Working with VPNs

Introduction to VPNs:

A Virtual Private Network (VPN) is a technology that creates a secure, encrypted tunnel between a user's device and the internet. It masks the user's real IP address by routing traffic through a remote server operated by the VPN provider. This helps protect sensitive data, maintain online privacy, and prevent unauthorized tracking or surveillance.

VPNs are widely used for:

- Securing connections on public Wi-Fi
- Accessing geo-restricted content
- Hiding browsing activity from internet service providers (ISPs)
- Preventing cyber threats like man-in-the-middle attacks

By encrypting all internet traffic, VPNs ensure that even if data is intercepted, it cannot be read or tampered with. While VPNs enhance online security, they are not a complete security solution and should be used alongside other best practices like antivirus software and strong passwords.

Objective:

To understand the role of Virtual Private Networks (VPNs) in enhancing online privacy and securing communication, and to demonstrate the process of setting up and verifying a VPN connection.

Tools Used:

- **VPN Provider:** Windscribe Free
- **Browser:** Google Chrome
- **IP Check Tool:** whatismyipaddress.com

Steps Performed:

1. Chose a Reputable VPN Provider

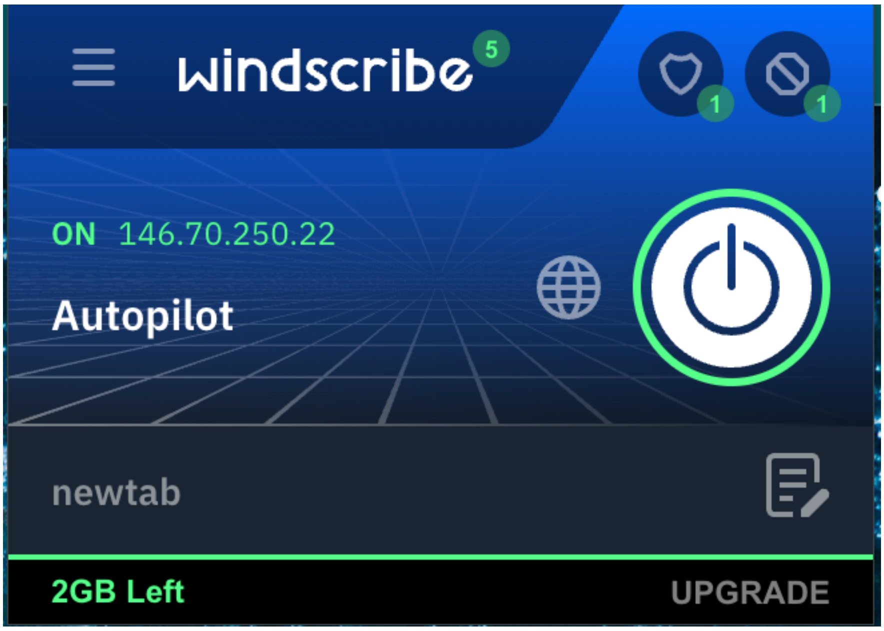
- Selected Windscribe due to its strong privacy policies and free plan availability.

2. Signed Up and Installed VPN Client

- Created a Windscribe account via their official website.
- Downloaded and installed the Windscribe client for macOS.

3. Connected to VPN Server

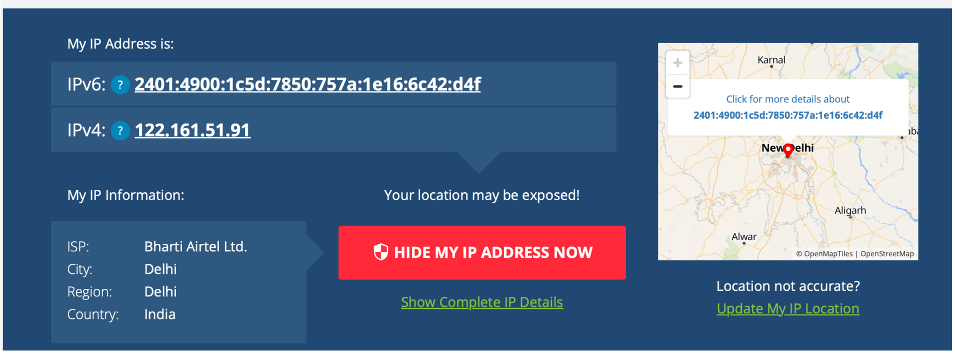
- Launched the client and connected to the **closest free server** (Hong Kong).



