

Installing Your Wireless Mesh Node

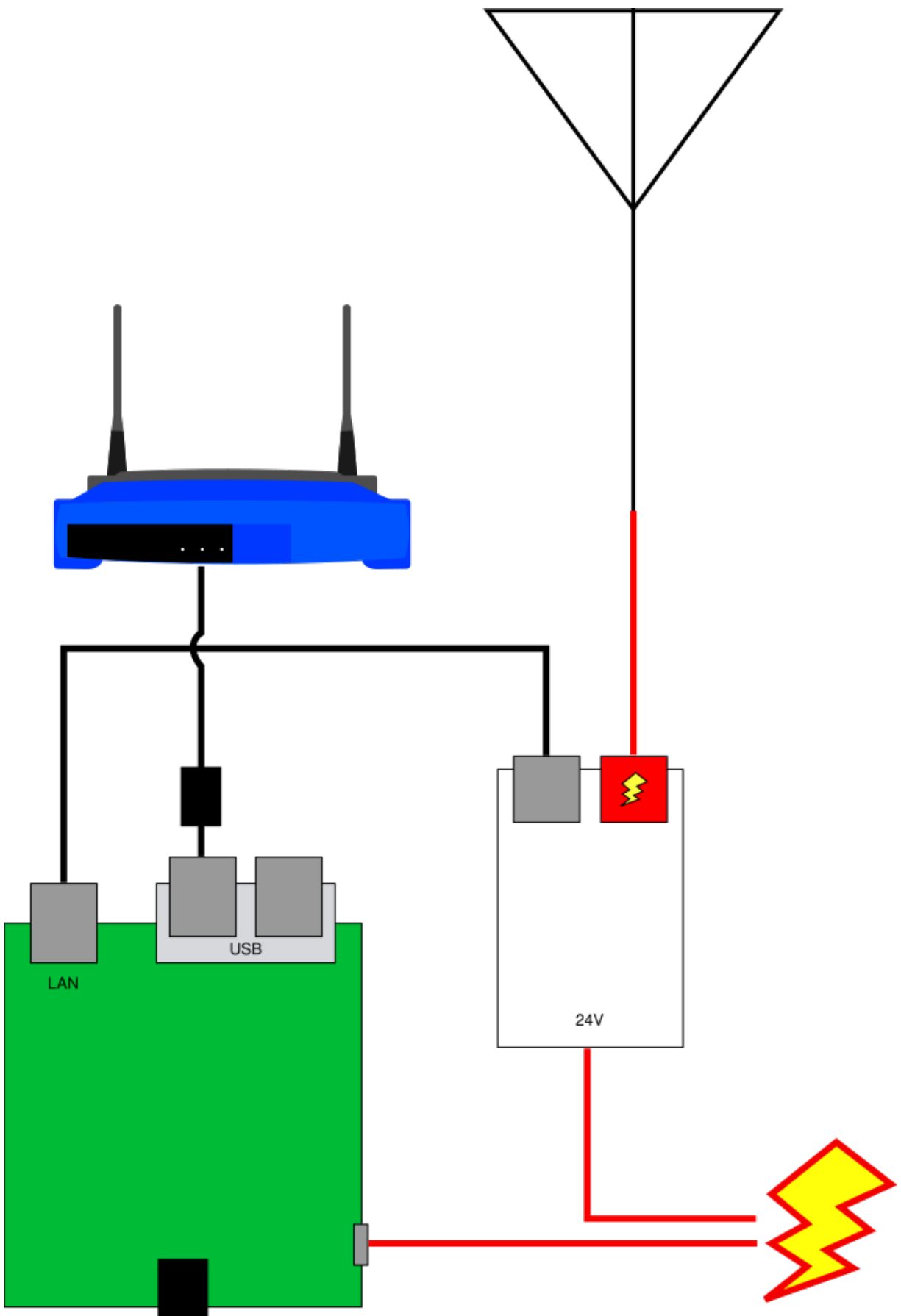
A guide for new network participants

Contact A Local Volunteer

Although this guide and our software are intended to make this a DIY installation, we can provide technical, logistical, and other support as needed. This network is a community effort supported by **100% volunteer** organizers and tech workers. Please be mindful of this when requesting support. We will do our absolute best to make sure your neighborhood network is a success.

