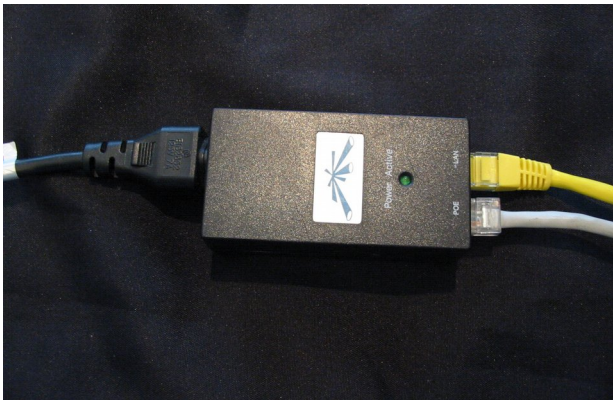
Using a WiFi Router for Indoor Connectivity

Introduction

The AyrMesh Network is primarily designed to provide WiFi connectivity outdoors, but bringing the network indoors is frequently necessary. Using a Remote Hub or a Receiver, you can easily add a WiFi Router to your network to provide both wired (Ethernet) and wireless (WiFi) connections indoors.

Set up your AyrMesh Remote Hub or Receiver outdoors

The first step is to ensure that you have a working outdoor connection, using either an AyrMesh Remote Hub or an AyrMesh Receiver, with the Power Supply indoor (where it is kept dry).

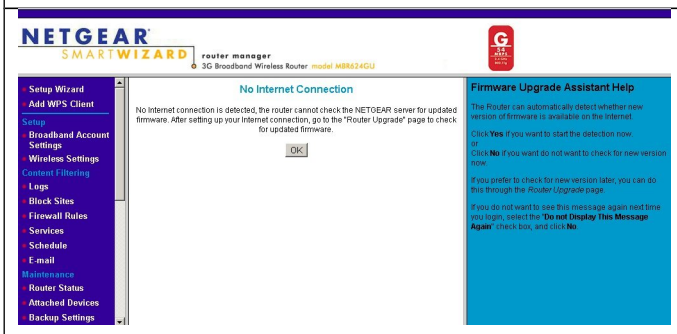
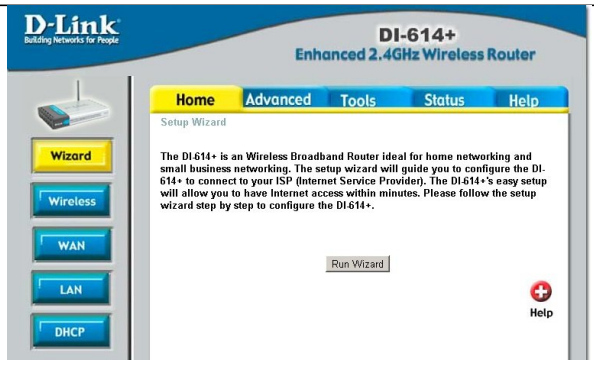


Make sure that you can plug a computer into the LAN port on the Power supply and access the Internet on that computer.

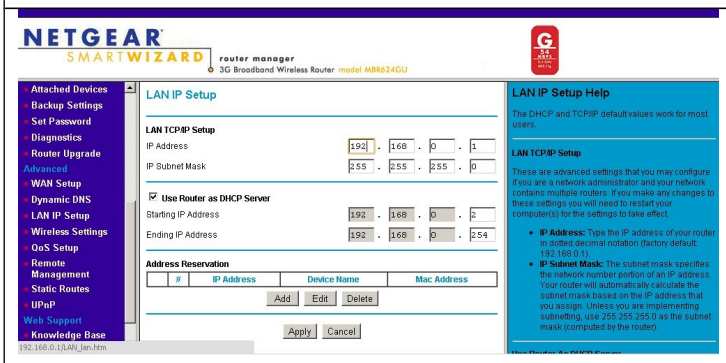
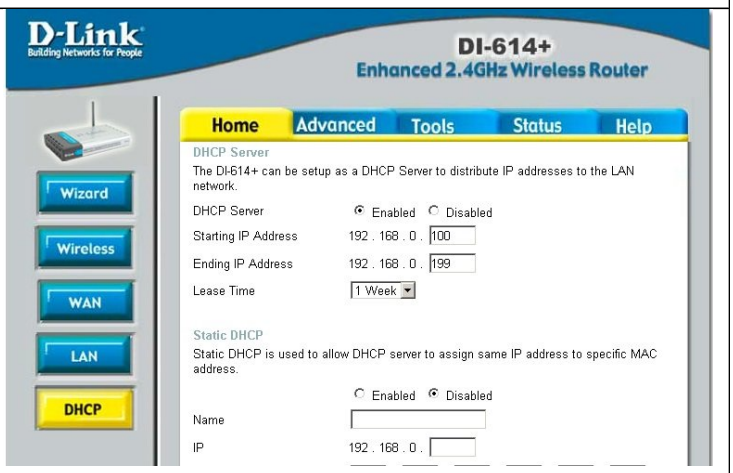
Configure the Router

