



Glossary of Key Wi-Fi Terms

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| 2.5 GHz | 2.4 Gigahertz, a radio frequency band that is used by Wi-Fi products designated as 802.11b, g, or n. See also frequency band . |
| 20/40 MHz channel coexistence | A feature that enables Wi-Fi CERTIFIED n products that operate with 40 MHz channels in the 2.4 GHz frequency band to sense other Wi-Fi devices in the channel and coordinate a switch to the default mode of 20 MHz channels. Wi-Fi CERTIFIED n devices that support 40 MHz channels in 2.4GHz must include support for this optional feature. See also 40 MHz channel operation . |
| 40 MHz channel operation | A mode of operation in which two "channels," or paths on which data can travel, are combined to increase performance in some environments. In the 2.4 GHz frequency band, Wi-Fi CERTIFIED n products are configured to operate using 20 MHz channels by default, and must employ coexistence mechanisms to help ensure that the device defaults to 20 MHz operation when sharing the frequency with other Wi-Fi networks. In the 5 GHz frequency band, interference is not an issue, so coexistence mechanisms are not required. See also 20/40 MHz channel coexistence . |
| 5 GHz | 5 Gigahertz, a radio frequency band that is used by 802.11a/n Wi-Fi products. See also frequency band . |
| 802.11n | The latest generation of Wi-Fi described by the IEEE standard. 802.11n devices that have received the Wi-Fi CERTIFIED n designation can deliver five times or more throughput and twice the range of previous generations of Wi-Fi. |
| Access point (AP) | A device which serves as a central wireless connection point for a Wi-Fi network. |
| Aggregation | Techniques that make the transmission of data more efficient in Wi-Fi networks. |
| A-MPDU | A method of packet aggregation optionally tested in Wi-Fi CERTIFIED n. Packet aggregation is a technique to move data much more efficiently. Multiple smaller packets which are headed to the same destination are bundled together, eliminating multiple waiting periods between those packets. This increases throughput and allows devices to "sleep" more, which in turn improves spectrum and power usage. |
| Broadband modem | Device connecting a local computer or network to a high-speed Internet service, such as DSL or Cable Internet. |
| Channel bonding | A mode of operation in which two "channels," or paths on which data can travel, are combined to increase performance in some environments. In the 2.4 GHz frequency band, Wi-Fi CERTIFIED products are configured to operate using 20 MHz channels by default, and must employ coexistence mechanisms to help ensure that the device defaults to 20 MHz operation when sharing the frequency with other Wi-Fi networks. In the 5 GHz frequency band, interference is not an issue, so coexistence mechanisms are not required. |

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| Client | A device, such as a computer, phone or TV which accesses a Wi-Fi or wired network. |
| Concurrent operation | Wi-Fi Access Points with concurrent operation can transmit on both 5 GHz and 2.4 GHz frequency bands at the same time. Sometimes referred to as "simultaneous dual-band". |
| Coverage area | The physical area in which devices can connect to a Wi-Fi network. See also range . |
| Data rate | Also known as the "PHY" rate, this number captures the speed at which all data bits pass over the Wi-Fi network. Many Wi-Fi devices will report this number as the "speed" at which your network is performing. Actual throughput rates will always be lower than the data rate, due to available network capacity and overhead in real-world environments. The data rate communicates the maximum possible rate at which a device can transmit data. Wi-Fi CERTIFIED n devices have data rates which can range from 150 Mbps to 450 Mbps. See also throughput , which is a real-world measure of performance and is always lower than data rate. |
| Device-to-device network | A device-to-device network is two or more devices connecting without the use of a centralized infrastructure network or access point. |
| Digital home | A name used to refer to the trend of networked consumer electronics found in a home. Digital home devices communicate with each other and often connect to a central library of movies, photos, or music. Digital home devices range from televisions to set top boxes, notebook computers to audio systems, cameras to digital photo frames and much more. Wi-Fi is a key technology for connecting the Digital Home. |
| Dual-band | Designates a product that can communicate on a wireless network in either the 2.4GHz or 5GHz frequency bands. Dual-band Wi-Fi devices can offer either "selectable" or "concurrent" operation. For selectable dual-band devices, the user must select one of the frequency bands. Concurrent devices operate in both 2.4 and 5 GHz at the same time. |
| Dual-band concurrent | Only APs designated as "dual-band concurrent" can support both 2.4GHz and 5.0 GHz clients simultaneously. |
| Encrypt | Convert data into a form that cannot be easily understood by unauthorized persons. Encrypted data is often used by websites for secure payment options, and by communications systems such as those used by safety officers for communicating sensitive information. Wi-Fi security, known as WPA2 , uses encryption to help protect transmitted data. |
| Frequency band | Wi-Fi 802.11n operates at two frequencies: 5 GHz and 2.4 GHz . Only devices which operate in the same frequency band can communicate with one another. Wi-Fi CERTIFIED n devices may support one or both of these frequency bands. |
| Interoperability | The ability for products from different vendors to work together. Wi-Fi CERTIFIED products have been tested for interoperability. |
| MIMO | Multiple-Input/Multiple-Output. An advanced signal processing technology that uses multiple receivers and multiple transmitters in both the client and access |

point to improve **throughput** and **range**. For most Wi-Fi CERTIFIED n devices, MIMO is foundational to performance.

