

# What is Wifi 6? Outstanding features of Wifi 6 compared to the previous generation

The introduction of Wifi 6 brings faster access speeds and many improvements compared to the previous generation. So, what is Wifi 6? What features does Wifi 6 have?

With the strong development of the internet, the demand for wifi has increased. Requires faster access speed to meet user requirements. Therefore, Wifi 6 was born with many outstanding improvements compared to previous generations of wifi. So, what is Wifi 6? What features does Wifi 6 have? To understand better, let's find out with TipsMake in the article below.

## What is Wifi 6?

**Wifi 6** is the latest update to the wireless networking standard. Wifi 6 operates mainly based on **the IEEE 802.11ax standard**. Possessing super-fast access speed, large capacity and much improved energy efficiency compared to previous generation wireless connection versions.

Picture 1 of What is Wifi 6? Outstanding features of Wifi 6 compared to the previous generation

The name Wifi 6 was created by the manufacturer to make it easier for users to remember and understand. Normally in previous generation wireless connections, the name will be the operating standard. For example, in the Wifi 5 generation, it is called **802.11ac**. If Wifi 6 is also named according to this standard, it will be called **802.11ax**. This way of calling is quite complicated and difficult to understand for people who are not tech savvy. Therefore, the name Wifi 6 was born.

Each different generation of wifi will also provide different features. Wifi 6 provides users with an improved experience to keep up with the continuous development of the information technology industry.

## Outstanding features of Wifi 6 compared to previous generations

The introduction of the Wifi 6 generation has brought many superior features compared to previous generations. This helps better meet user needs.

### 1. Fast access speed, enhanced transmission performance

**Wifi 6** possesses extremely impressive transmission speed, much faster than previous generations. The highest broadcast frequency can be up to **11 Gbps**, which can be seen to be **30 - 40%** higher than the old standard. The reason why Wifi can achieve such fast access speed is thanks to the 1024-QAM digital data transmission technique.

Along with that, Wifi 6 also has an extremely superior feature: Orthogonal Frequency Division Multiple Access - OFDMA. Thanks to this technique, network performance and throughput have increased dramatically.

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## 2. Better MU-MIMO protocol support and more efficient data distribution

One of the outstanding features of this wireless connection standard is its ability to support more devices at the same time while still ensuring fast access speed. Suitable for use in applications, services or work environments that need to upload a lot of data at the same time from many different devices. This feature is achieved through the application of MU-MIMO technology.

**MIMO (Multiple In, Multiple Out) technology** is a technology that uses multiple antennas to receive and transmit signals of wireless connections. This provides stable and robust signal transmission that can be easily dispersed across multiple data streams. Therefore, the data transmission speed will be much faster than when using only 1 antenna.

## 3. Supports the latest wifi security standards

Wifi 6 also gives users another superior feature which is very high security. Therefore, devices will be guaranteed to be safe when connecting to public networks. Users can avoid potential cyber attacks, encrypt access devices, and stay connected easily.

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This outstanding security is thanks to the transition from WPA2's 4-step authentication mechanism and **PSK (Pre-Shared Key)** to a new, more secure technique, SAE (Simultaneous Authentication of Equals). This change has reduced password guessing attacks. At the same time, this technology also helps limit data being decoded in bulk.

Furthermore, Wifi 6 also provides the ability to encrypt data transmitted in networks that do not use passwords to log in. Wifi connection of devices without a screen is also simplified. Along with that, for business networks, encryption capabilities will be enhanced from 128 bits to 192 bits.

## 4. Optimized performance provides longer usage time for connected devices

Thanks to **the TWT feature** integrated into Wifi 6, it helps save battery life for devices using Wifi such as smartphones, laptops, etc.

This generation of wireless connection standards works with a smart mechanism, when devices are connecting to the network, they will be able to know when to leave Wifi in sleep mode and when to wake up Wifi. This will help the device save energy and not waste battery power in maintaining a continuous network connection. This is one of the outstanding features of Wifi 6.

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# Compare the difference between Wifi 6 and old wifi?

