



Unit 867 System Management.

Final Portfolio Projects.

By Jonathan Watts.

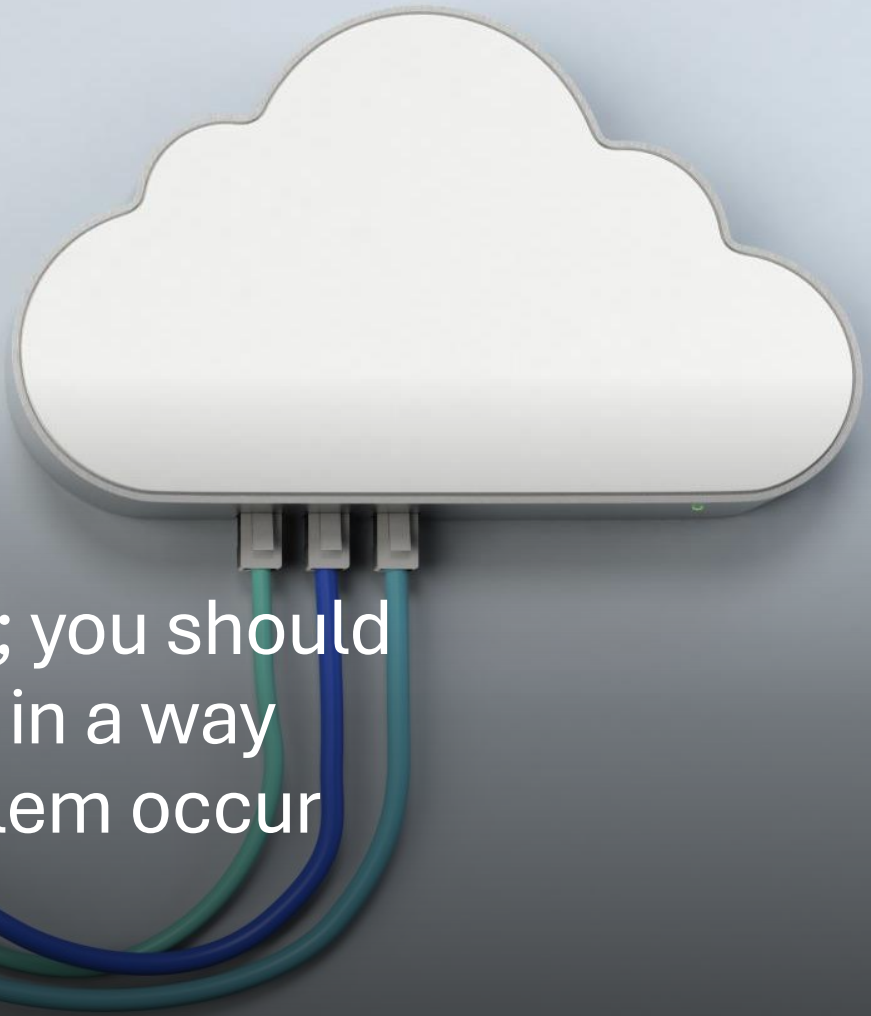


Broken Network!

Job 2:



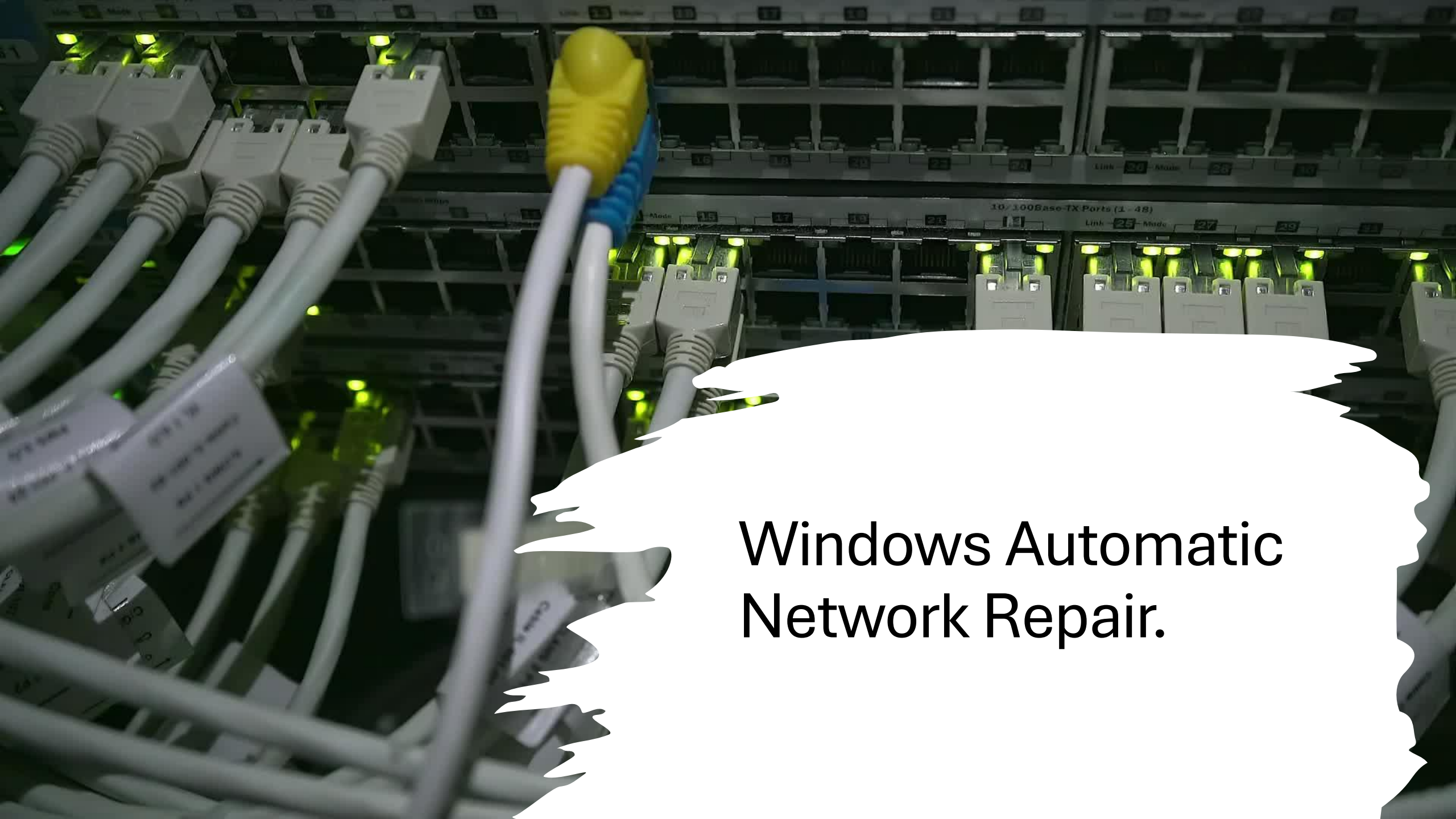
Scenario.



A network host cannot access the Internet; you should solve the issue and document the process in a way which will be useful should the same problem occur again in the future.



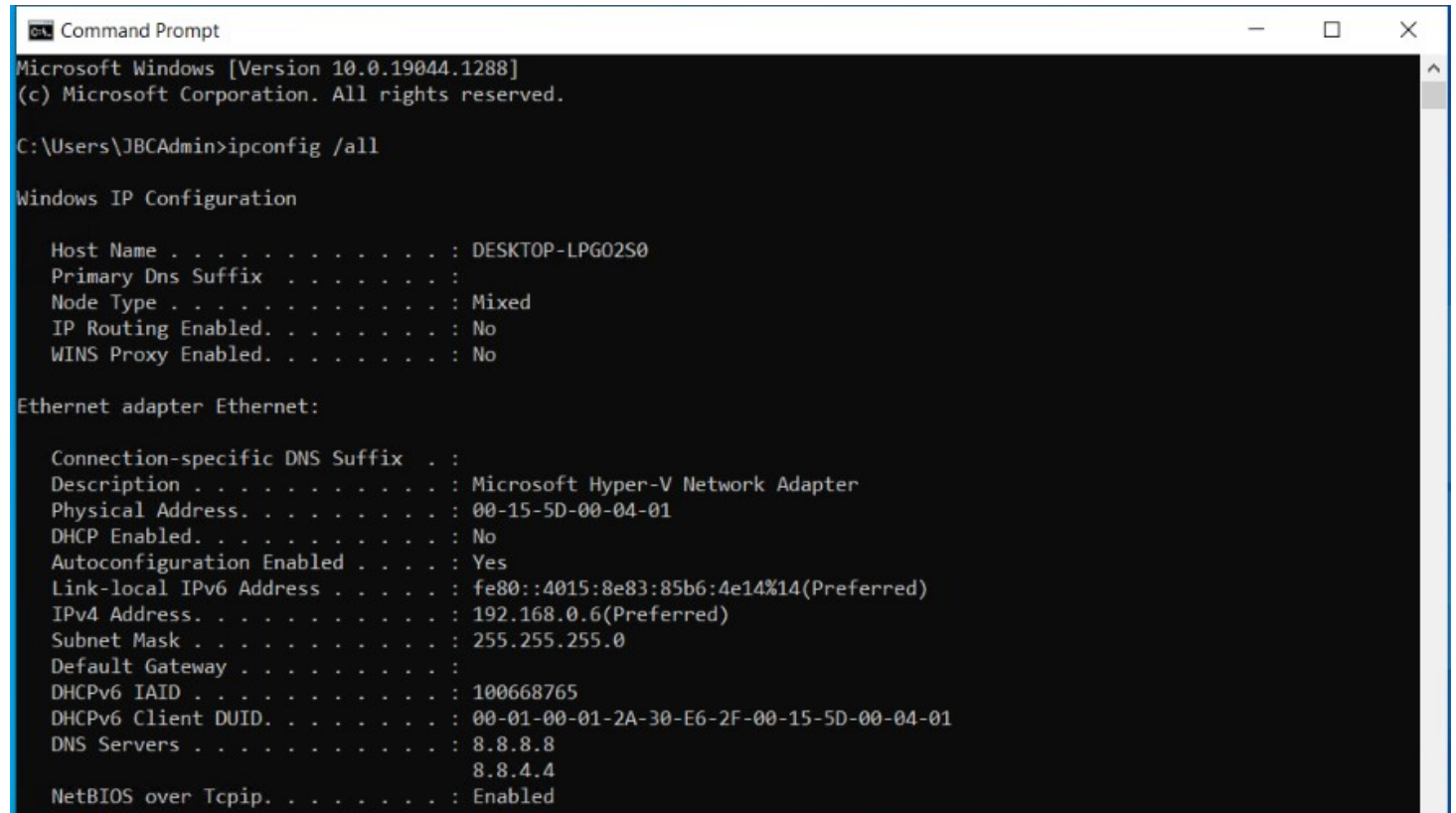
Fix 1:



Windows Automatic
Network Repair.

Command Prompt.

- I loaded up command prompt by searching “CMD” in the search box in windows. In command prompt I typed “ipconfig /all”. This showed me we had no “Default Gateway” IP address showing which shows no internet being available.

A screenshot of a Windows Command Prompt window. The title bar says "Command Prompt". The text inside shows the Windows version and copyright information, followed by the command "C:\Users\JBCAdmin>ipconfig /all". The output displays "Windows IP Configuration" details for the host "DESKTOP-LPG02S0", including DNS suffix, node type, and IP routing status. Below this, it shows "Ethernet adapter Ethernet:" details, including the physical address, DHCP status, IPv4 address (192.168.0.6), and DNS servers (8.8.8.8 and 8.8.4.4).

```
Microsoft Windows [Version 10.0.19044.1288]
(c) Microsoft Corporation. All rights reserved.

C:\Users\JBCAdmin>ipconfig /all

Windows IP Configuration

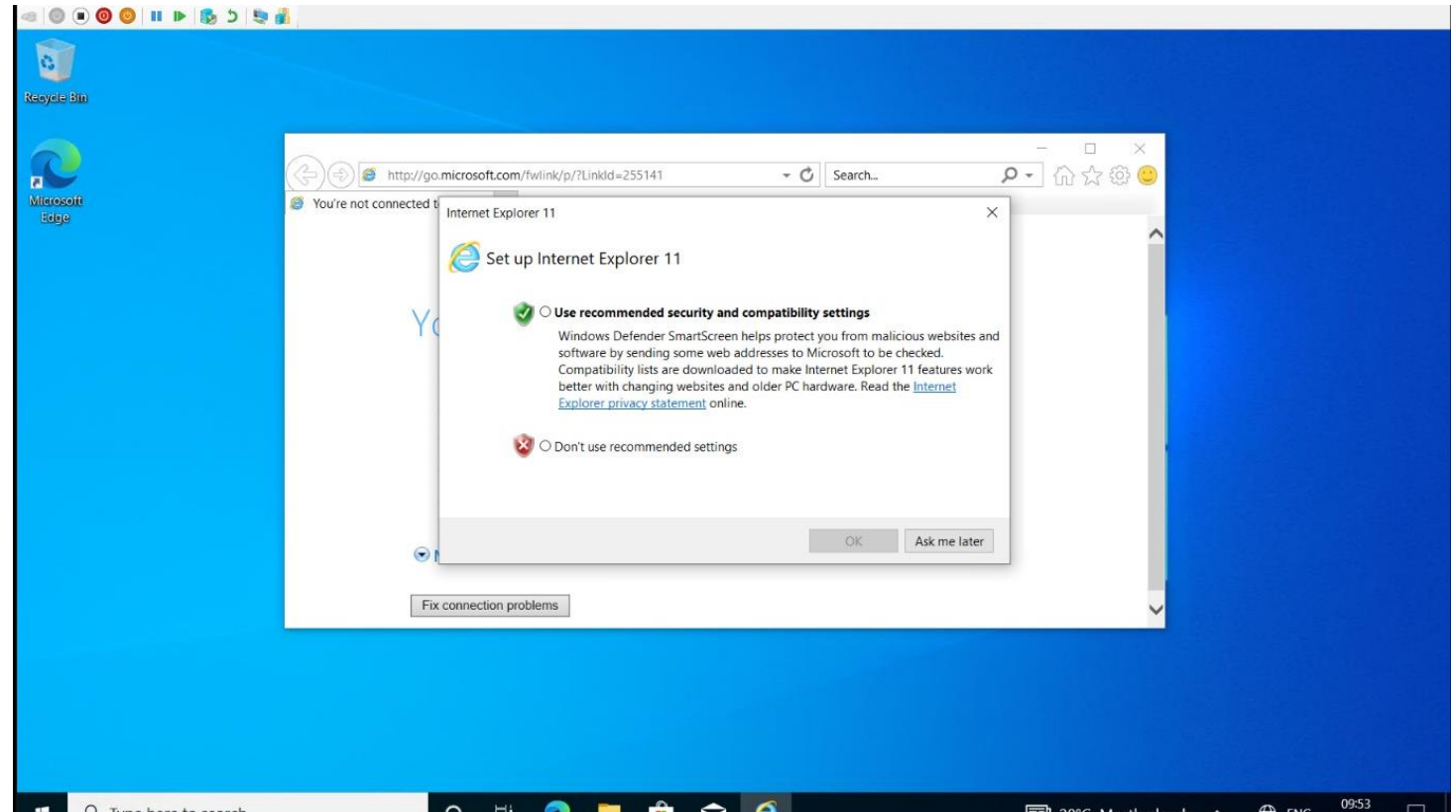
Host Name . . . . . : DESKTOP-LPG02S0
Primary Dns Suffix . . . . . :
Node Type . . . . . : Mixed
IP Routing Enabled. . . . . : No
WINS Proxy Enabled. . . . . : No

Ethernet adapter Ethernet:

Connection-specific DNS Suffix . :
Description . . . . . : Microsoft Hyper-V Network Adapter
Physical Address. . . . . : 00-15-5D-00-04-01
DHCP Enabled. . . . . : No
Autoconfiguration Enabled . . . . : Yes
Link-local IPv6 Address . . . . . : fe80::4015:8e83:85b6:4e14%14(Preferred)
IPv4 Address. . . . . : 192.168.0.6(Preferred)
Subnet Mask . . . . . : 255.255.255.0
Default Gateway . . . . . :
DHCPv6 IAID . . . . . : 100668765
DHCPv6 Client DUID. . . . . : 00-01-00-01-2A-30-E6-2F-00-15-5D-00-04-01
DNS Servers . . . . . : 8.8.8.8
                       8.8.4.4
NetBIOS over Tcpip. . . . . : Enabled
```

