Enter a term...

MAIN   **BROWSE TERMS**   **DID YOU KNOW?**   **QUICK REFERENCE**   **ALL CATEGORIES**   **STUDY GUIDES**   **BLOG**

ABOUT

Main » TERM » 8 »

802.11 IEEE wireless LAN standards

Like ⟨ 1.6k   Tweet ⟨ 20   G+1 ⟨ 37

By Vangie Beal

802.11 and *802.11x* refers to a family of specifications developed by the IEEE for *wireless LAN* (WLAN) technology. 802.11 specifies an over-the-air interface between a wireless client and a base station or between two wireless clients. The IEEE accepted the specification in 1997.

There are several specifications in the 802.11 family:

- **802.11** — applies to wireless LANs and provides 1 or 2 Mbps transmission in the 2.4 GHz band using either frequency hopping spread spectrum (FHSS) or direct sequence spread spectrum (DSSS).
- **802.11a** — an extension to 802.11 that applies to wireless LANs and provides up to 54-Mbps in the 5GHz band. 802.11a uses an orthogonal frequency division multiplexing encoding scheme rather than FHSS or DSSS.
- **802.11b** (also referred to as 802.11 High Rate or Wi-Fi) — an extension to 802.11 that applies to wireless LANS and provides 11 Mbps transmission (with a fallback to 5.5, 2 and 1-Mbps) in the 2.4 GHz band. 802.11b uses only DSSS. 802.11b was a 1999 ratification to the original 802.11 standard, allowing wireless functionality comparable to Ethernet.
- **802.11e** — a wireless draft standard that defines the *Quality of Service* (QoS) support for LANs, and is an enhancement to the 802.11a and 802.11b wireless LAN (WLAN) specifications. 802.11e adds QoS features and multimedia support to the existing IEEE 802.11b and IEEE 802.11a wireless standards, while maintaining full backward compatibility with these standards.
- **802.11g** — applies to wireless LANs and is used for transmission over short distances at up to 54-Mbps in the 2.4 GHz bands.
- **802.11n** — 802.11n builds upon previous 802.11 standards by adding *multiple-input multiple-output* (MIMO). The additional transmitter and receiver antennas allow for increased data throughput through spatial multiplexing and increased range by exploiting the spatial diversity through coding schemes like Alamouti coding. The real speed would be 100 Mbit/s (even 250 Mbit/s in PHY level), and so up to 4-5 times faster than 802.11g.
- **802.11ac** — 802.11ac builds upon previous 802.11 standards, particularly the 802.11n standard, to deliver data rates of 433Mbps per spatial stream, or 1.3Gbps in a three-antenna (three stream) design. The 802.11ac specification operates only in the 5 GHz frequency range and features support for wider channels (80MHz and 160MHz) and beamforming capabilities by default to help achieve its higher wireless speeds.
- **802.11ac Wave 2** — 802.11ac Wave 2 is an update for the original 802.11ac spec that uses MU-MIMO technology and other advancements to help increase theoretical maximum wireless speeds for the spec to 6.93 Gbps.
- **802.11ad** — 802.11ad is a wireless specification under development that will operate in the 60GHz frequency band and offer much higher transfer rates than previous 802.11 specs, with a theoretical maximum transfer rate of up to 7Gbps (Gigabits per second).

Related Terms

- 802.11x
- 802.11g
- 802.11r
- 802.11a
- 802.11n
- 802.11e
- 802.11b
- 802.11ad
- 802.11ac
- 802.11ac Wave 2

WEBOPEDIA WEEKLY

Stay up to date on the latest developments in Internet terminology with a free weekly newsletter from Webopedia. Join to subscribe now.

   Email address

LATEST ARTICLES

The Problem with Statistics
We look at a few of the more troubling aspects of statistics and how these may be used to advance an agenda or skew the facts to someone's… Read More »

29 Free Android Apps for Cash-Strapped Students
From wacky alarm clocks to lecture hall tools and after class entertainment, these Android apps are a good fit for a student's life and budget. Read More »

Sharing Threat Intelligence
A growing number of startups make the sharing of threat intelligence a key part of their solutions. Read More »

- **802.11r** - 802.11r, also called *Fast Basic Service Set* (BSS) Transition, supports VoWi-Fi handoff between access points to enable VoIP roaming on a Wi-Fi network with 802.1X authentication.
- **802.1X** — Not to be confused with 802.11x (which is the term used to describe the family of 802.11 standards) 802.1X is an IEEE standard for port-based Network Access Control that allows network administrators to restricted use of IEEE 802 LAN service access points to secure communication between authenticated and authorized devices.

See 802.11 for a complete overview of the 802.11x family of specifications.

Also see the "Wireless LAN Standards chart" in the Quick Reference section of Webopedia.

See also "How Wireless Networks Work" in the Did You Know... section of Webopedia.

Network Virtualization and Security with VMware NSX
Download Now

What do you think about this?

▲ Interesting	64	▼ Not Interesting

PREVIOUS	NEXT
8-way server	802.11a

Related Links

- IEEE Unable to Agree on 802.11g Standards
- Did You Know... How Wireless Networks Work
- Tools Simplify 802.11 Deployments
- Minimizing 802.11 Interference Issues
- The BIG Question: 802.11a or 802.11b?
- 802.11a: An Excellent Long Term Solution
- 802.11 Alphabet Soup
- Minimizing WLAN Security Threats
- Improving WLAN Performance with Fragmentation
- Sizing Up Your WLAN

STUDY GUIDES

The 7 Layers of the OSI Model
The Open System Interconnection (OSI) model defines a networking framework to implement protocols in seven layers. Use this handy guide to compare... Read More »

Network Fundamentals Study Guide
Networking fundamentals teaches the building blocks of modern network design. Learn different types of networks, concepts, architecture and... Read More »

Computer Architecture Study Guide
This Webopedia study guide describes the different parts of a computer system and their relations. Read More »

TECH RESOURCES FROM OUR PARTNERS

Network Virtualization and Security with VMware NSX

How to Reduce Network Spend on Campus

Living Color Over Living Networks: How to Optimally Deliver Video in the Adaptive Enterprise

IT BUSINESS EDGE