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Slow WiFi Reason 3: Insufficient Client and Router Capabilities

This article is part of the "Why is My WiFi slow?" (/training/resources/why-is-my-wifi-slow.html) **training series.**

Not all WiFi devices are created equal! Another big reason for slow WiFi is that the WiFi devices simply aren't capable of faster speeds. If you have sufficient coverage throughout your home or office and the WiFi still seems slow, it might be a good idea to investigate the client and router capabilities.

Why is my WiFi so slow? Not all WiFi devices are created equal, part 3

Step 1: Find your network in inSSIDer

Open inSSIDer with the compatible WiFi adapter (https://support.metageek.com/hc/en-us/articles/203627620-What-packet-capture-adapters-can-I-use-for-Eye-P-A-and-inSSIDer-) plugged in and find your wireless network's name, or SSID, and dive into the Network Details by clicking the binoculars 🔍 icon.

Step 2: Drill in to radio

Keep an eye on the clients column and see how many clients are on each radio on your network. Find the radio that your problematic client is on and click the binoculars 🔍 icon again.

Step 3: Find problematic client

Find the problematic client from the clients list and click on the binoculars 👀 icon.

	Client		Pack...	Utilization		Date Rate	Recent...	Strea...	Width	Retry	Signal	Last Seen
	Apple_C7:CA:45		586	0.0%		-	-	-	20 MHz			< 1 min ago
	iMac	👀	1,288	0.1%		24 Mbps	-	-	20 MHz		-66 dBm	now
	Apple_6B:51:9D	View Client Details				24 Mbps	-	-	20 MHz			now
	iPhone 🗌 🚶		4,877	0.1%		-	-	-	20 MHz			now
	MacBook Pro 🖥 🚶		93,094	2.5%		24 Mbps	-	-	20 MHz		-42 dBm	now

Step 4: Check client capability

Check the Modulation and Coding Scheme (MCS) index and number of spatial streams that your client can use.

If you don't see anything there, turn the WiFi off and on again on that device so inSSIDer can catch an "Association Request". What do you see?

The higher the MCS number and spatial streams, the better the speed and throughput. In the above example, the iPhone 7 has 2 spatial streams and a max MCS Index of 9. The MCS Index here (http://mcsindex.com) tells us that the max data rate this iPhone can achieve on this network is 867 Mbps. Even if the Internet Service Provider (ISP) guarantees 10 Gbps ultra-high-fast download speeds, this iPhone will only reach 867 Mbps on this network.

Inversely, some WiFi devices are bottlenecked by ISP backend speeds (see: Idaho (https://www.idahostatesman.com/entertainment/ent-columns-blogs/words-deeds/article226473115.html)). While a file transfer on the local network may benefit from high WiFi data rates, a MacBook Pro with 3 spatial streams using MCS 9 will only reach 100 Mbps per Speedtest.net (http://speedtest.net) if the ISP data plan is only providing 100 Mbps.

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