



Tuning Windows 11 for Maximum Internet Performance



Why Optimize Your Internet Performance?

- Faster downloads and uploads.
 - Smoother streaming and online gaming experiences.
 - Reduced latency for real-time applications like video calls and online games.
 - Improved overall responsiveness for all online activities.
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Optimize Network Adapter Settings

- Ensure Network Drivers Are Up-to-Date: Outdated drivers can limit performance and cause instability. Visit your manufacturer's website for the latest versions.
- Adjust Advanced Adapter Properties:
 - Speed & Duplex: Set to Auto-negotiation or the highest supported speed (e.g., 1.0 Gbps Full Duplex) if your network hardware supports it.
 - Jumbo Frames: Can improve throughput on compatible networks, but may cause issues if not universally supported.
 - Large Send Offload (LSO): Enable this feature to let your network adapter handle the segmentation of large TCP/IP packets.

Manage Background Processes

- Identify Bandwidth Hogs: Use Task Manager (Performance > Wi-Fi/Ethernet) to see which applications are consuming the most network resources.
- Limit Startup Applications: Prevent unnecessary programs from launching at boot and consuming network bandwidth.
- Configure Windows Update: Set active hours or pause updates to prevent large downloads during critical usage times.
- Check Cloud Sync Services: Temporarily pause or limit sync for services like OneDrive, Dropbox, or Google Drive if they are heavily utilizing your connection.

Faster DNS Resolution

- Understand DNS: The Domain Name System (DNS) translates human-readable website names (like google.com) into IP addresses.
- Use Public DNS Servers: Consider switching from your ISP's default DNS to faster, more reliable providers such as Cloudflare (1.1.1.1) or Google DNS (8.8.8.8).
- How to Change DNS:
 - Go to Settings > Network & internet > Advanced network settings.
 - Click 'More network adapter options'.
 - Right-click your active network adapter (Wi-Fi or Ethernet), select Properties, then 'Internet Protocol Version 4 (TCP/IPv4)' and 'Internet Protocol Version 6 (TCP/IPv6)'.
 - Enter your chosen DNS server addresses.

TCP/IP Tuning (Advanced)

- TCP Auto-Tuning: Windows 11 typically manages TCP receive window scaling automatically. You can check its status using ``netsh``.
- Using the Command Prompt (as Administrator):
 - View current TCP settings: ``netsh interface tcp show global``
 - Ensure auto-tuning is enabled: ``netsh int tcp set global autotuninglevel=normal`` (or ``experimental`` for potential further gains, use with caution).
- Quality of Service (QoS): Windows prioritizes certain network traffic, which can be configured via Group Policy Editor (`gpedit.msc`) for advanced users.

Optimize Your Web Browser

- Clear Cache and Cookies Regularly: Old or corrupted cache files can slow down page loading.
- Manage Browser Extensions: Disable or remove unnecessary extensions, as they can consume resources and slow down browsing.
- Enable Hardware Acceleration: This setting offloads rendering tasks to your graphics card, improving performance.
- Keep Your Browser Updated: Ensure you are using the latest version of Chrome, Edge, Firefox, or your preferred browser for performance and security enhancements.

Keep Windows & Drivers Updated

- Windows Updates: Install the latest cumulative updates for Windows 11. Microsoft frequently releases patches that include networking improvements and bug fixes.
- Network Adapter Drivers: As mentioned, always prioritize obtaining the latest drivers directly from your motherboard or network card manufacturer's support page.
- Chipset Drivers: Updated chipset drivers can also positively impact system stability and hardware communication, including networking components.

Advanced Tips & Hardware Checks

- **Optimize Wi-Fi Settings:** Ensure you are using the 5GHz band for faster speeds if available and your router is in a good location. Consider changing the Wi-Fi channel if interference is suspected.
- **Check Router Firmware:** Ensure your router's firmware is up-to-date. Router updates often include performance and security enhancements.
- **Test Network Hardware:** If performance issues persist, test your Ethernet cable and router ports. Consider a hardware issue if problems occur across multiple devices.
- **Disable IPv6 (if not needed):** In some older network configurations, disabling IPv6 can sometimes resolve connectivity issues or slight performance quirks.

Summary & Next Steps

- Regularly update drivers and Windows.
- Manage background applications to free up bandwidth.
- Consider faster DNS servers.
- Optimize browser settings.
- For advanced users, explore TCP/IP settings and router configurations.

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