

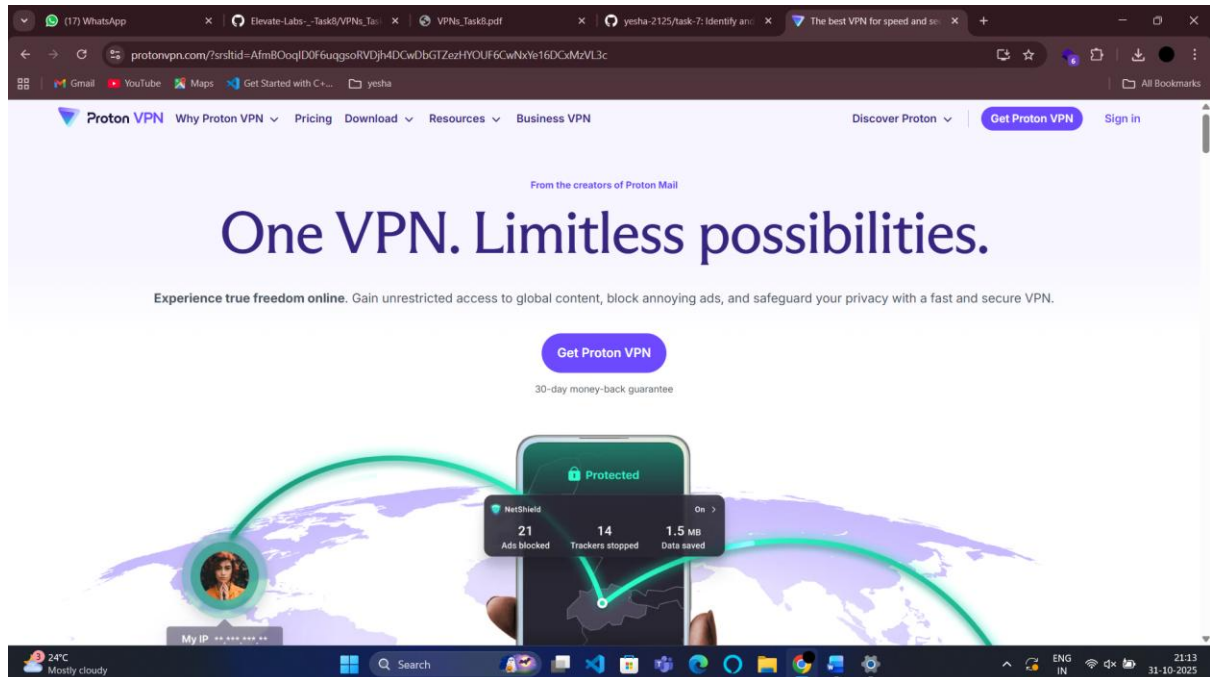
Task 8: Working with VPNs.

Aim: Understand the role of VPNs in protecting privacy and secure communication.

Requirements: Free VPN client - ProtonVPN.

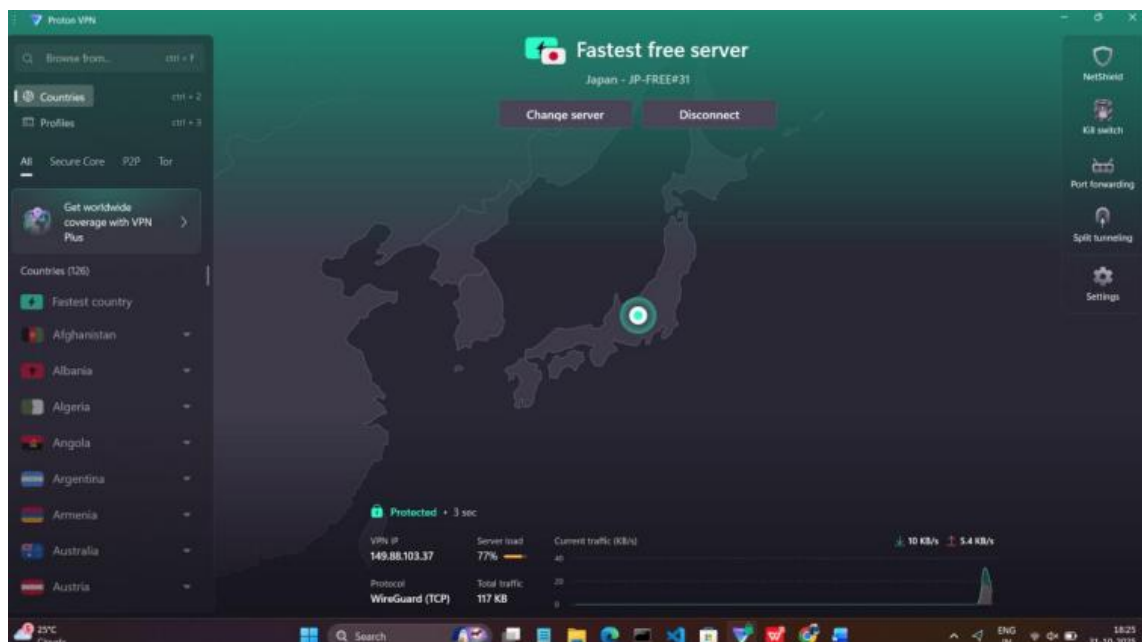
Steps:

1. Open the VPN app.



2. After Connecting VPN:

1. Click connect and wait until it shows “Connected”.



2. Check the new VPN IP and DNS leak test results to check whether the encryption of VPN tunnel is working.

The screenshot shows the iPLEAK.NET website interface. At the top, there's a search bar and a navigation menu. The main content area displays the following information:

- Your IP addresses:** Shows the IP address 149.88.103.37, located in Japan - Tokyo, provided by Datacamp Limited. It also indicates that no forwarded IP was detected and that the browser default is IPv4 (1302 ms). The IPv6 test is not reachable (error).
- Your IP addresses - WebRTC detection:** A message stating that if you see your ISP IP, your system is leaking WebRTC requests.
- DNS Address:** 0 servers detected, 11 tests. A message states that if you see your ISP DNS, your system is leaking DNS requests.
- Torrent Address detection:** A button to activate this feature.
- Geolocation map (Google Map) based on browser:** A button to activate this feature.

This screenshot shows the detailed results of the IP leak test on the iPLEAK.NET website. The 'IP Address details' section is expanded, showing the following information:

- IP:** 149.88.103.37
- ISP:** Datacamp Limited
- AirVPN:** No
- ASN:** 212238
- Country:** Japan (JP)
- Region:** Tokyo (13)
- City:** Tokyo
- Time Zone:** Asia/Tokyo
- Latitude & Longitude:** 35.6893, 139.6899
- Geolocation map (Google Map) based on IP Address:** A button to activate this feature.
- Accuracy Radius:** 20 KM
- Last data update:** Fri, 31 Oct 2025 12:56:28 +0000

Below the IP details, there are three sections:

- Detected information:** Shows the user agent as Mozilla/5.0 (Windows NT 10.0; Win64; x64) AppleWebKit/537.36 (KHTML, like).
- System information:** Shows the platform as Win32.
- Screen information:** Shows the screen resolution as 1536 x 864.

3. Check IP address and location

The screenshot shows the homepage of WhatIsMyIPAddress.com. The main content area displays the user's IP address and location information. The IP address is 149.88.103.37, and the location is Japan, Tokyo. The page also features a section titled "Which is your biggest concern about using the Internet?" with three categories: Security, Privacy, and Access. The Security section mentions protection from hackers on public Wi-Fi. The Privacy section mentions preventing government, ISP, and advertiser tracking. The Access section mentions accessing Netflix, Hulu, and other streaming services without being blocked. The page also includes a sidebar with a search bar and a list of links to various services.

My IP Address is:

IPv4: 149.88.103.37

IPv6: Not detected

My IP information:

ISP: DataCamp Limited

Services: VPN Server

City: Tokyo

Region: Tokyo

Country: Japan

Looks like you're using a VPN!

RATE YOUR VPN

Show Complete IP Details

Location not accurate? Update My IP Location

Which is your biggest concern about using the Internet?

Security: I want protection from hackers on public Wi-Fi and other unsecured networks.

Privacy: I want to prevent my government, ISP and advertisers from tracking me.

Access: I want to access Netflix, Hulu, and other streaming services without being blocked.

