

## Task 8 Report: Working and understanding VPN

### Objective

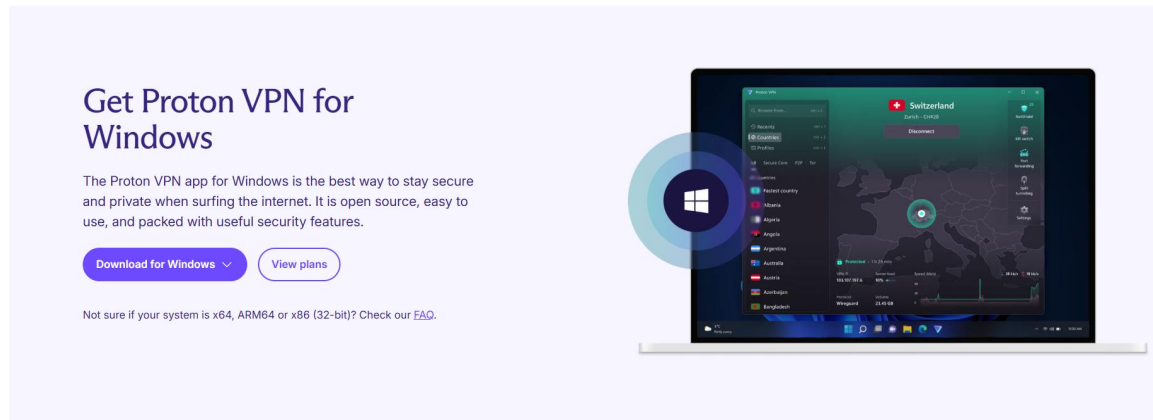
To understand the role of Virtual Private Networks (VPNs) in protecting online privacy and enabling secure communication.

### Tools Used

- **ProtonVPN** (Free Tier)
- **Windscribe** VPN (Free Version)
- **Website:** <https://whatismyipaddress.com>

### VPN Setup Steps

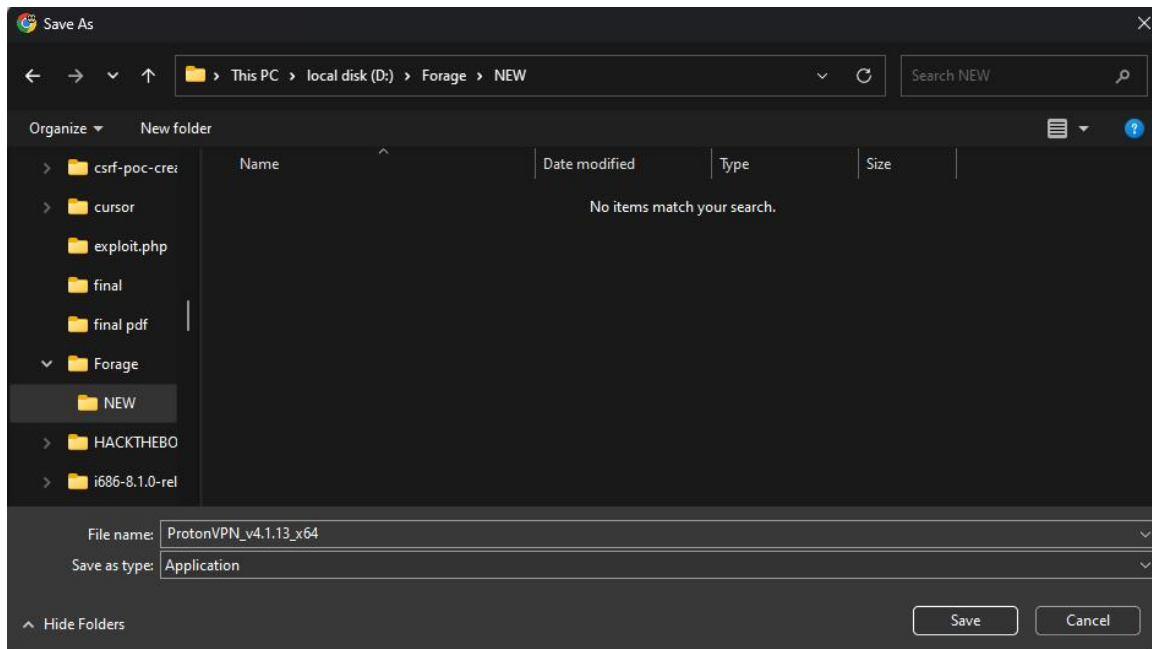
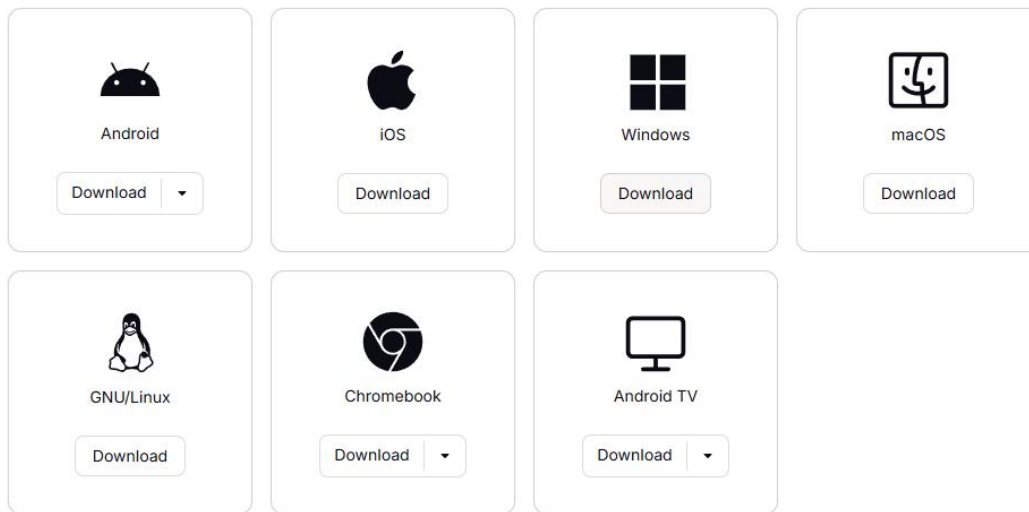
1. Selected ProtonVPN for its no-log policy and strong reputation in the cybersecurity community.