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| Network | A set of fixed and/or wireless devices that communicate with each other. |
| Network firewall | A part of a computer system that is designed to block unauthorized access. It can be either hardware or software, and is frequently used to prevent unauthorized Internet users from accessing private networks. |
| Network name | A name used to identify a wireless network. Also known as an SSID or Service Set Identifier. |
| Packet aggregation | A technique to move data more efficiently. Multiple smaller packets which are headed to the same destination are bundled together, eliminating multiple waiting periods between those packets. This increases throughput and allows devices to "sleep" more, which in turn improves spectrum and power usage. The method of packet aggregation which is optionally tested in Wi-Fi CERTIFIED 802.11n is A-MPDU . |
| Pass phrase | A user-entered series of characters used to join a Wi-Fi network protected by WPA2 security. |
| Performance | A concept which refers to how effectively (or quickly) data moves across a network, a device's range, and or a network's reliability. See also throughput, range, data rate . |
| PSK (Pre-shared key) | Pre-Shared Key. A user-entered series of characters used to create a WPA2-Personal network. Commonly known now as a pass phrase. |
| Range | The effective distance of for a wireless transmission. Wi-Fi CERTIFIED n devices typically have a range of up to 200 meters and can cover an entire home with a strong Wi-Fi signal. Another benefit of 802.11n technology is much better coverage. Wi-Fi CERTIFIED n devices use "reflections" of the signal (from walls, etc.) to strengthen it and eliminate cold or weak spots in the signal. |
| Router | A connecting point for many Wi-Fi networks, which directs traffic between multiple computers/devices and the Internet. Sometimes used interchangeably with access point . |
| Simultaneous dual band | Wi-Fi Access Points with concurrent operation can transmit on both 5 GHz and 2.4 GHz frequency bands at the same time. Sometimes referred to as concurrent operation or concurrent dual-band . |
| Single-band | Describes a wireless product that communicates using only a single radio frequency band, such as 2.4GHz or 5GHz in Wi-Fi products |
| Single-stream | Term to describe a wireless device that communicates with a network by using a single communications input and output transmission. |
| Spatial stream | A data transmission in a wireless network. A spatial stream might be compared to a lane on a highway. MIMO technology makes use of multiple spatial streams to increase a device's transmission capacity. |
| SSID (Service Set | A name used to identify a wireless network. Also known as a network name . |

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| Identifier) | |
| Switchable operation | The capability of a dual-band device to be manually changed between two frequency bands, either 2.4MHz or 5MHz for operation. Contrasts with concurrent operation , in which a device supports both 2.4 and 5 at the same time. See also dual-band, single-band . |
| Throughput | A real-world performance measure. The average rate of successful delivery over a wireless system. Throughput is usually measured in bits per second (bps) or Megabits per second (Mbps) and sometimes in data packets per second or data packets per time slot. Throughput of a particular device will always be lower than its stated data rate . |
| TKIP | Pronounced "tee-KIP", the Temporal Key Integrity Protocol is an encryption protocol introduced in WPA to make communications over a Wi-Fi network private. WPA has been superseded by WPA2, the current generation of Wi-Fi security, which uses AES (Advanced Encryption Standard) encryption . |
| Wi-Fi CERTIFIED n | Certification mark owned and assigned by the Wi-Fi Alliance that indicates a product has successfully passed the testing performed by the Wi-Fi Alliance for interoperability, security and feature performance based upon the IEEE 802.11n standard. Product certification may be identified by the Wi-Fi CERTIFIED n logo on the product or packaging. A detailed list of Wi-Fi CERTIFIED n products may be found at www.wi-fi.org . |
| Wi-Fi CERTIFIED 802.11n draft 2.0 | Certification mark owned and assigned by the Wi-Fi Alliance prior to the finalization of the 802.11n standards. Products which were designated Wi-Fi CERTIFIED 802.11n draft 2.0 are now considered Wi-Fi CERTIFIED n. |
| Wi-Fi interoperability certificate | Document stating that a product has passed Wi-Fi CERTIFIED interoperability testing. The Interoperability Certificate describes the tests that were completed and documents key information about product features. Interoperability certificates for every Wi-Fi CERTIFIED product are viewable at the Wi-Fi.org web site. |
| WMM® or Wi-Fi Multimedia | Certification mark owned and assigned by the Wi-Fi Alliance to designate features for Wi-Fi networks that improve the user experience for audio, video, and voice applications. Products which are Wi-Fi CERTIFIED for WMM can prioritize different types of network traffic to improve user experience. |
| WPA® (Wi-Fi Protected Access) | Certification mark owned and assigned by the Wi-Fi Alliance to designate that a device has passed testing for second-generation security protocol for Wi-Fi networks that incorporates TKIP for data protection and improved network access control. Superseded by WPA2 in 2004. Available in personal and enterprise versions. |
| WPA2® (Wi-Fi Protected Access 2) | Certification mark owned and assigned by the Wi-Fi Alliance to designate that a device has passed testing for this current-generation security protocol for Wi-Fi networks that incorporates AES encryption for data protection and improved network access control. Tested support for WPA2 is required for a product to achieve the Wi-Fi CERTIFIED designation. Available in personal and enterprise versions. |
| Wi-Fi® | A registered trademark developed and owned by the Wi-Fi Alliance to describe wireless local area network (WLAN) products. |

**Wi-Fi n or
Wireless n**

Descriptions a manufacturer may give a product to indicate that the product contains some features of 802.11n. This does not indicate that the product is Wi-Fi CERTIFIED n, which is the only indication that a product has passed Wi-Fi Alliance testing to the 802.11n standard.

**WEP (Wired
Equivalent Privacy)**

The original security standard used in Wi-Fi networks to encrypt network traffic. Users should not use WEP devices for any sensitive data transmission, as there are well-known vulnerabilities in this very old form of security. If any devices on a network only support WEP, the entire network is vulnerable.