The screenshot shows the IP details page for 149.88.103.37 on WhatIsMyIPAddress.com. The page displays detailed information about the IP address, including its decimal value, hostname, ASN, ISP, services, country, state/region, city, latitude, and longitude. The location is Japan, Tokyo. The page also includes a map of Japan and a link to check the blacklist status. The sidebar on the right contains a search bar and a list of links to various services.

IP Details For: 149.88.103.37

Decimal: 2505598757

Hostname: un-149-88-103-37.datapacket.com

ASN: 212238

ISP: DataCamp Limited

Services: VPN Server, Forum spam source (6)

Country: Japan

State/Region: Tokyo

City: Tokyo

Latitude: 35.6895 (35° 41' 22.20" N)

Longitude: 139.6923 (139° 41' 32.36" E)

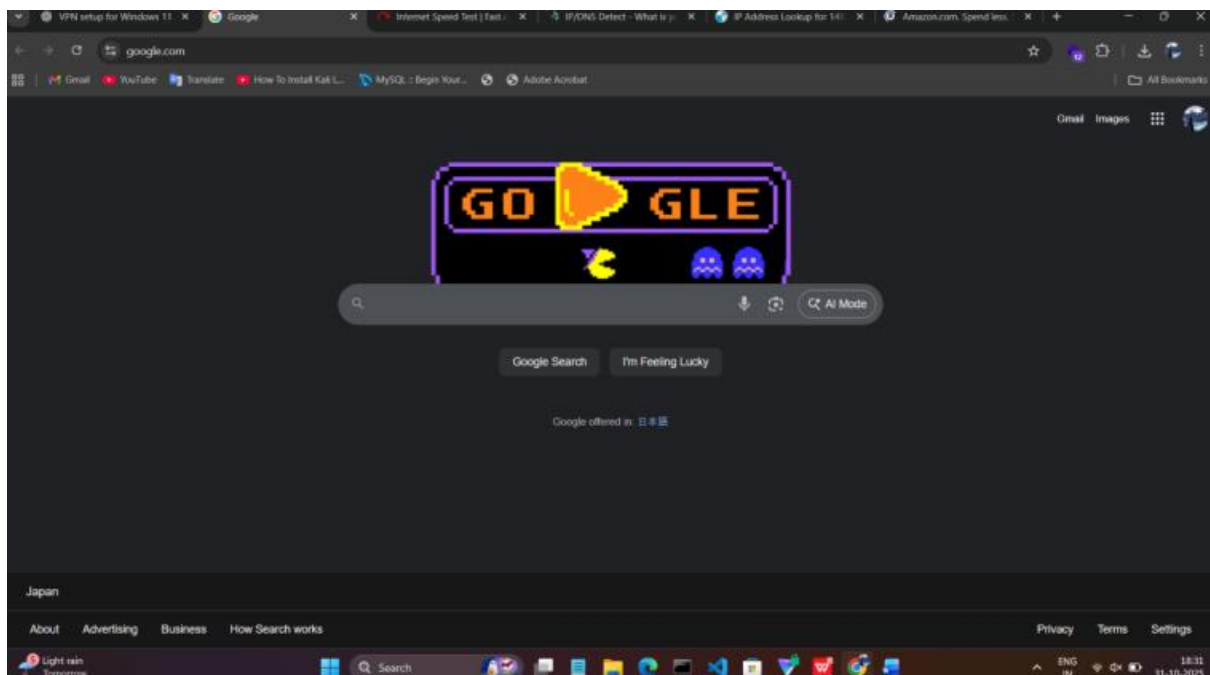
CLICK TO CHECK BLACKLIST STATUS

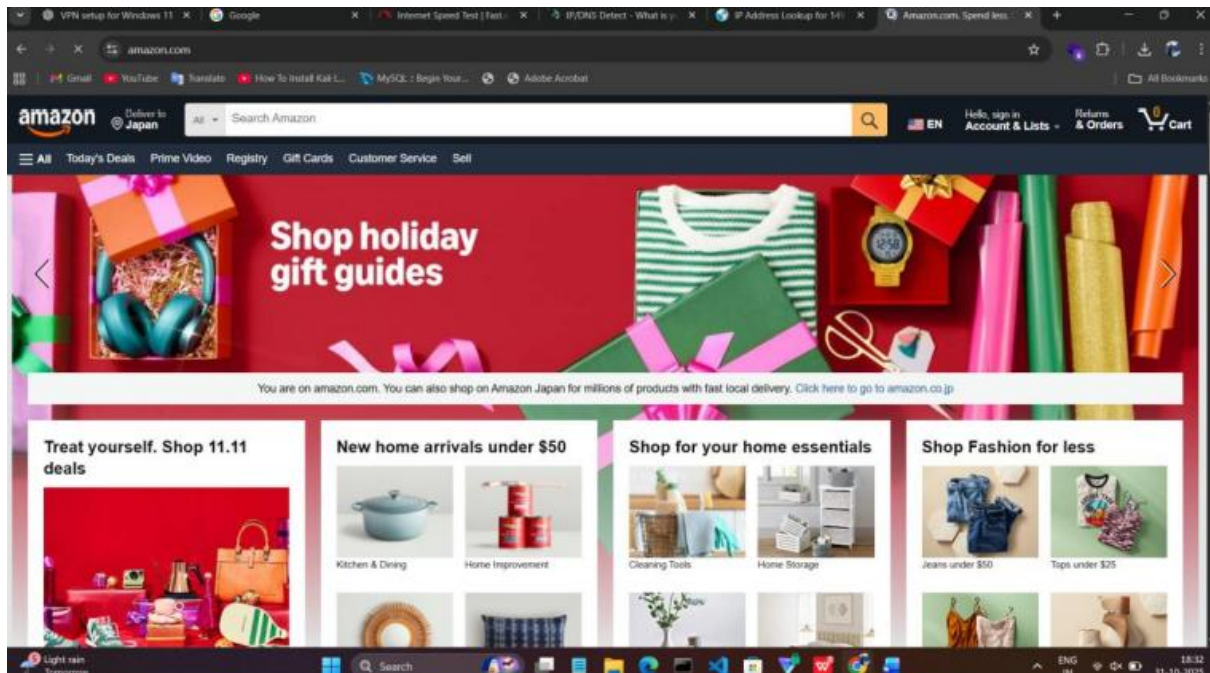
Latitude and Longitude are often near the center of population. These values are not precise enough to be used to identify a specific address, individual, or for legal purposes. IP data from

4. Check browsing speed



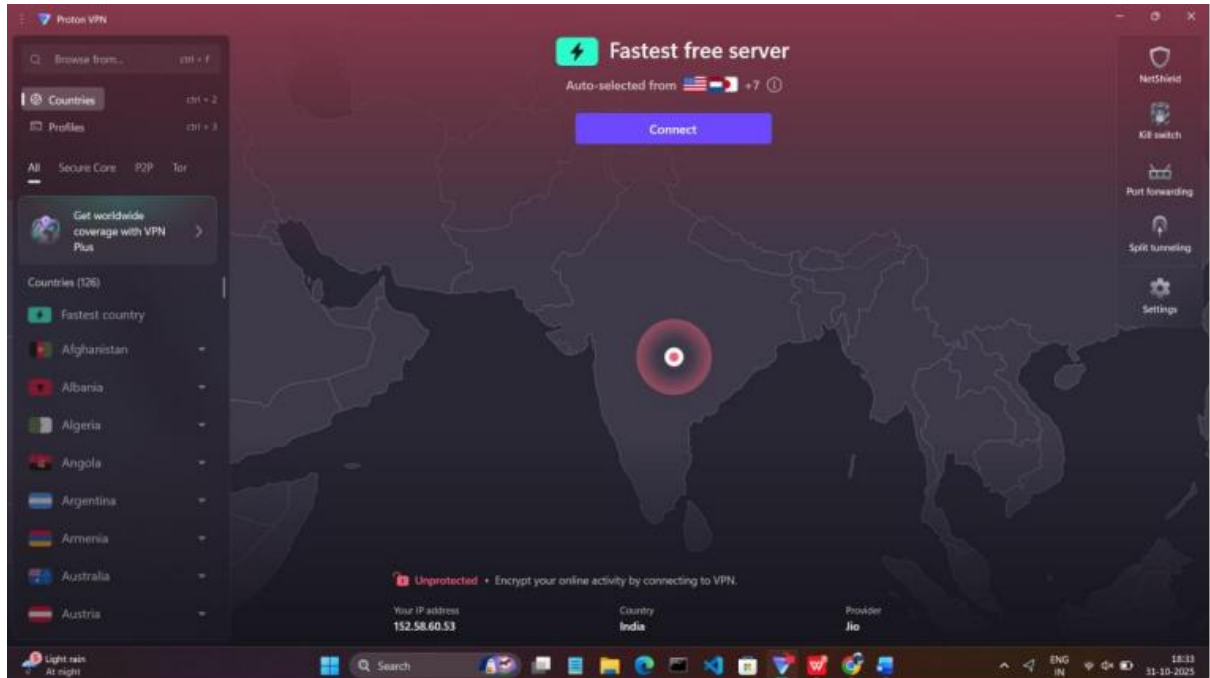
5. Visit websites to check the connection and speed.



