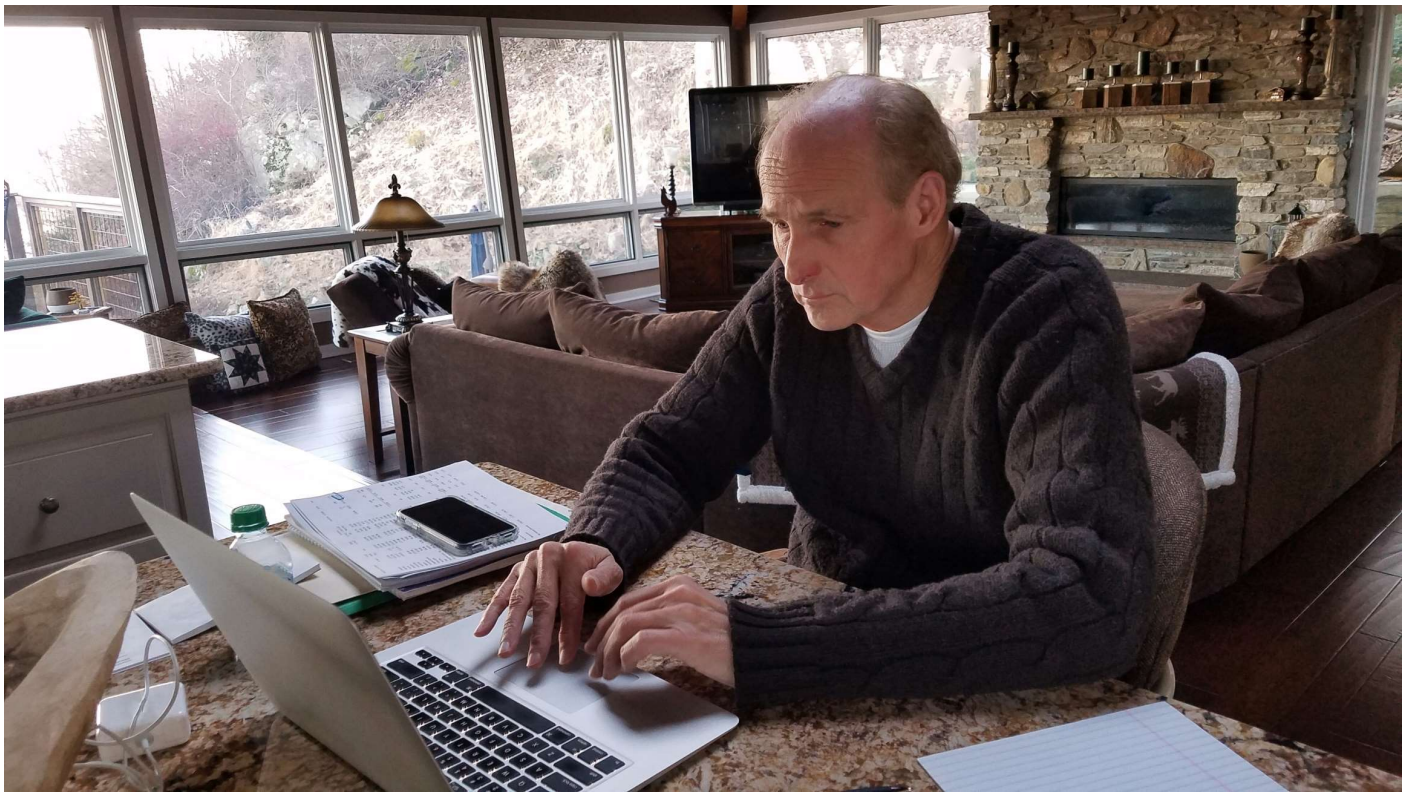
Ensuring Your Home WiFi is Ready for Work-from-Home, Part 2

Measuring Signal Quality Throughout Your Home

Now that you have completed Part 1 (work-from-home.html) and your network settings are configured for work-from-home, we are going to look at signal strength. WiFi has a range of data rates (speeds) that it can use, and the really fast data rates require good signal quality. The worse the signal quality is, the lower the data rate that WiFi can use reliably. Signal strength is the largest factor in the signal quality, and also the easiest to measure, so we will focus on signal strength as an estimate of the signal quality.