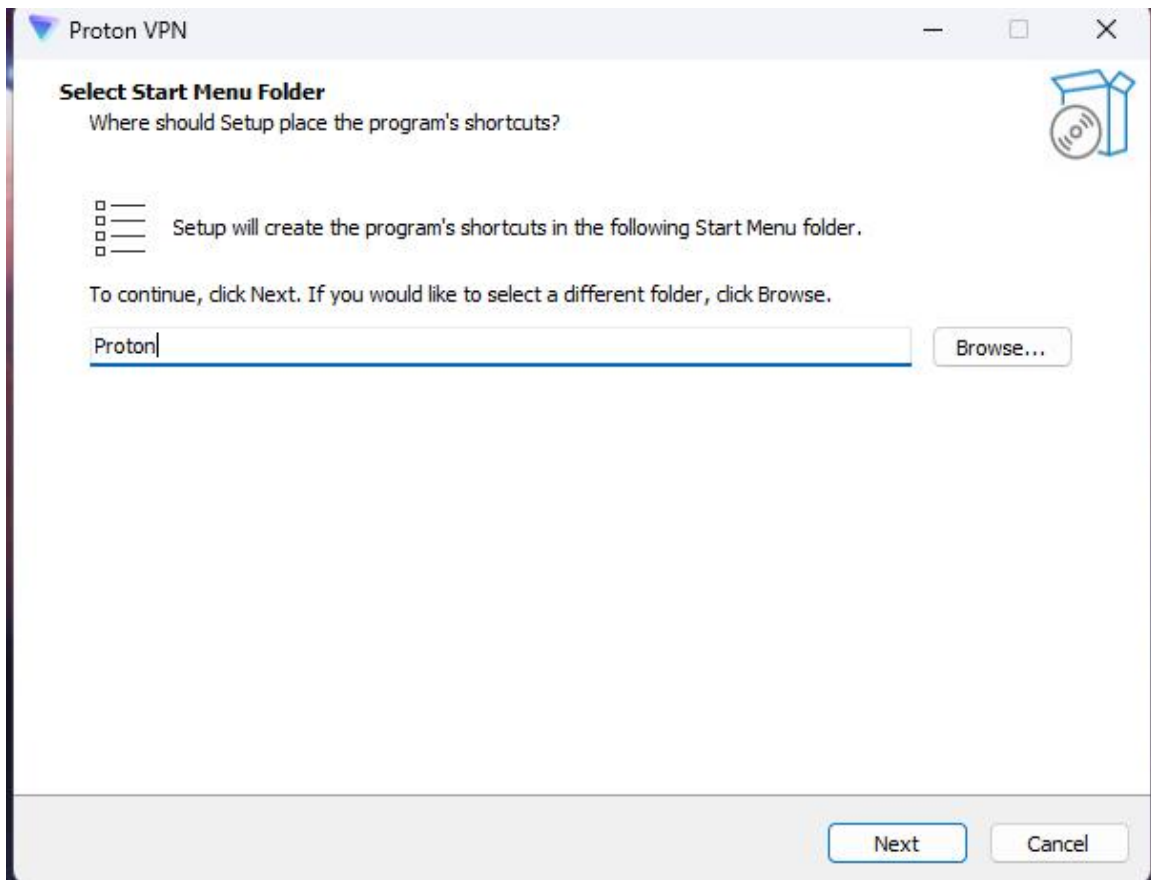


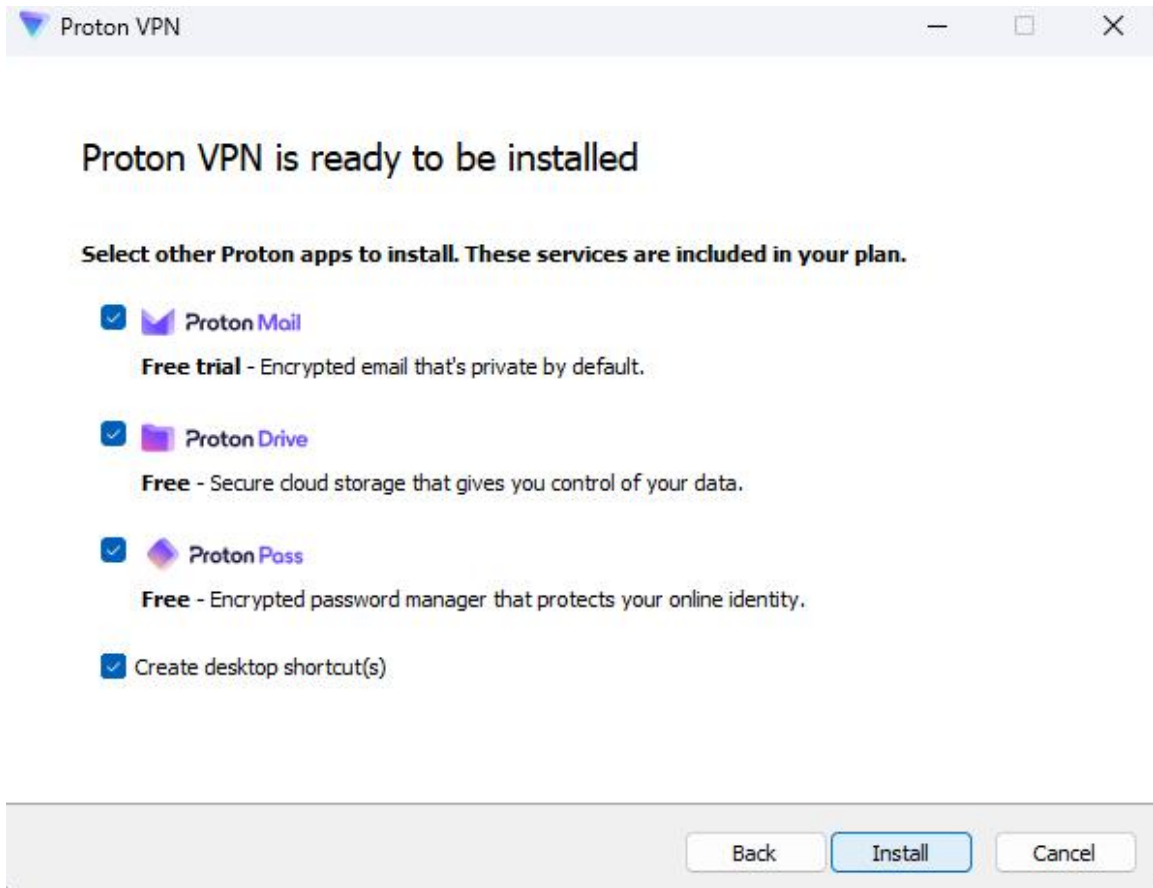
2. Downloaded the ProtonVPN client from the official website and installed it on a Windows system.

