VPN Privacy and Security Report

Date: November 2, 2025
Task: Understand the Role of VPNs in Protecting Privacy and Secure Communication
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Executive Summary
This lab was conducted to understand the role of Virtual Private Networks (VPNs) in enhancing online privacy and securing communications. The VPN encrypts internet traffic and masks the user's IP address, providing a secure communication tunnel. I used **ProtonVPN (Free Tier)** and **DNSLeakTest.com** to verify the VPN connection and encryption status.

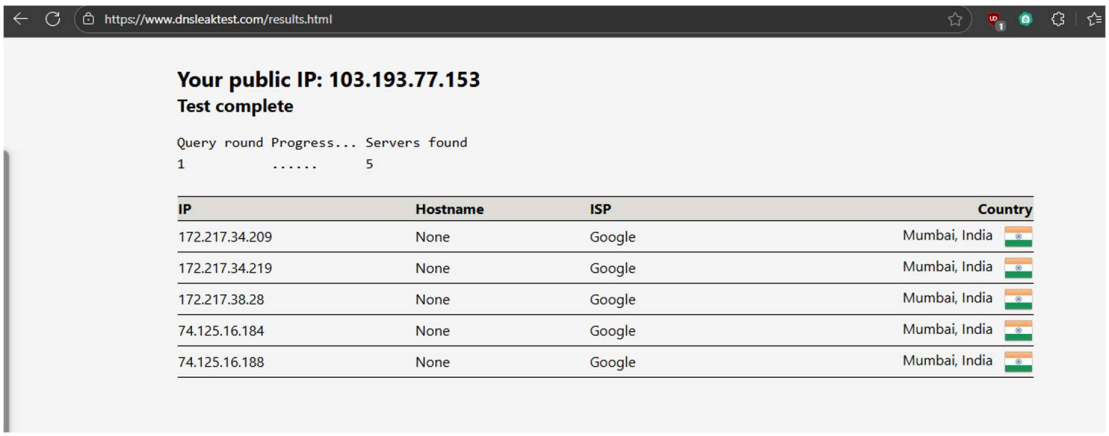
Tools Used
- ProtonVPN (Free Tier)
- DNSLeakTest.com
- Web Browser (Google Chrome)

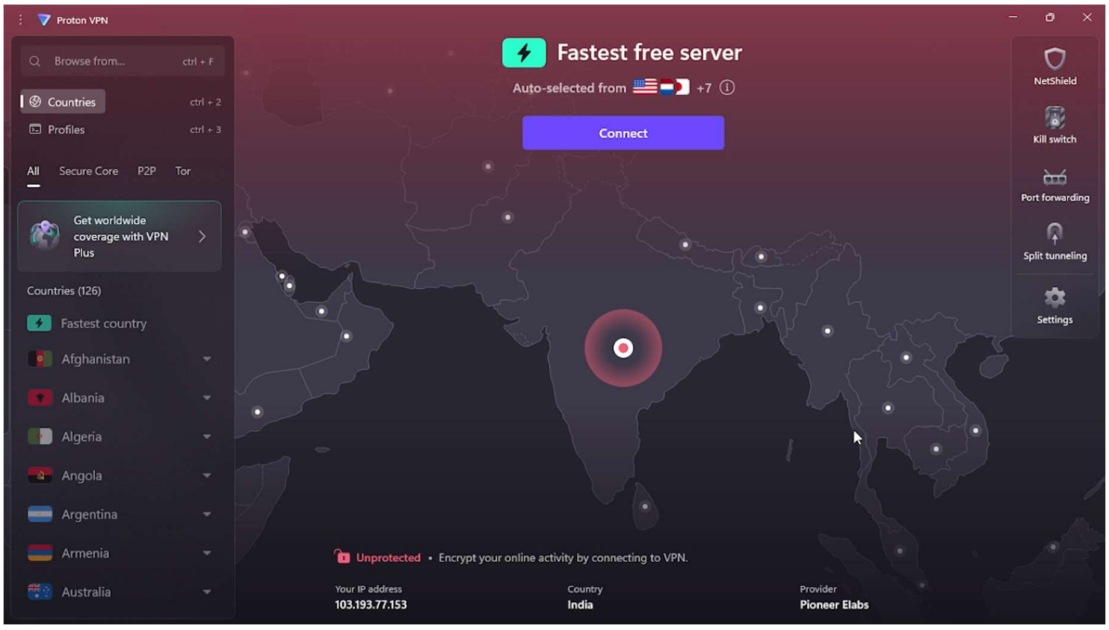
VPN Setup Steps
1. Selected ProtonVPN as a reliable free VPN service.
2. Signed up for a ProtonVPN account and downloaded the desktop client.
3. Installed and logged in using registered credentials.
4. Connected to a nearby free VPN server for better performance.
5. Verified connection using ProtonVPN's interface showing "Connected - Secure VPN Tunnel."
6. Opened DNSLeakTest.com to confirm IP address change and check DNS leak protection.
7. Browsed several websites to confirm encrypted data transmission.
8. Disconnected the VPN and compared browsing speed and IP details.

