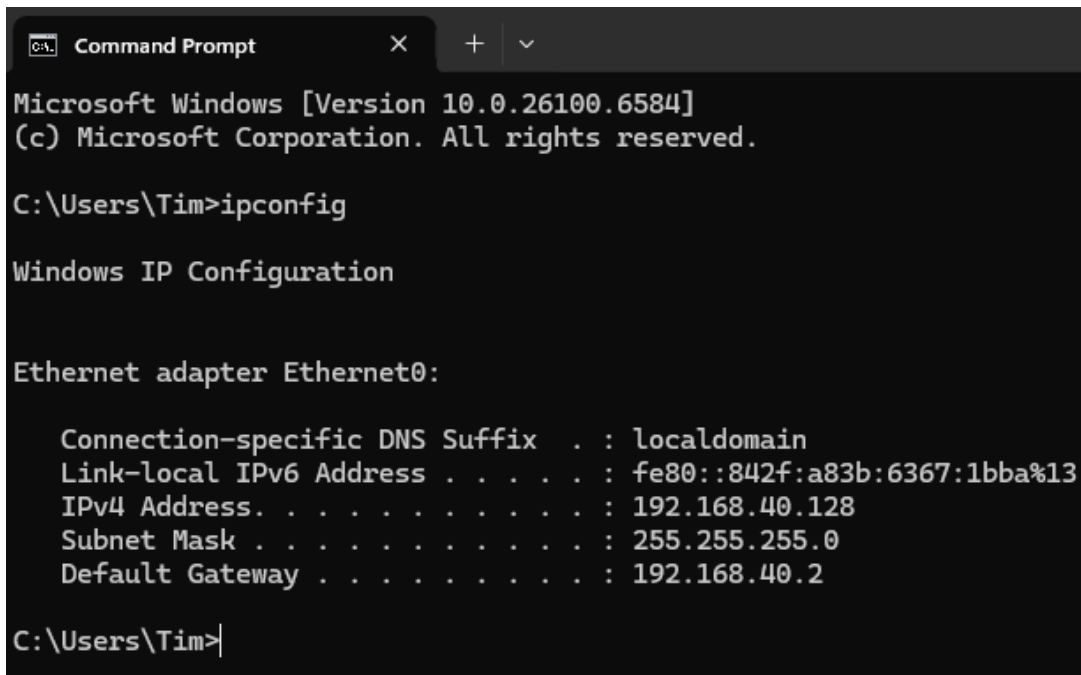


# Lab 6 – Networking Commands & VPN Troubleshooting

---

Lab 6 – In this section I used basic Windows commands to test network connectivity and then test VPN connectivity. I ran `ipconfig` to check my machine's IP address and gateway, `ping` to confirm internet access, and `tracert` to see the path traffic took to reach `google.com`. After that, I tested a VPN connection used `ping` and `tracert` to check if the VPN server could be reached.



```
Command Prompt
Microsoft Windows [Version 10.0.26100.6584]
(c) Microsoft Corporation. All rights reserved.

C:\Users\Tim>ipconfig

Windows IP Configuration

Ethernet adapter Ethernet0:

    Connection-specific DNS Suffix  . : localdomain
    Link-local IPv6 Address . . . . . : fe80::842f:a83b:6367:1bba%13
    IPv4 Address. . . . . : 192.168.40.128
    Subnet Mask . . . . . : 255.255.255.0
    Default Gateway . . . . . : 192.168.40.2

C:\Users\Tim>
```

Notes: I ran `ipconfig` to check that my computer had a valid IP address and could see the default gateway. This confirmed the machine was connected to the network properly.

```

Microsoft Windows [Version 10.0.26100.6584]
(c) Microsoft Corporation. All rights reserved.

C:\Users\Tim>ipconfig

Windows IP Configuration

Ethernet adapter Ethernet0:

    Connection-specific DNS Suffix  . : localdomain
    Link-local IPv6 Address . . . . . : fe80::842f:a83b:6367:1bba%13
    IPv4 Address. . . . . : 192.168.40.128
    Subnet Mask . . . . . : 255.255.255.0
    Default Gateway . . . . . : 192.168.40.2

C:\Users\Tim>ping google.com

Pinging google.com [172.217.167.78] with 32 bytes of data:
Reply from 172.217.167.78: bytes=32 time=9ms TTL=128
Reply from 172.217.167.78: bytes=32 time=9ms TTL=128
Reply from 172.217.167.78: bytes=32 time=9ms TTL=128
Reply from 172.217.167.78: bytes=32 time=9ms TTL=128

Ping statistics for 172.217.167.78:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 9ms, Maximum = 9ms, Average = 9ms

C:\Users\Tim>