To use a router, you'll need to turn off the router's DHCP server. Connect an Ethernet cable between your computer and one of the LAN ports on your WiFi router (and turn off WiFi on your computer). Log into the router's IP address (usually http://192.168.1.1 or http://192.168.0.1 - check your router's documentation or use the command prompt and type "ipconfig" - use the address show as the "Default Gateway") - in this case, I'm going to demonstrate using two routers I don't use any more: a Netgear "3g" router and an older D-Link router. Other routers will be very similar.

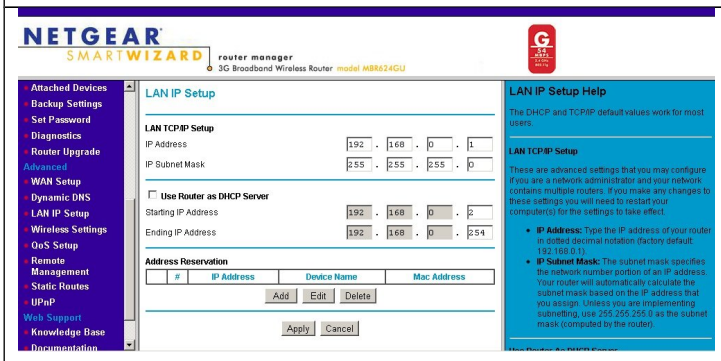
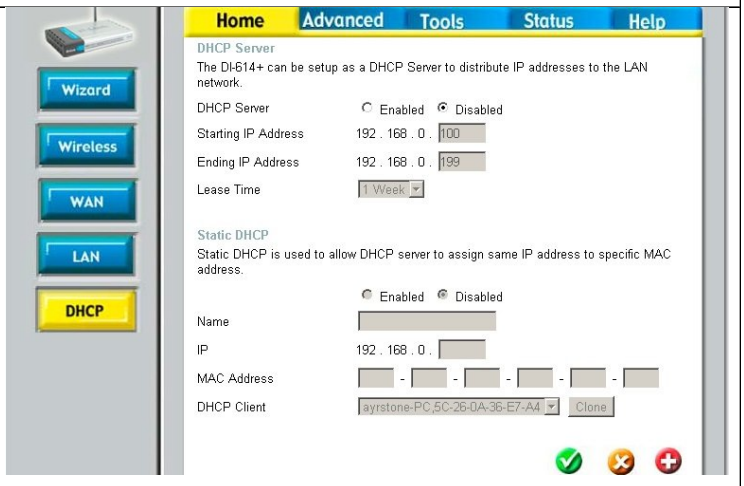
When I log in, I get the "opening" page:

Netgear router:	D-Link router:
	