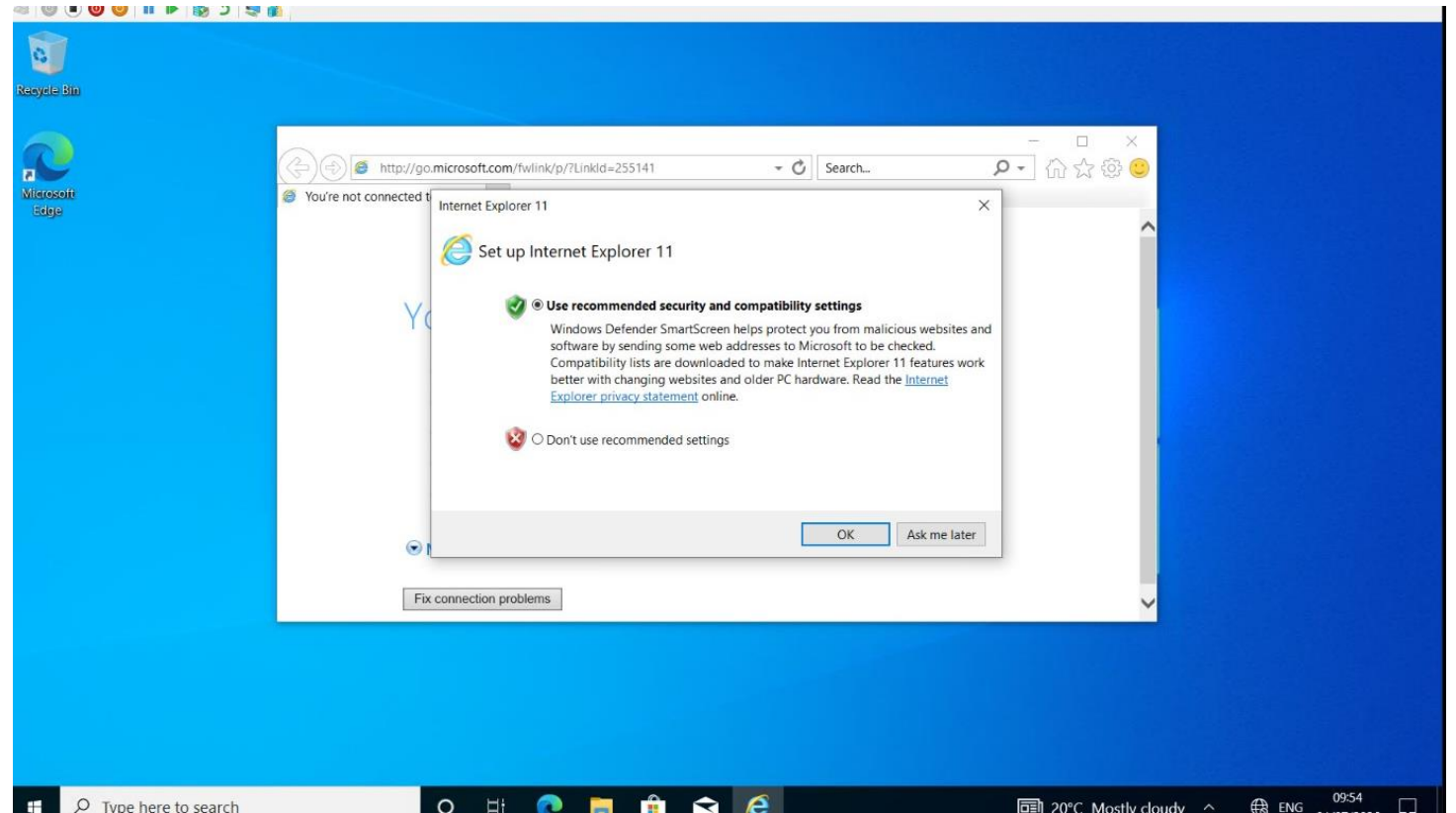
Setup Internet Explorer 11

- We can check that we do not have internet connection by trying to access the internet via Internet Explorer.
- I received a security & compatibility prompt on my first connection.



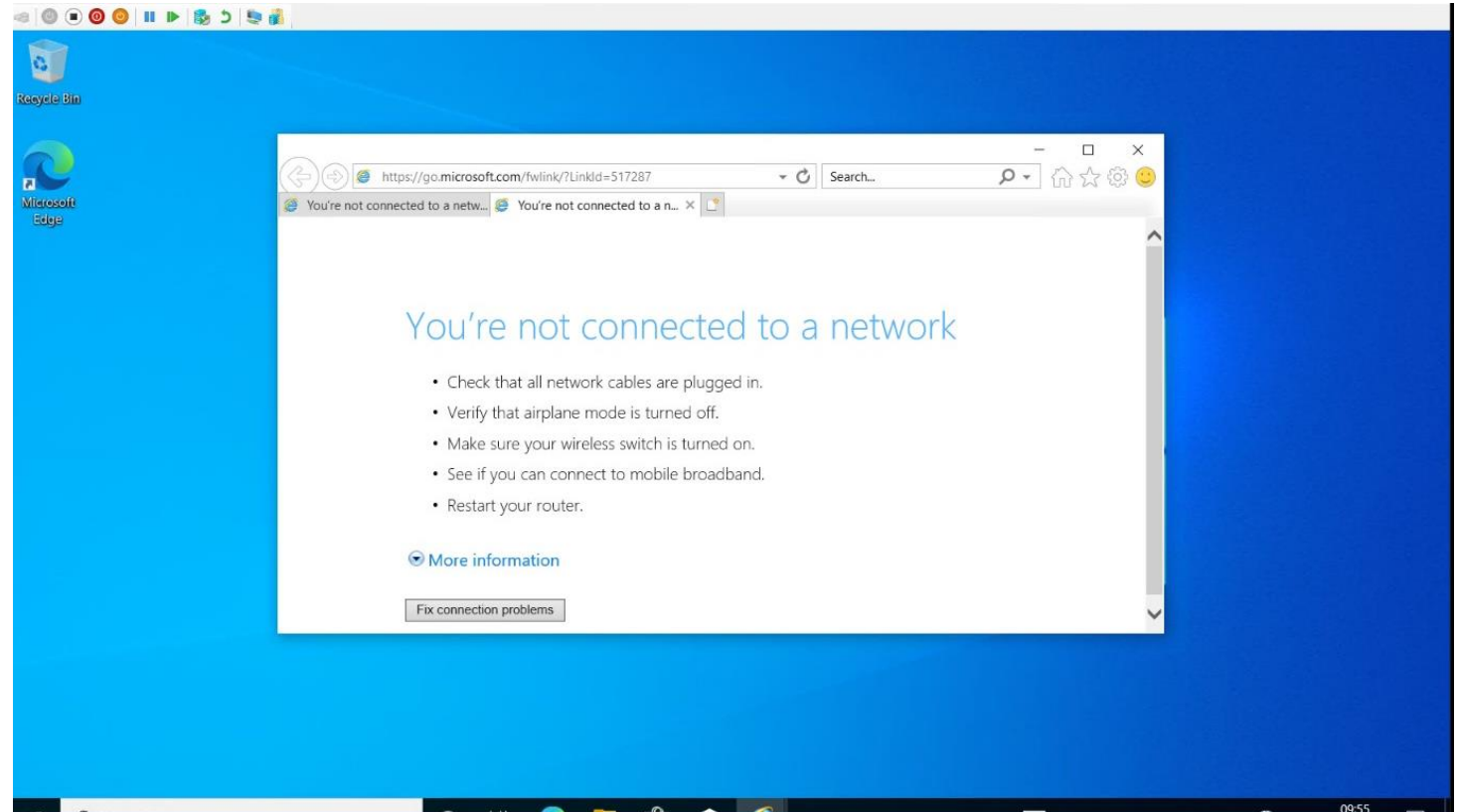
Setup Internet Explorer 11

- I selected “use recommended security and compatibility settings”.



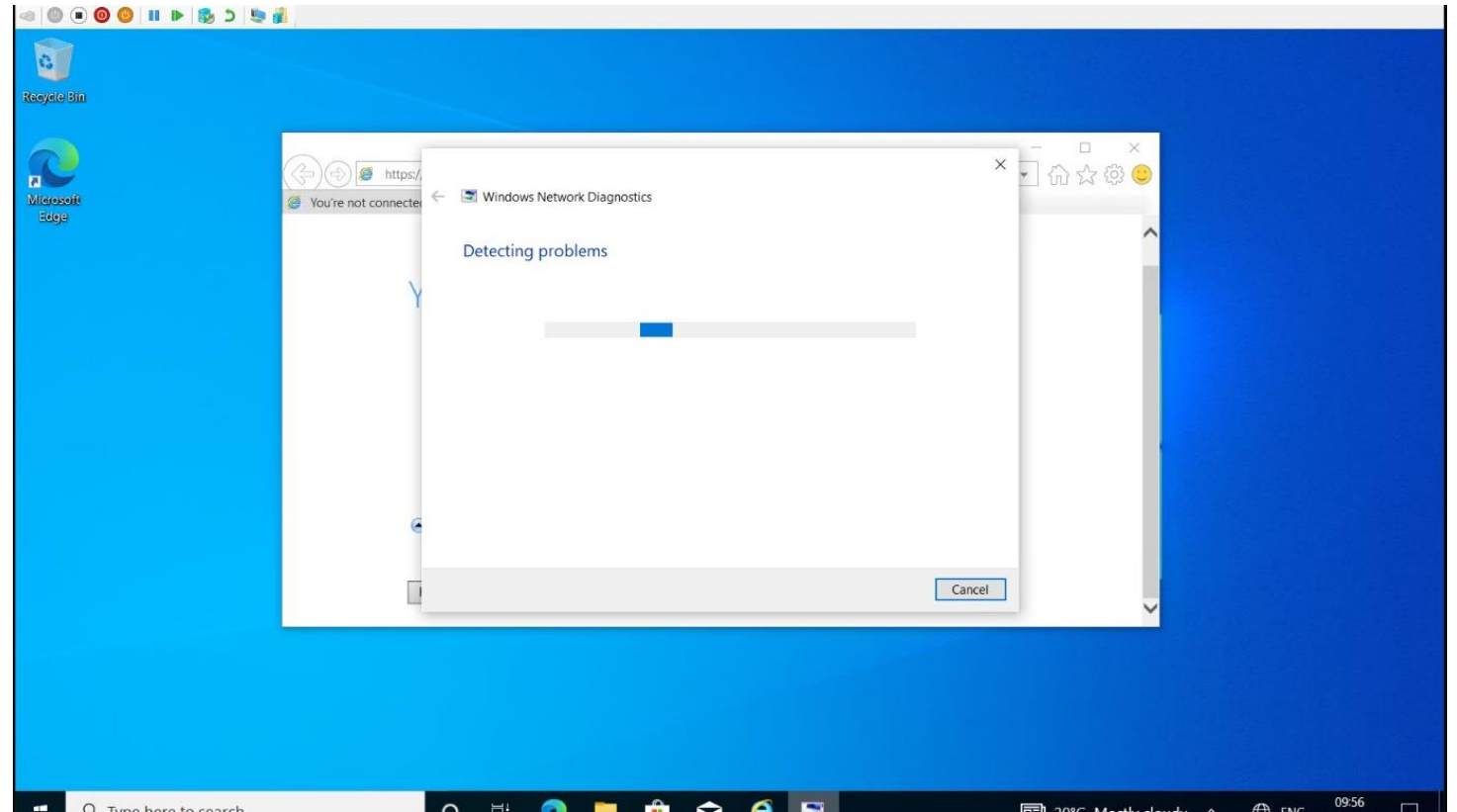
Internet Explorer not connected to a Network.

- We can see we have no internet connection. So, I clicked on the “Fix connection problems” in the error message.



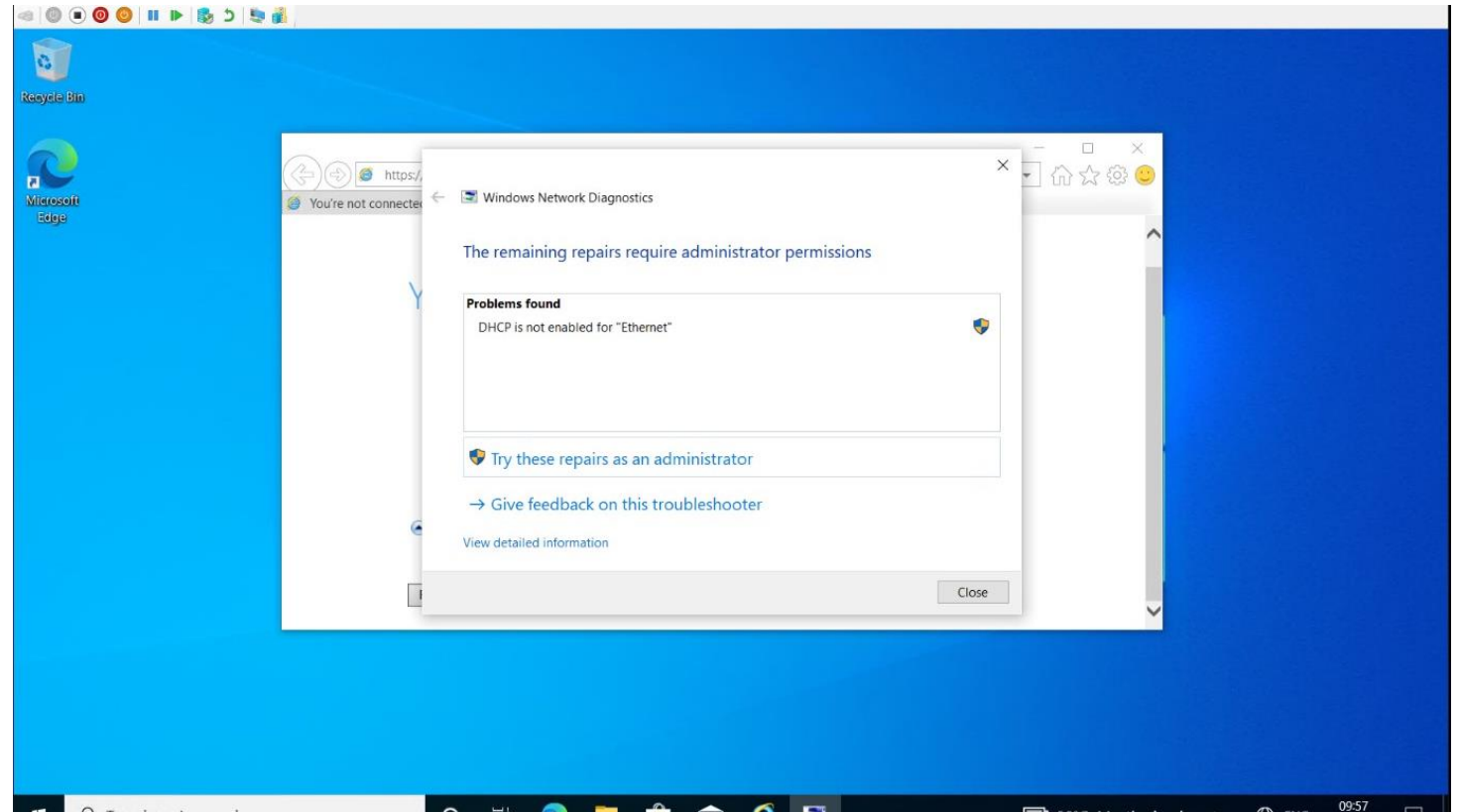
Windows Network Diagnostics.

- This then ran the automatic detecting problems scan.



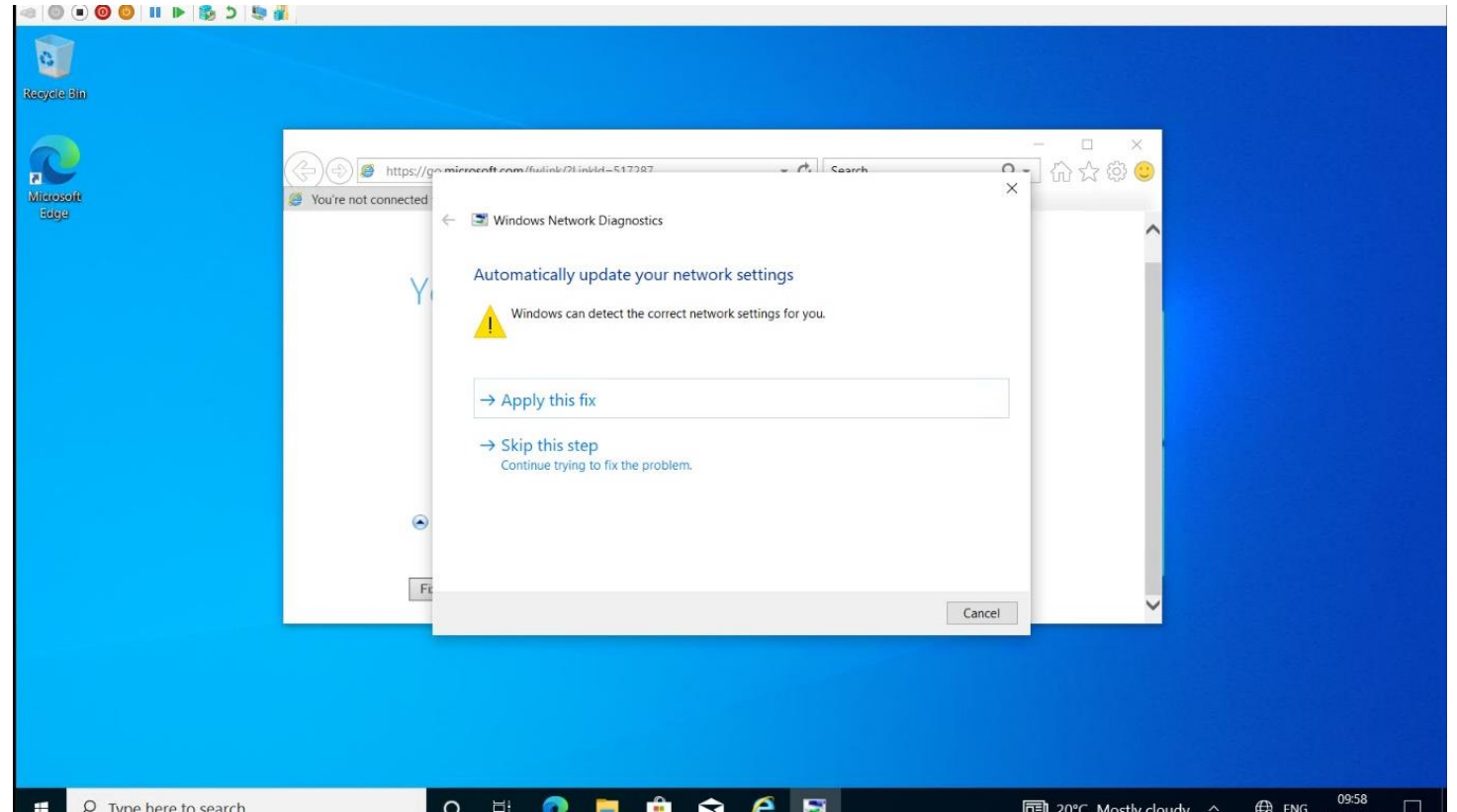
Windows Network Diagnostics.