Getting Started

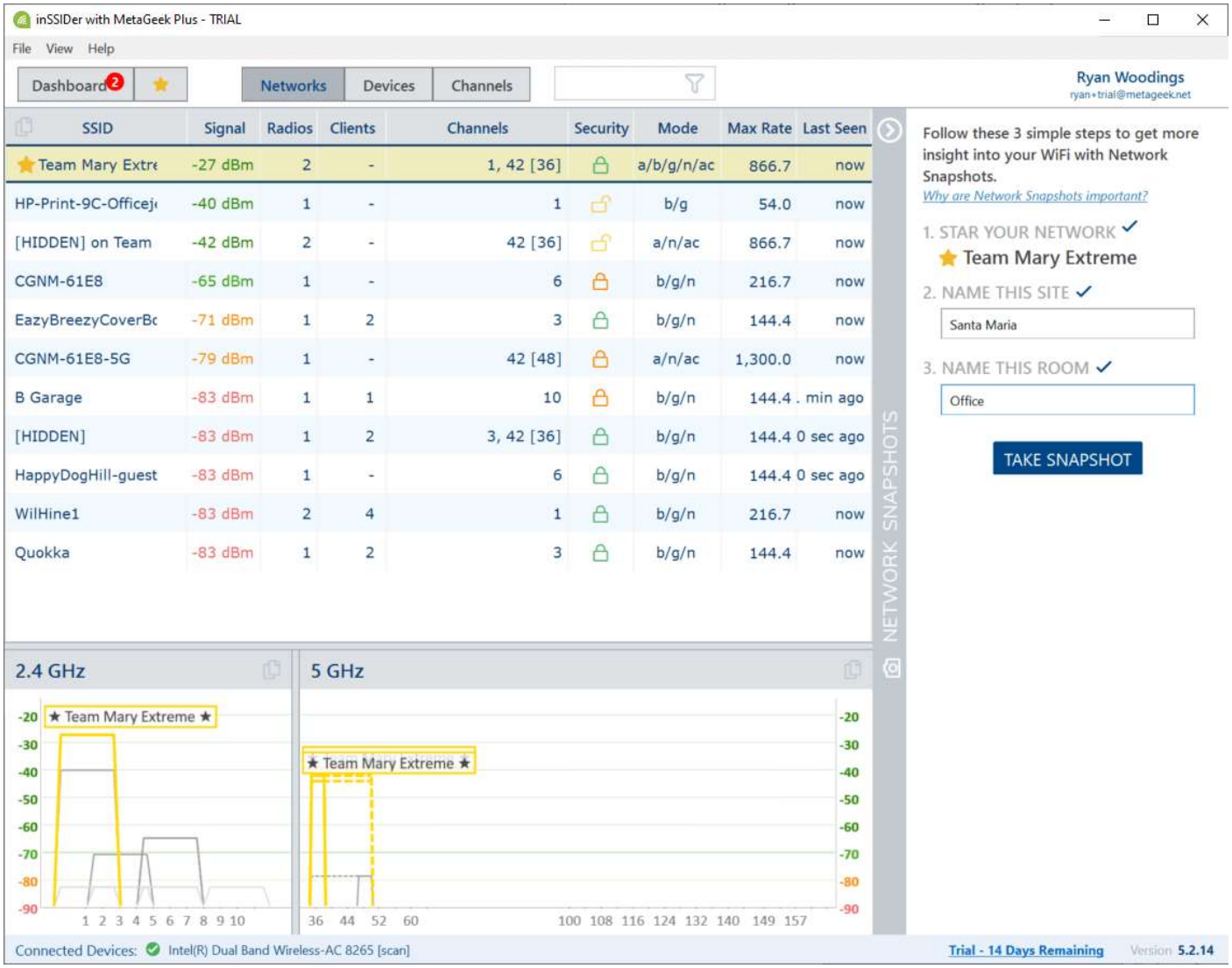
In Part 1 we used free inSSIDer from MetaGeek. In Part 2 we will add a free trial of MetaGeek Plus, which unlocks additional functionality in inSSIDer that is very useful for signal strength measurements. To add the free MetaGeek Plus trial launch inSSIDer and then click "Upgrade to MetaGeek Plus" in the bottom right corner. This will open your browser to metageek.com's subscription page. Select Monthly and then fill in your information - you won't need the optional 802.11ac WiFi Adapter for this tutorial. After you click "Start Free Trial" switch back to inSSIDer and click the link in the bottom right that says "Restart to Apply Subscription Changes." This will restart inSSIDer and apply the MetaGeek Plus free trial.