## Proton VPN clients

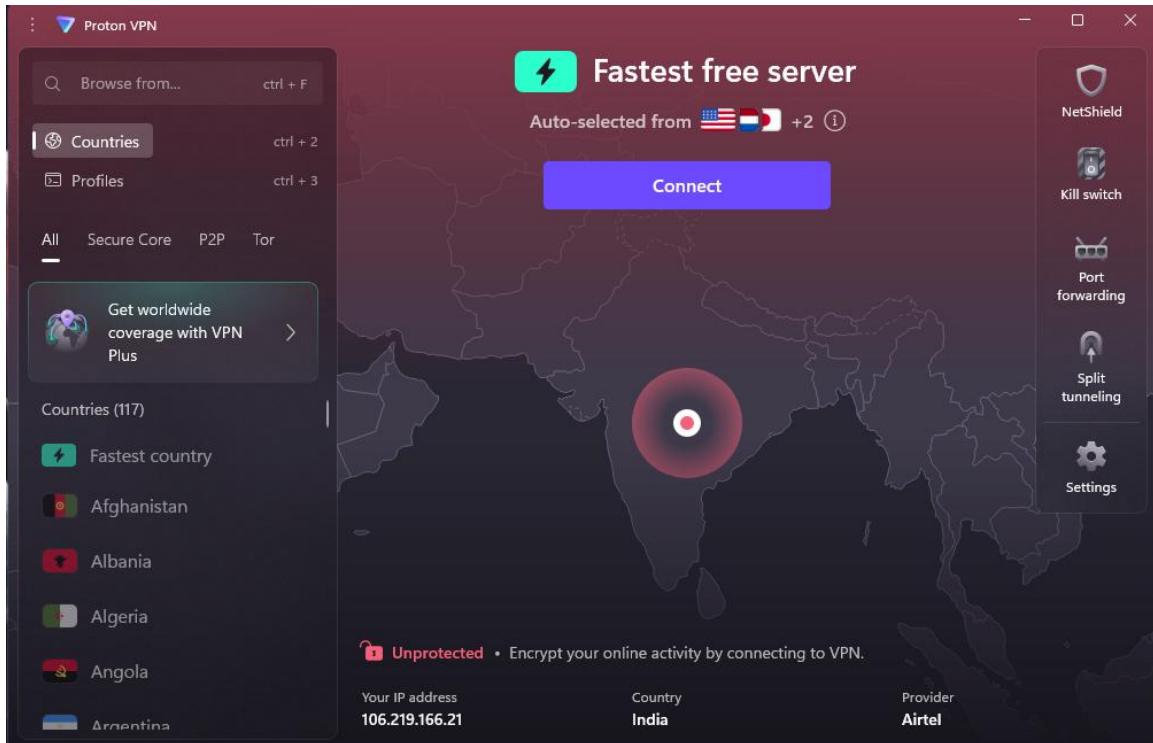
To secure your internet connection, download and install the Proton VPN application for your device and connect to a server.