- This showed the problem was “DHCP is not enabled for Ethernet”. I clicked on “Try these repairs as an administrator”.



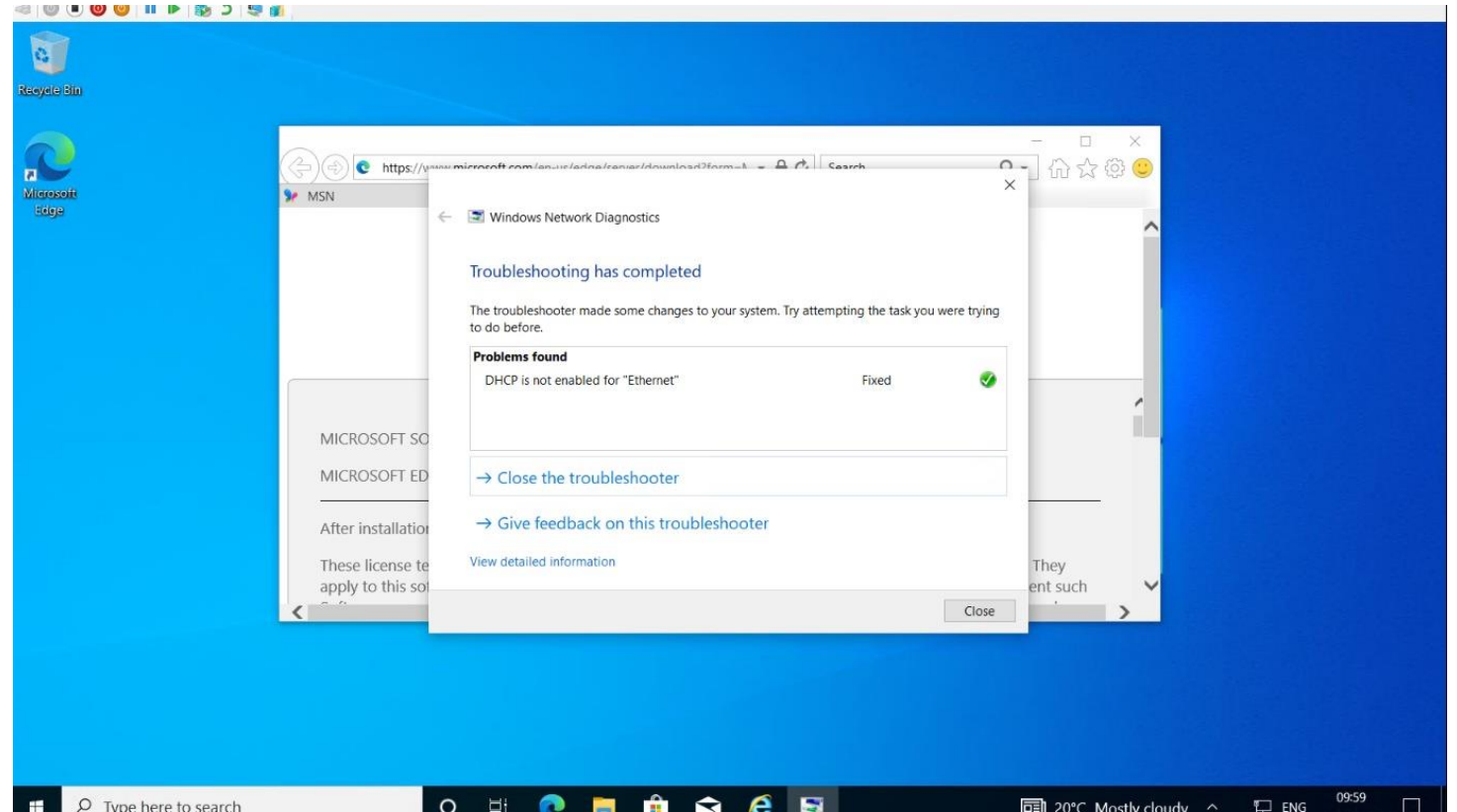
Windows Network Diagnostics.

- I then clicked “Apply this fix”.



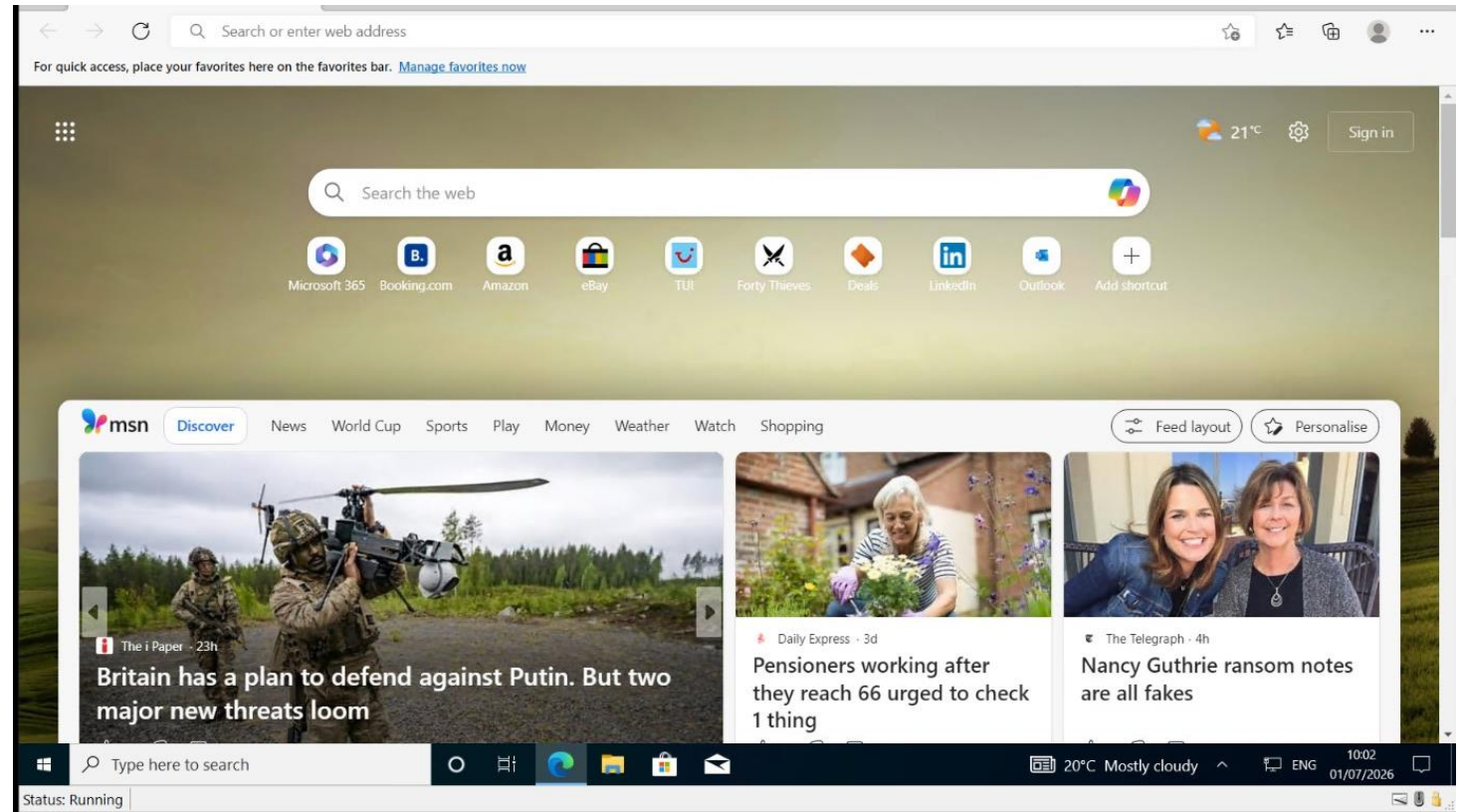
Windows Network Diagnostics.

- The auto repair then came back showing the problem had now been fixed.



Checking Internet Explorer.

- I tested to see if we had internet by going back to Internet Explorer. This showed we now had access to the internet.





Fix 2:



Automatic IP & DNS
Server Address
Configuration

Command Prompt.

- Again, we start in command prompt and typing “ipconfig /all”, this showed me we had no “Default Gateway” IP address showing which shows no internet being available.

```
Command Prompt
Microsoft Windows [Version 10.0.19044.1288]
(c) Microsoft Corporation. All rights reserved.

C:\Users\JBCAdmin>ipconfig /all

Windows IP Configuration

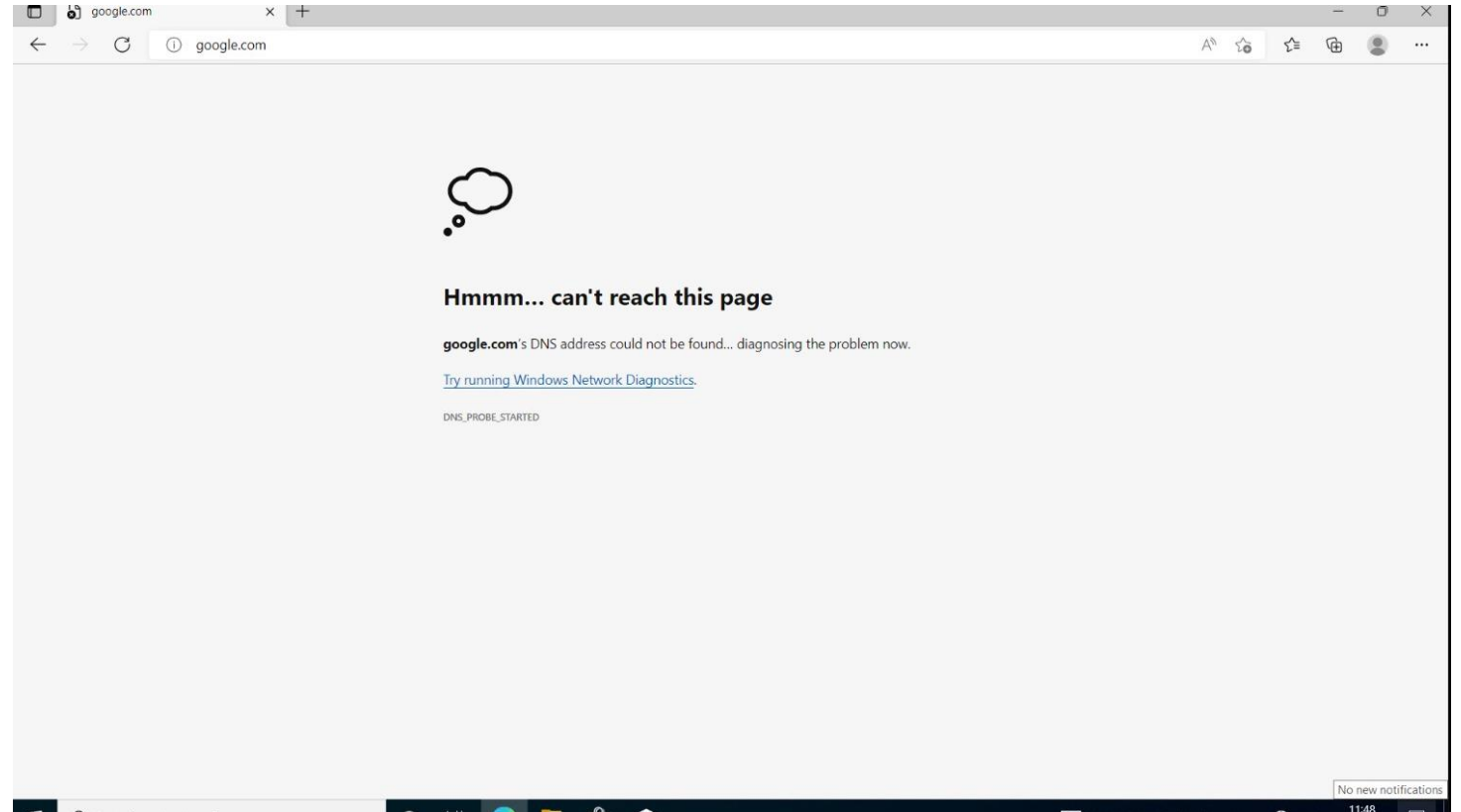
Host Name . . . . . : DESKTOP-LPG02S0
Primary Dns Suffix . . . . . :
Node Type . . . . . : Mixed
IP Routing Enabled. . . . . : No
WINS Proxy Enabled. . . . . : No

Ethernet adapter Ethernet:

Connection-specific DNS Suffix . :
Description . . . . . : Microsoft Hyper-V Network Adapter
Physical Address. . . . . : 00-15-5D-00-04-01
DHCP Enabled. . . . . : No
Autoconfiguration Enabled . . . . : Yes
Link-local IPv6 Address . . . . : fe80::4015:8e83:85b6:4e14%14(Preferred)
IPv4 Address. . . . . : 192.168.0.6(Preferred)
Subnet Mask . . . . . : 255.255.255.0
Default Gateway . . . . . :
DHCPv6 IAID . . . . . : 100668765
DHCPv6 Client DUID. . . . . : 00-01-00-01-2A-30-E6-2F-00-15-5D-00-04-01
DNS Servers . . . . . : 8.8.8.8
                       : 8.8.4.4
NetBIOS over Tcpip. . . . . : Enabled
```

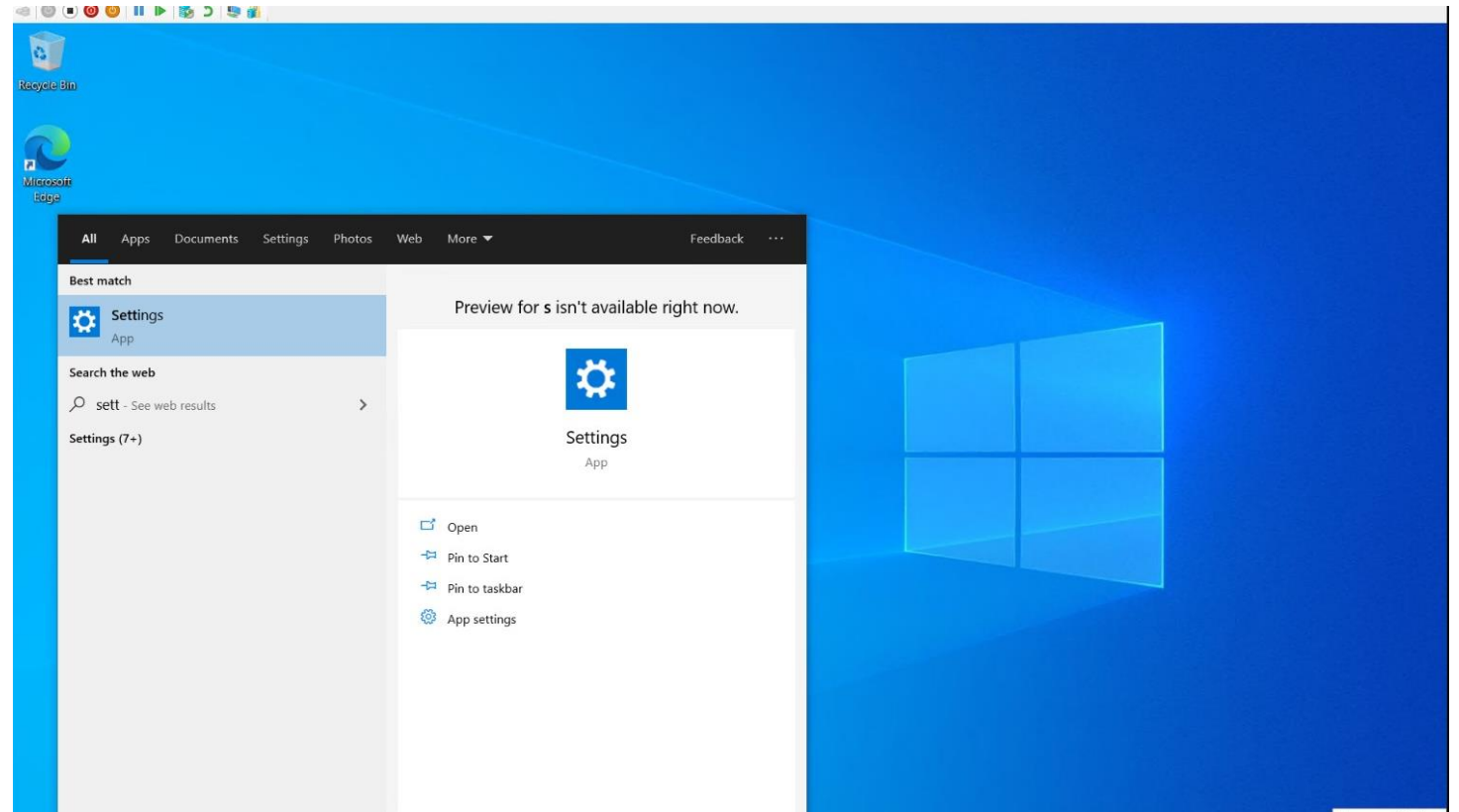
Error message whilst trying to connect to the internet.