Let's look at the start screen again with the table of networks and the 2.4 GHz and 5 GHz graphs. Notice that the graph Y-axis are numbered -30 down to -90, this measurement is in "decibels per milliwatt" or dBm. This is a logarithmic scale where the power doubles every three decibels. In other words a signal at -80 dBm has twice the power of a signal at -83 dBm. The important part to understand is that the power of the signal drops quickly on these graphs! Most WiFi installers try to have a signal of -67 dBm or stronger wherever the WiFi will be used, so we'll use -67 dBm as our minimum signal strength too.

Measuring Signal Strength

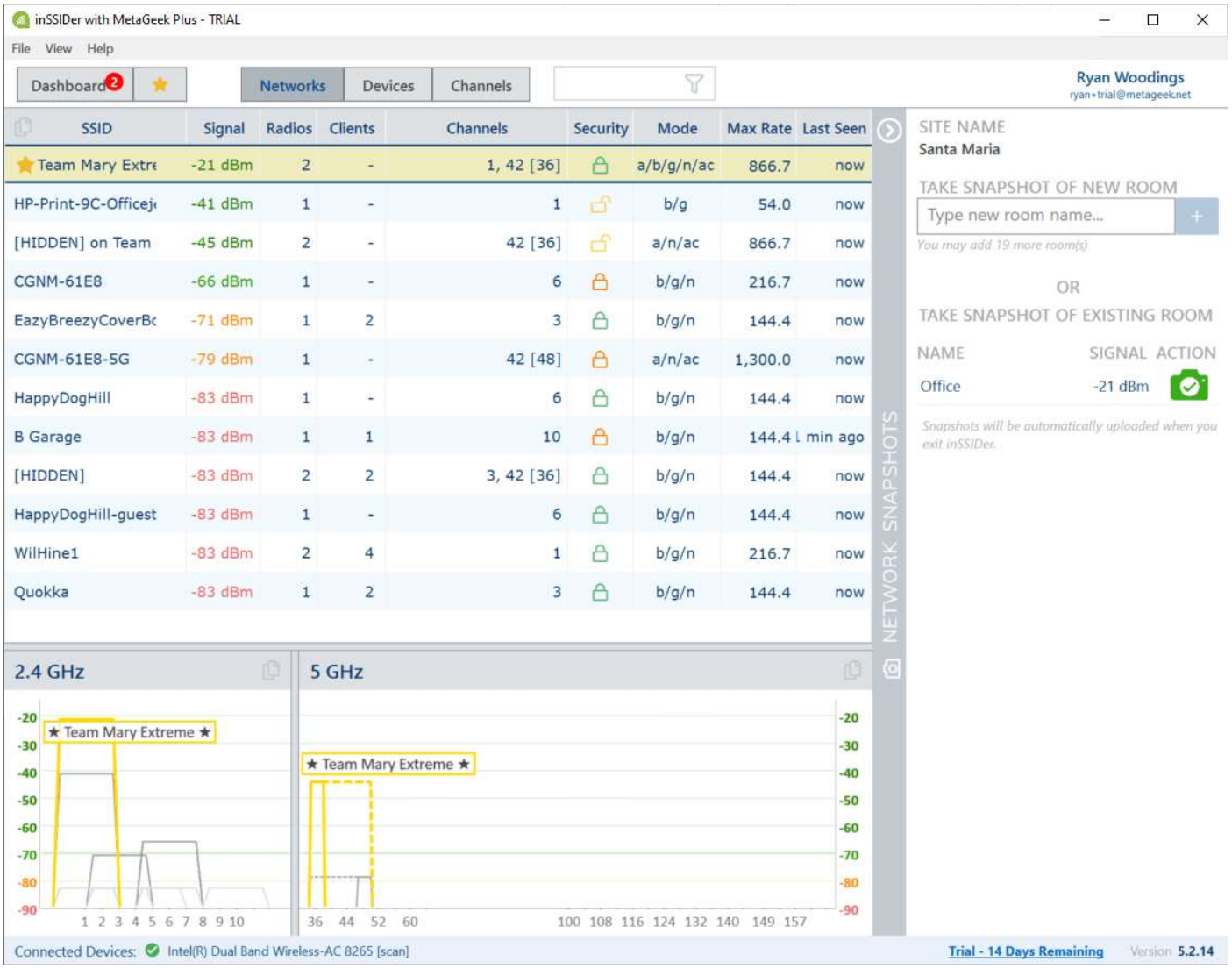
The easiest way to measure the signal strength in inSSIDer is to "drill into" the access point by clicking the binocular icon. If you have multiple access point radios make sure you choose the 5 GHz radio (if available). We will be focusing on the large Signal number in the Stats section as highlighted in the screenshot below.

