

Task 8: VPN Setup and Privacy Protection

Objective

To understand the role of **Virtual Private Networks (VPNs)** in ensuring privacy, secure communication, and anonymity while browsing the internet.

Tools Used

- **VPN Client:** ProtonVPN (Free Tier)
 - **Website for IP Verification:** <https://whatismyipaddress.com>
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Step-by-Step Procedure

Step 1: Choose a VPN Service

Selected **ProtonVPN**, a reputable and privacy-focused VPN service that offers a free plan with unlimited bandwidth and secure servers.

Alternative options considered: Windscribe and TunnelBear.

Step 2: Account Registration

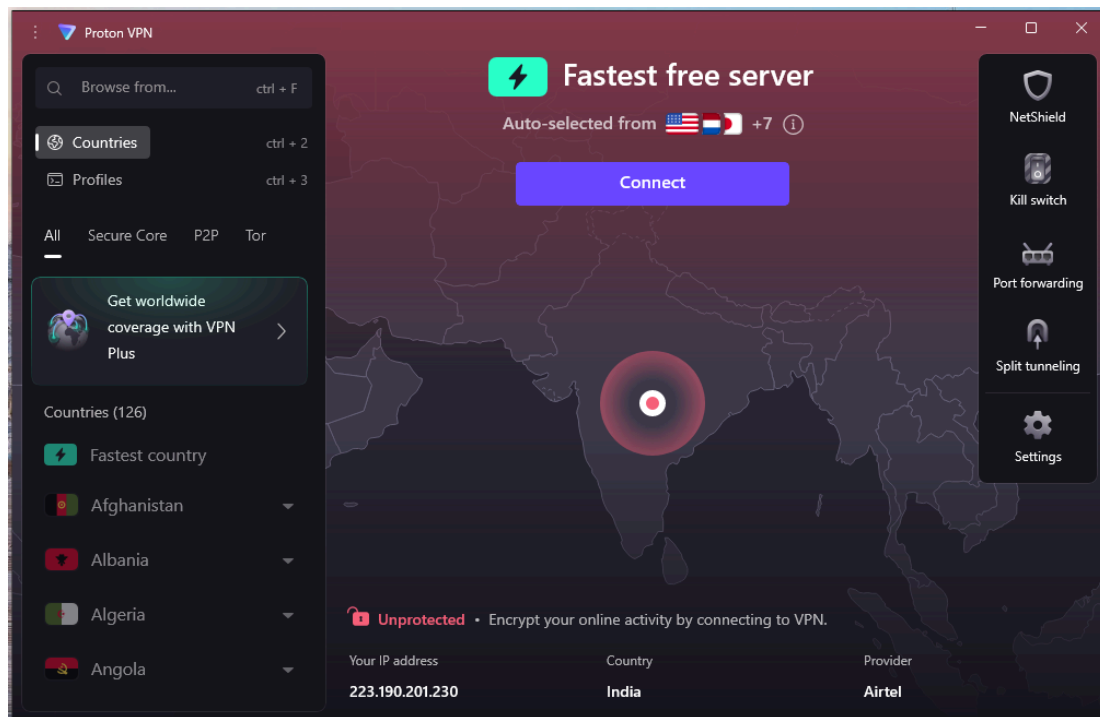
Visited <https://protonvpn.com> and created a free account using an email ID and verification.

Step 3: Download and Install the VPN Client

Downloaded and installed the ProtonVPN client on Windows using the default installation settings.