- We can check that we do not have internet connection by trying to access the internet via Internet Explorer. Error message clearly notifies that we do not have internet access.



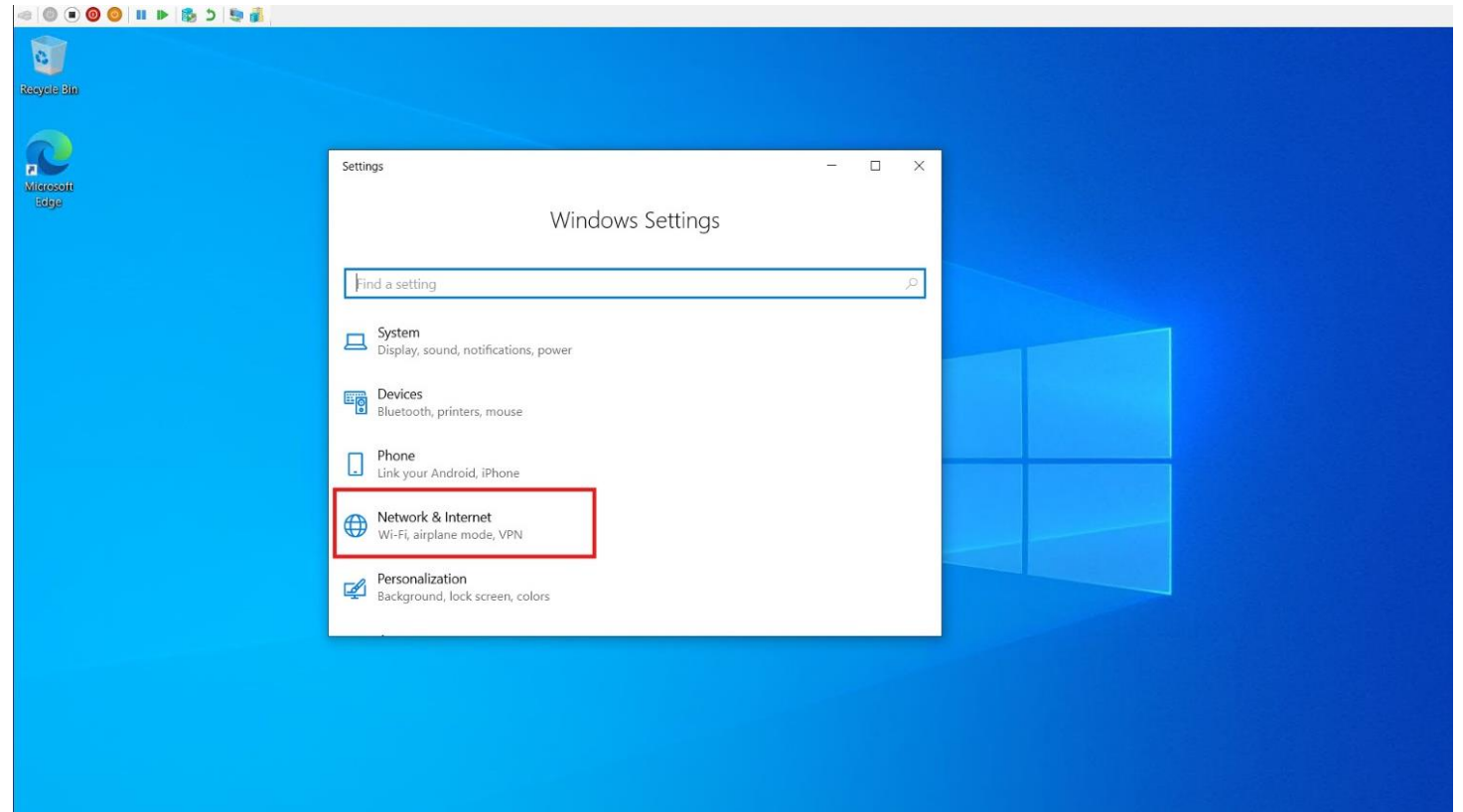
Searching for Settings.

- We can type in the search bar and look for “settings”. We now click into this to open up our settings screen.



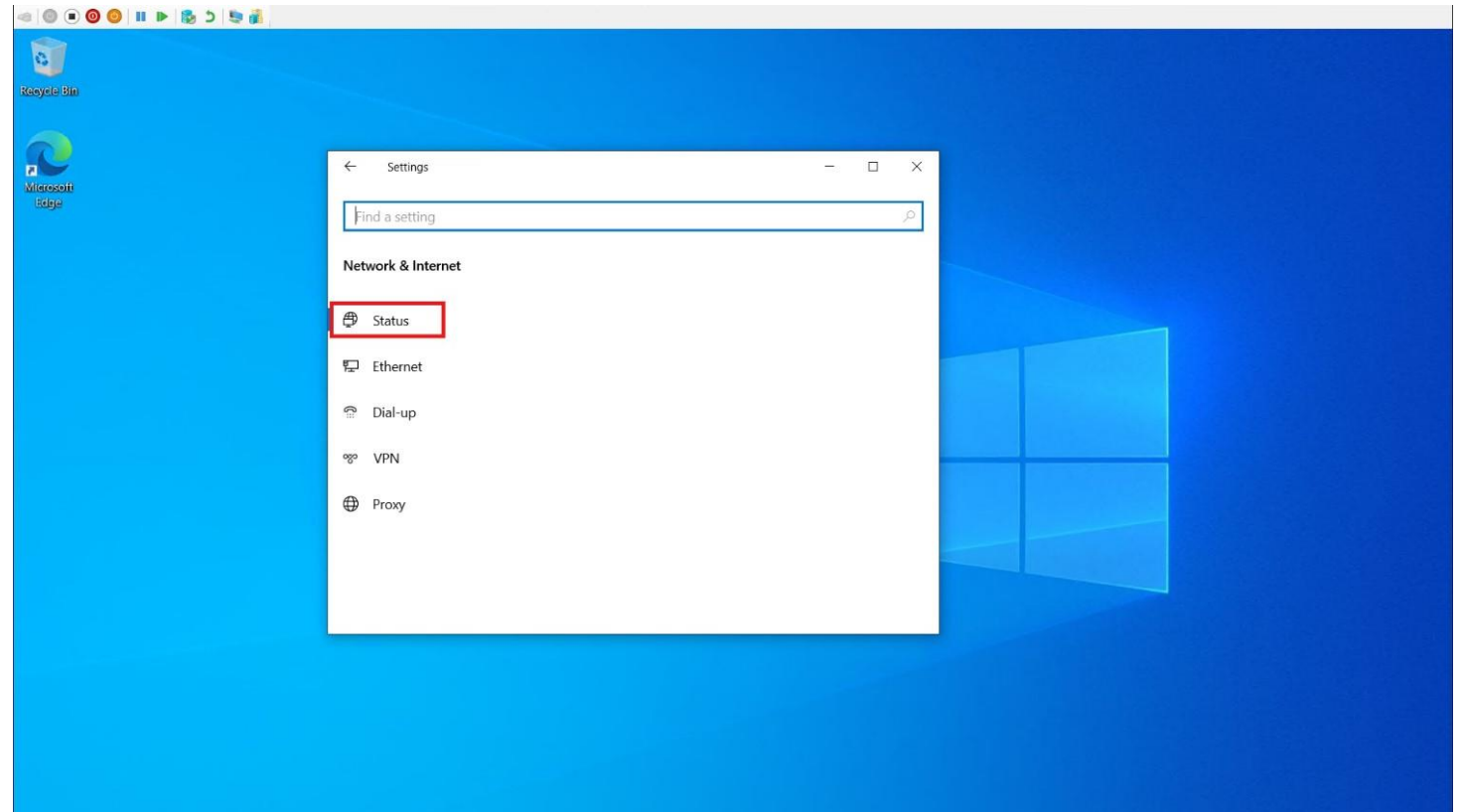
Settings.

- In the settings screen we now select “Network & Internet”.



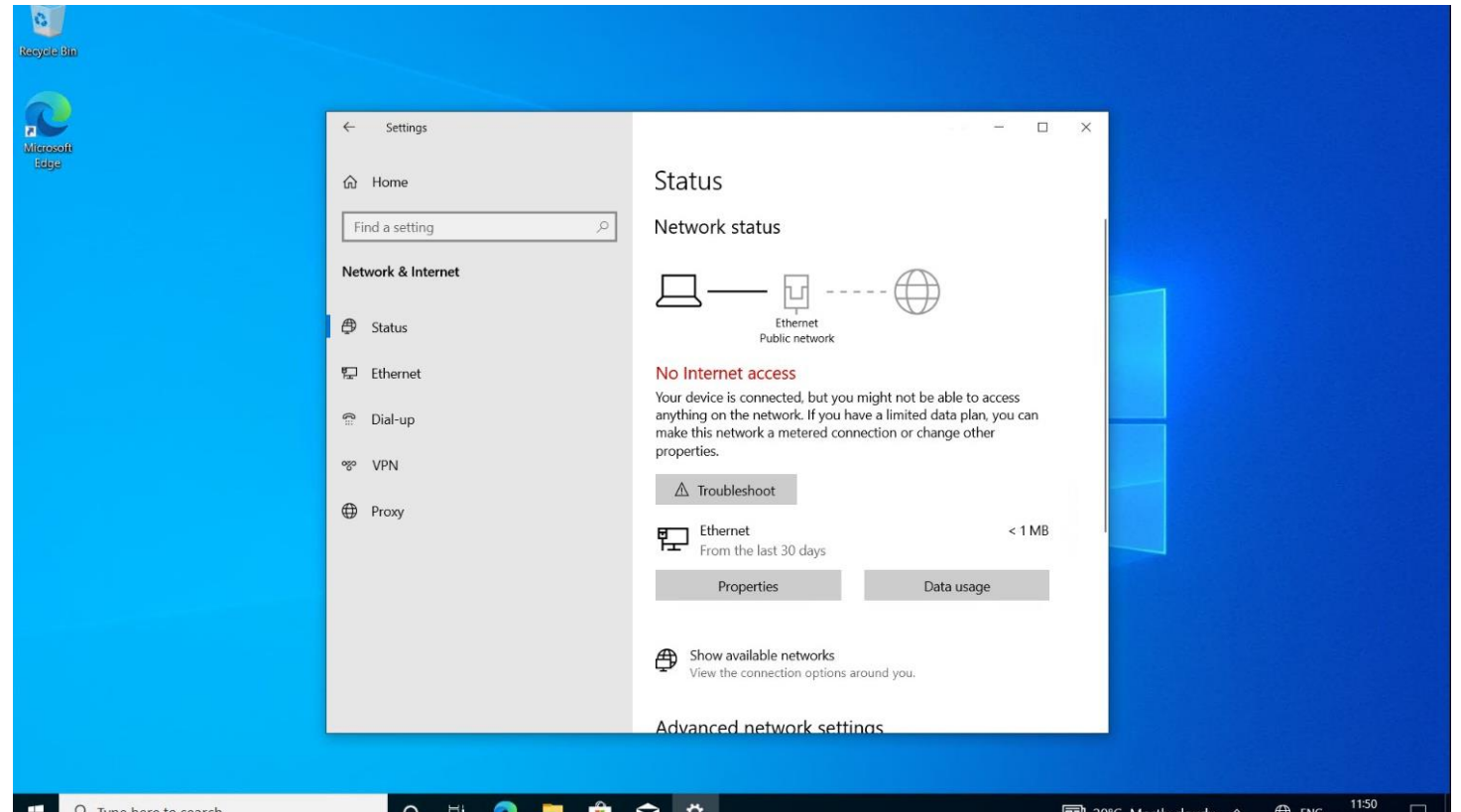
Settings – Network & Internet.

- In “Network & Internet” we can now click onto “Status”.



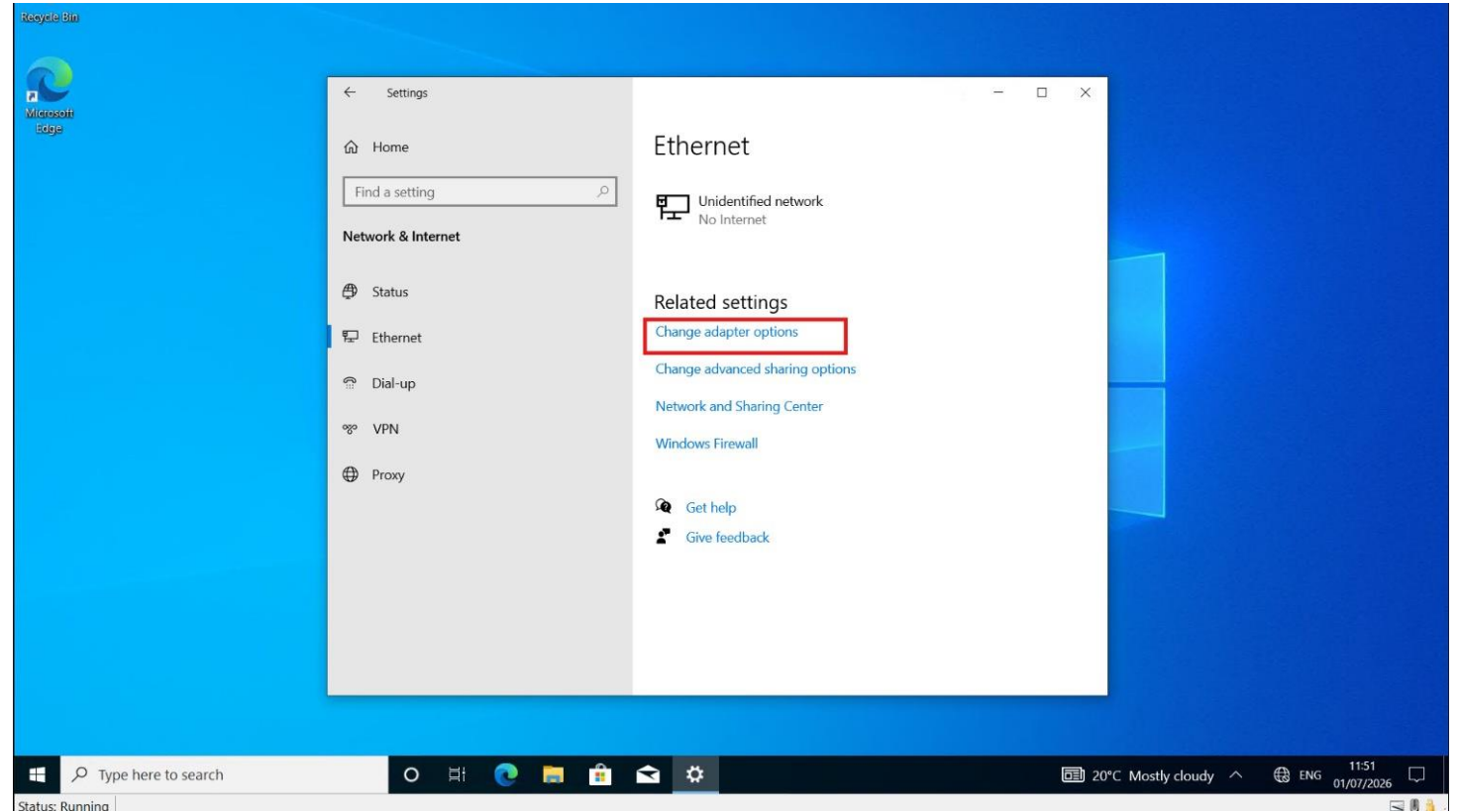
Settings – Network Status.

