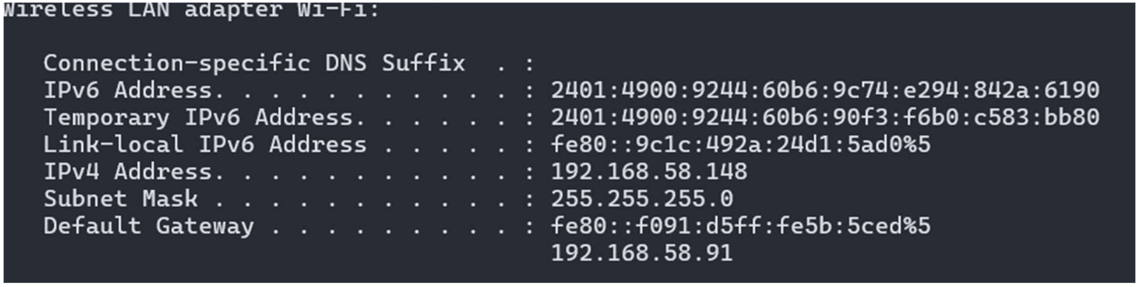
TASK 8 : VPN

VPNs are valuable privacy and security tools, especially for students and remote workers, offering encryption, anonymity, and safe data transmission. However, they are not a perfect solution and come with speed, trust, and configuration limitations that users should carefully consider when selecting and using VPN services. It creates a virtual private network which ensure a encrypted route to our packets and accessing the public network.

BEFORE USING VPN

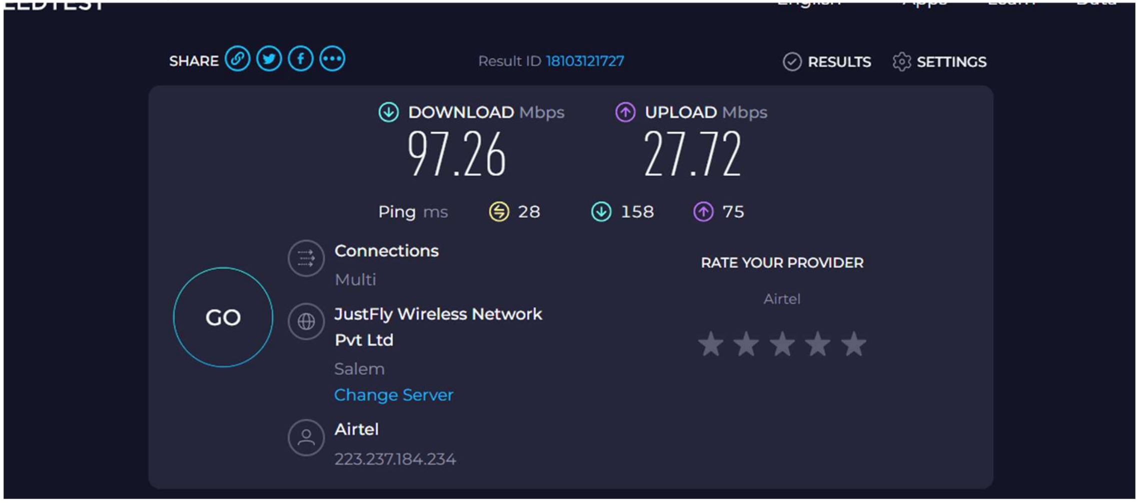
This my ip address before connecting to vpn



```
Wireless LAN adapter Wi-Fi:

   Connection-specific DNS Suffix  . :
   IPv6 Address. . . . . . . . . . . : 2401:4900:9244:60b6:9c74:e294:842a:6190
   Temporary IPv6 Address. . . . . . : 2401:4900:9244:60b6:90f3:f6b0:c583:bb80
   Link-local IPv6 Address . . . . . : fe80::9c1c:492a:24d1:5ad0%5
   IPv4 Address. . . . . . . . . . . : 192.168.58.148
   Subnet Mask . . . . . . . . . . . : 255.255.255.0
   Default Gateway . . . . . . . . . : fe80::f091:d5ff:fe5b:5ced%5
                                       192.168.58.91
```

THIS my downloading and uploading speed of my network before VPN, downloading 97 mbps And uploading at 27 mbps.