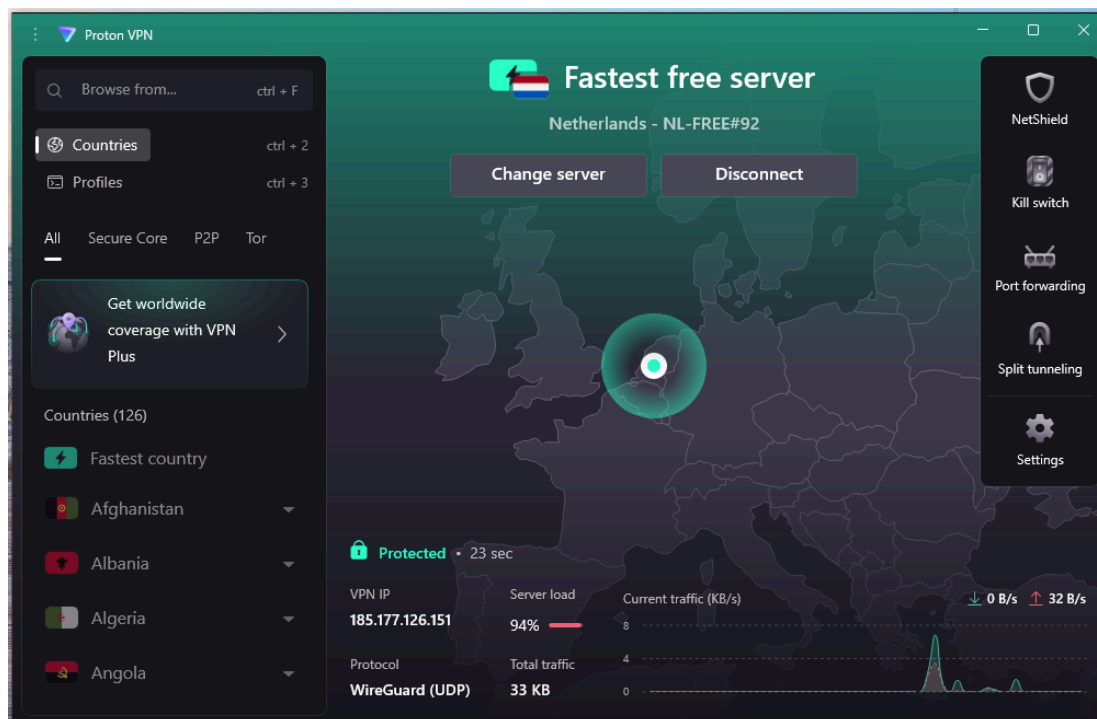
Step 4: Launch VPN and Login

Opened the ProtonVPN app, logged in, and viewed available servers by country.



