

Task 8: Working with VPNs

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

Tools: Free VPN client (ProtonVPN free tier, Windscribe free)

Steps to Perform:

1. Choose a reputable free VPN service (ProtonVPN / Windscribe) and sign up.
2. Download and install the VPN client on your system.
3. Connect to a VPN server (choose the closest or any preferred location).
4. Verify your IP address has changed using websites like *whatismyipaddress.com*.
5. Browse a website to confirm traffic is encrypted and accessible.
6. Disconnect the VPN and compare browsing speed and IP address with VPN enabled vs disabled.
7. Research VPN encryption methods (AES-256, OpenVPN, WireGuard) and privacy policies.
8. Write a summary of VPN benefits and limitations.

Findings and Observations:

- After connecting to ProtonVPN, the IP address successfully changed from the ISP-provided IP to the VPN server's IP.
- Websites loaded securely, confirming that traffic was encrypted.
- Browsing speed was slightly slower compared to direct ISP connection due to VPN routing overhead.
- Disconnection restored the original IP and faster browsing speeds.

VPN Encryption & Privacy Features:

- VPNs commonly use AES-256 encryption, which is considered military-grade and highly secure.
- Protocols like OpenVPN and WireGuard provide secure tunneling methods.
- VPN providers may follow strict no-log policies, ensuring user data is not stored.
- Kill switch features prevent accidental IP leaks if VPN disconnects.

Summary of Benefits:

- Protects privacy by hiding real IP addresses.
- Encrypts traffic to prevent eavesdropping on public Wi-Fi.
- Enables bypassing geo-restrictions and censorship.
- Useful for secure remote work and communication.

Limitations:

- Free VPNs often have limited servers and bandwidth.
- Can reduce browsing speed.
- Some providers may log data if they lack strict privacy policies.

Sample Interview Questions:

1. What is a VPN and how does it enhance online privacy?
2. What encryption protocols are commonly used in VPNs?
3. What are the differences between free and paid VPNs?
4. How can you verify that your VPN is working correctly?
5. What are the potential risks of using unreliable VPN providers?

Connection Status Screenshot: (Attach screenshot here)