP
  - Bullet M2 HP
  - NanoStation Loco M2
  - NanoStation M2
  - Rocket M2

What hardware is needed?

- High gain antennas
  - Grid
  - Panel antenna
  - Vertical
  - Yagi
- Amplifiers
- Power supply
- Portable Mount

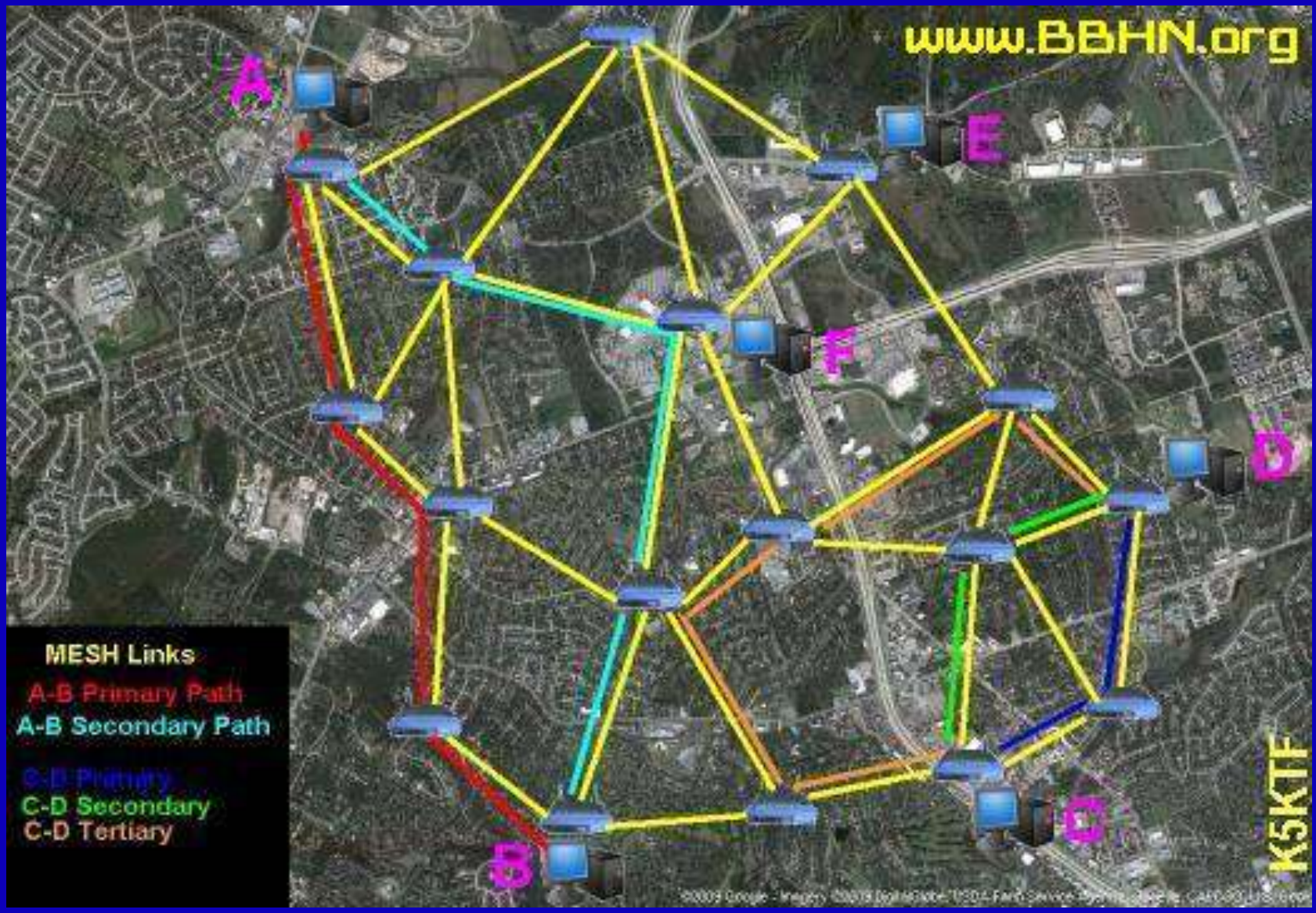
Optima

Broadband-Hamnet

How does it work?