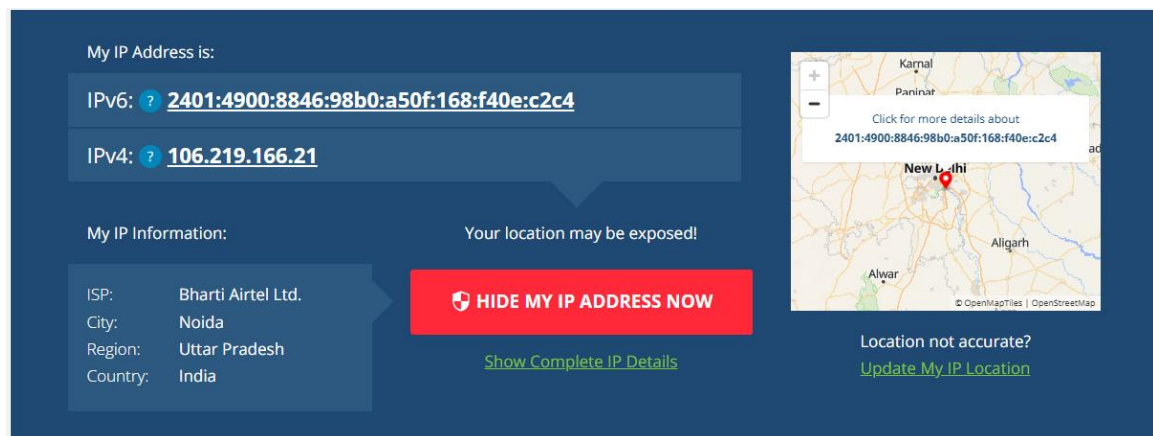


3. Launched ProtonVPN, signed in, and connected to the nearest server for optimal speed and stability.

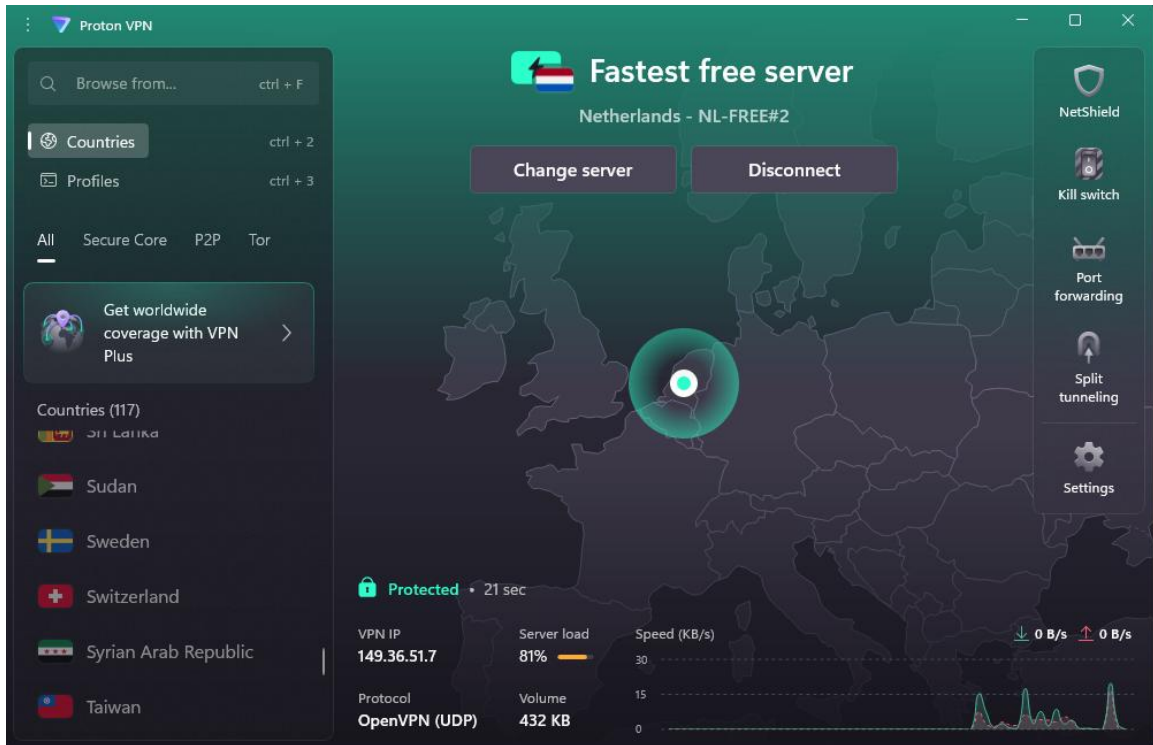


4. Verified IP address before and after connection using whatismyipaddress.com. IP changed from India to a Netherland-based IP.

