

devoLO Wi-Fi Hardware Powerline Adapter



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World Wi-Fi Day 2025: A brief history of Wi-Fi

Aachen, Germany, 18 June 2025 – The Internet has long been entrenched in daily life. From online research and video meetings at work, to private communication and entertainment — more and more areas of our lives are online. Thanks to Wi-Fi, this happens wirelessly with most modern client devices. To celebrate World Wi-Fi Day, we are taking a closer look at the technology, its history and its future.

The topics of this press release:

- The development of Wi-Fi standards
- What is mesh Wi-Fi?
- Wi-Fi security: WPA2 and WPA3
- Wi-Fi and AI
- The future of Wi-Fi

The development of Wi-Fi standards

On 20 June, we celebrate World Wi-Fi Day, a technology which got its start back in 1997. Since its introduction, wireless technology has undergone rapid development. The first version of the Wi-Fi standard IEEE 802.11 in 1997 offered maximum transmission speeds of 2 Mbps. The current version IEEE 802.11be theoretically offers up to 46,000 Mbps. And while the technical name of the standard may have stayed the same, in

recent years, simpler nomenclature has been established. Here is an overview of the most important Wi-Fi standards and technological advancements:

- **Wi-Fi 4 (IEEE 802.11n):** Support for 2.4-GHz and 5-GHz frequency bands for transmission speeds of up to 600 Mbps.
- **Wi-Fi 5 (IEEE 802.11ac):** Increase in the possible transmission speed, for example due to optimized modulation, larger channel widths and more simultaneous connections thanks to MIMO (Multiple Input Multiple Output) technology. Wi-Fi 5 enables transmission speeds of up to 6,933 Mbps.
- **Wi-Fi 6 (IEEE 802.11ax):** Transmission speeds of up to 9,600 Mbps and added stability. This is achieved in part due to OFDMA (Orthogonal Frequency Division Multiple Access)—this technology makes it possible for multiple devices to send and receive data packets at the same time. WPA3 (Wi-Fi Protected Access 3) is also becoming the new standard encryption protocol.
- **Wi-Fi 7 (802.11be):** Transmission speeds of up to 46,000 Mbps. Some of the most important features include the use of the 6-GHz frequency band, even larger channel widths and additional optimizations to the aforementioned OFDMA and MIMO technologies.

And further improvement has not stopped. Wi-Fi 8 (802.11bn) is already being developed and aims to increase the response time, reliability and stability of Wi-Fi networks.

The terms WLAN and Wi-Fi are often used synonymously. Strictly speaking, this is not correct. The term WLAN (Wireless Local Area Network) represents the actual wireless LAN. “Wi-Fi” in turn stands for the corresponding certification by the Wi-Fi Alliance and is an abbreviation for “Wireless Fidelity”.

What is mesh Wi-Fi?

Anyone who deals with state-of-the-art Wi-Fi hardware will eventually stumble upon the term mesh Wi-Fi. This is an innovative technology that enables multiple Wi-Fi access points to work together intelligently, creating a tightly meshed, comprehensive and stable home network. To achieve this, the mesh Wi-Fi automatically organizes the optimal assignment between Wi-Fi access points and receiving devices (Access Point Steering),

for example. This especially benefits users in households with large living spaces and many Wi-Fi clients.

Wi-Fi security: WPA2 and WPA3

One important aspect of wireless connections is security, which has also continuously improved over the years. Nowadays, WPA2 and WPA3 are the most common encryption methods for Wi-Fi networks. The abbreviation stands for Wi-Fi Protected Access. WPA2 was introduced as the successor to the older WPA protocol in 2004 and offers secure authentication of clients in the network in addition to robust AES encryption.

WPA3 builds on the strengths of its predecessor, particularly improving protection in public networks and making targeted attacks on weak passwords more difficult. WPA3 is also better optimized for IoT clients and integrates them into their own network easily and securely using the Easy Connect function.

Wi-Fi and AI

Artificial intelligence will also play a more important role in the future of Wi-Fi. In mobile phone networks, systems are already being used which enable the self-organization of the network. These SONs (self organizing networks) use machine learning to manage and optimise networks autonomously. For example, this enables automated configuration processes, optimized channel selection and adjustments to transmission settings in real time. What are known as self-healing networks also recognize failures or problems on their own and remedy them without manual intervention. These kinds of AI-supported analyses and solutions increase the stability, performance and scalability of these networks. However, these are currently only used in large networks.

The future of Wi-Fi

Wi-Fi technology has developed rapidly—and there are further innovations expected in future. Based on the information so far concerning Wi-Fi 8, no gigantic leaps in transmission speeds should be expected for the time being. Instead, the focus is on expanding stability and reliability. And this makes sense, since the transmission speeds that are already theoretically possible today are sufficient for most applications. However, the steady increase in Wi-Fi clients is leading to transmission problems more frequently.

Future generations of the standard will have to face this technical challenge first. Wi-Fi technology may also contribute to a more sustainable future through improved energy efficiency.

In light of the constant increase in wireless devices, end users should not forget the natural limits of Wi-Fi technology when setting up their home networks. Wireless connections have fundamental weaknesses that even technological advancements cannot fix. For example, these include weakening at greater distances and through ceilings, walls or even water pipes. Especially in large living spaces spanning multiple storeys, theoretically possible transmission speeds are greatly reduced in practice. For efficient and high performance networking, Powerline technology is the right choice. It uses the available power lines for data transmission, thus closing the gaps in spots where thick walls, long distances or structural obstacles weaken the wireless signal. In combination with Wi-Fi access points, this creates a future-proofed home network which is quick, stable and comprehensive. A Wi-Fi repeater is recommended for small to medium-sized areas.

About devolo

devolo develops intelligent home networking solutions that send high-speed Internet into every corner of your house or flat. The main product for household customers is devolo Magic, a technology that makes it possible to establish smart networks over existing electrical wiring. The product portfolio is rounded off with innovative mesh Wi-Fi systems and solutions for fibre-optic connections. In the professional sector, devolo is a reliable partner of international telecommunications providers, global industrial corporations, leading medium-sized companies and the fast-growing energy industry. Anywhere secure, high-performance data communication is needed, partners rely on devolo. With over 50 million products sold, devolo belongs to the world's market leaders. More than 950 international top-product test reviews and distinctions underscore our leadership in innovation. devolo was founded in 2002 in Aachen, Germany, and is represented in more than 10 countries.

Customer Support


Press contact

devolo solutions GmbH
Marcel Schüll
Charlottenburger Allee 67
52068 Aachen, Germany
Phone: +49 241 18279-514
marcel.schuell@devolo.de

This text and current product images can also be found at www.devolo.com in the media section of the devolo website.



Documents / Resources

	<p>devoLO Wi-Fi Hardware Powerline Adapter [pdf] User Manual</p> <p>Wi-Fi Hardware Powerline Adapter, Wi-Fi, Hardware Powerline Adapter, Powerline Adapter, Adapter</p>
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References

- [User Manual](#)

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