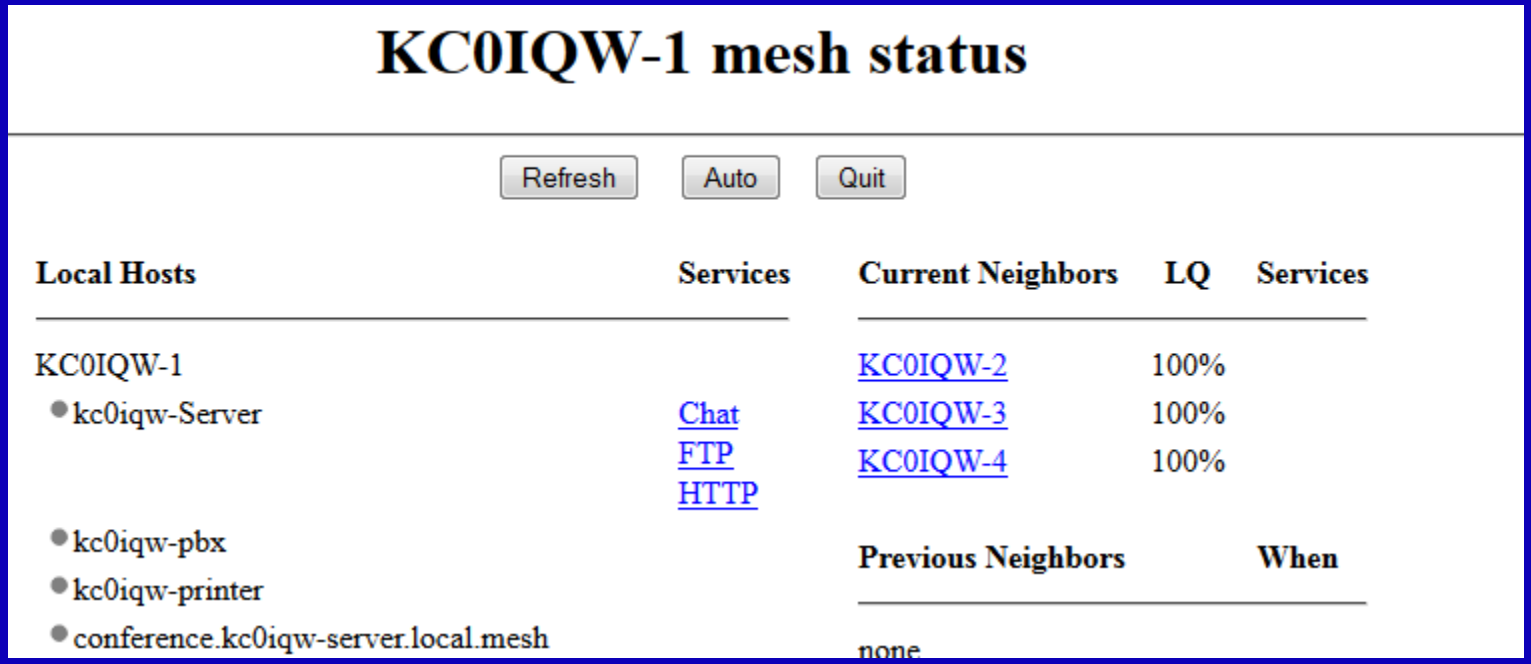
- Mesh nodes communicate with other nodes over Wi-Fi frequencies and only talk to other mesh nodes on the wireless port
- Mesh nodes use peer to peer connections
- WiFi interface operates in Ad-Hoc mode
- OLSR is used for auto linking of mesh node radios
- Access to the mesh is available only from a mesh node, not directly to client devices
- Mesh nodes on channels 1-6 use FCC part 97 rules instead of part 15
- Mesh nodes will create a network just by turning several of them on

Mesh topology



What can it do?

- The mesh is a network, not an application
- Resources on your mesh node can be shared with others on the mesh
- See and use advertised services on other nodes by clicking them in a web browser



KC0IQW-1 mesh status

Refresh Auto Quit

Local Hosts	Services
KC0IQW-1	
• kc0iqw-Server	Chat FTP HTTP
• kc0iqw-pbx	
• kc0iqw-printer	
• conference.kc0iqw-server.local.mesh	

Current Neighbors	LQ	Services
KC0IQW-2	100%	
KC0IQW-3	100%	
KC0IQW-4	100%	

Previous Neighbors	When
none	

How can ARES leverage the Mesh?

- Email
- Internet access
- Intranet
- Keyboard to keyboard chat using IM
- Printing
- Radar
- Video
- VoIP

How do I get started?