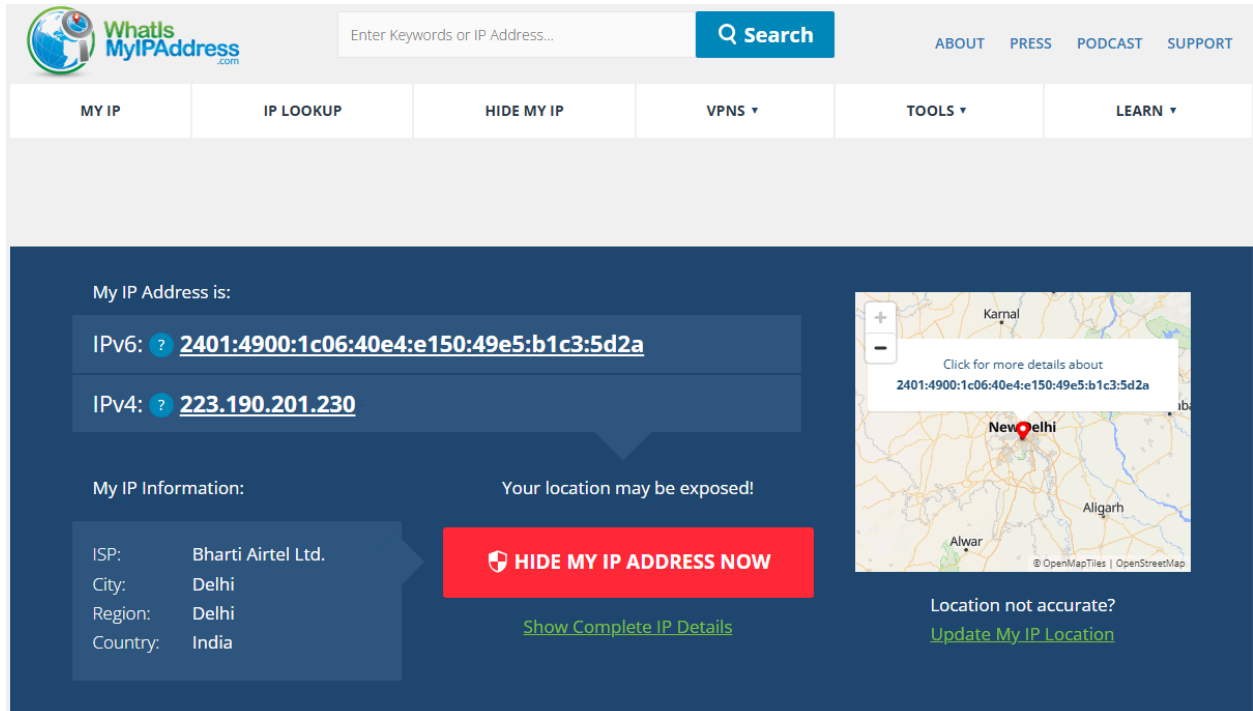
Step 5: Connect to a VPN Server

Connected to a **free Netherlands server** and confirmed successful connection status.



Step 6: Verify IP Address Change

Visited <https://whatismyipaddress.com> before and after VPN connection to confirm IP masking.



The screenshot shows the homepage of WhatIsMyIPAddress.com. The header includes the logo, a search bar, and navigation links (ABOUT, PRESS, PODCAST, SUPPORT). The main navigation bar has links for MY IP, IP LOOKUP, HIDE MY IP, VPNS, TOOLS, and LEARN. The main content area displays the user's IP address information. Under 'My IP Address is:', the IPv6 address is 2401:4900:1c06:40e4:e150:49e5:b1c3:5d2a and the IPv4 address is 223.190.201.230. Under 'My IP Information:', the ISP is Bharti Airtel Ltd., City is Delhi, Region is Delhi, and Country is India. A red button labeled 'HIDE MY IP ADDRESS NOW' is visible, along with a link to 'Show Complete IP Details'. A map on the right shows the location near New Delhi, with a tooltip for the IPv6 address. A warning message 'Your location may be exposed!' is displayed.

My IP Address is:

IPv6: ? **2401:4900:1c06:40e4:e150:49e5:b1c3:5d2a**

IPv4: ? **223.190.201.230**

My IP Information:

ISP: Bharti Airtel Ltd.
City: Delhi
Region: Delhi
Country: India

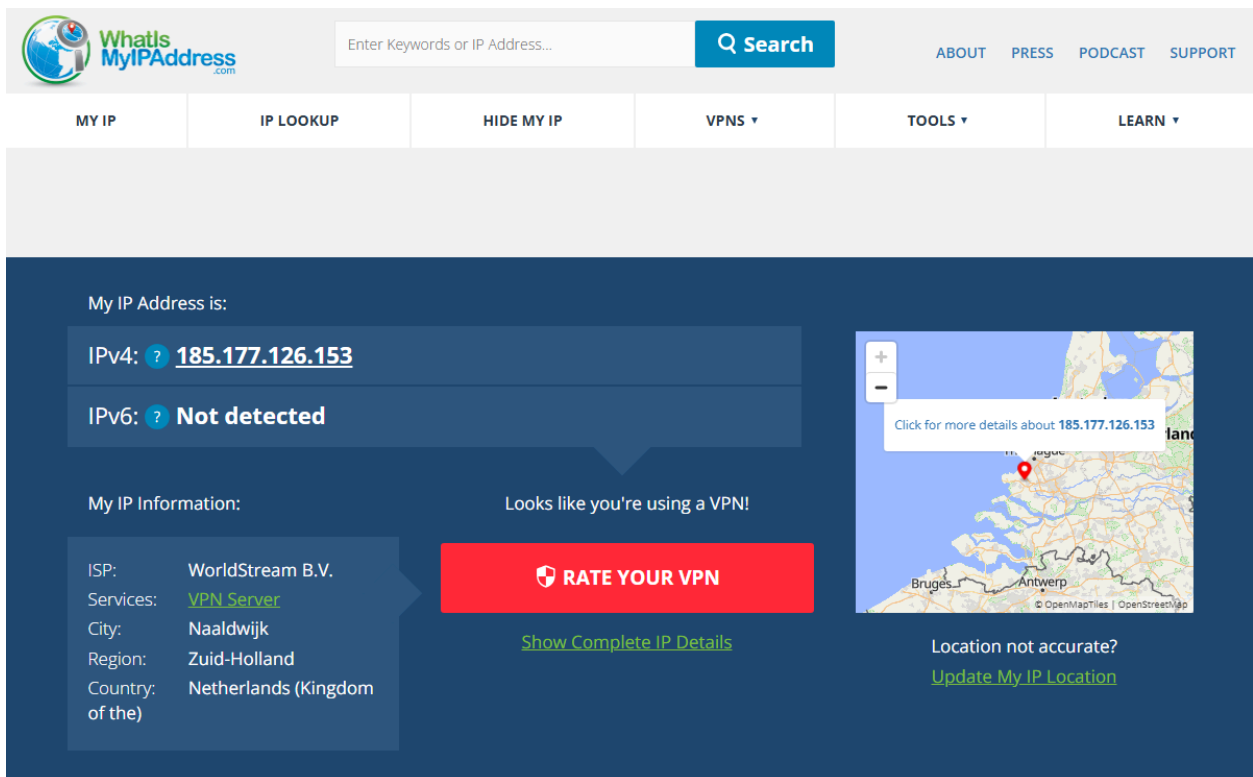
Your location may be exposed!

