Faster and more secure Wi-Fi in Windows

Windows 10 supports Wi-Fi 6 and WPA3. Wi-Fi 6 is the sixth generation of Wi-Fi that improves efficiency, flexibility, and scalability, providing higher speeds and capacity for modern applications. WPA3 is the latest security standard that enhances Wi-Fi security, offering features like more robust authentication and increased cryptographic strength.

These advancements in Wi-Fi technology and security are designed to support the increasing demand for wireless connectivity in various environments, from homes to large enterprises, ensuring a better and more secure user experience.

To take advantage of the increased performance, coverage, and security, here's what you'll need:

* **A router that supports Wi-Fi 6/6E and/or WPA3.** To find out if your router supports this, check the documentation that came with it or visit the router manufacturer’s website.
* **Windows 10 installed on your PC.** To check and make sure you have the latest updates for Windows 10, select the **Start** button, then select **Settings** > **Update & Security** > **Windows Update** > **Check for updates**.
* **A wireless network adapter that supports Wi-Fi 6/6E and/or WPA3.** To see if your PC supports it, check the documentation that came with it or check the PC manufacturer’s website.

**Tip:**You can also check to see what your network adapter supports by opening the Command Prompt (or Terminal), and then typing the command **netsh wlan show drivers**. Look next to **Radio types supported** and see if it includes **802.11ax (for Wi-Fi 6/6e)** and look under **Authentication and cipher supported in infrastructure mode** and see if it includes **WPA3 Personal**.

Wi-Fi 6/6E

Wi-Fi 6, also known as IEEE 802.11ax High Efficiency (HE), is the sixth generation of the Wi-Fi standard. It brings several enhancements to wireless networks (WLANs) and is designed to improve performance, efficiency, and scalability.

Here are some of Wi-Fi 6's new features:

* **Multi-User Multiple Input, Multiple Output (MU-MIMO) transmissions**, allowing multiple devices to communicate simultaneously.
* **Double the potential bandwidth** from four streams to eight streams.
* **1024-QAM modulation** to enable broadcasting over up to eight spatial data streams.

In addition to that, Wi-Fi 6E extends Wi-Fi 6 support to the 6ghz band. It opens up ultra-wide data channels, providing additional spectrum for faster and more reliable connections in a less crowded spectrum.

With Wi-Fi 6/6E, you can enjoy increased speed, capacity, and efficiency, making it ideal for modern applications and a better overall Wi-Fi experience.

WPA3

Building on the widespread adoption of WPA2 over more than a decade, WPA3 is the latest generation of Wi-Fi security from WFA, offering a host of features to simplify Wi-Fi security, enabling more robust authentication, and delivering increased cryptographic strength for highly sensitive data markets. For more information, [visit the WFA website](https://www.wi-fi.org/discover-wi-fi/security).

* **WPA3-Personal** is more resilient, password-based authentication even when users choose passwords that fall short of typical complexity recommendations.
* **WPA-Enterprise (192 bits)** offers the equivalent of 192-bit cryptographic strength, providing additional protections for networks transmitting sensitive data, such as government or finance.

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Faster and more secure Wi-Fi in Windows

*Windows 11*

Windows 11 supports the latest wireless technologies standard from WFA (Wi-Fi Alliance) including Wi-Fi 6, Wi-Fi 7, and WPA3. Wi-Fi 6 is the sixth generation of Wi-Fi that improves efficiency, flexibility, and scalability, providing higher speeds and capacity for modern applications. Wi-Fi 7 is the latest generation that promises even faster speeds and improved latency, network capacity, and overall stability. WPA3 is the latest security standard that enhances Wi-Fi security, offering features like more robust authentication and increased cryptographic strength.

These advancements in Wi-Fi technology and security are designed to support the increasing demand for wireless connectivity in various environments, from homes to large enterprises, ensuring a better and more secure user experience.

To take advantage of the increased performance, coverage, and security, here's what you'll need:

* **A router that supports Wi-Fi 7, Wi-Fi 6/6E, and/or WPA3.** To find out if your router supports this, check the documentation that came with it or visit the router manufacturer’s website. If you’re considering buying a new router, look for a Wi-Fi 7 label for the latest Wi-Fi features.
* **Windows 11 installed on your PC.** To check and make sure you have the latest updates for Windows 11, select the **Start** button, then select **Settings** > **Windows Update** > **Check for updates**.