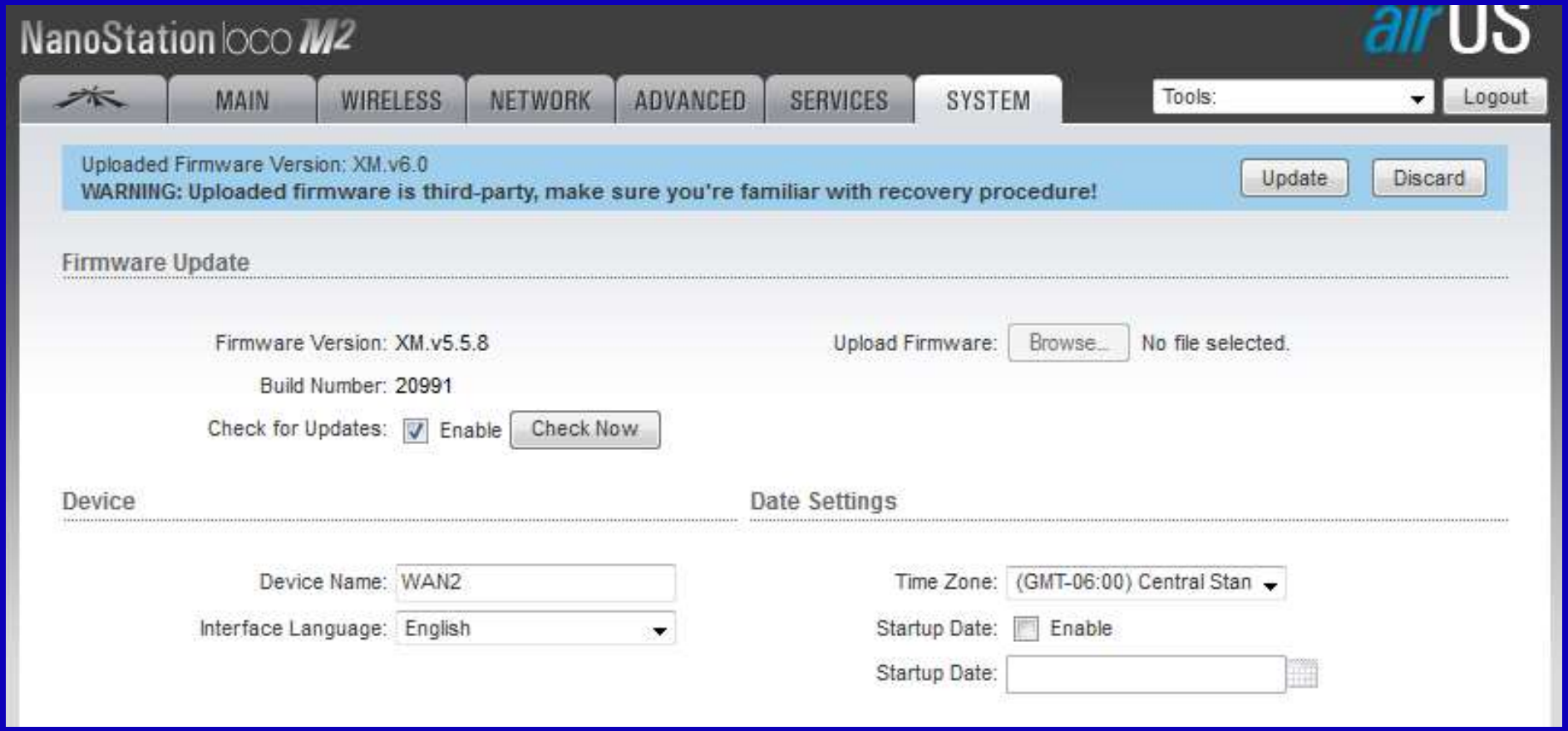
- Download firmware from http://www.broadband-hamnet.org