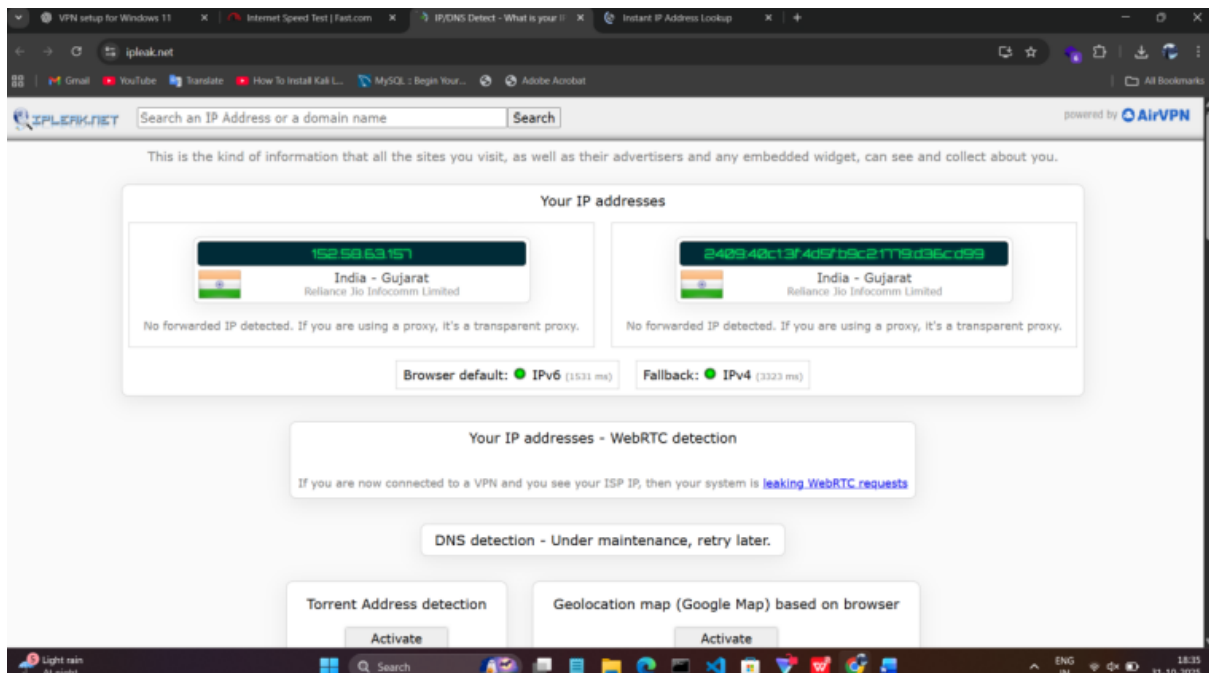


3. After Disconnecting VPN:

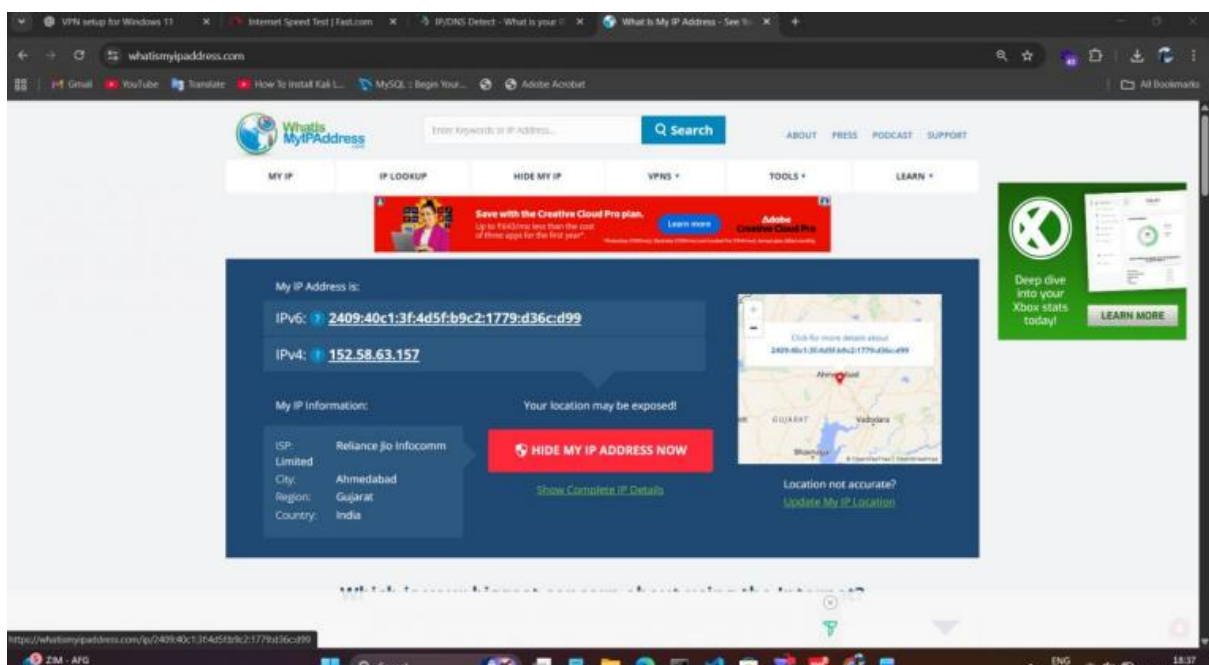
1. Then disconnect the VPN



2. Check your new original IP and DNS leak test results showing



3. See your location and IP Address.



4. Check the internet speed



4. VPN Encryption and Privacy Features:

1. Encryption Standard:

ProtonVPN uses AES-256-bit encryption, which is a military-grade standard. This ensures that even if someone intercepts the traffic, they cannot decrypt or read it.

2. VPN Protocols:

It supports OpenVPN, IKEv2/IPSec, and WireGuard protocols. These create a secure “tunnel” for data transfer between your device and the VPN server.

3. Secure Core Servers:

ProtonVPN routes traffic through multiple servers (in privacy-friendly countries) before it exits to the internet, adding an extra layer of protection.

4. DNS Leak Protection:

During the test, the DNS leak check showed that all DNS queries went through the VPN — confirming no data leaks.

5. Kill Switch & Always-On VPN:

It has a built-in Kill Switch, which automatically blocks all internet traffic if the VPN disconnects unexpectedly — preventing IP exposure.

5. Benefits and Limitations of VPN:

→ Benefits

1. Enhanced Privacy:

VPN hides your real IP address and location, making your online activities more private.

2. Data Encryption:

Encrypts all internet traffic, protecting sensitive data on public Wi-Fi or shared networks.

3. Bypass Restrictions:

Allows access to geo-blocked websites and content that might be unavailable in your region.

4. Protection from Tracking:

Prevents ISPs, advertisers, or hackers from tracking browsing activities.

5. Safe Public Wi-Fi Usage:

Provides a secure encrypted tunnel even on unsecured Wi-Fi networks (like cafés or airports).

→ Limitations

1. Reduced Speed:

Internet speed may drop slightly due to encryption and routing through distant servers.

2. Free Tier Restrictions:

Free VPNs (like ProtonVPN's basic plan) have limited server locations and moderate speeds.

3. No Complete Anonymity:

A VPN hides your IP but doesn't make you completely anonymous online.

4. Connection Drops:

Temporary disconnections may expose your real IP unless the Kill Switch is enabled.

5. Potential Compatibility Issues:

Some streaming or banking sites block VPN traffic.