```

Notes: I pinged google.com to test internet connectivity. The replies came back successfully, showing that the VM could reach the internet without packet loss.

```

Command Prompt
Reply from 172.217.167.78: bytes=32 time=9ms TTL=128

Ping statistics for 172.217.167.78:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 9ms, Maximum = 9ms, Average = 9ms

C:\Users\Tim>tacert google.com
'tacert' is not recognized as an internal or external command,
operable program or batch file.

C:\Users\Tim>tracert google.com

Tracing route to google.com [142.250.204.14]
over a maximum of 30 hops:

  0  <1 ms  <1 ms  <1 ms  192.168.40.2
  1  *      *      *      Request timed out.
  2  *      *      *      Request timed out.
  3  *      *      *      Request timed out.
  4  *      *      *      Request timed out.
  5  *      *      *      Request timed out.
  6  *      *      *      Request timed out.
  7  *      *      *      Request timed out.
  8  *      *      *      Request timed out.
  9  *      *      *      Request timed out.
 10 65 ms   17 ms   62 ms  syd09s25-in-f14.1e100.net [142.250.204.14]

Trace complete.

C:\Users\Tim>

```

Notes: I ran tracert to google.com to see the path my traffic was taking. It started at my local gateway, then went through my ISP, and finished at a Google server in Sydney (142.50.204.14). The times looked normal — under 1ms on the local hops and around 60ms by the time it reached Google. This showed that my VM could get out to the internet and the trace made it all the way through.

# VPN Connectivity

---

```
Command Prompt
Microsoft Windows [Version 10.0.26100.6584]
(c) Microsoft Corporation. All rights reserved.

C:\Users\LocalAdmin>ping vpn.proton.net

Pinging vpn.proton.net [109.237.136.6] with 32 bytes of data:
Reply from 109.237.136.6: bytes=32 time=425ms TTL=38
Reply from 109.237.136.6: bytes=32 time=417ms TTL=38
Reply from 109.237.136.6: bytes=32 time=416ms TTL=38
Reply from 109.237.136.6: bytes=32 time=419ms TTL=38

Ping statistics for 109.237.136.6:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 416ms, Maximum = 425ms, Average = 419ms

C:\Users\LocalAdmin>
```

Notes: I ran a ping to `vpn.protonvpn.net` and got replies back from the server at `109.237.136.6`. The response times averaged around `419ms` with no packet loss. This showed that the VPN server was reachable over the internet, even though the latency was higher than a normal local ping.

```
Command Prompt
Tracing route to vpn.proton.net [109.237.136.6]
over a maximum of 30 hops:
  0  138 ms  143 ms  142 ms  10.2.0.1
  1  140 ms  141 ms  144 ms  159.26.119.252
  2  140 ms  146 ms  149 ms  vl208.tyo-egp-core-1.cdn77.com [169.150.194.140]
  3  143 ms  140 ms  142 ms  ae-65.a00.tokyojp09.jp.bb.gin.ntt.net [61.120.145.1]
  4  *      *      *      Request timed out.
  5  244 ms  249 ms  242 ms  ae-4.r27.snjsca04.us.bb.gin.ntt.net [129.250.5.78]
  6  242 ms  275 ms  242 ms  ae-23.a04.snjsca04.us.bb.gin.ntt.net [129.250.5.247]
  7  256 ms  239 ms  239 ms  sjo-b23-link.ip.twelve99.net [62.115.12.52]
  8  262 ms  261 ms  246 ms  sjo-bb1-link.ip.twelve99.net [62.115.139.16]
  9  274 ms  291 ms  277 ms  den-bb1-link.ip.twelve99.net [62.115.139.105]
 10  416 ms  415 ms  423 ms  chi-bb1-link.ip.twelve99.net [62.115.115.77]
 11  335 ms  312 ms  329 ms  nyk-bb5-link.ip.twelve99.net [62.115.139.32]
 12  375 ms  380 ms  388 ms  ldn-bb1-link.ip.twelve99.net [62.115.139.245]
 13  399 ms  404 ms  383 ms  prs-bb1-link.ip.twelve99.net [62.115.135.25]
 14  432 ms  410 ms  409 ms  ffm-bb1-link.ip.twelve99.net [62.115.123.12]
 15  416 ms  414 ms  421 ms  ffm-b14-link.ip.twelve99.net [62.115.132.209]
 16  426 ms  431 ms  409 ms  onecomgroup-ic-308043.ip.twelve99-eu.net [62.115.172.75]
 17  443 ms  417 ms  433 ms  et-0-1-3.592.edgel.lej.de.net.gli.one [185.84.83.76]
 18  432 ms  422 ms  440 ms  185.84.83.77
 19  551 ms  586 ms  547 ms  bsr1.dcl.lej.de.net.cloudpit.io [194.145.226.18]
 20  424 ms  435 ms  439 ms  194.145.226.59
 21  417 ms  432 ms  416 ms  alfa3942.alfahosting-server.de [109.237.136.6]
 22

Trace complete.

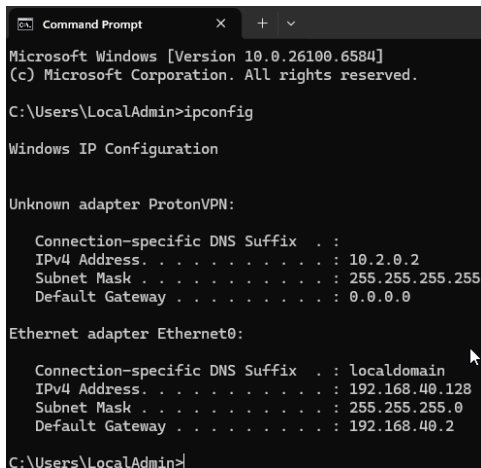
C:\Users\LocalAdmin>
```