We are going to use the Snapshots feature of inSSIDer with MetaGeek Plus to measure and record the signal strength throughout your home. On the right hand side of inSSIDer there is a Network Snapshots sidebar, click it so that it is expanded as shown below.



If your network isn't starred, click on the binoculars icon next to your network in the table to drill down into your network details and then click the star outline in the breadcrumbs to star your network. Next give your "Site" a name like "My Home" and then name the Room. When you click "Take Snapshot" inSSIDer will record measurements of your signal strength and other WiFi environment information and store it on my.metageek.com.

After you clicked "Take Snapshot" the Network Snapshots sidebar should be similar to the screenshot below, showing the signal strength of your network at your current location.

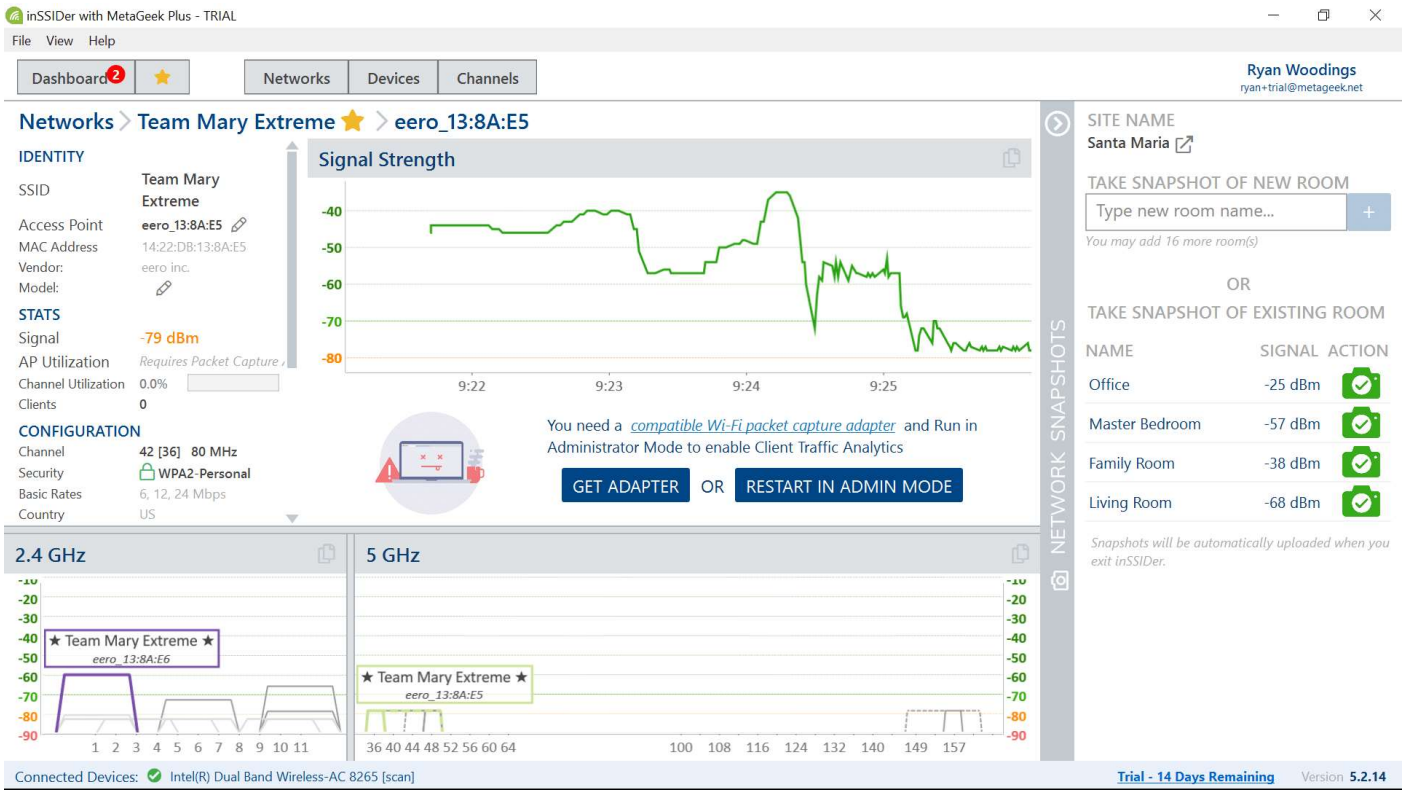


Measuring Signal Strength In Your Home

The signal strength will change as you move around your home. Now it's time to stand up and stretch… if you have a laptop we are going to walk around your home to measure your WiFi signal strength.

For this exercise we want to focus on the critical areas of your home; for me those areas are my office, living room, and bedroom. With the office and living room being where I usually work from home and I just watch some Netflix in the bedroom.

