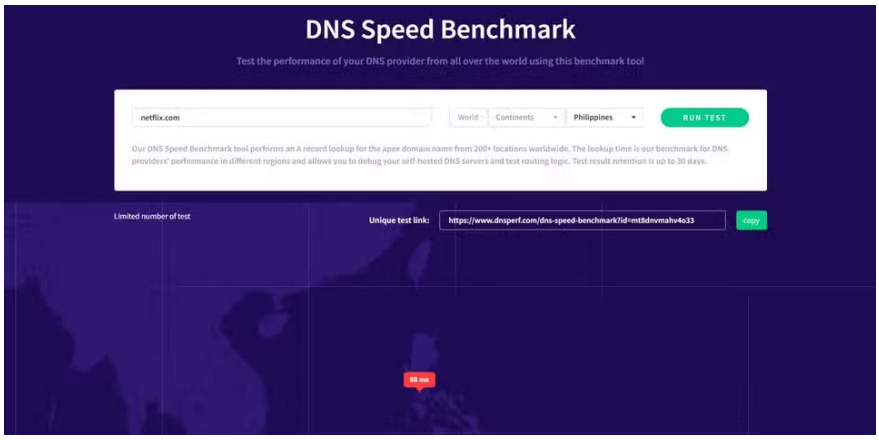
Does setting DNS on router or computer give faster internet speed?

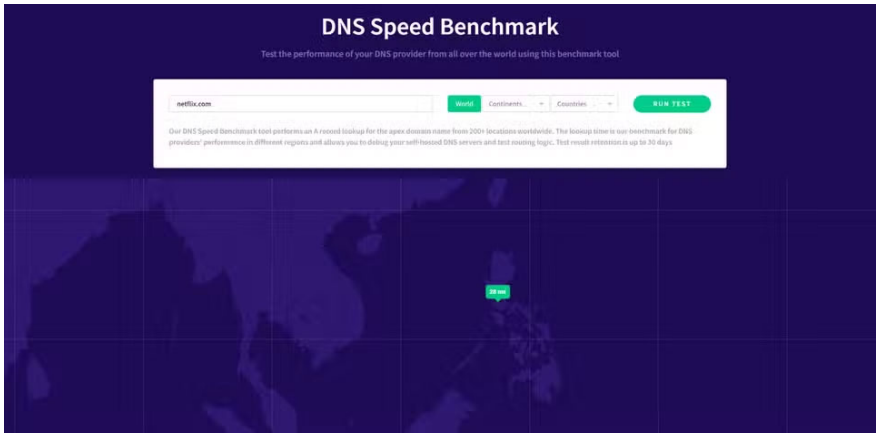
Changing the DNS settings on your Wi-Fi router or computer can have a significant impact on your Internet speeds — but how do you know which devices to change them on?

If your Internet connection is slow and you've tried everything else, don't worry: There's one more fix you might not have tried. Changing the DNS settings on your Wi-Fi router or computer can have a significant impact on your Internet speed — but how do you know which devices to change them on?

Why is it important to change DNS?

Every time you click on a link, your device asks a DNS server to translate the website name into an IP address . This process takes a few milliseconds, but if the DNS server is slow, even a fast connection can become sluggish. By changing your ISP's default DNS to a more reliable DNS, you can look up addresses faster.





The impact is real: Slow DNS can add hundreds of milliseconds to each web page load, which quickly adds up if you open multiple tabs or stream content.

You can set up DNS in two places:

1. **Router** : All devices on your network use the DNS you choose, unless you override one.
2. **Per device** : Only that computer, phone, or tablet uses the DNS you choose; everything else follows your router 's default settings .

Your router acts as a traffic controller for your home network. If you set up DNS on your router, every device is treated the same. But setting up DNS on your computer bypasses the router's DNS and communicates directly with the server of your choice. That difference can be more important than you think, especially if you have a lot of devices or use your network for streaming or heavy web browsing. A slow DNS server can slow down access to websites and services.