Result ID 18103121727

DOWNLOAD Mbps 97.26

UPLOAD Mbps 27.72

Ping ms 28 158 75

Connections
Multi

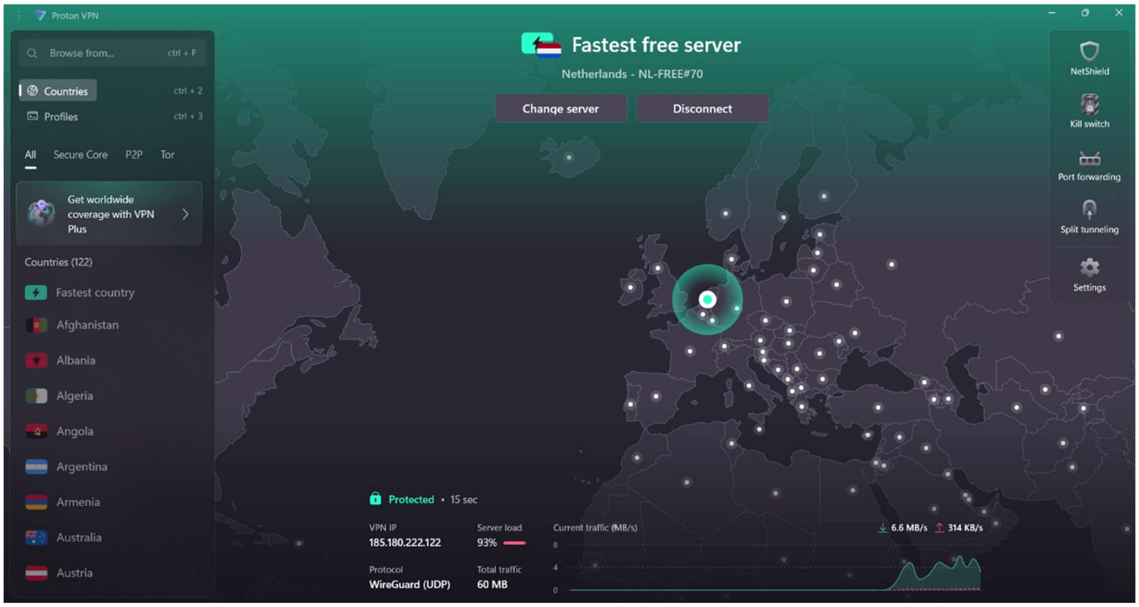
JustFly Wireless Network Pvt Ltd
Salem
Change Server

Airtel
223.237.184.234

RATE YOUR PROVIDER
Airtel
★★★★★

AFTER VPN CONNECTION:

I WAS CONNECTED TO NETHERLANDS SERVER FORM INDIA SERVER.



Netherlands - NL-FREE#70

Protected • 15 sec

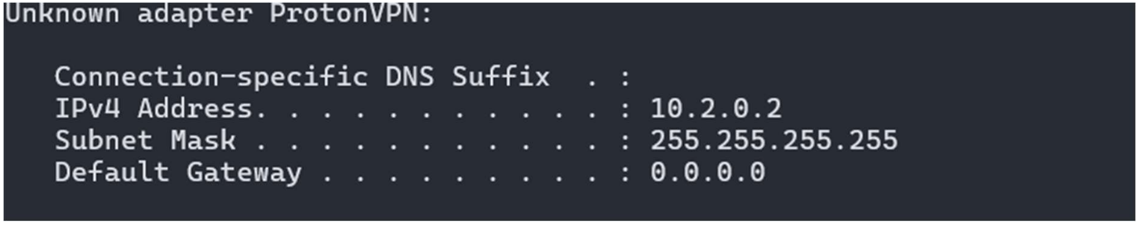
VPN IP 185.180.222.122

Server load 93%

Protocol WireGuard (UDP)