Connection established successfully.

4. Verified VPN Connection

- Visited [whatismyipaddress.com] before and after connecting to the VPN.
    - **Before VPN:** 122.161.51.91



My IP Address is:

IPv6: ? 2401:4900:1c5d:7850:757a:1e16:6c42:d4f

IPv4: ? 122.161.51.91

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

Karnal
Click for more details about
2401:4900:1c5d:7850:757a:1e16:6c42:d4f
New Delhi
Aligarh
Alwar
© OpenMapTiles | OpenStreetMap

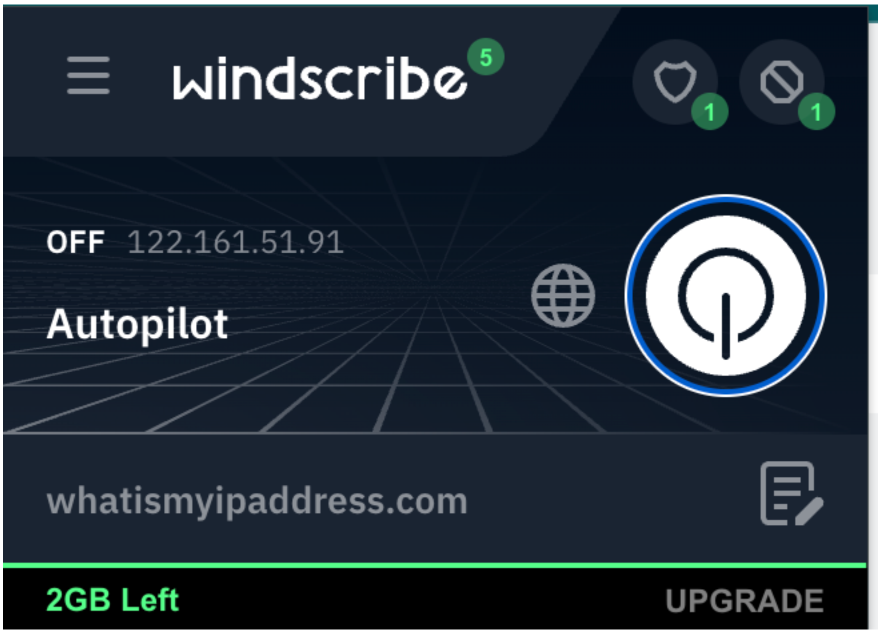
Location not accurate?

Update My IP Location

- ○ **After VPN: 146.70.250.8**
- Browsed websites like example.com and wikipedia.org to confirm secure browsing.

5. Disconnected VPN

- Disconnected the VPN and checked the IP again. It reverted to the original Indian IP.
- Noted a slight improvement in browsing speed after disconnecting (as expected).



OFF 122.161.51.91

Autopilot

whatismyipaddress.com

2GB Left

UPGRADE

Windscribe VPN: Encryption and Privacy Features

- **Strong AES-256 encryption** with SHA-512 authentication and a 4096-bit RSA key.
- **No-logs policy**: Windscribe does not track your browsing history.
- **Built-in firewall** and ad blocker (R.O.B.E.R.T.) for added privacy.
- **DNS leak protection**, **WebRTC blocking**, and **split tunneling** features available.

Benefits of Using VPN:

- **Hides your real IP address** to maintain anonymity.
- **Encrypts your internet traffic** to prevent data interception.
- **Bypasses content restrictions** and geo-blocks.
- **Provides secure access** when using public Wi-Fi networks.

Limitations of VPNs:

- **Free plans have limitations** (e.g., 10 GB/month data cap in Windscribe).
- **Reduced speed** due to encryption and server distance.
- **Does not block malware** or phishing unless paired with other tools.
- **Trust in the provider is necessary**, as they control your encrypted traffic.

Conclusion:

By using Windscribe VPN, I experienced how a VPN helps protect user privacy and secure data over the internet. The exercise confirmed IP masking, encrypted browsing, and highlighted the importance of VPNs in cybersecurity best practices.