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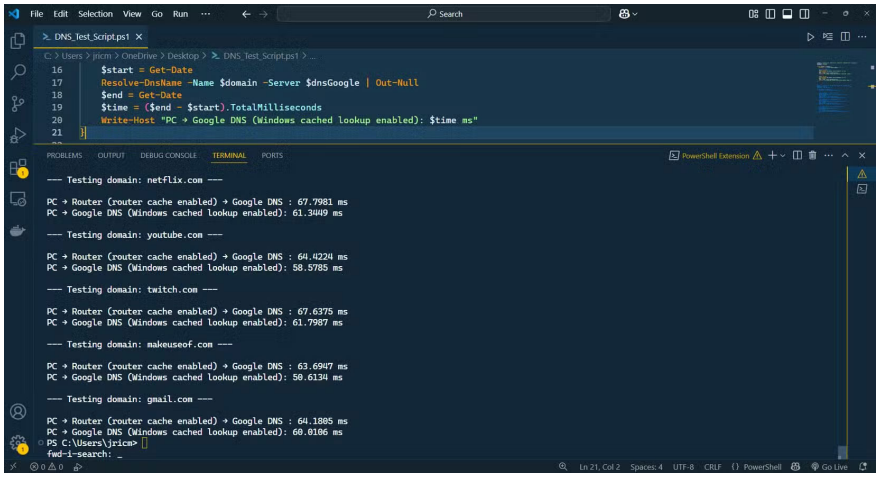
To test which setup provides faster DNS resolution, I used Microsoft's Resolve-DnsName cmdlet and created a PowerShell Script to automate lookup times for the sites I visit most often, such as YouTube , Netflix , Twitch , Gmail , and a few others. I tested both the initial lookup (uncached) and repeated lookups (cached) to get a clear picture of the performance of both setups. I used Google's Public DNS (8.8.4.4) for these tests because it is one of the largest and most well-connected DNS providers.

Initial connection speed



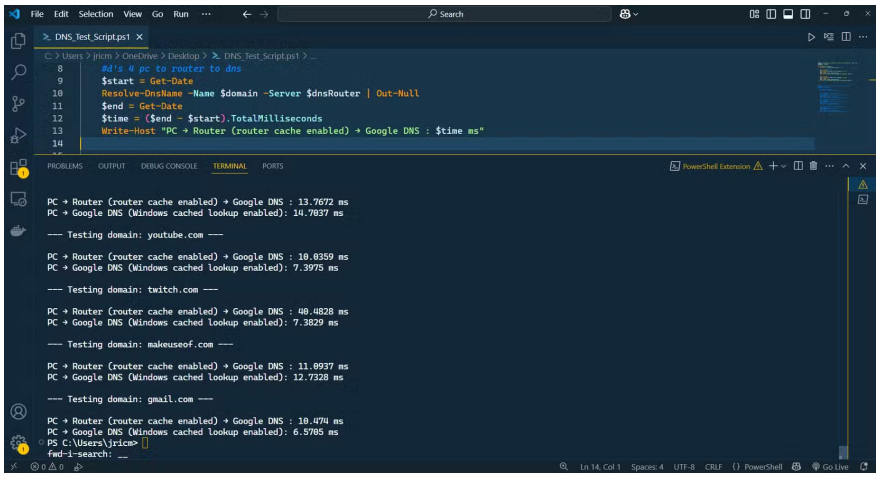
When accessing a site for the first time with an empty DNS cache, configuring the DNS server directly on your computer always results in faster lookup times. Test data backs this up. For example, when querying YouTube or Netflix using Google DNS set on your router, lookup times typically range from 64 to 68 milliseconds. However, when you configure Google DNS directly on your PC, those same lookups drop to around 58 to 62 milliseconds.

The author had to repeatedly flush DNS on his Windows PC and restart dnsmasq on his router (a lightweight DNS forwarder used by many routers) to test the initial connection speed multiple times. After a few tests, the PC going directly to the DNS server always seemed to be faster, albeit only by a few milliseconds.

Overall, connecting directly to DNS on your PC did improve lookup speeds, but those extra milliseconds don't make a huge difference. You can't tell when you're visiting websites in your browser, especially since other factors like response time and server resources take different amounts of time to load. However, if you just want the fastest DNS possible, setting up DNS directly on your PC will yield slightly better results.

Cached performance

But what happens after that first visit, when does the DNS cache come into play? This is where the router's DNS cache can really shine, though not in the way you might expect. Once a website's address is cached—whether by the router or Windows—repeat lookups are much faster.



With the router handling DNS and caching enabled, Google DNS lookups dropped to as low as 10-14 milliseconds. With Windows DNS caching enabled, lookup times dropped even lower, sometimes as low as 6-8 milliseconds. In fact, both settings were blazing fast for repeat visits. While setting up DNS directly on your PC is still superior to router DNS, the router's ability to cache DNS from all devices on your network far outweighs the few extra milliseconds you get when setting up DNS on a single device. By pooling all the DNS caches on the router, all other devices can enjoy the resolved addresses without having to visit the site a few more times.

Overall, your network can save a lot of time by setting up DNS on the router when it comes to caching addresses.

Stream and play games in the real world

For online games, DNS speed primarily affects how quickly you connect to a server or match. Once you're in-game, DNS plays little to no role in your ping or latency, as it only helps with server discovery or initial matchmaking. However, if you play a lot of different games or frequently switch servers, a fast DNS can help reduce your matchmaking and login times.

I tested this with games like League of Legends and Dragon Nest. Changing DNS on PC may improve login and matchmaking, but once the game starts, there is no difference in ping or game smoothness. If you are after lower ping, focus on your ISP and connection quality, not DNS.

How does each method affect all of your devices?