Software Download

Broadband Hamnet Firmware for Ubiquiti (UBNT)		
FACTORY - flashing from inside AirOS or by TFTP SYSUPGRADE - upgrade a unit already flashed as a mesh node		
bbhn-1.1.2-ar71xx-generic-ubnt-bullet-m-squashfs-factory.bin	3.7MB	Factory Bullet M2 & M5 HP, Bullet M2 & M5 Titanium, NanoStation Loco M2 & M5, Nanobridge M2 & M5, AirGrid M2 & M5, Picostation M2 md5sum:d3a632e6b55ac66ee64ae6091c646f44
bbhn-1.1.2-ar71xx-generic-ubnt-bullet-m-squashfs-sysupgrade.bin	3.7MB	SysUpgrade Bullet M2 & M5 HP, Bullet M2 & M5 Titanium, NanoStation Loco M2 & M5, Nanobridge M2 & M5, AirGrid M2 & M5, Picostation M2 md5sum:f5c4fcb0ad47536af1bf8e09e0b15f80
bbhn-1.1.2-ar71xx-generic-ubnt-nano-m-squashfs-factory.bin	3.7MB	Factory NanoStation M2 & M5 (Not Loco - Use the bullet-m image for Loco) md5sum:e787c3ec0d43a56f6fc5567f6644a934
bbhn-1.1.2-ar71xx-generic-ubnt-nano-m-squashfs-sysupgrade.bin	3.7MB	SysUpgrade NanoStation M2 & M5 (Not Loco - Use the bullet-m image for Loco) md5sum:0b88c89ba12a454b3845e104dd45d1d1

How do I get started?

- Flash router with Mesh firmware



How do I get started?

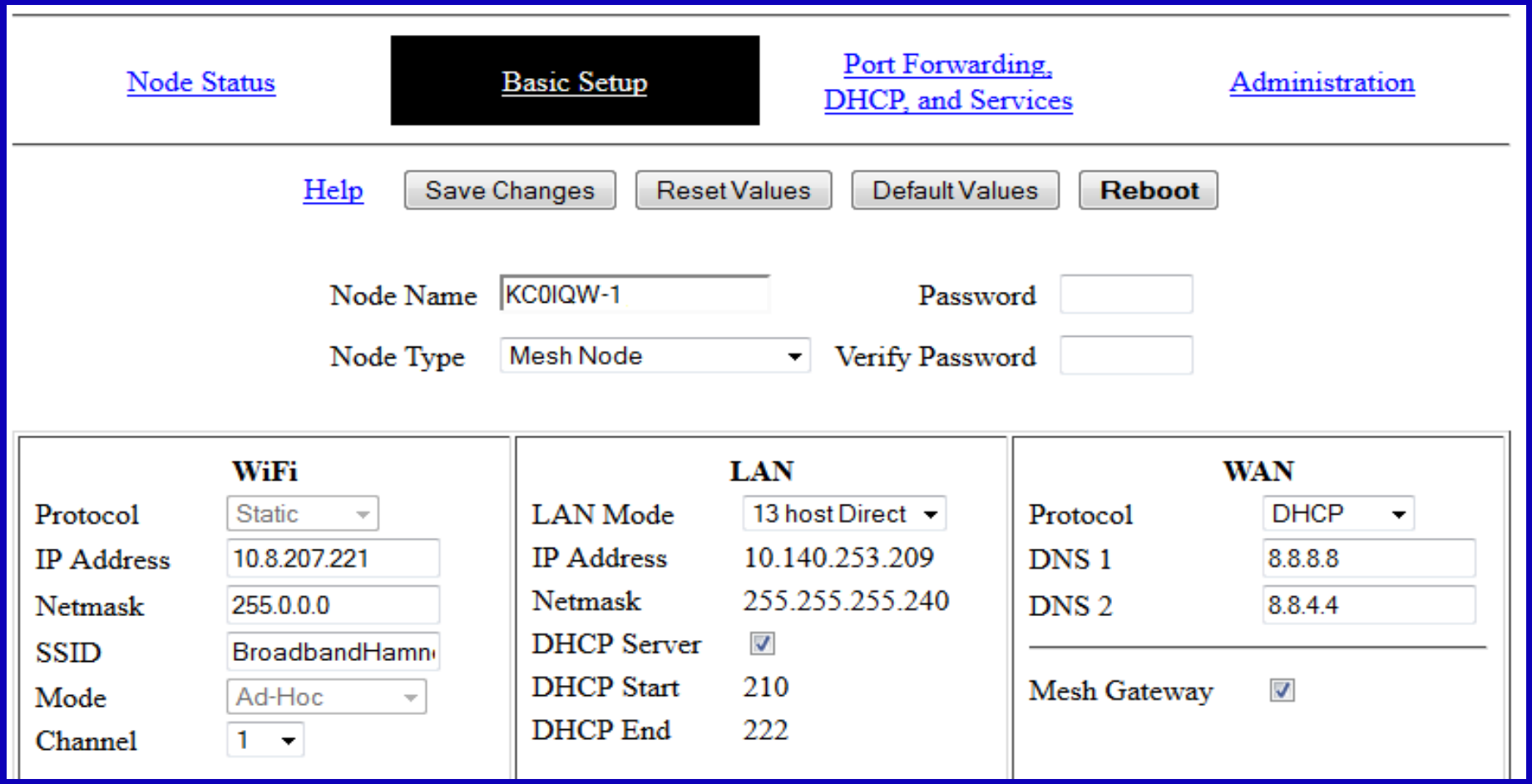
- Configure node
- Browse to http://localnode:8080

How do I get started?