Notes: I ran `tracert` to `vpn.protonvpn.net` and it finished after 22 hops. The results showed a mix of private and public IP addresses, including ProtonVPN's gateway (`10.2.0.1`) and some backbone routers like `link.ip1299.net`. The response times were between about `140ms` and `550ms`, which is slower than a normal web request but normal for VPN traffic. This confirmed my VM was able to reach the ProtonVPN server.

---

## Section 2 – Remote Support (RDP & TeamViewer)

---



```
Microsoft Windows [Version 10.0.26100.6584]
(c) Microsoft Corporation. All rights reserved.

C:\Users\LocalAdmin>ipconfig

Windows IP Configuration

Unknown adapter ProtonVPN:

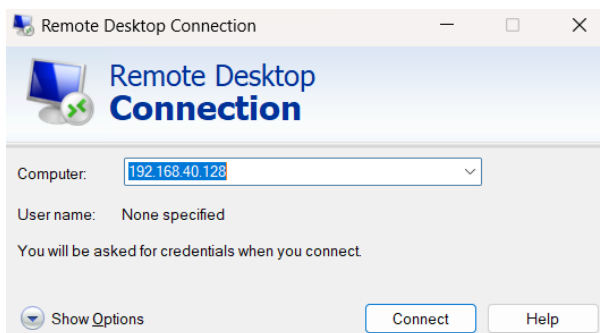
    Connection-specific DNS Suffix  . : 
    IPv4 Address. . . . . : 10.2.0.2
    Subnet Mask . . . . . : 255.255.255.255
    Default Gateway . . . . . : 0.0.0.0

Ethernet adapter Ethernet0:

    Connection-specific DNS Suffix  . : localdomain
    IPv4 Address. . . . . : 192.168.40.128
    Subnet Mask . . . . . : 255.255.255.0
    Default Gateway . . . . . : 192.168.40.2

C:\Users\LocalAdmin>
```

Notes: When I connected to ProtonVPN, the VM showed two different IP addresses. The Ethernet adapter kept its local address (192.168.40.128), which I used for RDP and local network access. ProtonVPN also created a new virtual adapter with the address 10.2.0.2, which is part of the VPN's private network. This confirmed that the VPN connection was active.



Notes: At first, I tried connecting to the VM with Remote Desktop from my host PC, but the connection was denied. To fix this, I went into the VM's System Properties and turned on the option to allow remote connections. This change made the VM ready to accept RDP sessions from other machines.

```
Windows PowerShell
Copyright (C) Microsoft Corporation. All rights reserved.

Install the latest PowerShell for new features and improvements! https://aka.ms/PSWindows

PS C:\Users\guyle> Test-NetConnection -ComputerName 192.168.40.128 -Port 3389

ComputerName      : 192.168.40.128
RemoteAddress     : 192.168.40.128
RemotePort        : 3389
InterfaceAlias    : VMware Network Adapter VMnet8
SourceAddress     : 192.168.40.1
TcpTestSucceeded  : True
```