When you change your DNS settings, where you do it can shape the performance of every device on your network.

Router-Only DNS: Set It and Forget It

Setting up DNS on your router means every device in your home, including phones, tablets, smart TVs , and game consoles, uses the same fast DNS. You don't have to touch each device, and guests automatically get the same improved experience.

This method also prevents devices from falling back to slow ISP DNS servers. Additionally, the router cache speeds up repeat visits for everyone on the network. If a family member loads a website on their device, the site will open faster, too, thanks to the cache. But there are trade-offs:

1. **No per-device customization** : Gaming PCs can't use a dedicated gaming DNS while other devices in the house use a privacy-focused provider.
2. **Router dependent** : If the router reboots, the DNS data stored in the cache will be cleared, causing a short slowdown until the cache is rebuilt.

However, this is still a great option.

Device-Only DNS: Take Control and Do More

Setting up DNS on each device allows for optimization for each use case. The author's work laptop uses Cloudflare's malware-blocking DNS (1.1.1.1), the living room TV is stuck with Google DNS or Smart DNS for

streaming, and the phone switches DNS based on whether it's on Wi-Fi or cellular data.

This setup allows you to get the fastest DNS lookups possible on your main devices and allows you to experiment with security and privacy features. But it also takes more effort to set up. With dozens of devices, managing individual settings becomes tedious. Sometimes family members forget to update their DNS after changing networks, leading to inconsistent and sometimes frustrating speeds.

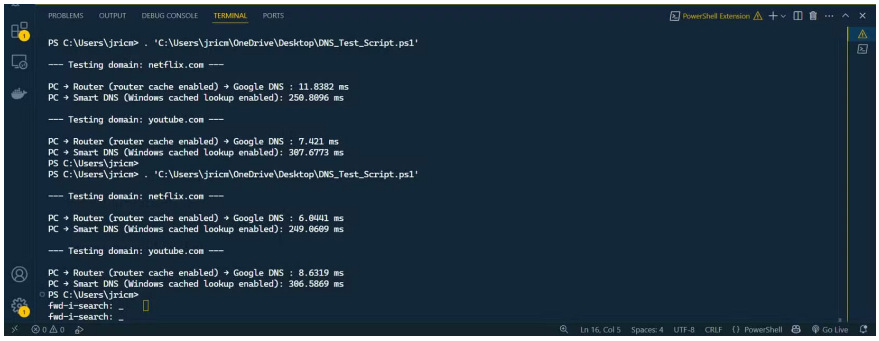
Ultimately, choosing between router-wide DNS and device-level DNS isn't just about speed—it's also about how much control you want and how much work you're willing to put in to keep your network running the way you want.

Which DNS setup is right for you?

So which DNS setup is right for you? In terms of speed, you'll get faster DNS lookups by setting up DNS directly on your PC. This is because your PC doesn't need to go to the router to use DNS, allowing for local address resolution. However, this speed advantage is so small that you probably won't notice the difference. Honestly, after all the testing, using both router-level and PC-level DNS together is the best way to maximize what your network can do.

Setting up DNS on your router gives every device in your home a fast, reliable baseline. That means you only need to configure everything once, and suddenly your phone, laptop, tablet, and smart TV all benefit from better DNS performance and privacy. The router's DNS cache also speeds up repeat access for everyone, so the whole household has a smoother experience when revisiting their favorite websites or streaming services.

But that's only half the story. By setting up DNS directly on specific devices, you unlock a whole new level of flexibility. For example, using Smart DNS to bypass geo-restricted content on my TV stream. I can't set up this special DNS on my router because it's slow at resolving addresses and would affect all my devices. But if you set it up only on your smart TV or PC, only that device would be affected by the slower DNS:



While slower DNS is an acceptable trade-off for accessing region-locked content, it shouldn't be the default option for all devices on your network. By carefully setting up special DNS on specific devices, those devices can access certain features while everything else in your home continues to enjoy the speed of the DNS set by your router.

Another big advantage of setting up DNS on your computer is that you can test new DNS providers before deploying them across your entire network. Maybe you want to see if a new service is actually faster, more reliable, or offers better privacy. By trying it on your PC first, you can experiment without risking the rest of your devices. If something isn't working properly, you can easily switch back — no need to troubleshoot your entire home.

This hybrid approach also means you can customize DNS for your specific needs. Want more security for your work laptop? Set it to use malware-blocking DNS. Need the lowest latency for gaming? Point your gaming PC to the fastest DNS you can find. Meanwhile, everyone else at home still benefits from your router's settings, and you don't have to manage dozens of different configurations.

In fact, combining router- and device-level DNS settings gives you the best of both worlds: broad improvements for everyone and targeted adjustments where you need them most. It's the most flexible and sustainable way to keep your network fast, flexible, and ready for whatever you need, whether it's streaming, gaming, working, or just browsing.