support@massmesh.org

(617) 286-4649

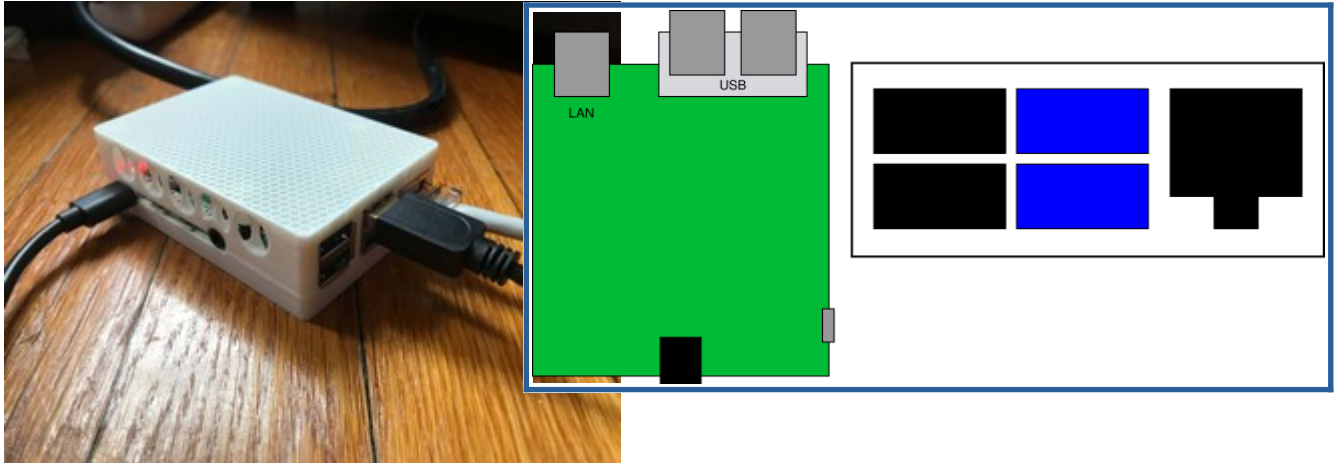


Equipment

This is a list of all the equipment that should come with your Wireless Mesh Node Kit. If any of this equipment is missing, please alert a volunteer so that we can get you the resources you require. Please familiarize yourself with the visual elements used before continuing.

Mesh Node (1x)

Raspberry Pi 4b 1GB



Mesh Radio (1x)*

Ubiquiti UAP AC Mesh/Ubiquiti Nanostation AC Loco



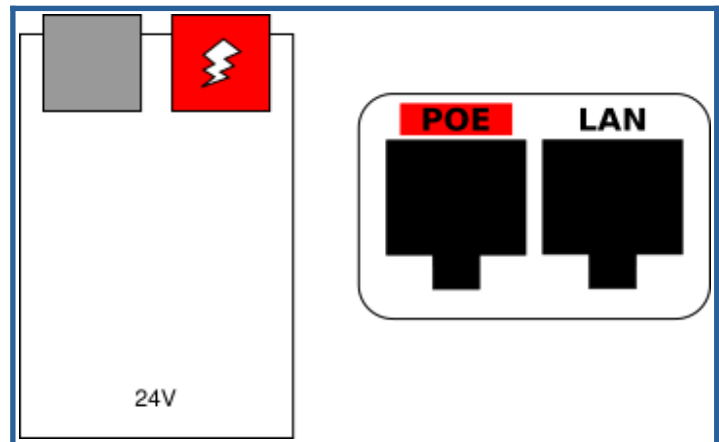
* This component will vary in appearance from site to site. However, it always has the same purpose. For more information about your mesh radio, see “**Aiming Your Mesh Radio.**”

Power Over Ethernet (PoE) Injector (1x)

This component provides power to the Mesh Radio, and connects the Mesh Node to the Mesh Radio. PoE lines are marked red in all diagrams, and should be treated with extra care.

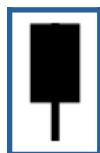
Never plug the port marked POE into your laptop or the Mesh Node!!! THIS WILL BREAK YOUR DEVICE PERMANENTLY.

Editor's Note: When I plug Ethernet into the POE port, I like to mark both sides of the cable with colored tape. That way, I know which cable is "hot."



