

Working with VPNs

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

1. Introduction

A **Virtual Private Network (VPN)** is a tool that encrypts internet traffic and routes it through a secure server, hiding the user's real IP address. This improves online privacy, bypasses geo-restrictions, and secures communication over untrusted networks. For this task, I used **Windscribe VPN (Free Plan)** to explore setup, usage, and benefits.

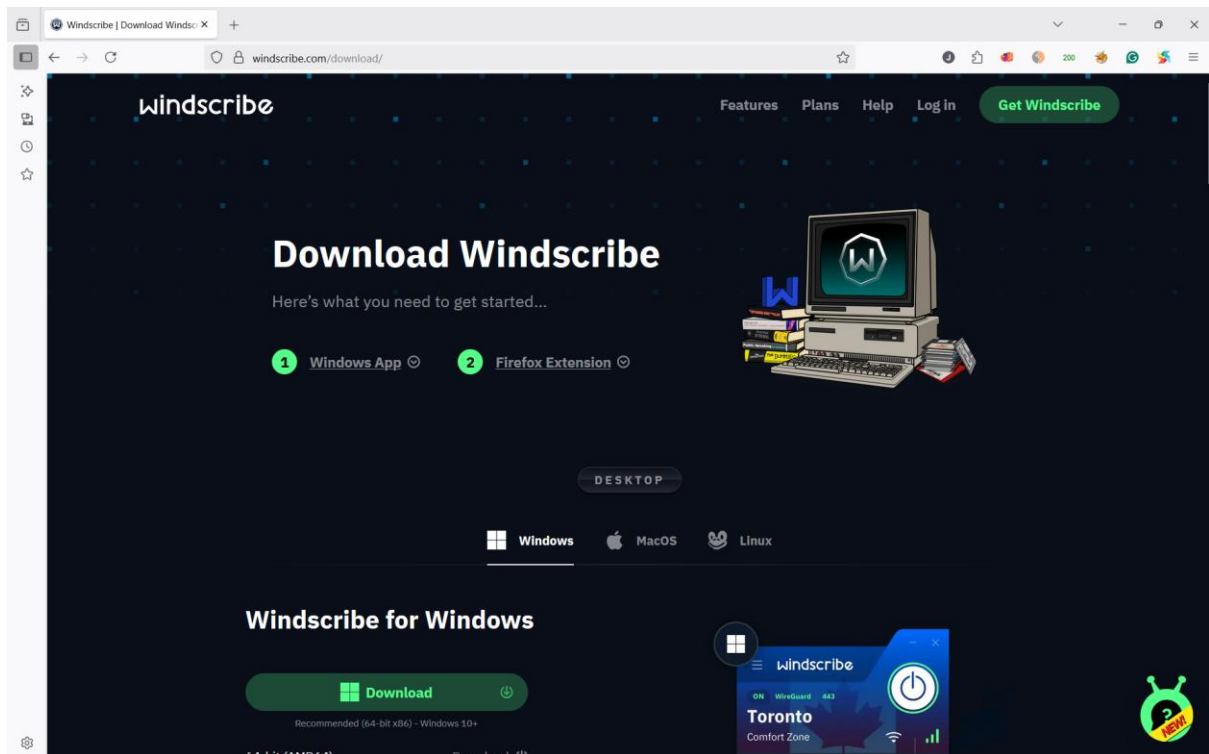
2. Tools Used

- **Windscribe VPN (Free Plan)**
- **Firefox Browser**
- **whatismyipaddress.com** (for IP verification)

3. Steps Performed

Step 1 – Download & Install Windscribe

I signed up for a free Windscribe account and downloaded the Windows desktop application from their official site.



Step 2 – Login to the Application

I opened the app, entered my account credentials, and successfully logged in.



