

802.11 is a set of standards for wireless local area networking (WLAN) developed by the Institute of Electrical and Electronics Engineers (IEEE). Commonly known as Wi-Fi, these standards define the specifications for implementing wireless communication in the 2.4, 3.6, 5, and 60 GHz frequency bands.

The various iterations of the 802.11 standard, such as 802.11a, 802.11b, 802.11g, 802.11n, 802.11ac, and 802.11ax (Wi-Fi 6), have introduced improvements in data rates, range, and reliability over time. These standards differ in terms of the frequency bands they operate on, the modulation techniques they use, and the maximum data rates they support.

For example:

- 802.11a operates in the 5 GHz frequency band and supports data rates up to 54 Mbps.
- 802.11b operates in the 2.4 GHz frequency band and supports data rates up to 11 Mbps.
- 802.11g operates in the 2.4 GHz frequency band and supports data rates up to 54 Mbps.
- 802.11n operates in both the 2.4 GHz and 5 GHz frequency bands and supports data rates up to several hundred Mbps.
- 802.11ac operates in the 5 GHz frequency band and supports data rates up to several Gbps.
- 802.11ax (Wi-Fi 6) operates in both the 2.4 GHz and 5 GHz frequency bands and supports even higher data rates and improved performance in crowded environments compared to previous standards.

These standards have become ubiquitous for wireless networking, enabling devices to connect to the internet and local networks without the need for physical cables