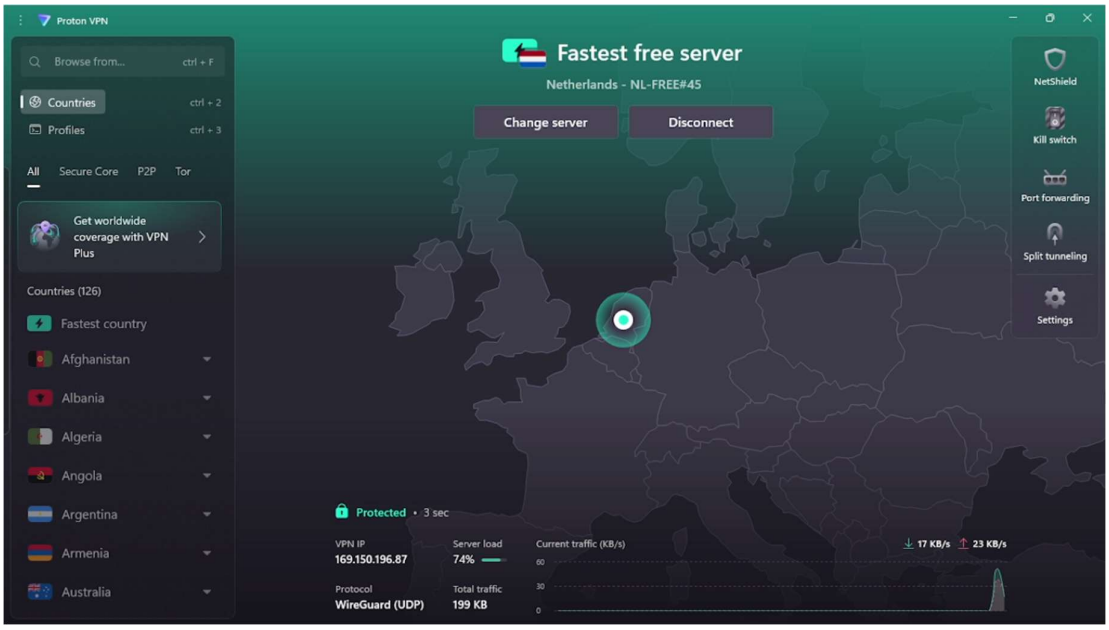
Connection Status Verification
The ProtonVPN client displayed an active encrypted connection using **OpenVPN protocol**. DNSLeakTest.com confirmed that my public IP and DNS servers had changed to ProtonVPN's network. No DNS leaks were detected, confirming secure tunneling.

Observations and ScreenShots

- VPN connection was stable and encryption was confirmed.
- The IP address changed from the original ISP-assigned IP to a ProtonVPN IP.
- Browsing speed decreased slightly due to encryption overhead (expected).
- No DNS leaks or connection drops were observed during the session.