Total traffic 60 MB

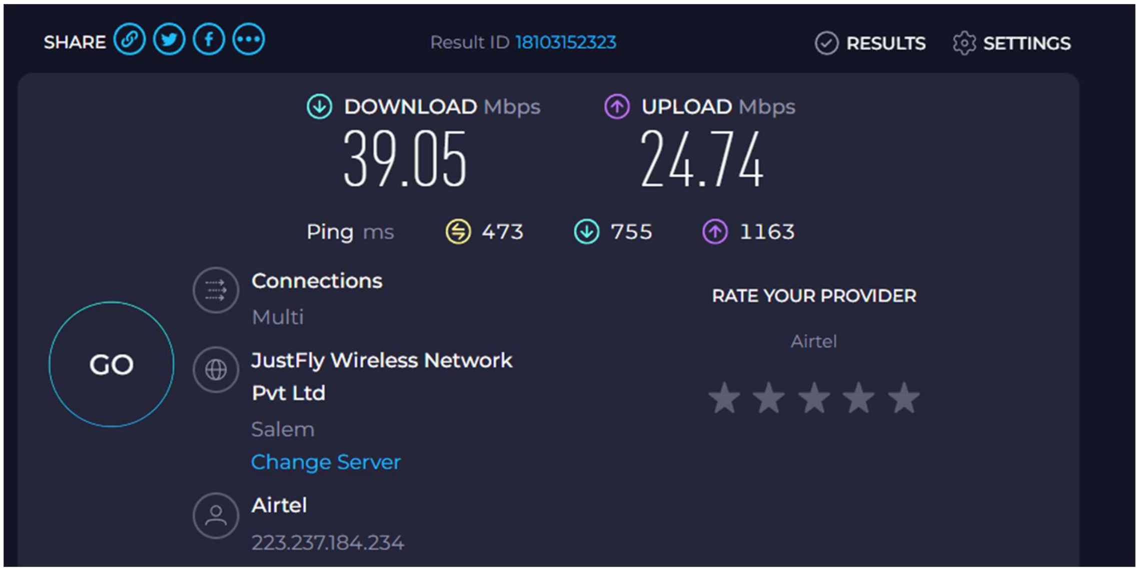
THIS MY IP ADDRESS AFTER CONNECTED TO VPN (secured encrypted route form public network perspective)



```
Unknown adapter ProtonVPN:

   Connection-specific DNS Suffix  . :
   IPv4 Address. . . . . . . . . . . : 10.2.0.2
   Subnet Mask . . . . . . . . . . . : 255.255.255.255
   Default Gateway . . . . . . . . . : 0.0.0.0
```

THIS IS MY INTERNET SPEED AFTER VPN CONNECTION:



Result ID 18103152323

DOWNLOAD Mbps 39.05

UPLOAD Mbps 24.74

Ping ms 473 755 1163

Connections Multi

JustFly Wireless Network Pvt Ltd
Salem

Airtel
223.237.184.234

Airtel

THIS ARE ALL THE DIFFERENCE BETWEEN BEFORE AND AFTER VPN CONNECTION:

Aspect	Without VPN	With VPN	Effect
Download Speed	97.26Mbps	39.05Mbps	Decreased
Upload Speed	27.72Mbps	24.74Mbps	Slight decrease
Ping (Latency)	28ms	473ms	Increased (slower response)

Benefits of VPN

- **Enhanced Privacy:** VPNs mask your real IP address and replace it with the server's IP, making it difficult for websites and trackers to identify your true location and identity.
- **Data Encryption:** All your internet traffic gets encrypted, which prevents hackers, ISPs, and governments from intercepting and reading your data during transmission over public or untrusted networks.
- **Secure Data Transfer:** Ideal for remote work or accessing sensitive company resources—your data travels through a secure, encrypted tunnel, minimizing the risk of leaks or breaches.
- **Bypass Geo-restrictions and Censorship:** VPNs allow access to content and websites that may be blocked in certain regions or countries by switching your virtual location.
- **Prevent Bandwidth Throttling:** VPNs can help prevent ISPs from slowing down your connection based on your activities, like streaming or gaming.
- **Safe Public WiFi Use:** VPNs secure your traffic on open networks (cafes, airports), protecting sensitive information from potential attackers.
- **Remote Access and Productivity:** Enables employees and users to securely connect to internal company networks from anywhere, supporting remote work and global connectivity.

Limitations of VPN

- **Slower Internet Speeds:** Encryption and routing through distant servers can sometimes reduce speed, especially with free or overloaded VPN services.
- **Not Total Anonymity:** VPNs increase privacy but cannot guarantee complete anonymity; activities can still be traced by the VPN provider, endpoint websites, or via leaks.
- **Potential Data Leaks:** Weak VPNs or poor configuration might expose your real IP address or DNS information ("IP leaks"), undermining privacy.
- **Device and Platform Limitations:** Some content or apps may block VPN usage, and not every device type is supported by all VPN providers.
- **Reliance on VPN Provider:** You must trust your VPN provider not to log, sell, or misuse your data—choose a reputable service with a no-logs policy.
- **Security Vulnerabilities:** Outdated VPN protocols or poor configurations can expose users and organizations to attacks and data theft.
- **Legal and Regulatory Limits:** VPN use may be restricted or even illegal in some countries, which could result in penalties.
- **Single Point of Failure:** For organizations, if a VPN server is compromised, it could expose the entire network—a risk with centralized traditional VPN architectures.

THANK YOU