Task 8 : Working with VPNs

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Objective

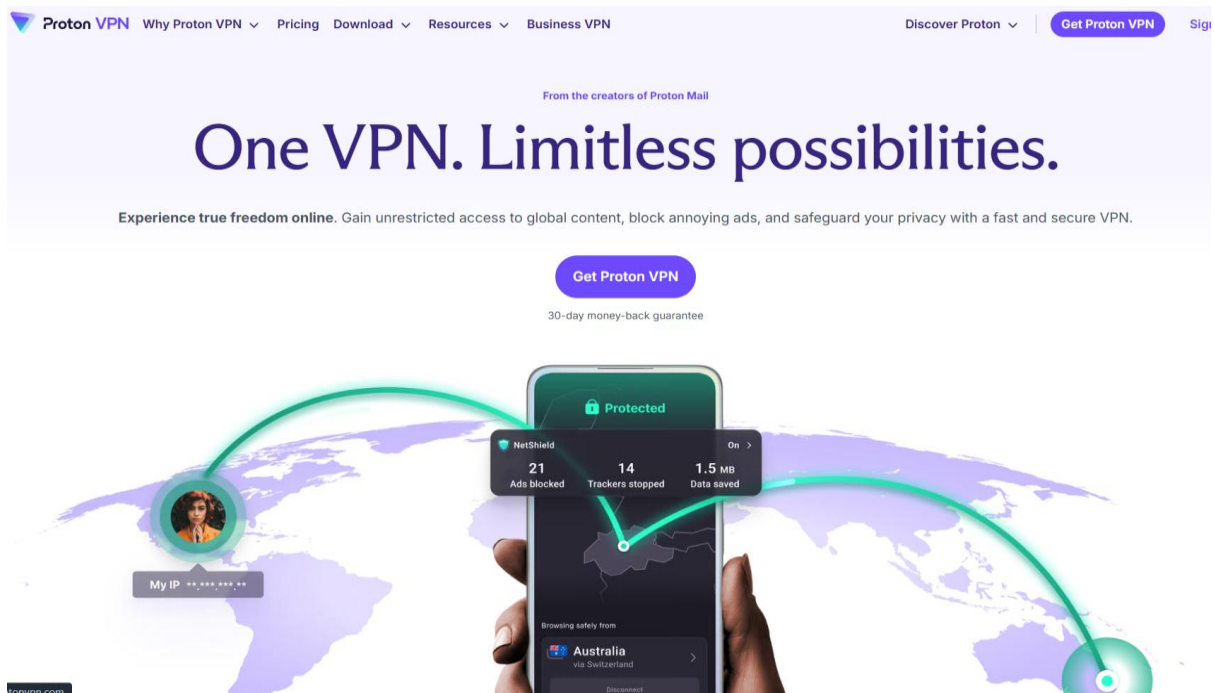To understand the role of Virtual Private Networks (VPNs) in ensuring secure communication and online privacy.