HIDE MY IP ADDRESS NOW

[Show Complete IP Details](#)

Location not accurate?
[Update My IP Location](#)

Before



The screenshot shows the homepage of WhatIsMyIPAddress.com after a VPN connection. The header and navigation bar are the same. The main content area displays the user's IP address information. Under 'My IP Address is:', the IPv4 address is 185.177.126.153 and the IPv6 address is 'Not detected'. Under 'My IP Information:', the ISP is WorldStream B.V., Services is VPN Server, City is Naaldwijk, Region is Zuid-Holland, and Country is Netherlands (Kingdom of the). A red button labeled 'RATE YOUR VPN' is visible, along with a link to 'Show Complete IP Details'. A map on the right shows the location near Antwerp, with a tooltip for the IPv4 address. A message 'Looks like you're using a VPN!' is displayed.

My IP Address is:

IPv4: ? **185.177.126.153**

IPv6: ? **Not detected**

My IP Information:

ISP: WorldStream B.V.
Services: [VPN Server](#)
City: Naaldwijk
Region: Zuid-Holland
Country: Netherlands (Kingdom of the)

Looks like you're using a VPN!

RATE YOUR VPN

[Show Complete IP Details](#)

Location not accurate?
[Update My IP Location](#)

After

Step 7: Test Secure Browsing

Browsed websites like Wikipedia and YouTube to confirm encrypted traffic and secure DNS queries.

Step 8: Disconnect VPN and Compare

Disconnected VPN and observed IP reversion and minor speed improvement after disconnection.

VPN Encryption and Privacy Features

- AES-256 encryption for secure data transmission.
 - Supports **OpenVPN** and **WireGuard** tunneling protocols.
 - Strict **no-logs policy** ensuring user privacy.
 - **Kill Switch** to prevent data leaks on disconnection.
 - **DNS leak protection** to secure all DNS requests.
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Summary: VPN Benefits and Limitations

Benefits

- Masks the real IP address and location.
 - Encrypts internet traffic to prevent eavesdropping.
 - Protects data on public Wi-Fi networks.
 - Bypasses censorship and geo-restrictions.
 - Enhances online privacy and anonymity.
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Limitations

- Slightly slower browsing due to encryption overhead.
 - Free versions have limited server locations.
 - Cannot protect against phishing or malware directly.
 - Requires trust in the VPN provider's privacy policy.
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Outcome

Successfully configured and tested a VPN connection to understand its role in maintaining privacy, encryption, and secure tunneling.

This task provided hands-on experience in verifying IP masking, encrypted communication, and understanding VPN protocols.

Key Concepts Covered

- VPN (Virtual Private Network)
- Encryption and Decryption
- Tunneling Protocols (OpenVPN, WireGuard)
- IP Masking and Anonymity
- Network Security and Privacy Protection