

CAMP News

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Capital Apple Mac
Performa User Group



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www.campug.org

No CAMP Meeting in July

We'll reconvene on August 14 for our annual summer potluck at the lakeside home of Brenda and Gary Bennett in Oakland. Full details and directions will appear in next month's CAMP News. Jeff Frankel is on deck to demonstrate Adobe Photoshop Elements in September.

Extending Your Home Network

Jeff Frankel

[Note: The author is not a networking expert. This article is a successful account of a proficient user who was able to extend his home network on the basis of publicly-available internet postings and two user manuals for Netgear routers. The author's primary sources appear in the article.]

My router is on the second floor of the house, and the signal is robust enough to reach the basement. I was thinking of buying an internet-capable treadmill for the basement, but only if I could be assured of a really strong signal. The treadmill connects to a router only by wi-fi, and the manufacturer states

that performance of certain features (e.g., loading and refreshing Google street view maps) is dependent upon signal strength.

My initial task was to get a better handle on the actual signal strength in the basement. Macworld to the rescue! This [super-informative article](#) by Lex Friedman shows how to easily measure signal strength numerically from any location using a desktop or portable Mac. (For iOS devices, it's not that easy.) I was surprised to learn that a full four-stripe showing on the wi-fi icon does *not* necessarily indicate a strong signal. My MacBook Air, with four stripes showing, was registering a signal in the range of 22 - 26 dB at the spot where I intended to put the treadmill. In the Friedman article, 25 dB is the

dividing point between the "low" and "very good" signal tiers. "Excellent" is anything over 40 Db. Clearly, there was room for improvement. (These readings, by the way, were for the 2.4GHz band of my dual-band Netgear 802.11n DSL modem/router.)

I could have purchased a [wi-fi range extender](#), but another option is to connect two routers. Luckily, I had an extra Netgear 2.4 GHz 802.11n router on hand that I could deploy in the basement just a foot or two from where the treadmill console would be.

The next task was to hook the two routers together. There are basically three options: Powerline connection through your

home's electrical wiring, wireless distribution system (WDS) or ethernet cable. For a variety of reasons I didn't consider Powerline.

The calling card of WDS is simplicity. As long as the satellite router is within range of the primary router, entering a small amount of information into the configuration pages for the two routers is all it takes. Your wireless network is then expanded by the signal reach of the satellite router. However, WDS has two severe disadvantages. First, the throughput for any wireless device communicating to the WAN via the satellite router will be roughly halved due to the extra wireless "hop." Second, for my two Netgear routers, WPA or WPA2 security cannot be used. My only choices were no security at all for my entire network, or the much weaker WEP security protocol. I didn't want to abandon WPA2.

That leaves ethernet cable, the path I chose. The physical connection is made by connecting the cable from any available LAN port on the primary router to any LAN port (*not* the WAN port) on the satellite router. But before you do that, you'll need to configure the satellite router and possibly change some settings on the primary router as well. Here's a short summary of necessary and optional steps that I gleaned from the first three web sites listed at the end of this article:

1. Reset the satellite router to factory defaults.
2. Turn off the DHCP server in the satellite router.
3. Match the security mode and password of the satellite router to those of the primary router.
4. Match the SSID of the satellite router to that of the primary router (optional).
5. Set a wi-fi channel for the satellite router that is

different than the wi-fi channel of the primary router.
6. Assign a fixed IP address to the satellite router

To eliminate the possibility of DHCP conflicts, you may wish to restrict the range of the primary router's DHCP address pool and assign a fixed IP address to the satellite router (step 6 above) that is outside the range of the primary router's now-limited DHCP address pool.

Obviously, you'll want to test all this before you run the ethernet cable. If you assigned different SSID's to the two routers, your MacOS or iOS device will show you which router the device is connected to. If you assigned the same SSID to the two routers, you can figure out which router you're connected to at any given moment by seeing which *channel* your MacOS device is connected to. (See the screenshot in the Friedman article.) Or, you can turn off the wireless radio in the primary router, in which case the only operative wi-fi signal will be emanating from the secondary router.

In my case, it all worked swimmingly. I was able to snake a 50 foot ethernet cable from my second floor to the basement with relative ease. With the satellite router installed in my basement, the signal strength at my target site jumped from my original readings in the 22 - 26 dB range to new readings in the 59 - 62 dB range. And I'm now enjoying my new smart treadmill! ☀

Sources:

http://kb.netgear.com/app/answers/detail/a_id/965 (ethernet cable)

CrashPlan+: 31 Days For Initial Backup

From May 24 to June 26: that's how long it took CrashPlan+ to back up the 365 GB in my home folder (everything except my two VMWare Fusion virtual machines) to CrashPlan's servers. The pokey pace is attributable to the paltry 1 MB/second upload speed of my internet connection. But I'm finally over the hump, and now my backup overhead is reduced to the 15 minute intervals during which CrashPlan scans my drive for any new or changed files to back up. Next step: testing the restore function. After that: backing up the two virtual machines, which are about 45 GB in size.

http://kb.netgear.com/app/answers/detail/a_id/19852/related/1/session/L2F2LzEvdGltZS8xMzcxMDM3MDY4L3NpZC9hNzhBdXlzbA%3D%3D (ethernet cable)

<http://www.labnol.org/software/add-router-to-wireless-network/19716/> (ethernet cable)

http://www.downloads.netgear.com/files/GDC/DGND4000/DGND4000_UM_09Nov12.pdf (WDS)

ftp://downloads.netgear.com/files/DGND3300v2_UM_14Oct10.pdf (WDS)

http://en.wikipedia.org/wiki/Wireless_distribution_system (WDS)

http://www.tomsguide.com/us/how-to-wds-bridge_review-253-2.html (WDS)