Tools Used

- **VPN Client: ProtonVPN (Free Tier)**
- **Verification Tool: whatismyipaddress.com**
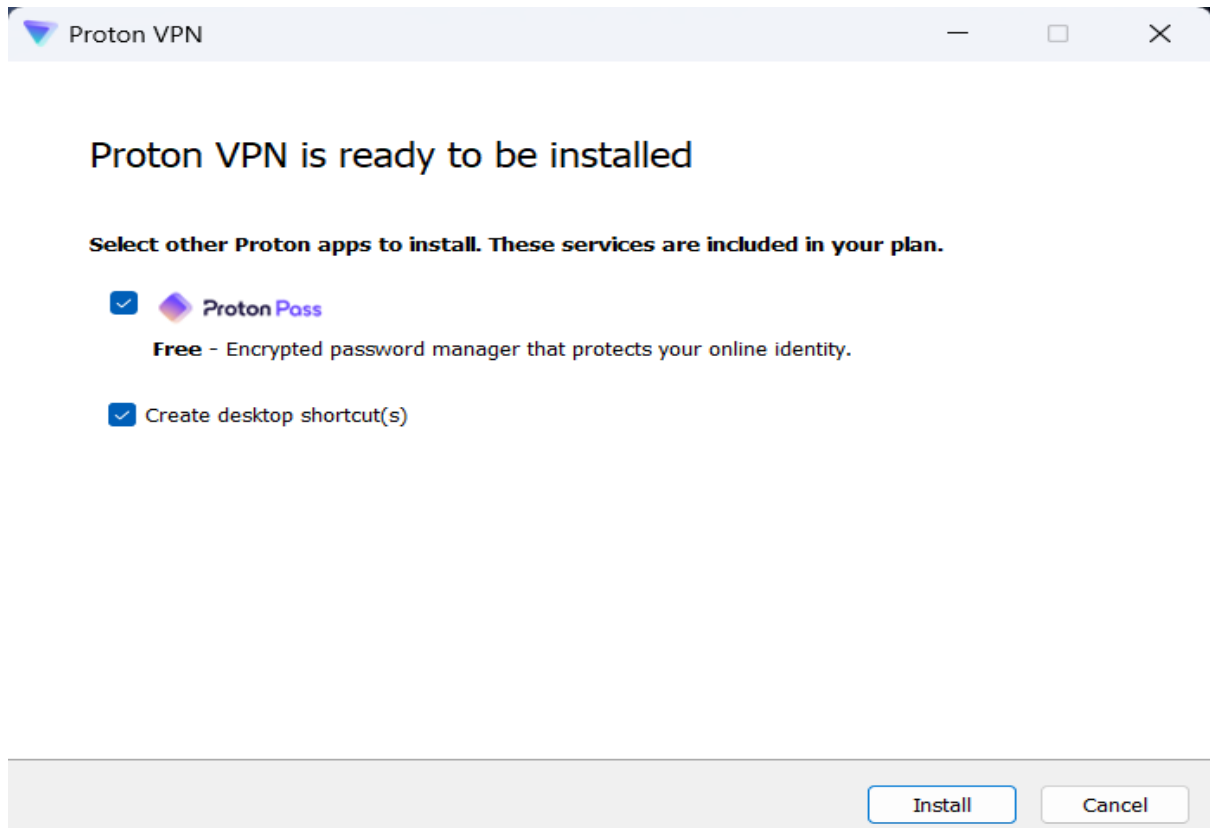
Steps Performed

1. **Choose a Reputable VPN Service**

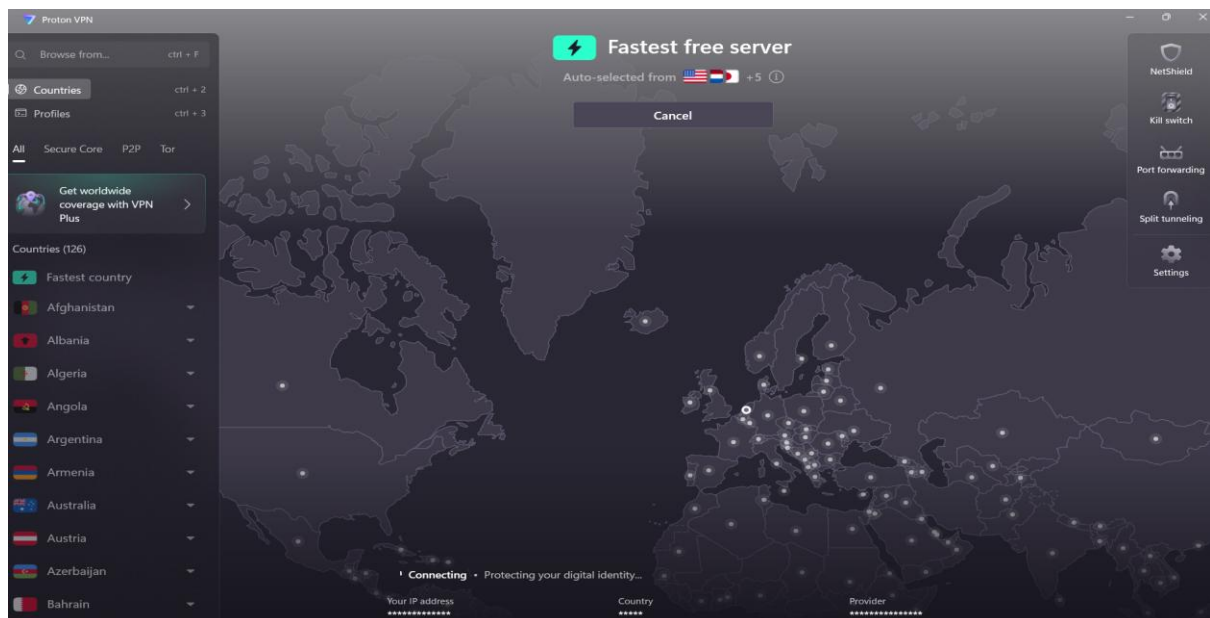**ProtonVPN account at protonvpn.com.**

Download & Installation:

Installed the ProtonVPN desktop client from the official website.

Login & Connect:

Logged into the client and connected to a nearby VPN server (e.g., *Netherlands or India*).