- Click the “Setup” button
- Log in with the username root with the password hsmm

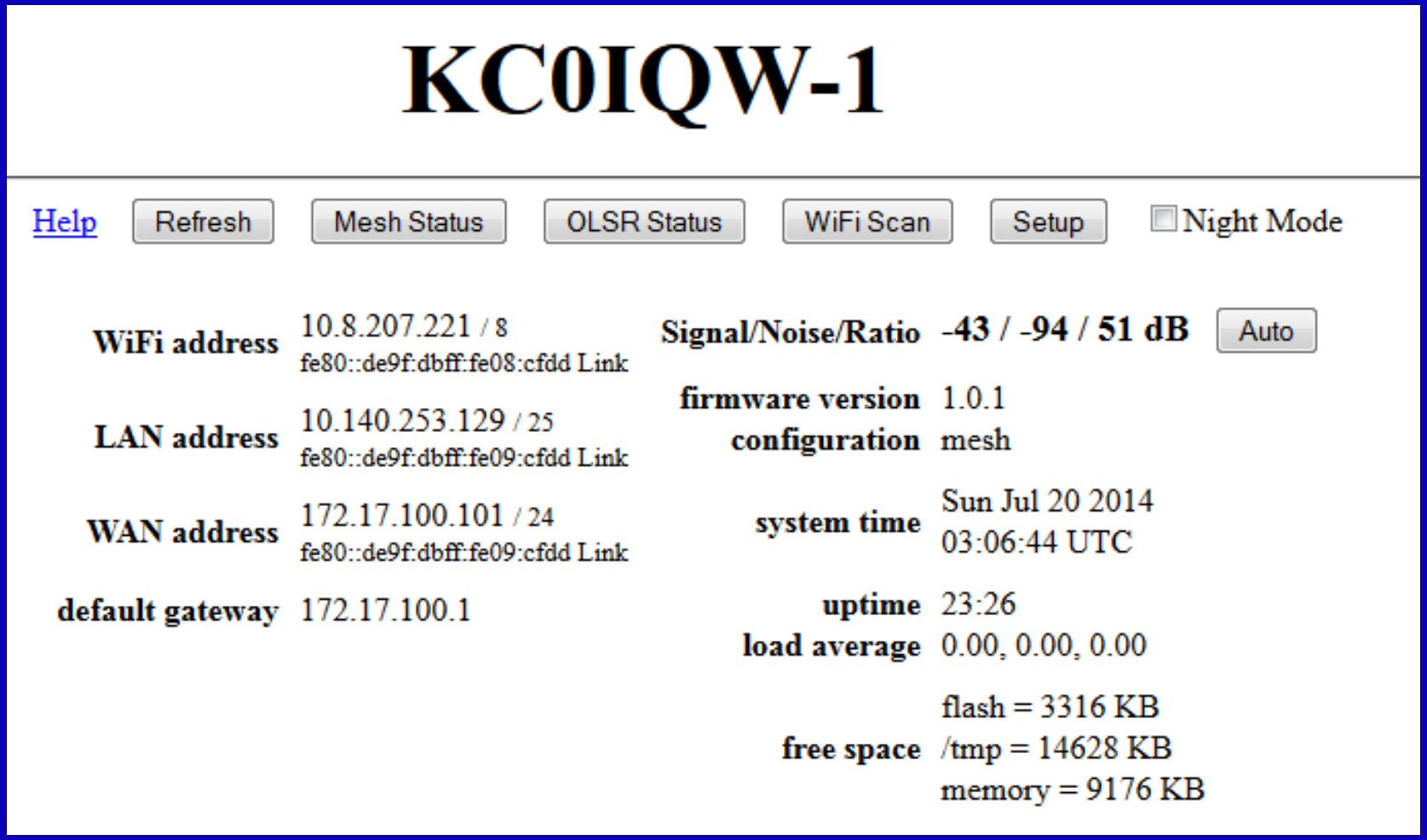
How do I get started?