**Note:**Wi-Fi 7 is available starting with Windows 11, version 24H2.

* **A wireless network adapter that supports Wi-Fi 7, Wi-Fi 6/6E, and/or WPA3.** To see if your PC supports it, check the documentation that came with it or check the PC manufacturer’s website.

**Tip:**You can also check to see what your network adapter supports by opening the Command Prompt (or Terminal), and then typing the command **netsh wlan show drivers**. Look next to **Radio types supported** and see if it includes **802.11be (for Wi-Fi 7)** or **802.11ax (for Wi-Fi 6/6e)** and look under **Authentication and cipher supported in infrastructure mode** and see if it includes **WPA3 Personal** and **WPA3 Enterprise**.

Wi-Fi 7

Wi-Fi 7, also known as IEEE 802.11be Extremely High Throughput (EHT), is the latest Wi-Fi technology that offers unprecedented speed, reliability, and efficiency for your wireless devices.

Here are some of Wi-Fi 7's new features:

* **Multi-Link Operation (MLO)** allows devices to use multiple bands (2.4 GHz, 5 GHz, and/or 6 GHz) simultaneously to avoid network congestion and maintain connectivity.

**Tip:**Once connected, you can see if Multi-Link Operation is supported in your connection by selecting **Settings** > **Network & internet** > **Wi-Fi** > **(your network) properties**, and checking the value next to **Network band (channel)**. If it shows more than one band (for example, **5 GHz and 6 GHz**, or **2.4 GHz and 5 GHz**), then MLO is supported.

* **320 MHz ultra-wide bandwidth in the 6 GHz band** doubles the speed to your devices and enables new possibilities for high bandwidth applications and scenarios, such as AR/VR.
* **4096-QAM modulation** increases data transmission by 20% and improves the quality of video streaming, video conferencing, and more.

With Wi-Fi 7, you can enjoy multi-gigabit speeds on your Windows PC and experience up to 4x faster speeds than Wi-Fi 6 and Wi-Fi 6E, and close to 6x faster than Wi-Fi 5. You can also enjoy significantly lower latency, which improves the responsiveness and performance of real-time activities like gaming and video conferencing. Please note that performance may vary by manufacturer and hardware device capabilities.

**Note:**Wi-Fi 7 (Enterprise) is not currently supported in Windows 11.

Wi-Fi 6/6E

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Here are some of Wi-Fi 6's new features:

* **Multi-User Multiple Input, Multiple Output (MU-MIMO) transmissions**, allowing multiple devices to communicate simultaneously.
* **Double the potential bandwidth** from four streams to eight streams.
* **1024-QAM modulation** to enable broadcasting over up to eight spatial data streams.

In addition to that, Wi-Fi 6E extends Wi-Fi 6 support to the 6ghz band. It opens up ultra-wide data channels, providing additional spectrum for faster and more reliable connections in a less crowded spectrum.

With Wi-Fi 6/6E, you can enjoy increased speed, capacity, and efficiency, making it ideal for modern applications and a better overall Wi-Fi experience.

WPA3

Building on the widespread adoption of WPA2 over more than a decade, WPA3 is the latest generation of Wi-Fi security from WFA, offering a host of features to simplify Wi-Fi security, enabling more robust authentication, and delivering increased cryptographic strength for highly sensitive data markets. For more information, [visit the WFA website](https://www.wi-fi.org/discover-wi-fi/security).

* **WPA3-Personal** is more resilient, password-based authentication even when users choose passwords that fall short of typical complexity recommendations.

**Tip:**If you have a WPA2 and a WPA3 AP (access point) in your network setup, your PC will first try to connect using WPA3-Personal, automatically upgrading your existing WPA2-Personal configuration. A wireless network adapter that supports cross-roaming is required to seamlessly roam between WPA2 and WPA3, if part of your network isn't yet compatible with WPA3.

* **WPA3-Enterprise** builds on top of WPA2-Enterprise by providing the additional requirement of using Protected Management Frames on all WPA3 connections with 802.1X for user authentication with a RADIUS server.
* **WPA-Enterprise (192 bits)** offers the equivalent of 192-bit cryptographic strength, providing additional protections for networks transmitting sensitive data, such as government or finance.