- In the “Status” screen, we can see again we have no internet access. On the left handside we click on “Ethernet”.



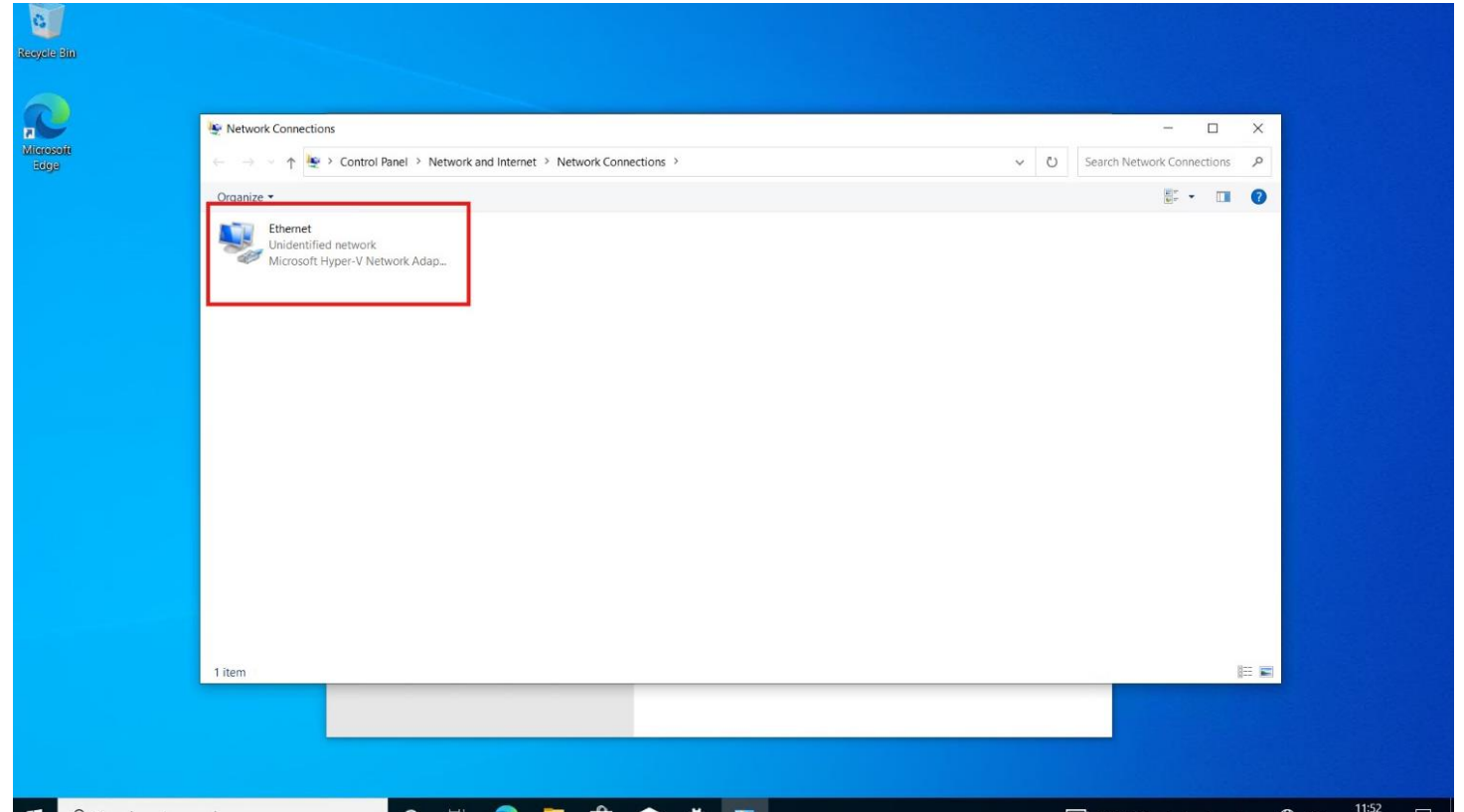
Settings – Ethernet.

- At the “Ethernet” section we now click onto “Change adapter options”.



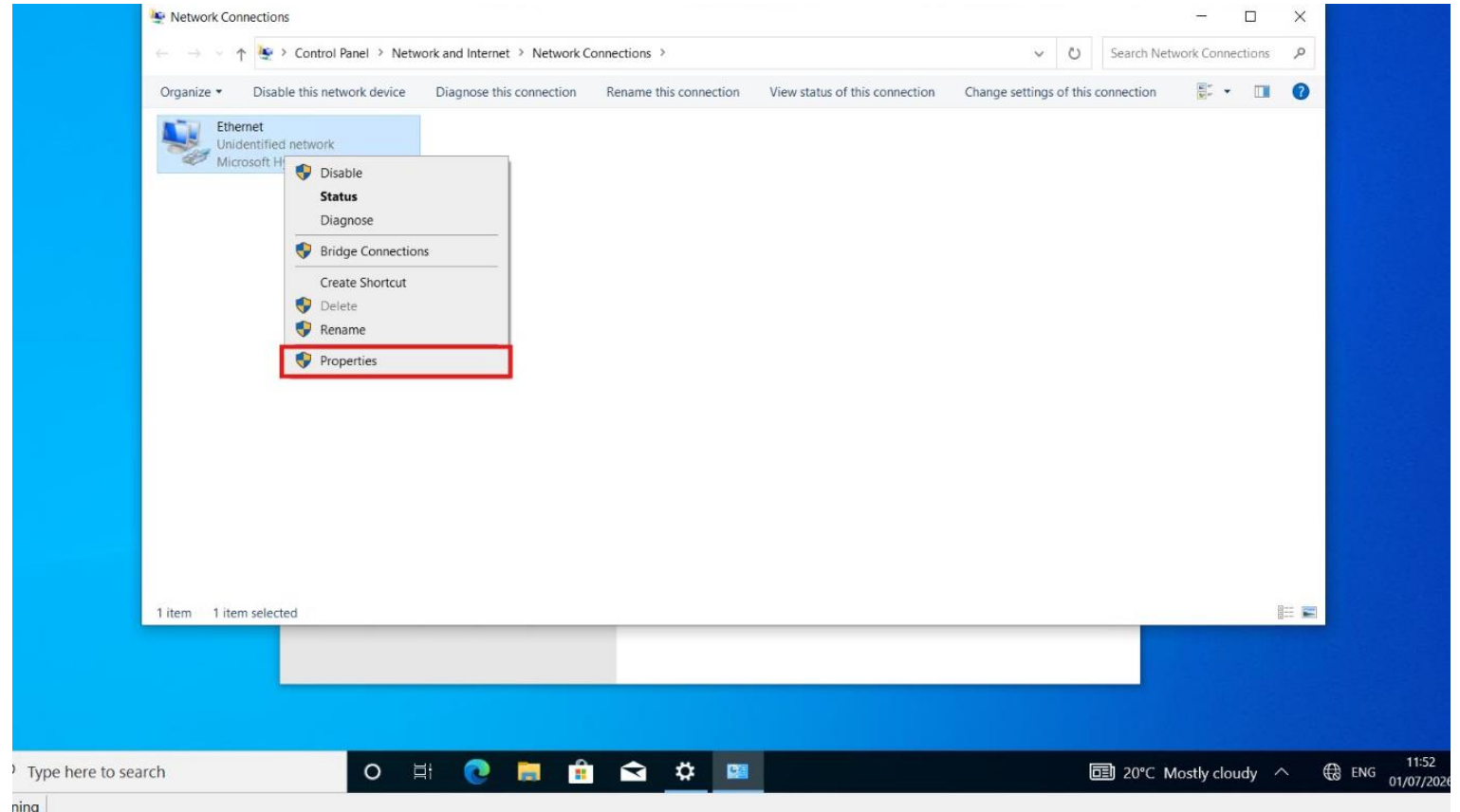
Network Connections.

- This will now take us to the Ethernet section.



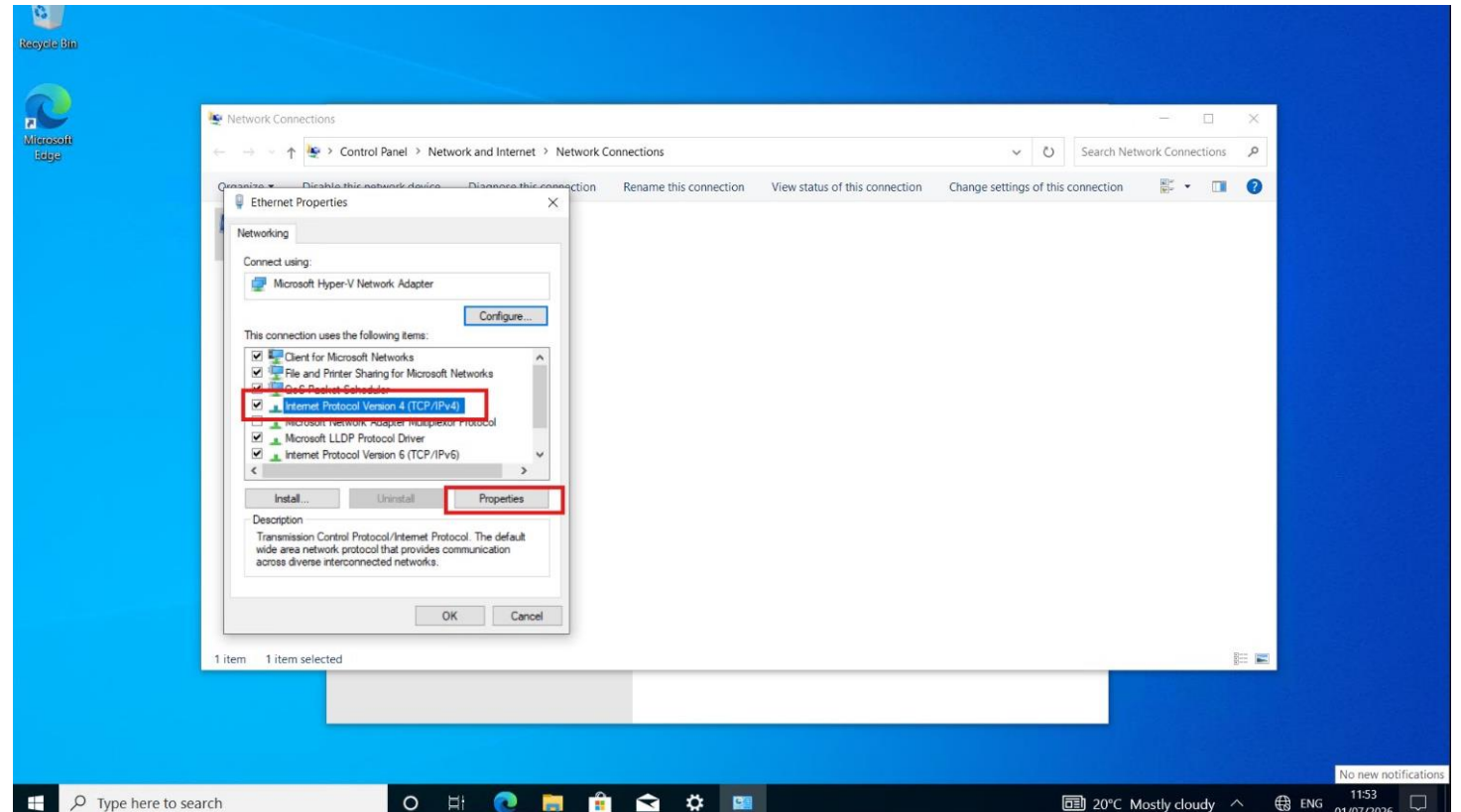
Network Connections.

If we right click onto the icon, we now need to select “Properties”.



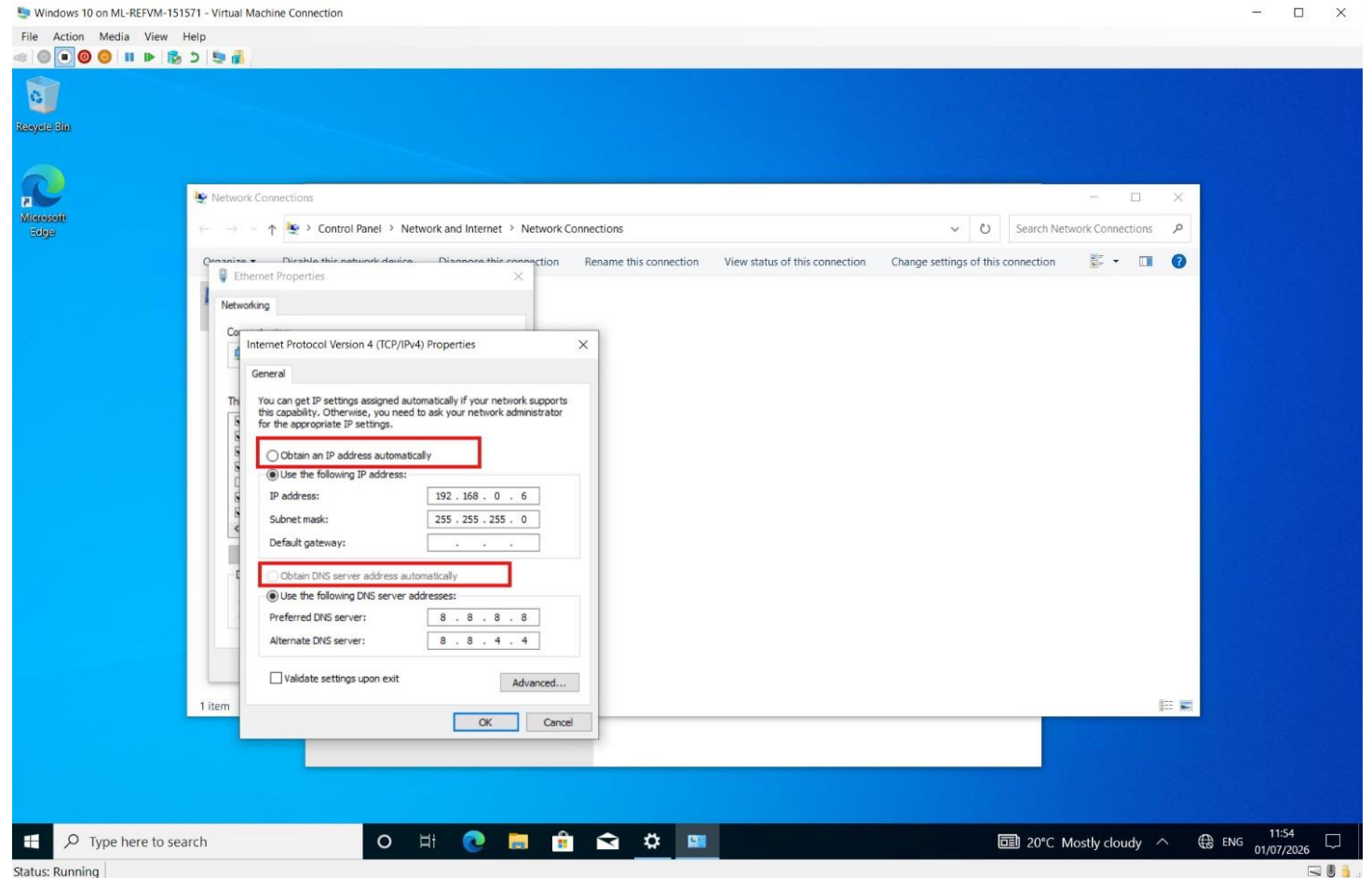
Ethernet Properties.

- At the “Ethernet Properties” section we right click onto “Internet Protocol Version 4 (TCP/IPv4)” and then click “properties”.