Notes: In Windows PowerShell I ran Test-NetConnection -ComputerName 192.168.40.128 -Port 3389 to check if the VM was accepting RDP traffic. The result showed TcpTestSucceeded: True, which confirmed that port 3389 was open and my host PC could reach the VM for Remote Desktop.

```
Command Prompt
Microsoft Windows [Version 10.0.26100.6584]
(c) Microsoft Corporation. All rights reserved.

C:\Users\guyle>ping 192.168.0.26

Pinging 192.168.0.26 with 32 bytes of data:
Reply from 192.168.0.26: bytes=32 time<1ms TTL=128
Reply from 192.168.0.26: bytes=32 time<1ms TTL=128
Reply from 192.168.0.26: bytes=32 time<1ms TTL=128
Reply from 192.168.0.26: bytes=32 time<1ms TTL=128

Ping statistics for 192.168.0.26:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 0ms, Maximum = 0ms, Average = 0ms
```

Notes: At first my VM was set to NAT with the IP 192.168.40.128. When I pinged it from my host PC, I got 100% packet loss, so the VM couldn't be reached. I changed the network adapter to Bridged mode and after restarting, the VM got a new IP (192.168.0.26). Pinging this new address worked, which showed the VM was now on the same LAN as my host and ready for RDP.

```
Command Prompt
Microsoft Windows [Version 10.0.26100.6584]
(c) Microsoft Corporation. All rights reserved.

C:\Users\LocalAdmin>ipconfig

Windows IP Configuration

Ethernet adapter Ethernet0:

    Connection-specific DNS Suffix  . : modem
    IPv6 Address. . . . . : 2001:8003:3604:fb00:a096:88c1:d8e8:7e32
    Temporary IPv6 Address. . . . . : 2001:8003:3604:fb00:adba:7349:2ff2:fb51
    Link-local IPv6 Address . . . . . : fe80::842f:a83b:6367:1bba%13
    IPv4 Address. . . . . : 192.168.0.26
    Subnet Mask . . . . . : 255.255.255.0
    Default Gateway . . . . . : fe80::22b0:1ff:fe99:b84%13
                                192.168.0.1

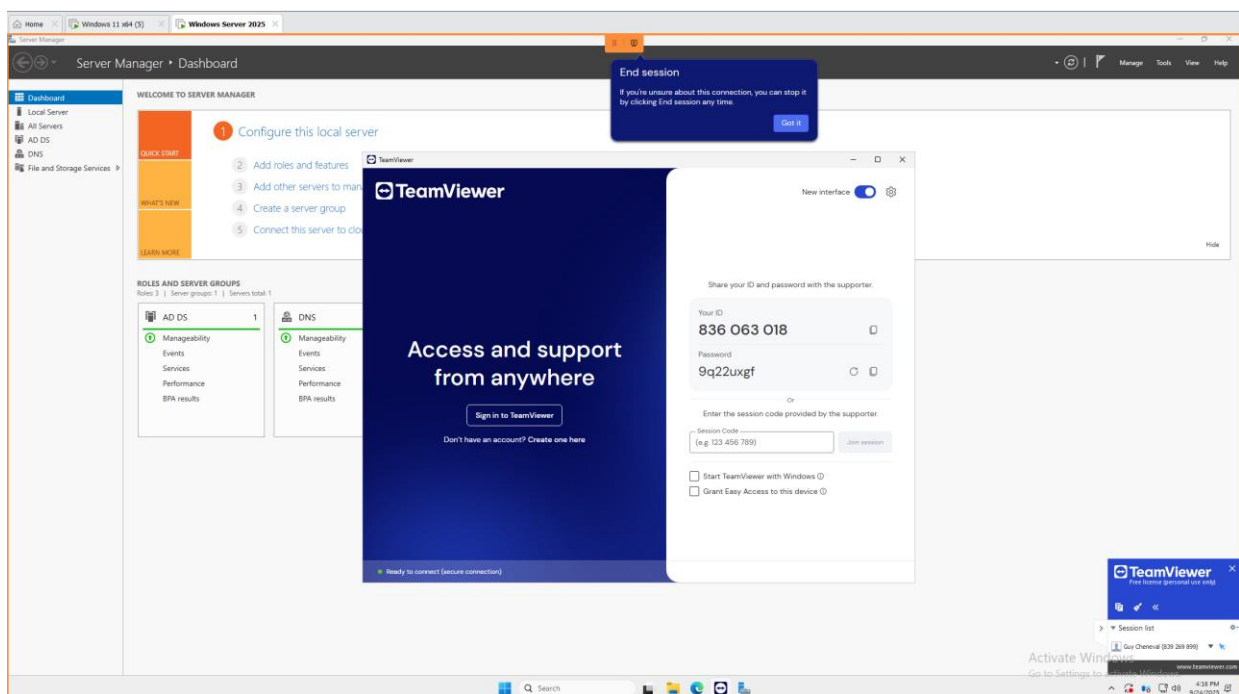
C:\Users\LocalAdmin>
```

Notes: New Bridged mode.