USB to Ethernet (1x)

This is used to connect a second Ethernet cable to the Mesh Node. Since the Raspberry Pi 4b only comes with one Ethernet port, we send one of these adapters in our kits to complete the setup.



Ethernet Cables (3x)

In order to wire up your Wireless Mesh Node, we ship 3 Ethernet cables. These can be cut to length based on your specifications, so if you have special requirements please call before we send your kit. If you do not specify cable lengths, we will ship two 6-foot cables and one 18-foot cable.

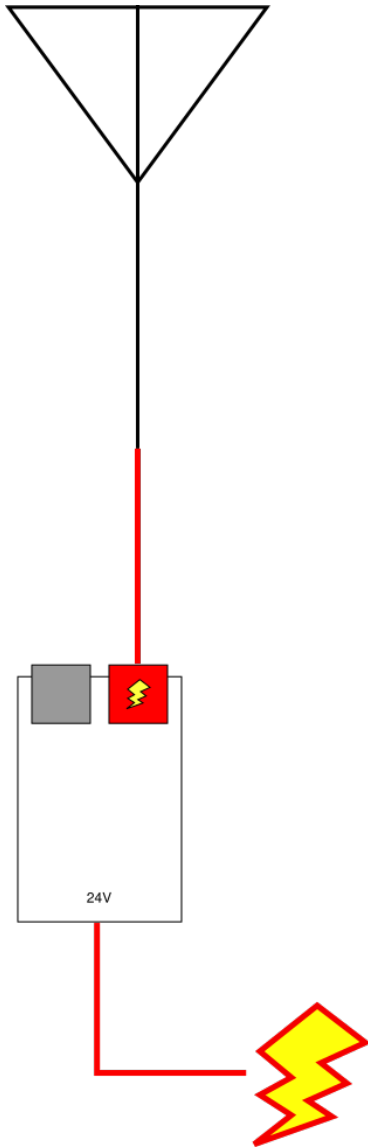
Please remember to never plug a “hot” Ethernet cable into your Mesh Node or laptop.

In the diagrams throughout this document, Ethernet cables are shown as red lines when they are “hot” (have power running through them.)

Next Section: Assembly

Assembly

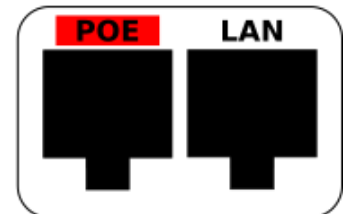
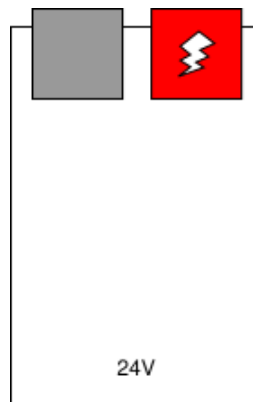
Connect The Mesh Radio To Power



The first step is to connect your Mesh Radio to power using the power over Ethernet (PoE) injector. This is accomplished by the following steps:

1. Connect an Ethernet cable to the PoE injector port marked "POE."
2. (optional) Mark the Ethernet cable that you just plugged in on both ends with colored tape so that you remember it is "hot."
3. Connect the hot Ethernet cable to your Mesh Radio.
4. Plug the PoE injector into the wall.

You should now see some signs of life on your Mesh Radio (they all have a small indicator light on them somewhere.) In addition, after a couple minutes, you should see a "MassMesh.org" Wi-Fi that is available. Connecting to that hotspot will not do anything... yet!



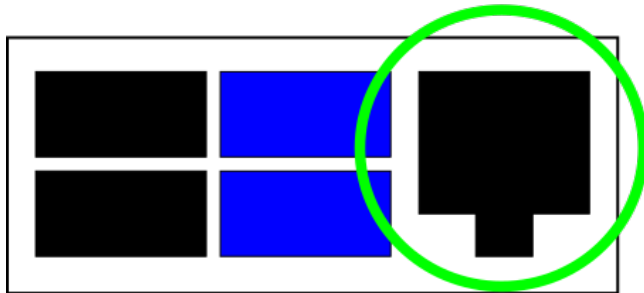
Connect The Mesh Node To The Mesh Radio

The next step is to connect the Mesh Node to the PoE injector's LAN port. This should be the only port that is open on your PoE injector. If you have two open ports, please go back to the last step and complete it first.