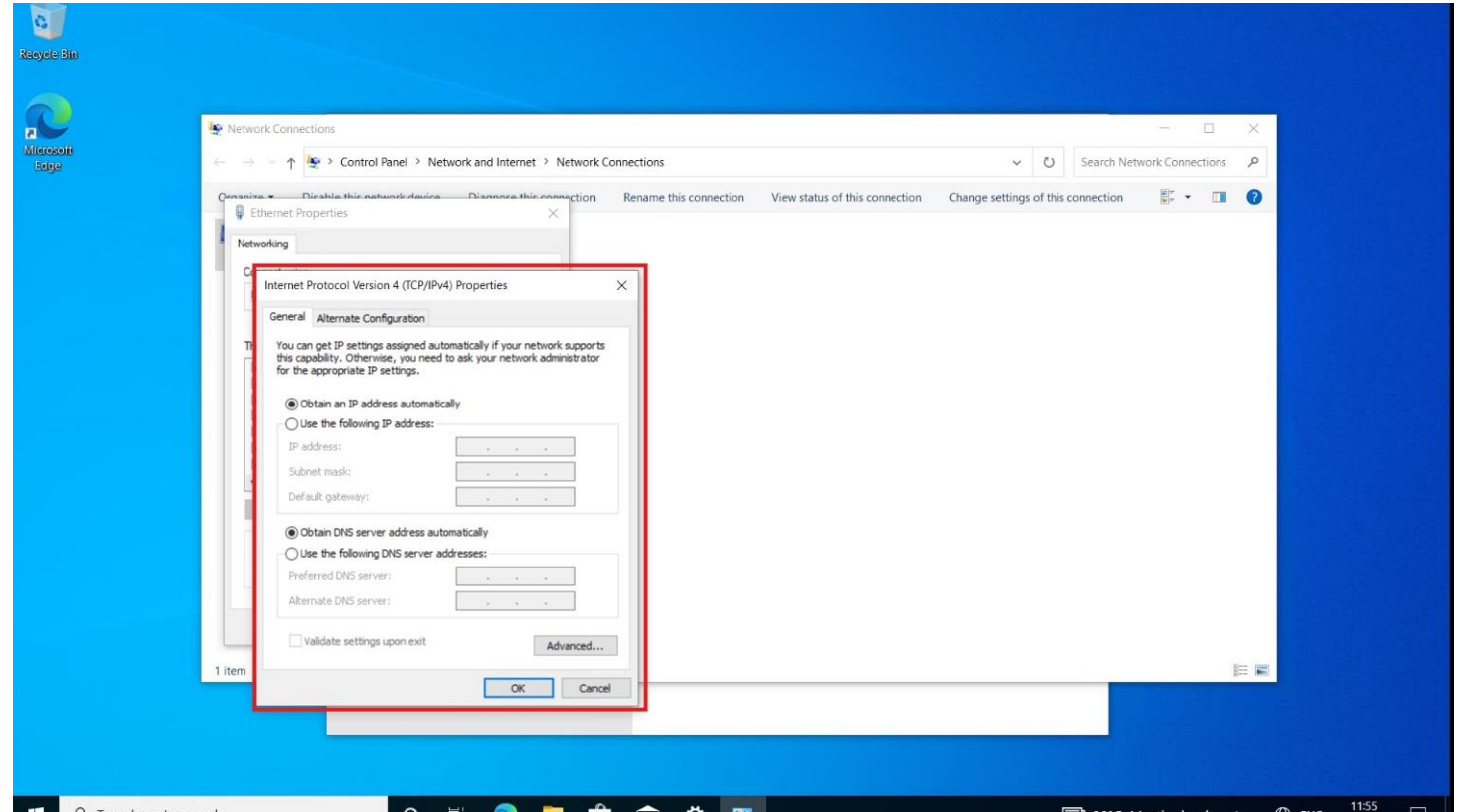
Internet Protocol Version 4 (TCP/IPv4) Properties.

- In the properties screen we can change both the “Use the following DNS server address:” and “Use the following IP address:” to both being obtained automatically. If we are not sure the DNS server address is working correctly.



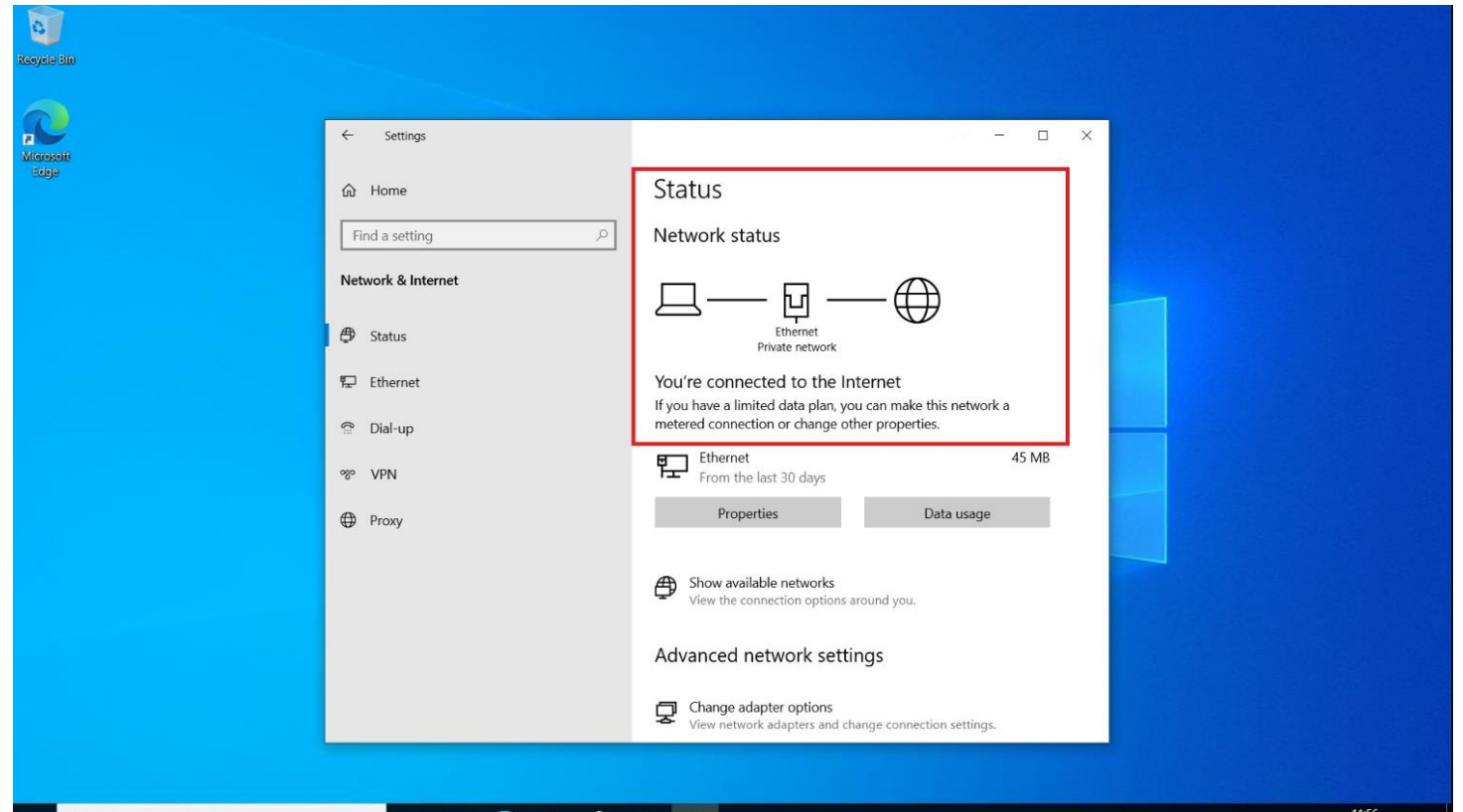
Internet Protocol Version 4 (TCP/IPv4) Properties.

- Doing this will then allow IP address to be obtained automatically so it will reduce human error.



Status.

- AS you can see, we now have internet access.





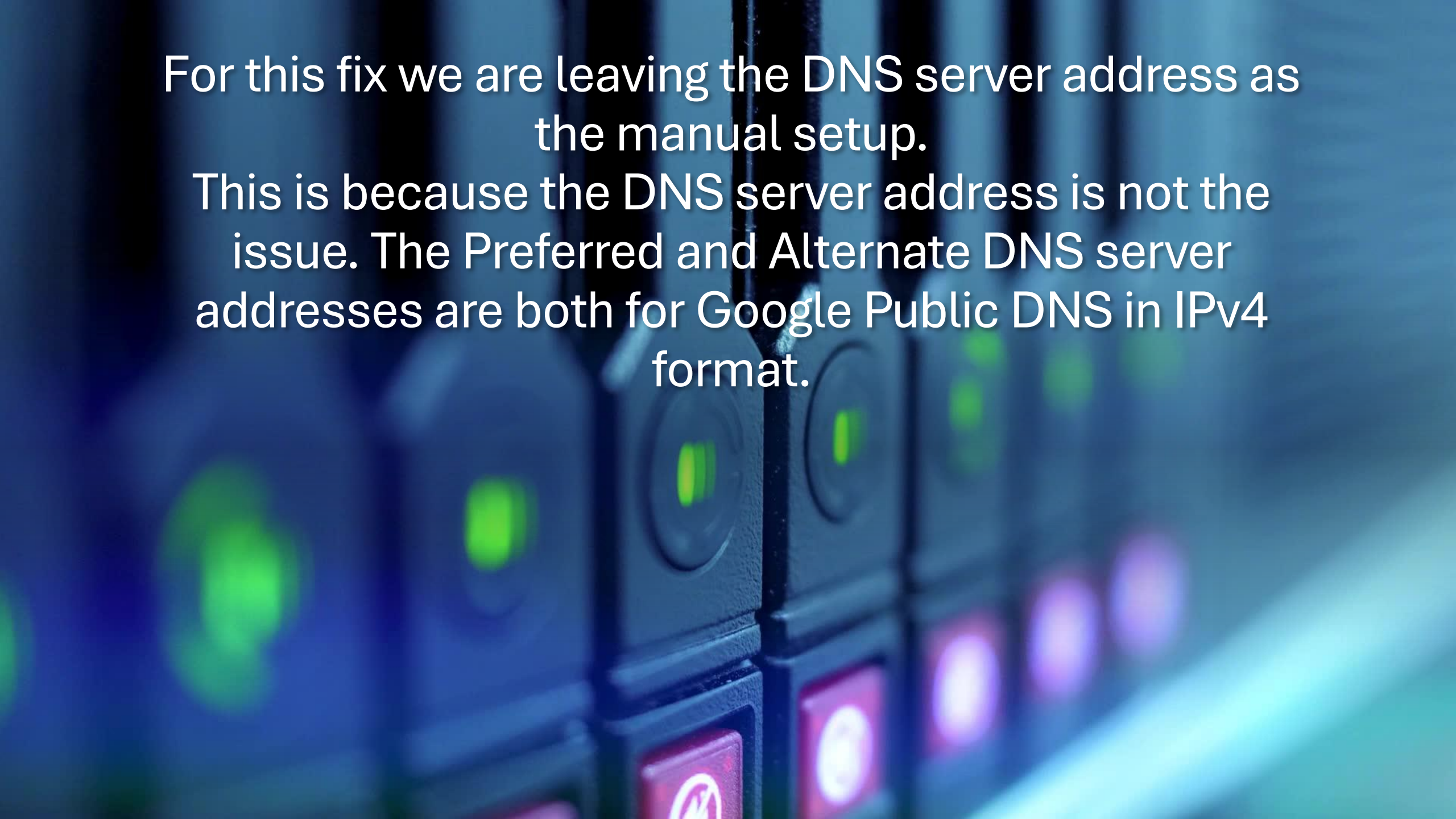
Fix 3:



Automatic IP Address
Configuration

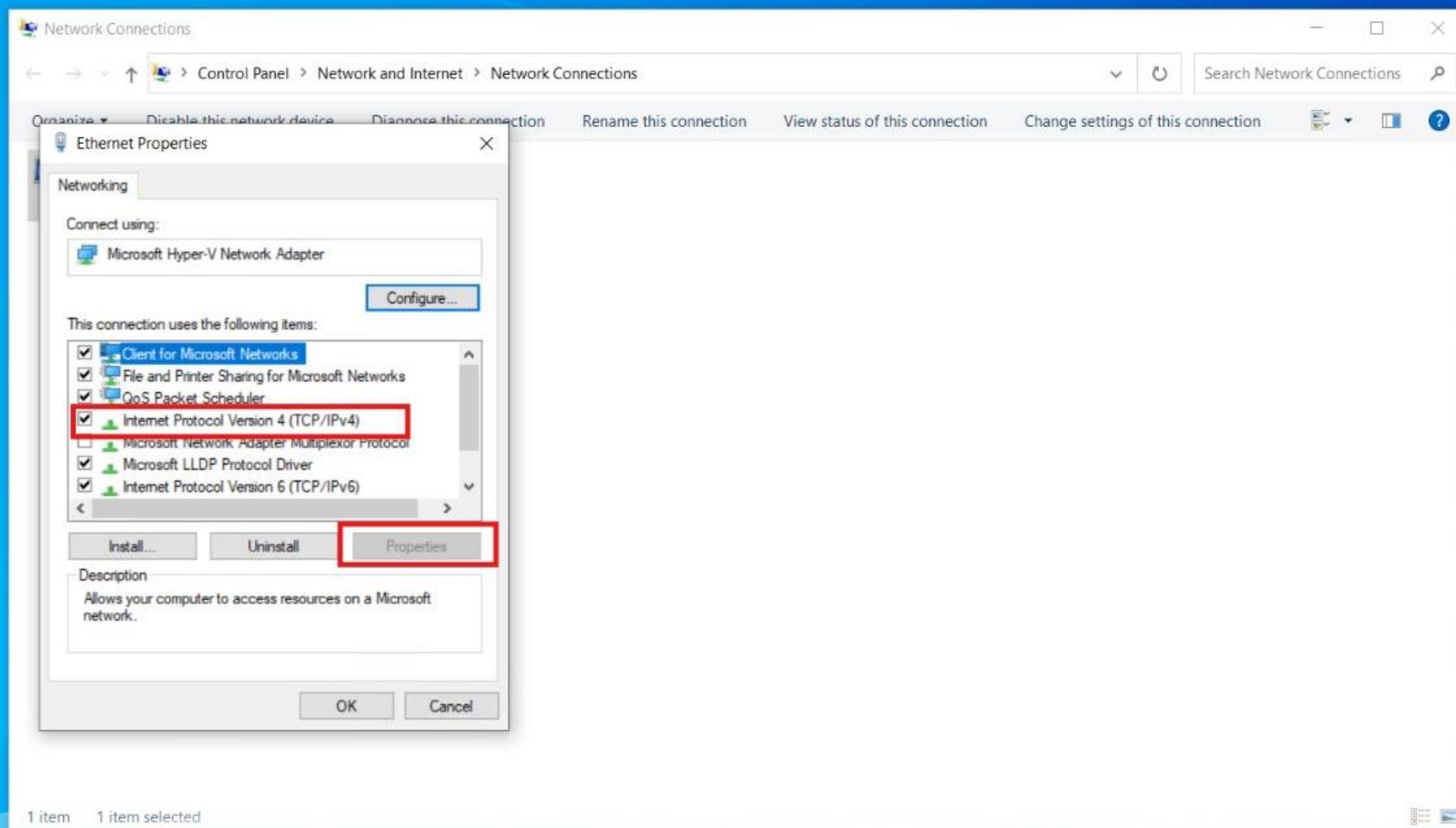
For this fix we are leaving the DNS server address as the manual setup.

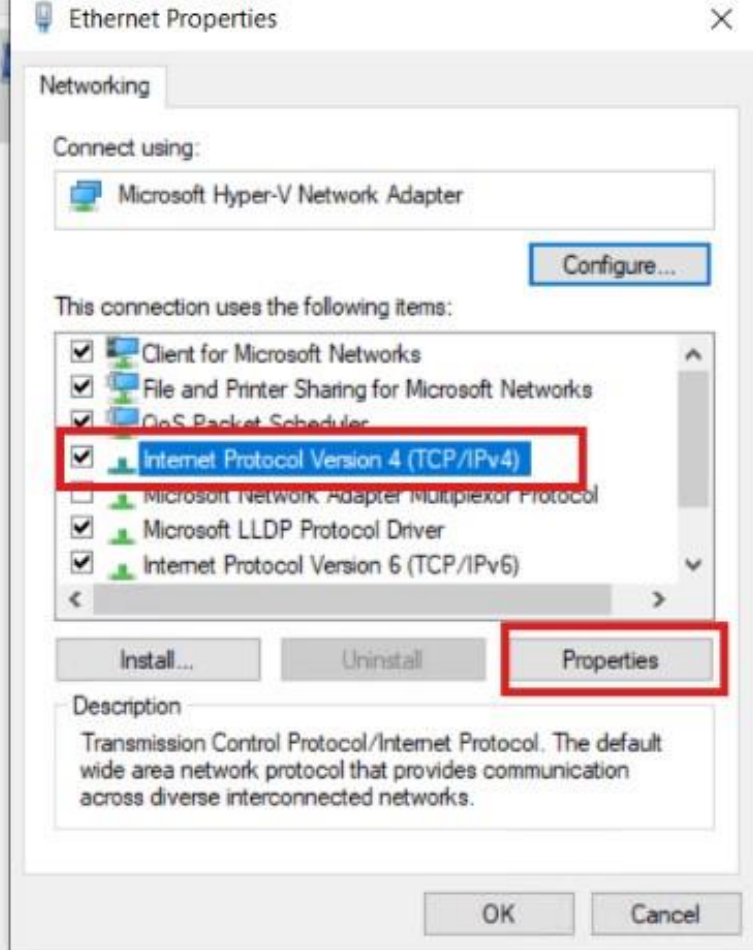
This is because the DNS server address is not the issue. The Preferred and Alternate DNS server addresses are both for Google Public DNS in IPv4 format.



If we follow the previous steps until we get to the “Ethernet Properties” section, we right click onto “Internet Protocol Version 4 (TCP/IPv4)” and then click “properties” like before.