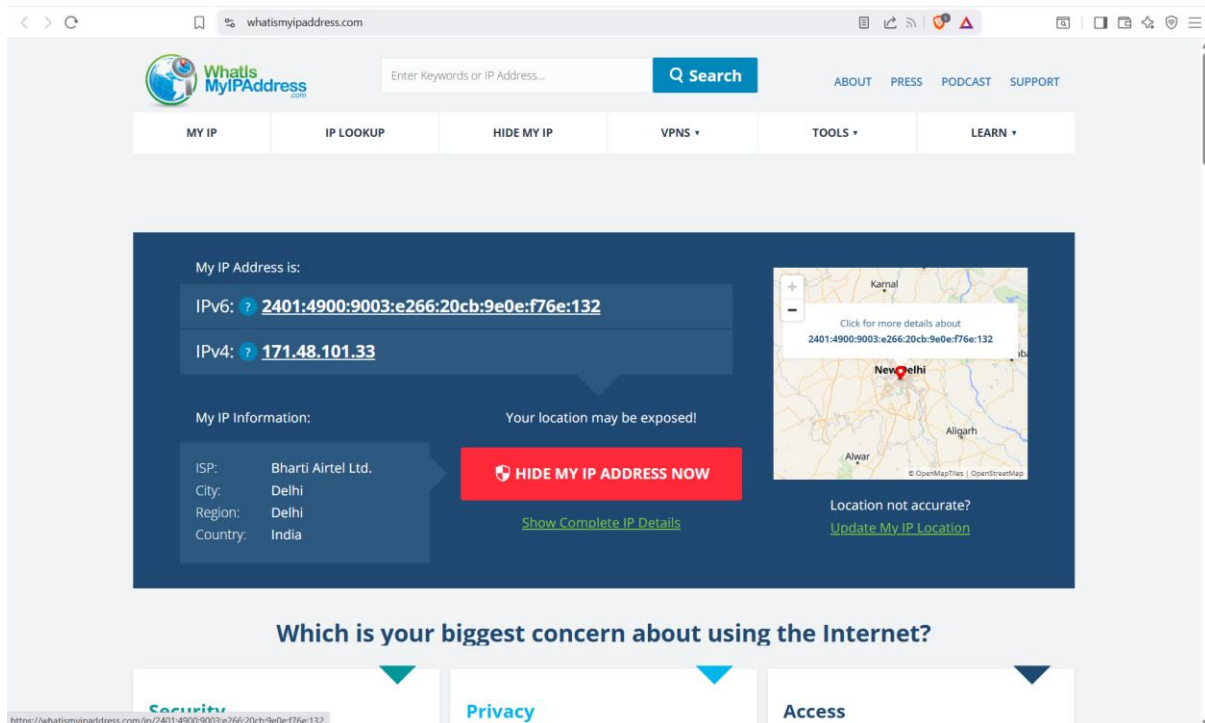
Step 3 – Connect to a VPN Server

I selected a free location (Victoria) and connected.



Step 4 – Verify IP Change

Before connection, my IP showed my real location. After connecting to Windscribe, I checked **whatismyipaddress.com** and confirmed my IP was masked.





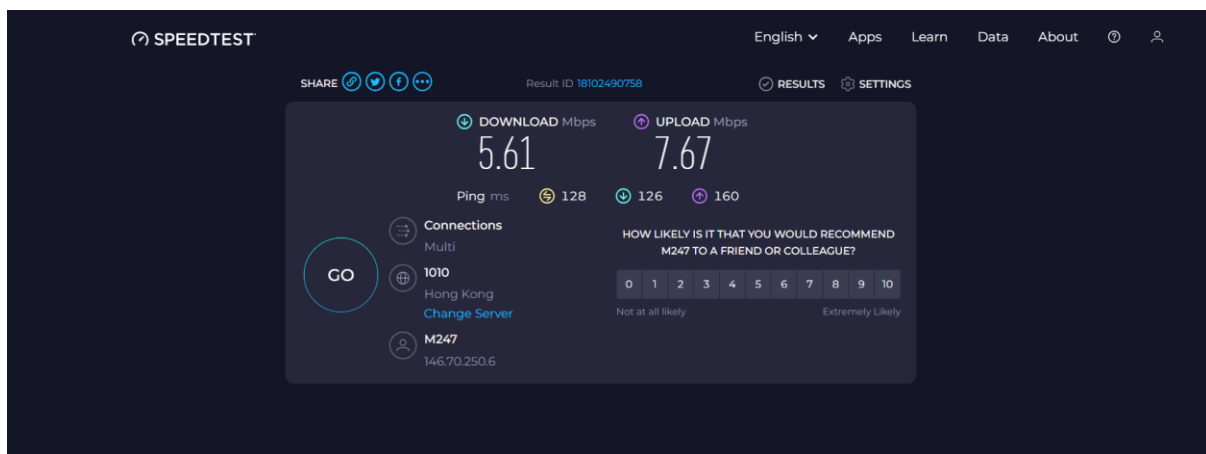
Step 5 – Test Browsing & Encryption

I visited several websites to confirm stable connectivity. All traffic was encrypted, and browsing worked without issues.

Step 6 – Disconnect & Compare Speeds

After disconnecting, I noticed a slight improvement in speed, which is normal due to VPN encryption overhead.

Before



After



4. Key Concepts Learned

- **VPN:** A service that encrypts and routes internet traffic through a secure tunnel.
- **Encryption:** Uses cryptographic algorithms (e.g., AES-256) to secure data.
- **Privacy:** Hides IP and location from websites and ISPs.
- **Tunneling Protocols:** Common ones include OpenVPN, WireGuard, and IKEv2.
- **Network Security:** Protects against eavesdropping on public Wi-Fi.

5. Benefits of Using a VPN

- Protects privacy by hiding IP.
- Secures data from hackers on public Wi-Fi.
- Helps bypass geo-blocked content.
- Prevents ISP tracking.

6. Limitations of VPNs

- Free plans often have data limits.
- Possible speed reduction due to encryption.
- Not a substitute for full cybersecurity hygiene.

7. Conclusion

Through this task, I gained hands-on experience setting up and using a VPN for secure browsing. I learned how VPNs protect privacy, the role of encryption, and their limitations. This practical knowledge enhances my understanding of network security tools in real-world scenarios.