

Managing Your WiFi Network

Mapping Networks and Peripherals

Network Hardware

What 802.11 Standard - B (11Mbps), G (54 Mbps), N (110 Mbps), AC (1330 Mbps), AX (4000 Mbps)

What Frequencies - 2.4 ghz, 5.0 ghz or Both (Dual Band)

What Channels - 2.4 ghz (14 Channels Overlapping) 5.0 ghz (38 Channel Non-Overlapping)

MU - MIMO Router (Multi-User - Multi Input Multi Output)

Gigabit Router - Data Speeds faster 1330 Kbps

Mapping Network and Peripherals

Peripherals

Computers - B, G, N, AC, AX Single or Dual Band

Wireless Printers - B, G, N, AC, AX Single or Dual Band

Smart Speaker/Display - B, G, N, AC, AX Single or Dual Band

Smartphones - B, G, N, AC, AX Single or Dual Band

Smart Devices - B, G, N, AC, AX Single or Dual Band

WiFi Interference

Reflective Surfaces

Dense Construction Materials

Metal Products

Other Wireless Equipment

To many WiFi Devices on one Channel

Mapping Network and Peripherals

What happens when you mix standard on the same Network

WiFi 802.11 is backwards compatible. However WiFi 802.11 can use one standard at a time.

You Network will fallback to the lowest device on the Network. Worse Case Example: Laptop Computer 802.11B downgrades entire System to “B”. This means all of your other Equipment is also downgraded.

Mapping Network and Peripherals

What Happens when you Mix Bands (2.4ghz & 5.0 ghz)

2.4 ghz - 300Mbps Un-obstructed Range 150 feet

5.0 ghz - 1330 to 4000 Mbps Un-obstructed Range 115 feet

Most Modern Routers are Dual Band. Worse Case Example: Computer 1 connected to 2.4 ghz band, Computer 2 connected to 5.0 ghz band. Computer 2 can be upto 4 times faster than Computer 1.

Distance and Obstructions can impact the selection of band. Some devices are set to use a certain band

Mapping Signal Strength

Most users do not have a lot of flexibility as to Modem/Router locations. Select the location with fewest physical obstructions

Using a Signal Strength Meter measure the signal strength in several locations in each Room of the House on both Bands. This helps with peripherals locations

Signal Strength is measured in dBm (negative)

30 to 35 is considered perfect

35 to 60 is excellent

65 to 100 is poor

30 to 60 is good for email, browsing, streaming. 65 or above is considered unstable, causing dropouts.

Standardization of Equipment and Bands

Standardize Equipment to one 802.11 standard

Place little used equipment on 2.4 ghz

Use high speed equipment on 5.0 ghz. Because of signal strength you maybe forces to use 2.4 ghz for faster equipment

Smart home controllers use 2.4 ghz.

The old saying “If it works don’t fix it”. In most cases your WiFi Network is broken and you do not know it. If you are not on 802.11AC and 5.0 ghz, you are wasting hundreds if not thousands of dollars a year.