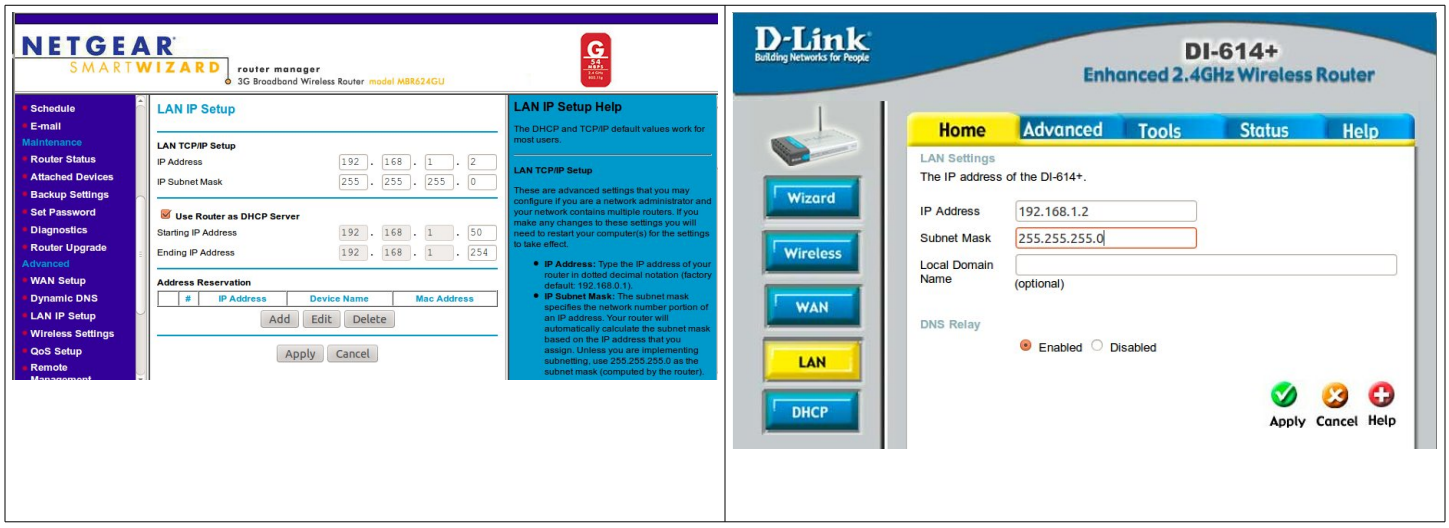
I want to reconfigure the "LAN" (we won't be using the "WAN" - don't plug anything into the "WAN" port), so, in the menu system, I go to the appropriate menu entry on each router. On the Netgear router, it's "LAN IP Setup;" on the D-Link there's a nice, big button labeled "DHCP:"

Netgear router:	D-Link router:
	

On each router, there's a "toggle" for the DHCP server. On the Netgear, there's an on/off checkbox entitled "Use Router as DHCP Server," while, on the D-Link, it is a line entitled "DHCP Server" with "Enabled" and "Disabled" options. On each router, I disable the DHCP server:

Netgear router:	D-Link router:
	

On the Netgear we'll stay on the same page, but on the D-Link I click the green "checkmark" button on the before taking the next step, and then select “LAN” on the left menu to set the IP address:



Make sure that the router has an IP address different from the main router but in the same subnetwork as the main router. Because my main router is at 192.168.1.1, I set the address for this “auxiliary” router at 192.168.1.2. Note that the first three numbers are the same, but the third number is different.

Now the router is ready to use. You might want to also configure the WiFi Access Point on the router at this point to use the channel, SSID and encryption parameters you prefer. We strongly suggest setting the channel to be at least 5 channels away from your AyrMesh channel to prevent the two wireless signals from interfering with each other.

Put it to Use

To make use of the router, just connect an Ethernet cable from the "LAN" port on the Remote Hub or Receiver to one of the LAN ports of the router - DO NOT CONNECT ANYTHING TO THE "WAN" PORT OF THE ROUTER.

You can now connect three more devices to the three remaining LAN ports on the router, or use the WiFi on the router. Below you can see that I have also connected a laptop computer and an IP camera.

Devices connected to the router will appear to be connected to your AyrMesh Network and will be managed that way - they will not appear in the "DHCP table" or "Client list" of the router, because the DHCP server in the router is turned off.

A note about selecting a router for this: I used old Netgear 802.11g router and an old D-Link 802.11b router I had sitting around.

In general, I recommend the use of a "Wireless N" or 802.11n router with multiple external antennae for indoor use. This form of WiFi (or 802.11ac, as long as it has a "stepback mode" to 802.11n) will give you the best performance in terms of indoor range and speed. If I were purchasing a new router for this, I'd buy one like the one shown here. However, I always look for ways to reuse the stuff I have, because even an old 802.11g router can be useful someplace.