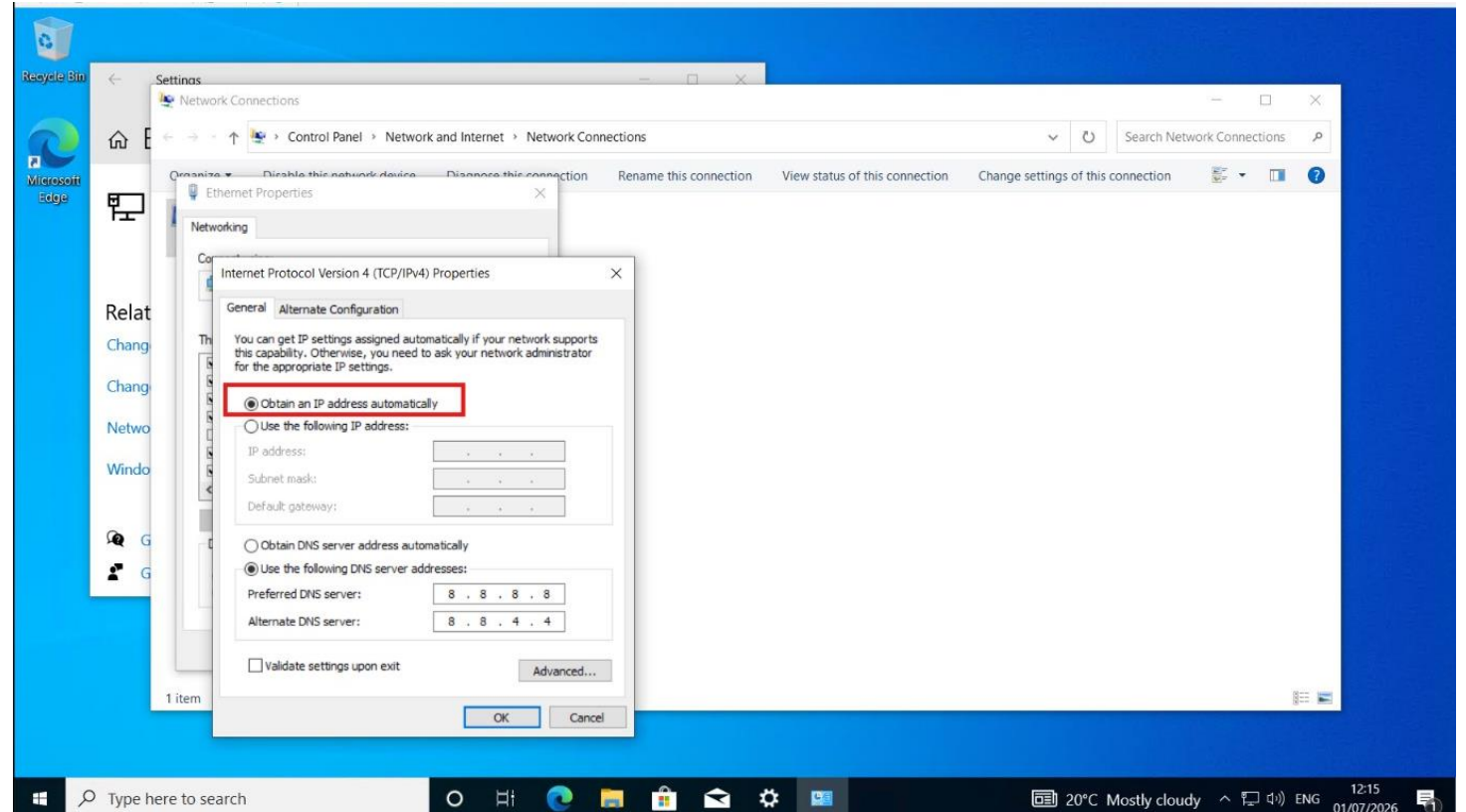






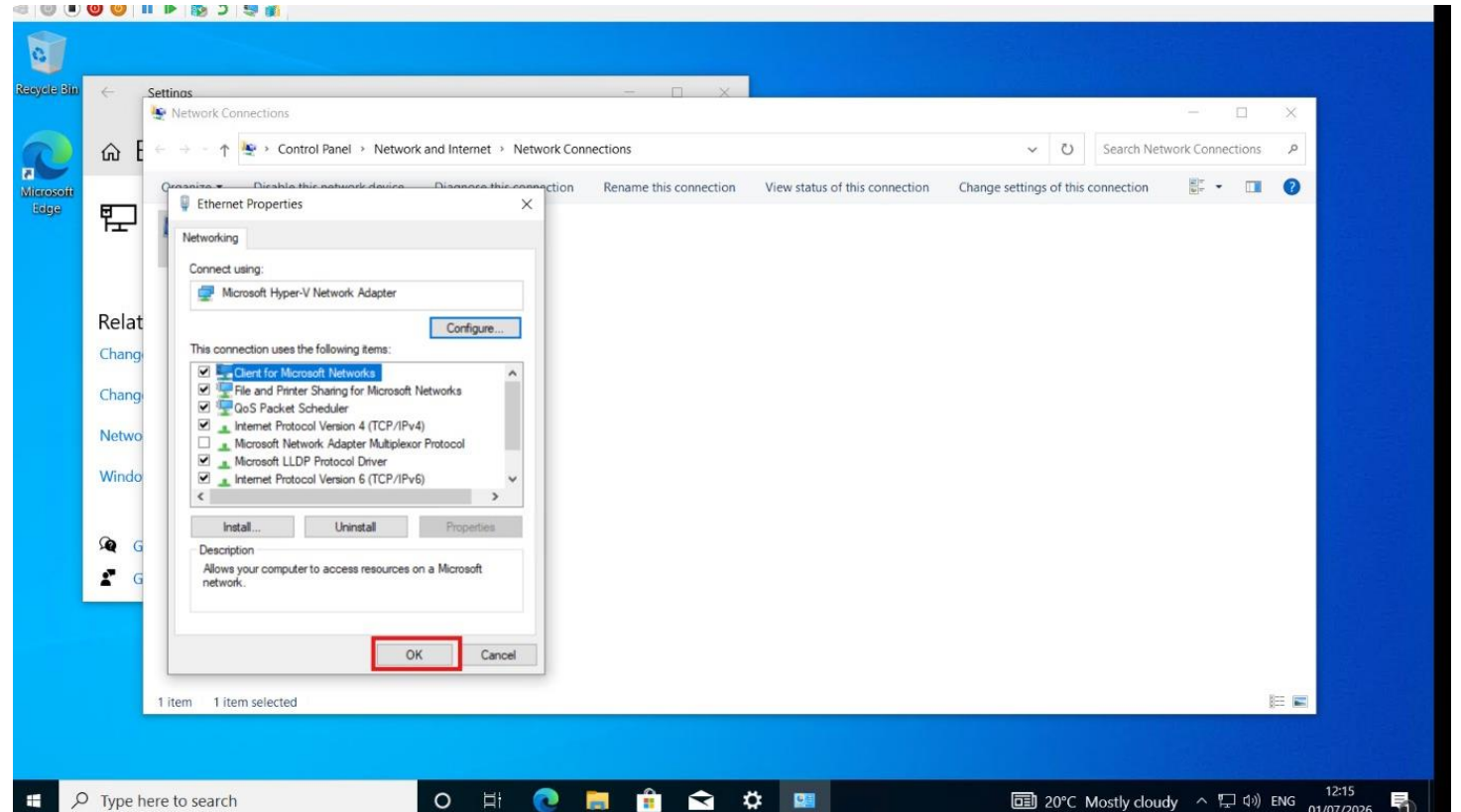
Internet Protocol Version 4 (TCP/IPv4) Properties.

- This time we only just change the IP address to automatically be obtained. We leave the DNS server address as we know that these are correct IP Addresses for Google. Once changed we then press “ok”.



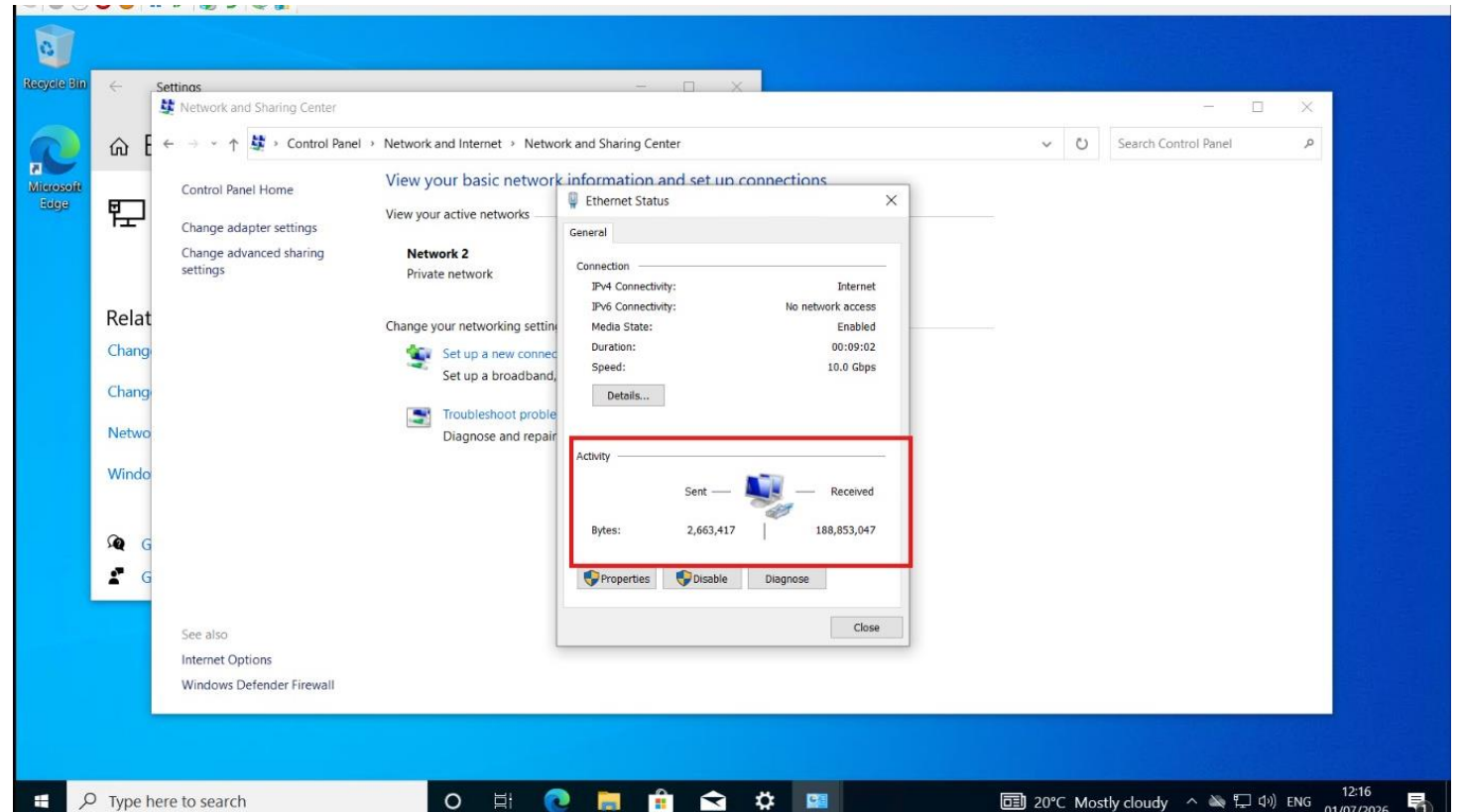
Ethernet Properties.

- Back at the “Ethernet Properties” we click “OK”.



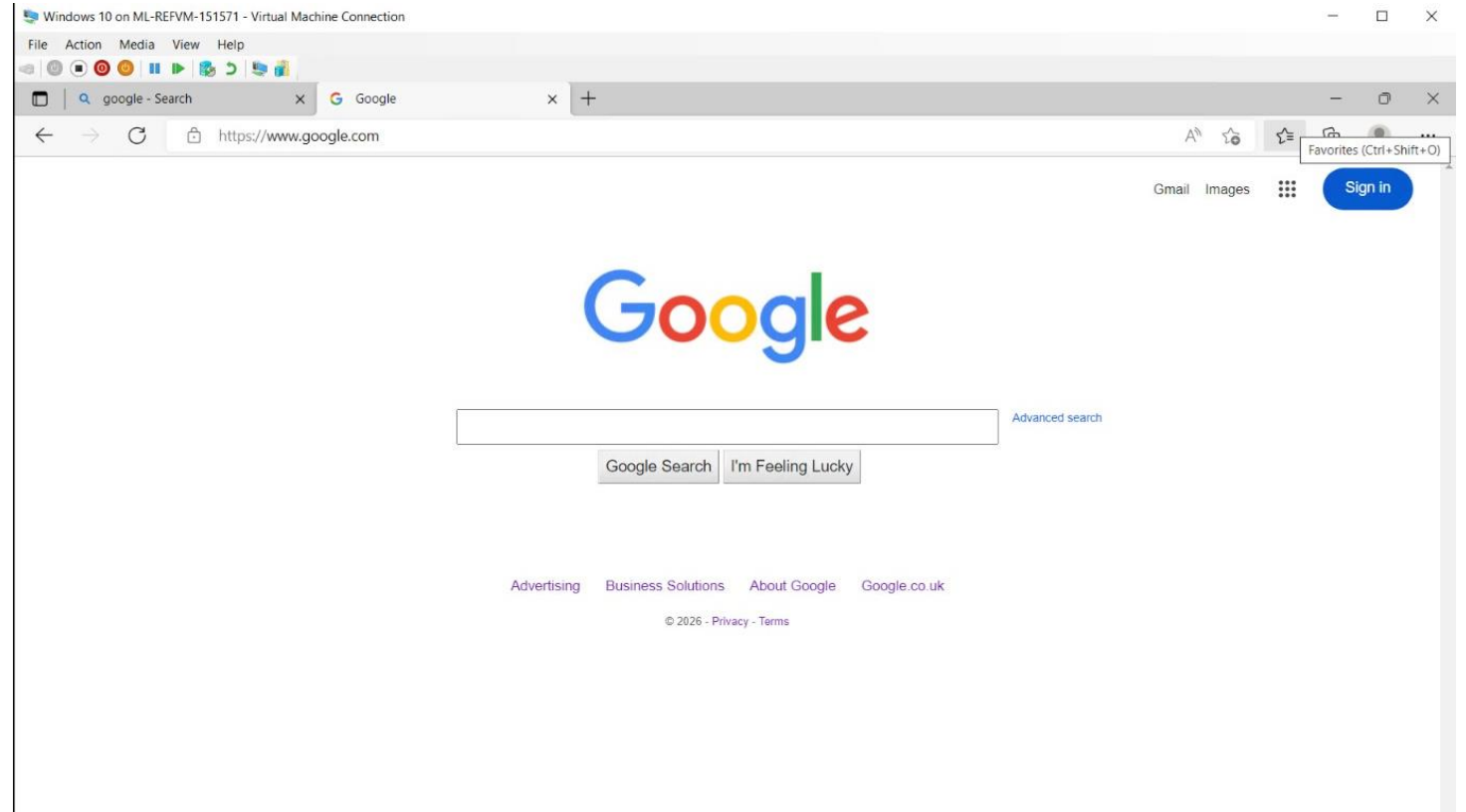
Ethernet Status.

- We can now check our Ethernet status and see that we are sending and receiving bytes of data or packets. This confirms we have internet access.



Checking Internet Explorer.

- We can confirm this by accessing Internet Explorer and searching for Google. As you can see we have internet access.





Fix 4:



Configuring Default
Gateway IP Address.