Proton VPN
Browse from... ctrl + F
Countries ctrl + 2
Profiles ctrl + 3
All Secure Core P2P Tor
Get worldwide coverage with VPN Plus
Countries (126)
Fastest country
Afghanistan
Albania
Algeria
Angola
Argentina
Armenia
Australia
Fastest free server
Auto-selected from +7
Connect
NetShield
Kill switch
Port forwarding
Split tunneling
Settings
Unprotected • Encrypt your online activity by connecting to VPN.
Your IP address
103.193.77.153
Country
India
Provider
Pioneer Elabs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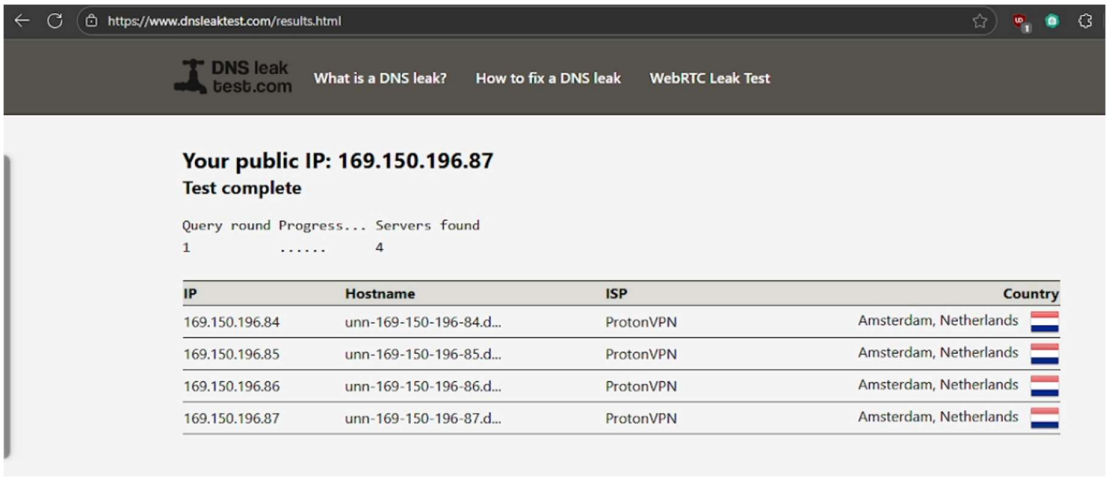
Argentina
Armenia
Australia
Fastest free server
Netherlands - NL-FREE#45
Change server
Disconnect
NetShield
Kill switch
Port forwarding
Split tunneling
Settings
Protected • 3 sec
VPN IP
169.150.196.87
Server load
74%
Current traffic (KB/s)
17 KB/s
23 KB/s
Protocol
WireGuard (UDP)
Total traffic
199 KB



Benefits of VPNs
1. Encrypts all internet traffic.
2. Masks the user's IP address.
3. Prevents ISP tracking and public Wi-Fi snooping.
4. Allows access to region-restricted content.
5. Maintains user privacy and anonymity online.

Limitations of VPNs
1. Slightly slower internet speeds due to encryption.
2. Free VPNs may have limited bandwidth or servers.
3. Some websites block VPN IP ranges.
4. Users must trust the VPN provider's privacy policy.

Conclusion
Using ProtonVPN demonstrated how VPNs protect online privacy by encrypting data and masking IP addresses. The DNSLeakTest confirmed no leaks and verified secure communication. VPNs are essential tools for safe browsing, especially on public or untrusted networks.

Summary Statement for Report:
"I used ProtonVPN (Free Tier) to establish a secure VPN connection. I verified that my IP address changed and DNS requests were protected using DNSLeakTest.com. The VPN successfully encrypted my browsing traffic, proving its role in privacy protection and secure communication. No leaks or connection issues were observed."