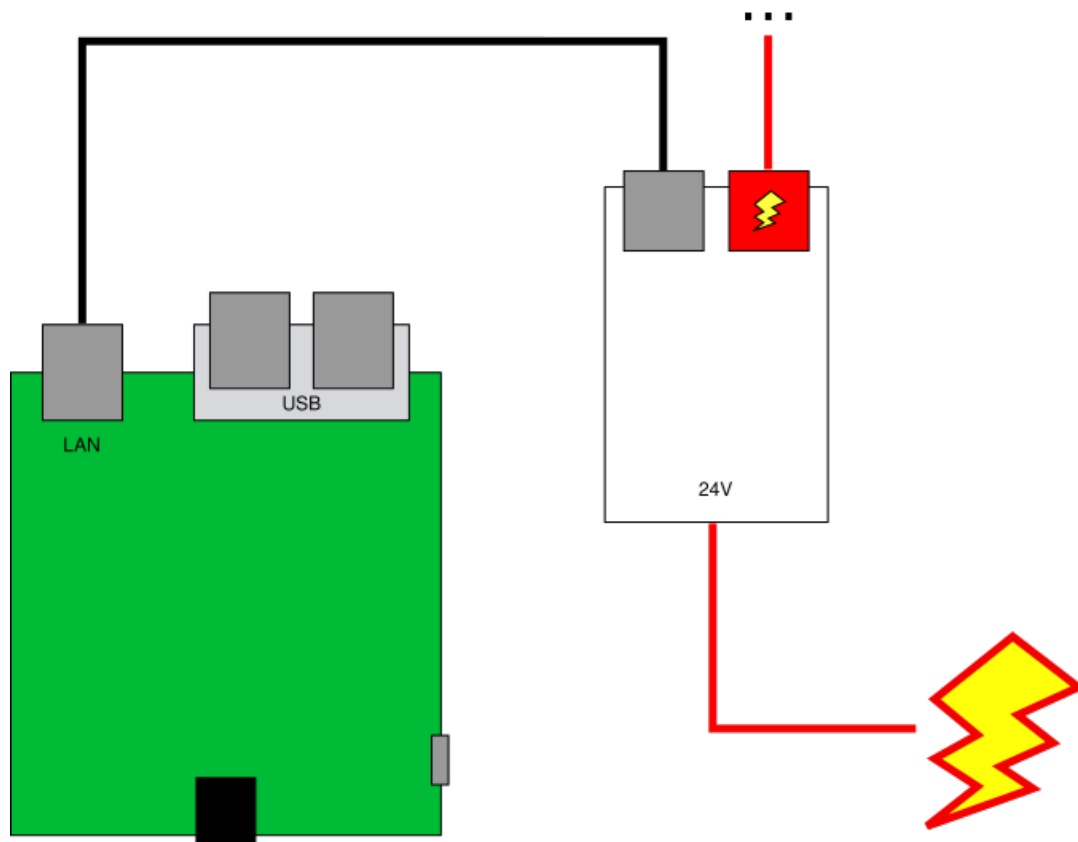
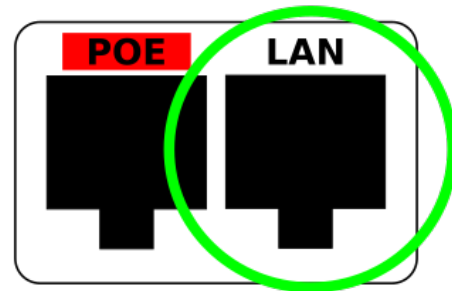
We will connect our Mesh Node to power later. For now, do not plug the Mesh Node into the wall.

Remember to NEVER connect your Mesh Node to the PoE injector's POE port!!!