- Configure node name with your callsign in the form of KC0IWQ-1
- Set a new password of your choice
- Click “Save Changes” to save and reboot



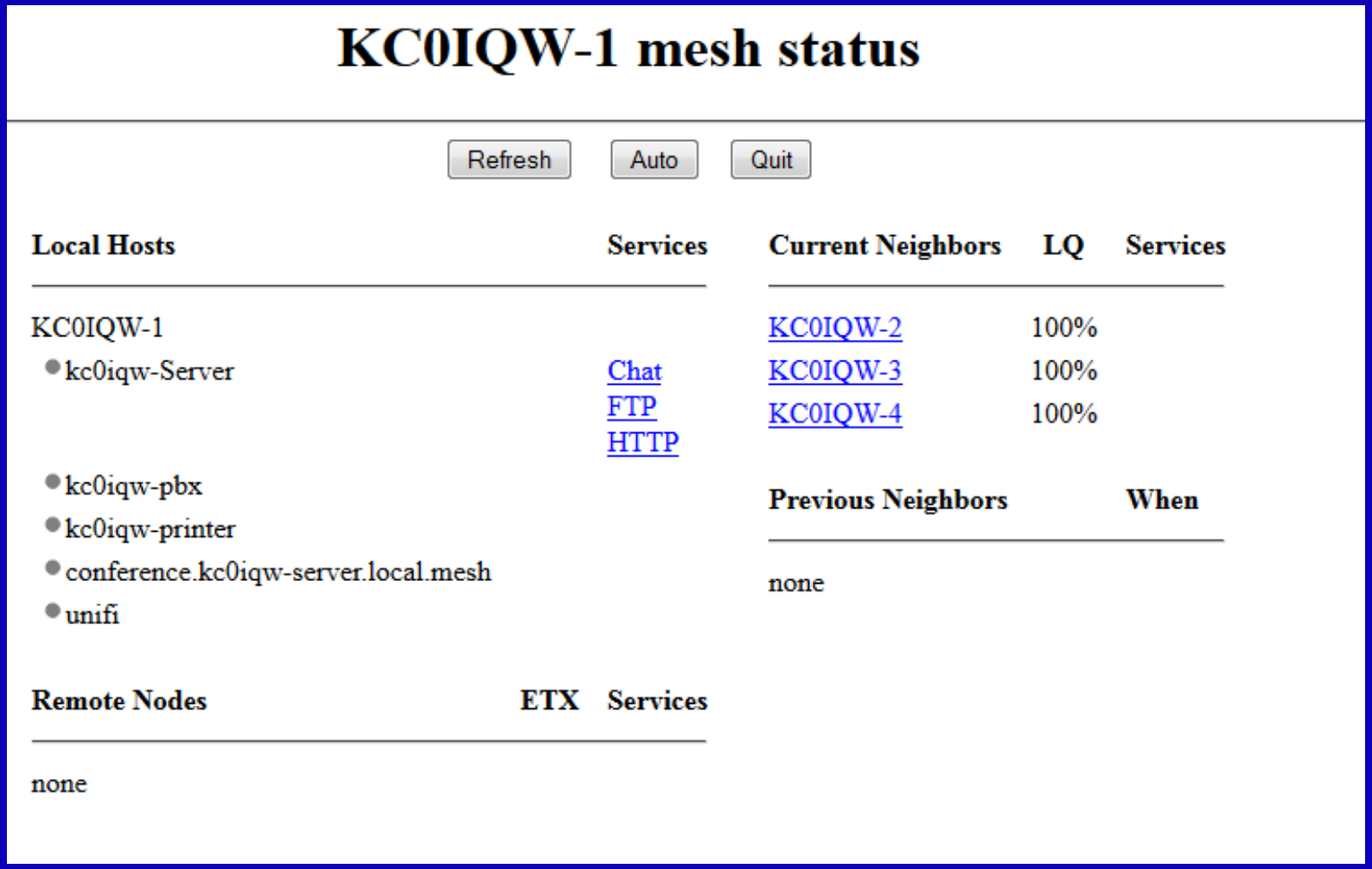
How do I get started?

- Click on “Mesh Status” to display connected nodes and services



How do I get started?

- Click on a link to access an advertised service
- Click on a node name to view information of a neighbor



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Questions?

II