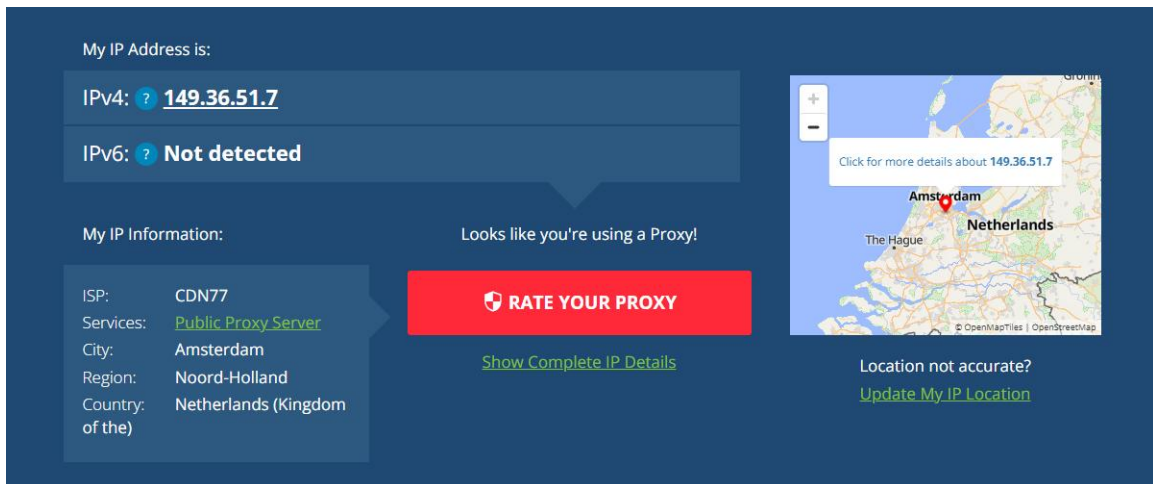
**Before :**



**Connecting VPN :**



After :



```
C:\Users\YAMISH MARSHALL>ipconfig
```

## Windows IP Configuration

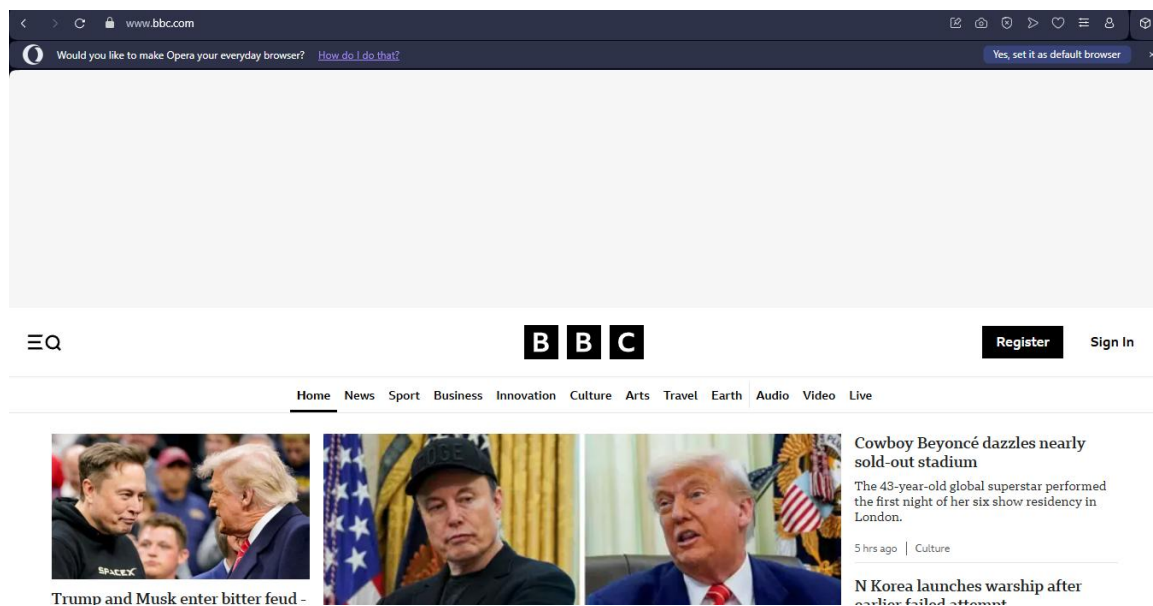
### Unknown adapter Local Area Connection:

```
Media State . . . . . : Media disconnected
Connection-specific DNS Suffix . :
```