Mesh Node

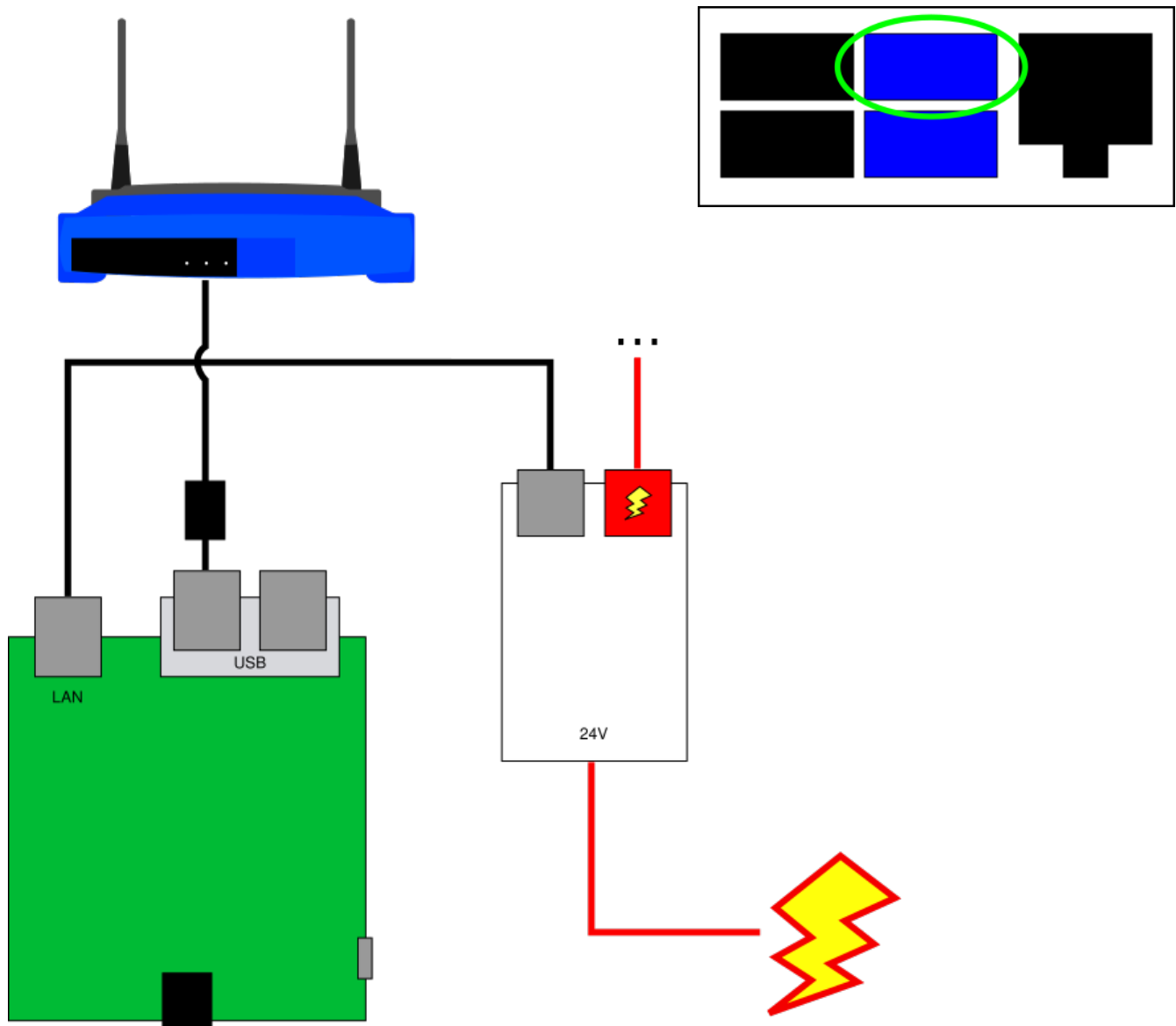


PoE Injector



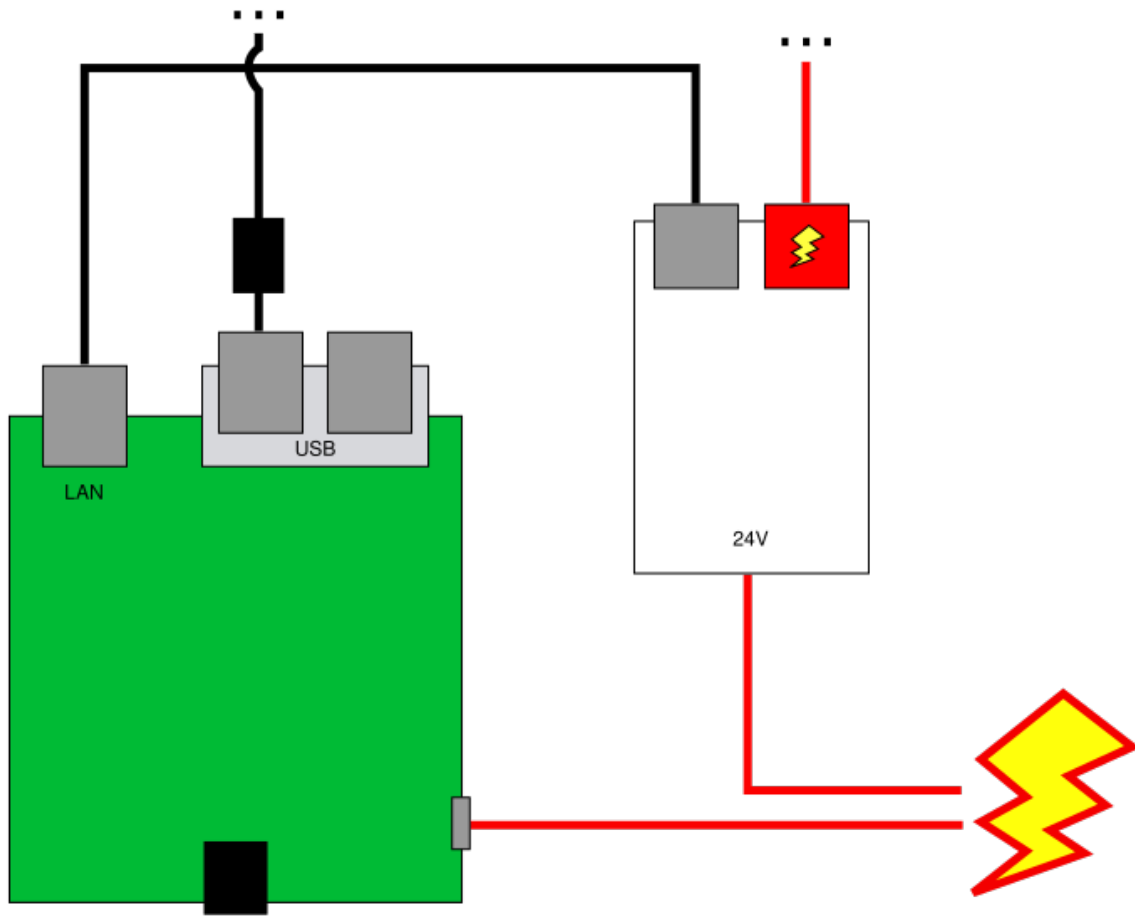
Connect Your Home Router To The Mesh Node

Next, we will connect the Mesh Node to your home router. To accomplish this, plug an ethernet cable into the USB to Ethernet adapter, and plug that USB into the Mesh node where shown. Next, simply plug the Ethernet into the back of your router. If you are providing Internet to your neighbors, use one of the ports on your router marked “LAN.” If one of your neighbors is providing the Internet connection for your Neighborhood Network, connect the Ethernet cable to the port on your router marked “WAN” or “Internet.”



Connect The Mesh Node To Power

The final step is to simply connect the Mesh Node to power. You should see the Mesh Node begin to glow softly red. Give the Mesh Node about 5 minutes to power on for the first time before attempting to access the Internet through it.



Next Section: Accessing And Aiming Your Wireless Mesh Node

Accessing Your Wireless Mesh Node

After giving your Wireless Mesh Node 5+ minutes to start up for the first time, you should be able to access the Internet through your normal home router, or through the Mesh Radio directly. To access the admin Interface for your Wireless Mesh Node, connect your laptop to the **MassMesh.org wi-fi network** and navigate to <http://thisnode.info>.

Your login by default is the following:

Username: root

Password: no password... please set on on first login!

Please change the password when you log in for the first time.

Aiming Your Mesh Radio

The most important thing to keep in mind when aiming your Mesh Radio is that you should be able to see your neighbor's Mesh Radio from wherever you place your own. It is best if there are no walls in between them, but nodes may be placed indoors near a window as long as the two homes you are connecting are close together. Some of the best locations include the following:

- On your porch or balcony facing the street
- In a window facing the street
- On a pre-existing pole like an antenna pole or satellite dish pole
- On a chimney-mounted antenna pole (This will cost about \$50 and require a bit more work to install.)