Before IP Change:

Verify IP Change:

Checked whatismyipaddress.com — confirmed that the public IP and location changed from the original one.

Encrypted Traffic Test:

Browsed multiple websites (e.g., google.com, wikipedia.org).
Verified HTTPS traffic and encrypted tunnel via ProtonVPN dashboard.
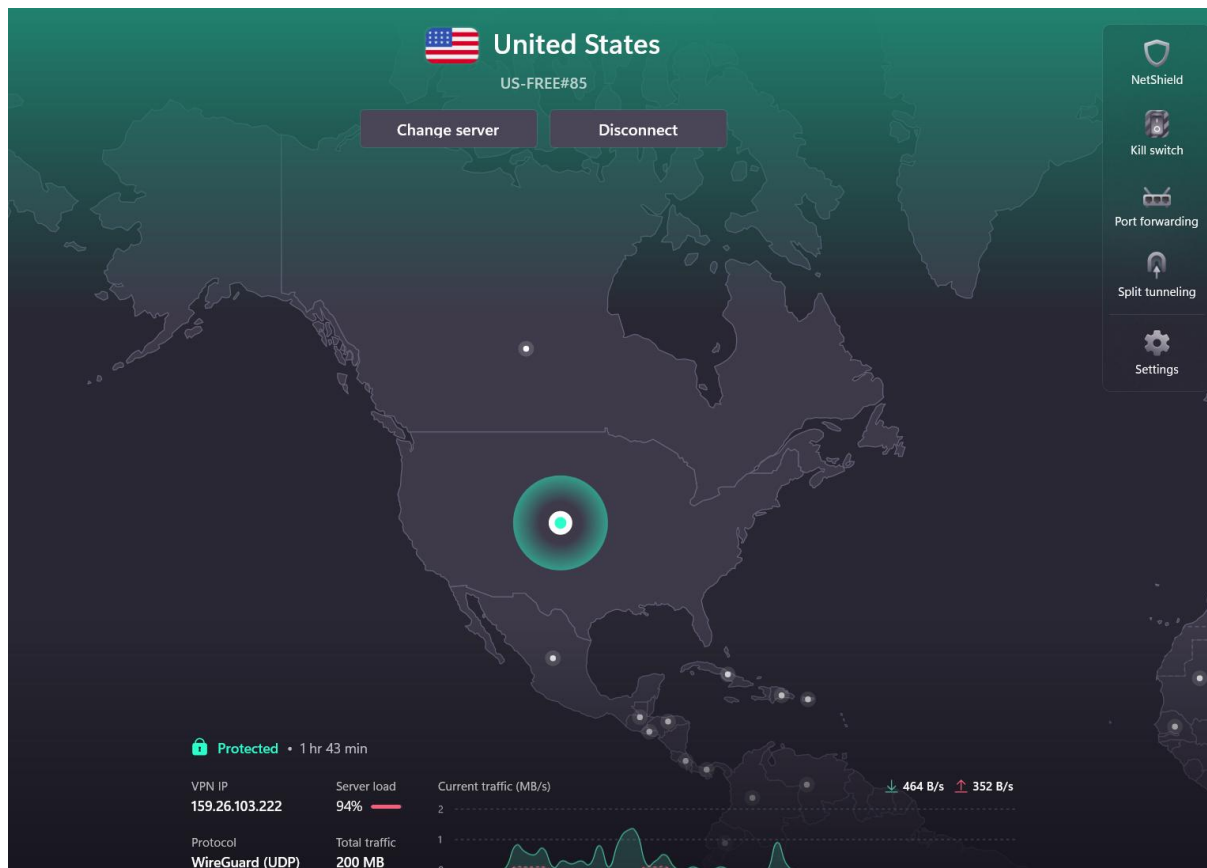
Disconnect & Compare:

Disconnected VPN — noted that the IP reverted to the original ISP-assigned address.
Observed slight improvement in speed after disconnection.

Research on VPN Encryption and Privacy

ProtonVPN uses **AES-256 encryption**, **OpenVPN** and **IKEv2/IPSec protocols** ensuring confidentiality and integrity. It employs **Perfect Forward Secrecy (PFS)** and follows a **no-log policy** to maintain user privacy.

Summary – VPN Benefits and Limitations

Benefits:

- Encrypts online data and hides real IP address.
- Protects from tracking, snooping, and unsecured Wi-Fi risks.
- Enables access to region-restricted content.

Limitations:

- Free VPNs offer limited speed and servers.
- Some providers may log usage data.
- Slight latency due to encryption overhead.

Outcome

Successfully configured and tested a VPN connection.
Gained practical understanding of VPN setup, IP masking, and encrypted network communication.