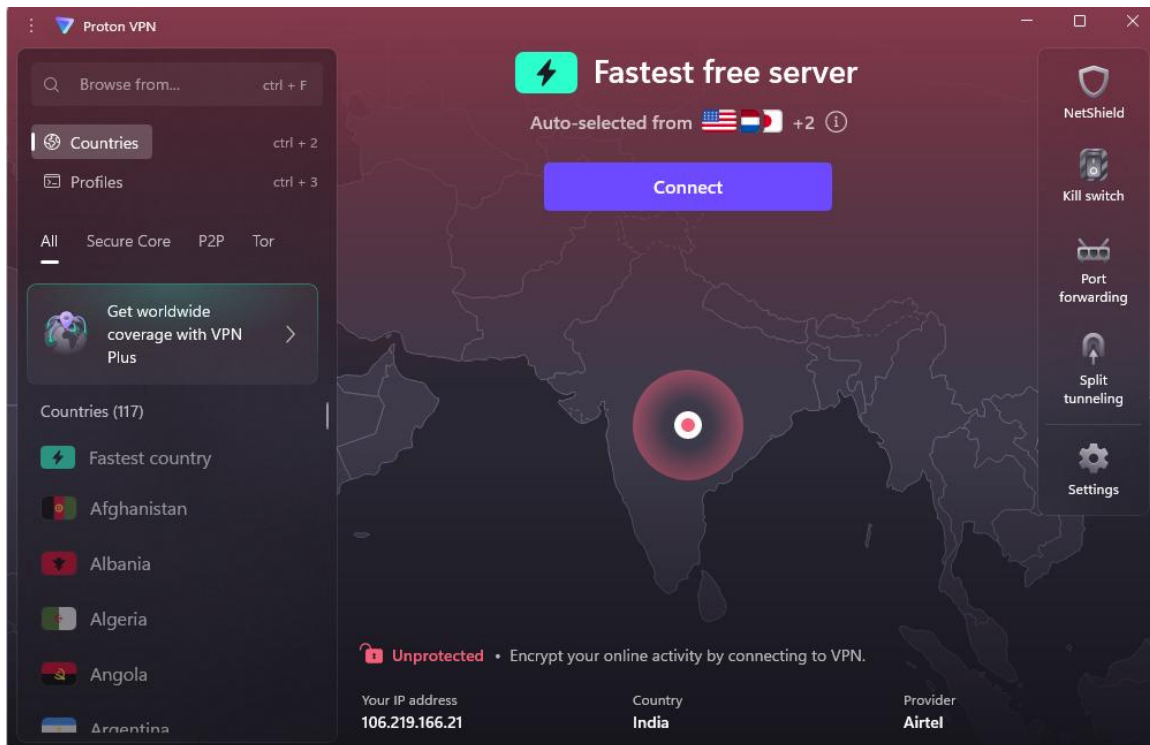
### Unknown adapter ProtonVPN TUN:

```
Connection-specific DNS Suffix . :
Link-local IPv6 Address . . . . . : fe80::1510:8030:db:8c65%60
IPv4 Address. . . . . : 10.96.0.100
Subnet Mask . . . . . : 255.255.0.0
Default Gateway . . . . . :
```

5. Visited websites like <https://www.whatsapp.com/> and <https://www.bbc.com> to ensure HTTPS (encrypted traffic) was in use.



6. Disconnected from VPN, confirmed return to original ISP IP address, and observed slight increase in browsing speed.



## VPN Encryption & Privacy Research

- VPNs use protocols such as OpenVPN, IKEv2, or WireGuard to encrypt traffic.
- Encryption strength can go up to AES-256, protecting data from sniffing and interception.
- No-log policies ensure user activity isn't stored.
- VPNs help bypass geo-blocks, prevent ISP tracking, and provide Wi-Fi security in public networks.

## Benefits of VPNs

- ✓ Protects privacy by masking IP address
- ✓ Encrypts traffic to prevent eavesdropping
- ✓ Access restricted or geo-blocked content
- ✓ Adds security on public Wi-Fi

## Limitations of VPNs

- ✗ Can reduce browsing speed
- ✗ Free versions may have limited server access or bandwidth
- ✗ Doesn't protect from malware or phishing attacks by itself
- ✗ Some websites block VPN IPs



## Deliverables

- ✓ VPN setup successfully tested and documented
- ✓ IP address change confirmed with screenshots
- ✓ Summary of encryption and VPN features included