Go to each room in your home where the WiFi is critical and take a snapshot; just type a new room name and click the "+" button. Don't forget the patio, garage, or other "rooms" outside your home that you use WiFi too. When you are done, your Network Snapshots sidebar should look something like this:



Now that you have snapshots of all your critical rooms, let's analyze the results. Are all of the signal strength measurements above -67 dBm? If they are, then you should have decent signal quality everywhere. If not, moving the location of your access point would help improve signal quality. If you have a DSL modem you can usually move it to a different phone jack. If you have a cable modem you might not be able to move it. If you can move your access point consider which rooms are the most critical for work - in my example, the bedroom isn't critical since I just watch Netflix there, while the office and living room are critical for work.

Relocating Your Access Point

If you need to relocate your access point try to keep it away from dense objects like refrigerators, water heaters and bookshelves - they will block the WiFi signal and cause low signal strength.

Here is a table with estimates for how much various objects will reduce the signal strength. This is useful when planning where to relocate your access point.

Object	Signal Loss
Human Body	3 dB
Dry Wall	5 dB
Brick Wall	8 dB
Concrete Wall	10 dB
Wood Floor (multi-story building)	10 dB

Eye P.A. (/products/eye-pa/)

TamoGraph Site Survey (/products/map-plan/tamograph)

inSSIDer & MetaGeek Plus (//metageek.link/inssider-product-page)

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