Wifi 6 is improved from the old generation of wifi, so it will bring many new features to users. The difference between Wifi 6 and Wifi is also expressed through the following factors:

## 1. Connection speed

Wifi 6 possesses extremely impressive connection speeds of up to **10Gbps**. The highest wireless broadcast frequency and the closest distance reaches **12Gbps**. Connection speed and broadcast frequency have increased significantly by **30 - 40%** compared to the old wireless connection standard. This is considered one of the major improvements in connection speed.

## 2. Radio frequency

**The OFDMA feature** - multi-access orthogonal frequency division is one of the outstanding features of Wifi 6. This feature uses the two available transmission frequencies of 2.4GHz and 5GHz in a better way. The available spectrum is divided into small units to help increase network performance and increase throughput.

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Currently, dual-band routers often operate with the 2.4GHz and 5GHz spectrum. At the same time, these spectrums will be allocated according to a set of channels with a width of 20MHz. Wifi 6 has changed the allocation of 20MHz channels into 256 individual sub-channels. This is a huge increase from the current 64 channels. Not only does Wifi 6 increase the number of pure channels, it also changes the data connections on the increased channels.

## 3. Performance in crowded areas

Wifi 6 is an updated version of the current **256 QAM – Quadrature Amplitude Modulation 802.11ac feature**. This wireless connection standard has been increased to 1024 QAM so it can broadcast up to 8 streams at the same time. This means that just one access point can handle traffic to 8 devices at the same time with the same access speed.

Because of this superior feature, it has solved common network congestion in businesses. At the same time, Wifi 6 also helps increase work efficiency in public places and densely populated areas.

## 4. Battery life

Another difference of Wifi 6 compared to old Wifi is its ability to save energy very effectively. When the access point needs to interact with a device, the system will notify the device when to put the Wifi signal into sleep mode or notify when to wake up. This effectively saves energy because the Wifi will be able to spend more time in sleep mode.

This difference is due to the **TWT - target wake time** feature, which supports very good battery saving for mobile devices.

Picture 6 of What is Wifi 6? Outstanding features of Wifi 6 compared to the previous generation

## Why is Wifi 6 faster?

Currently, most people use many wifi-enabled devices such as mobile phones, tablets, laptops, etc. Therefore, users need to use the network with higher speeds to better serve their businesses, work and life. Wifi 6 is a generation of wireless networks with extremely fast transmission speeds.

The reason the speed of Wifi 6 is faster than previous generations is because:

1. **Use the OFDMA feature** – orthogonal frequency division multiplexing. OFDMA works by dividing channels into subcarriers, allowing data to be transmitted to multiple devices at the same time. Only a single connection is needed to transmit data from the router to different devices at the same time.
2. **Using the OBSS feature** - Overlapping basic service set, this is another advantageous feature of Wi-Fi 6. OBSS helps improve common network congestion. This feature allows the access point to use a 'color' to identify the network. If there is other traffic on the detected channel but that traffic does not have the same color as the local network, the devices will ignore it and continue transmitting data. This improves latency and increases reliability.
3. **Using Beamforming technology** – This is a future data transmission technology. Instead of data being broadcast in multiple directions, the router will be able to detect the location of the device requesting the data. From there, the local data stream will be transmitted in the correct direction of the device. Therefore, the transmission speed is also significantly improved.

## Is it necessary to replace a new router to use Wifi 6?

Replacing the router to use Wifi 6 is very necessary. However, on the market today there are very few devices that support Wifi 6 connection. Therefore, choosing a router to replace will be very difficult in the process of finding the right device.

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With the advent of Wifi 6 comes WPA3, a new wireless security protocol. Therefore, when choosing a new router you need to check if the router can receive firmware updates according to WPA3 standards.

There are several types of Wifi 6 routers available on the market today that you can choose from:

1. **TR-AX88U:** This device from ASUS can support new generation 802.11ax devices. This router uses the AX6000 standard, complying with the latest wireless specifications.
2. **Nighthawk AX8:** Device from Netgear that you can choose to buy at the present time. AX8 has a beautiful design along with impressive technical specifications.

However, both Netgear Nighthawk AX8 and Asus TR-AX88U have a limited throughput of about 6Gbps and this throughput has not yet reached the highest level of Wifi 6.

## Epilogue

Hopefully the information that TipsMake has compiled in this article can help you know what Wifi 6 is and the outstanding features of Wifi 6 compared to the previous generation. If you find the article useful, please share it with many people.

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