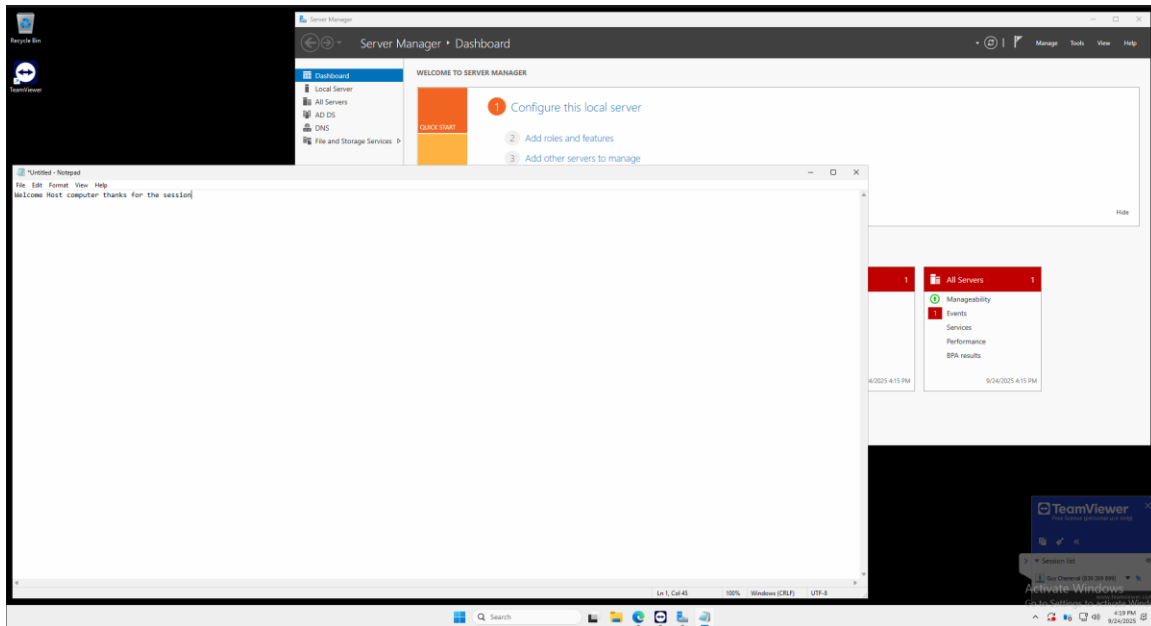
*I attempted to configure RDP on my VM by enabling it in System Properties, opening the firewall, and setting the network to Private. The service was running and port 3389 was open, but I had ongoing issues with account login formatting. In a real help desk environment, this would be the point where I'd escalate to a higher-tier technician. For this lab I moved forward with TeamViewer, which provided a working example of remote support.*

## Event Viewer Windows Troubleshooting

As part of this lab, I spent some time using Event Viewer to practice basic troubleshooting in Windows. Event Viewer keeps a record of what's happening on the system, like application errors, logins, and system changes this can be used to figure out what's going on when a user reports an issue.



Notes: Here you can see TeamViewer running on my AD Server VM. It gives me a session ID (836 063 018) and a temporary password (9q22uxgf). The ID always stays the same for this VM, but the password changes each time TeamViewer restarts. With these details, a support tech could connect in and work on the server remotely.



*Notes:* Here I connected from my host computer into the AD Server VM using TeamViewer. To show the session was active, I opened Notepad on the server and typed a quick message: “Welcome Host computer thanks for the session.” This confirmed I had full remote control of the server desktop.

## Lab 6 – Networking and Remote Support Summary

---

In this lab I focused on two things: networking checks and remote support. For networking, I used commands like ping, tracert, and ipconfig to test connectivity and see how traffic flows to places like Google and ProtonVPN. This gave me practice with the same tools a help desk tech would use to check if a machine can get online or reach a server.

For remote support, I installed TeamViewer on my AD Server VM and my host PC. I connected in using the server’s ID and password and got full control of the desktop. To prove it worked, I opened Notepad on the server and typed a quick message from my host.

Overall, this lab gave me hands-on practice with basic networking tools and showed me how remote support works in a real setup.