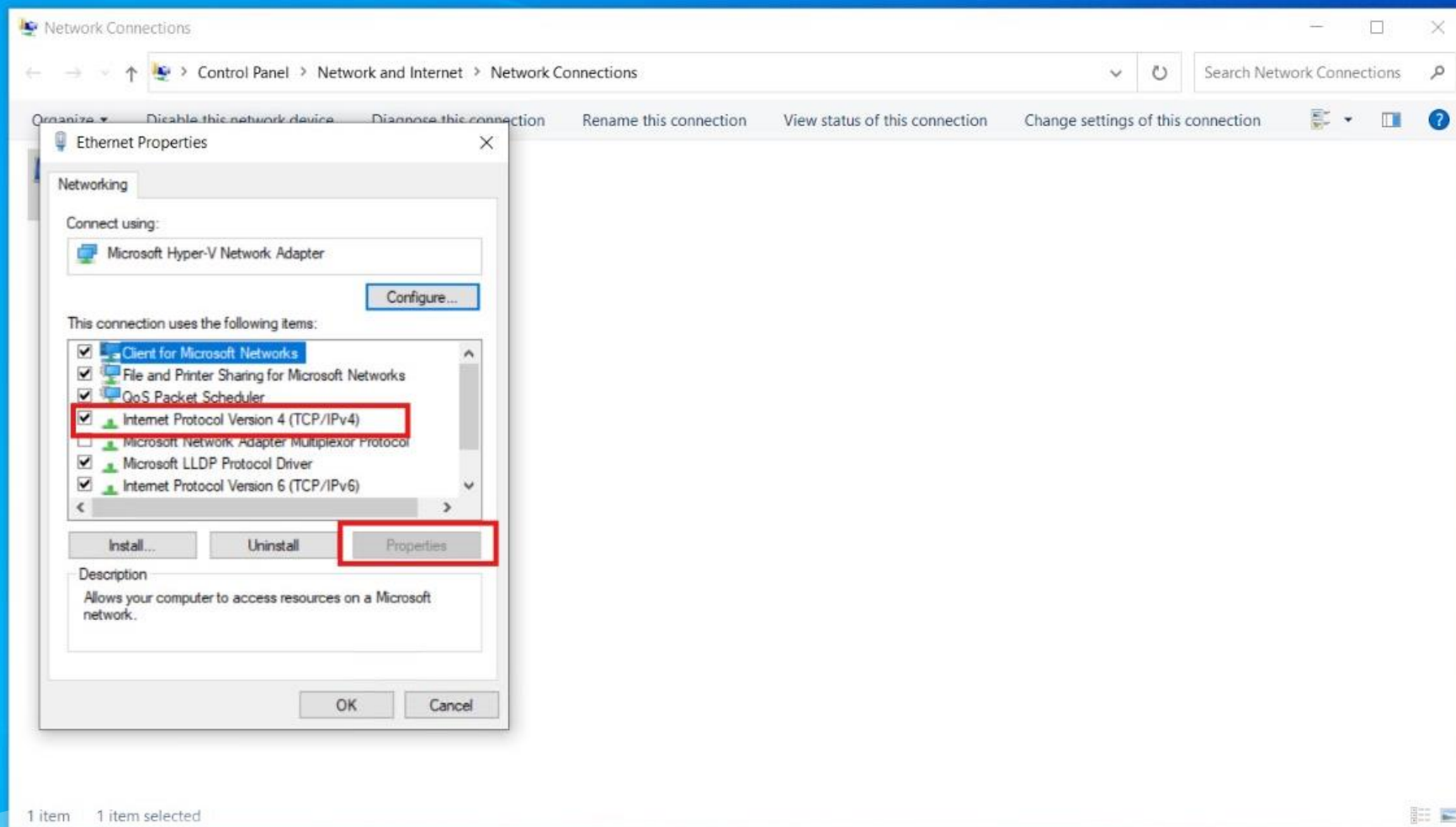


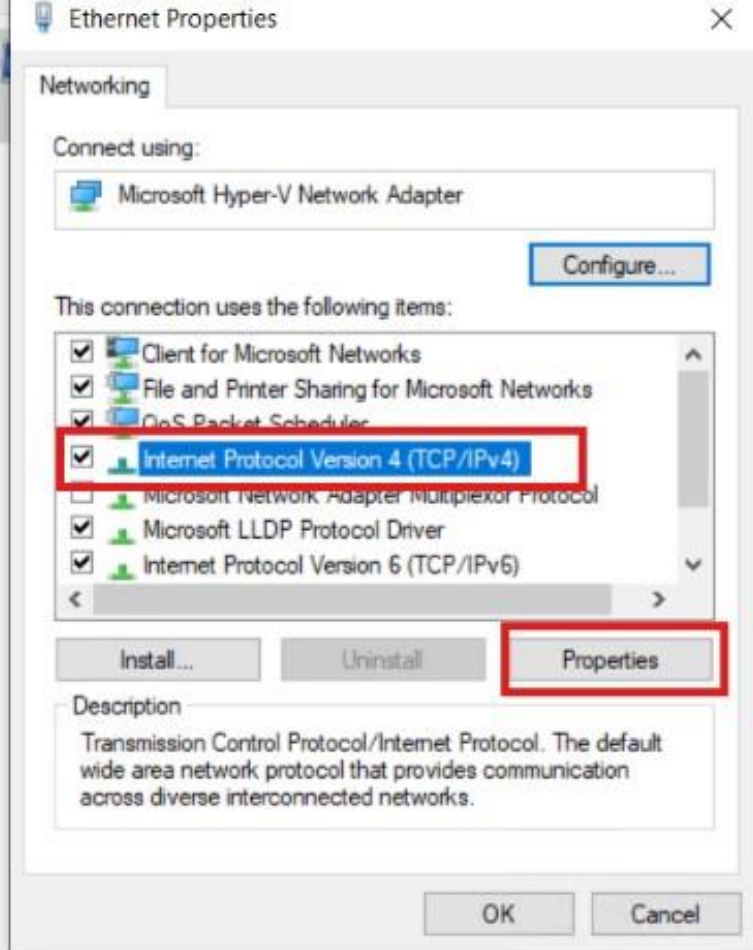
Again for this fix we are leaving the DNS server address as the manual setup.

This is because the DNS server address is not the issue. The Preferred and Alternate DNS server addresses are both for Google Public DNS in IPv4 format.

If we follow the previous steps until we get to the “Ethernet Properties” section, we right click onto “Internet Protocol Version 4 (TCP/IPv4)” and then click “properties” like before.

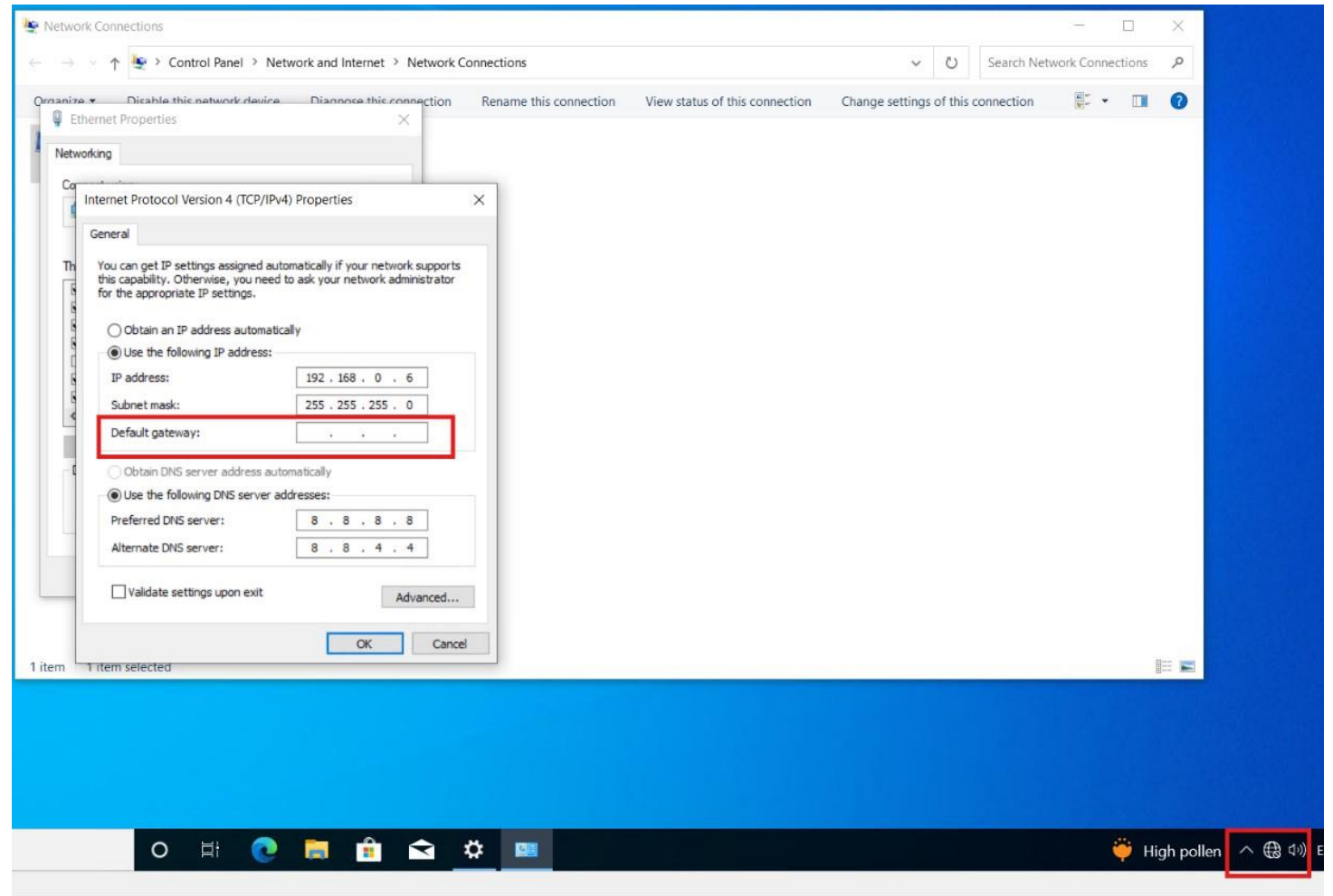






Internet Protocol Version 4 (TCP/IPv4) Properties.

- For this fix we are going to be adding the Default Gateway IP address of “192.168.0.1”



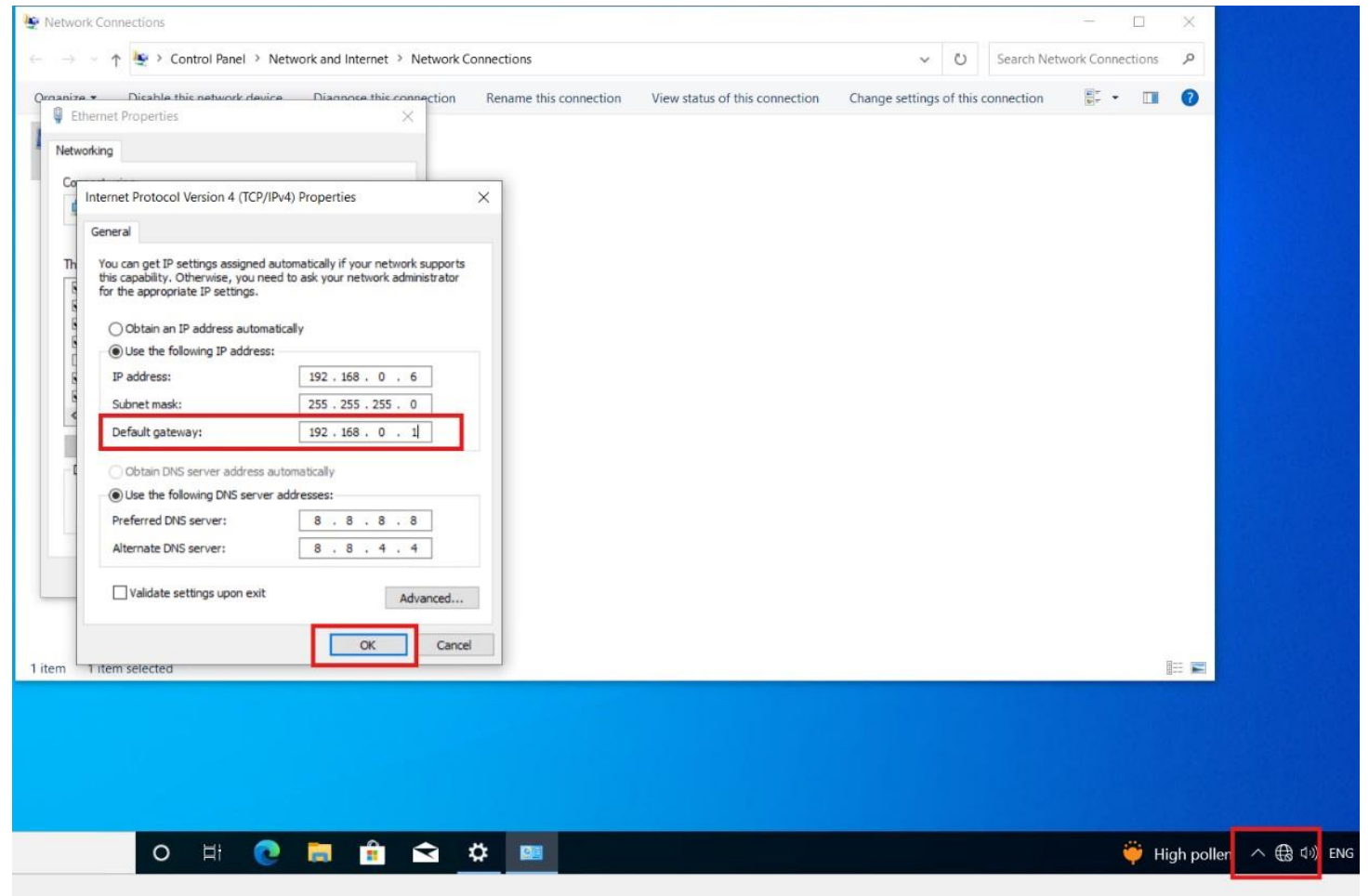
Why enter the “Default
Gateway” IP Address as
192.168.0.1?

We are using the “Default Gateway” IP Address of 192.168.0.1, because it is in our “Address Pool” range that is available for us to use in the scope of our Domain Server. This is setup by the Administrator within the DHCP Address Pool settings. The range can be set up to 2048 addresses. This depends on how many users or hosts are within the company that are requiring to be connected to the Domain Server. The default IP address pool size is 512.

192.168.0.1 is used to manage the routers settings within a home or office network. This includes the Wi-Fi name, password and network security settings.

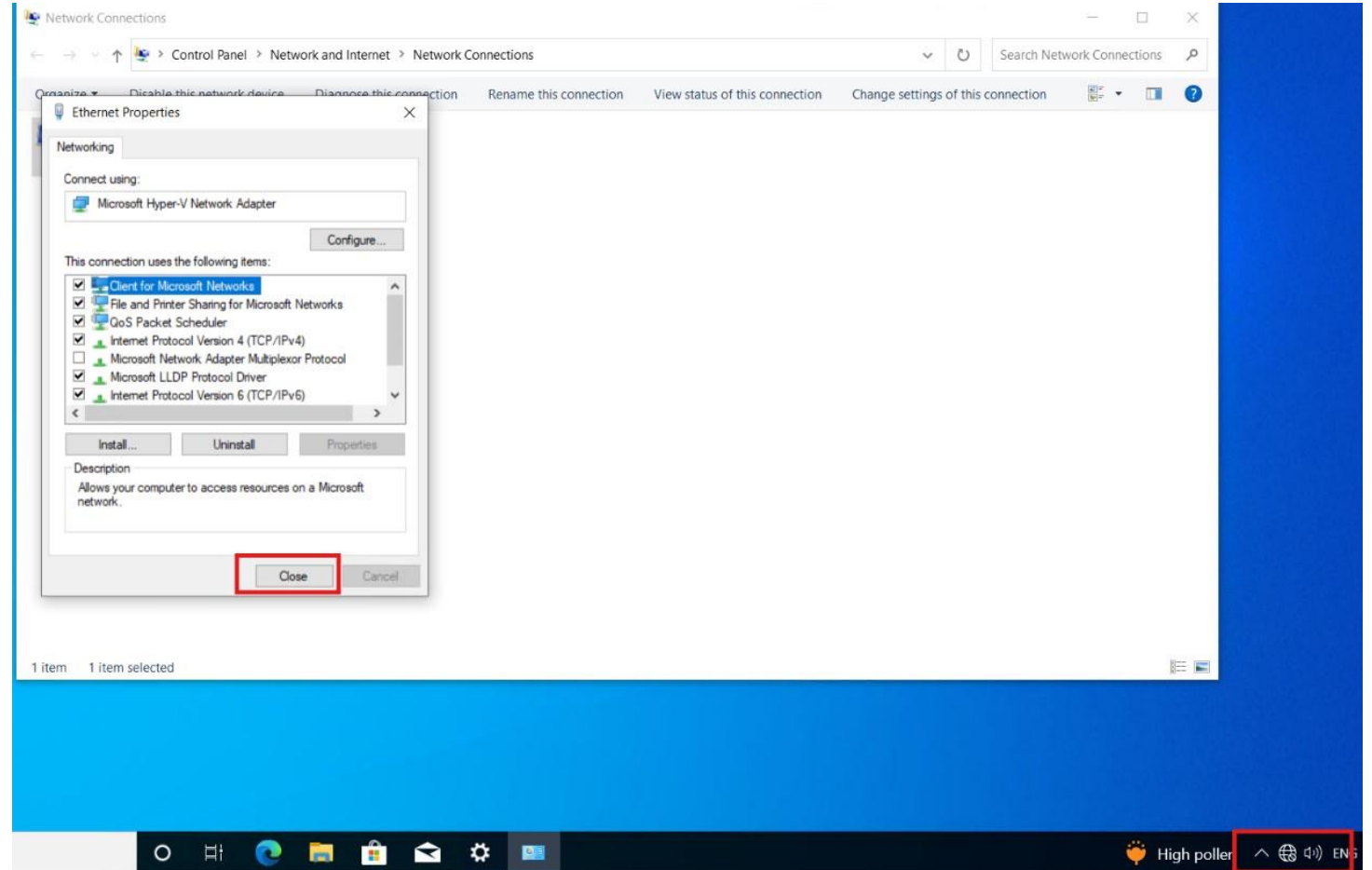
Internet Protocol Version 4 (TCP/IPv4) Properties.

- After entering 192.168.0.1 we now click onto “Next”.



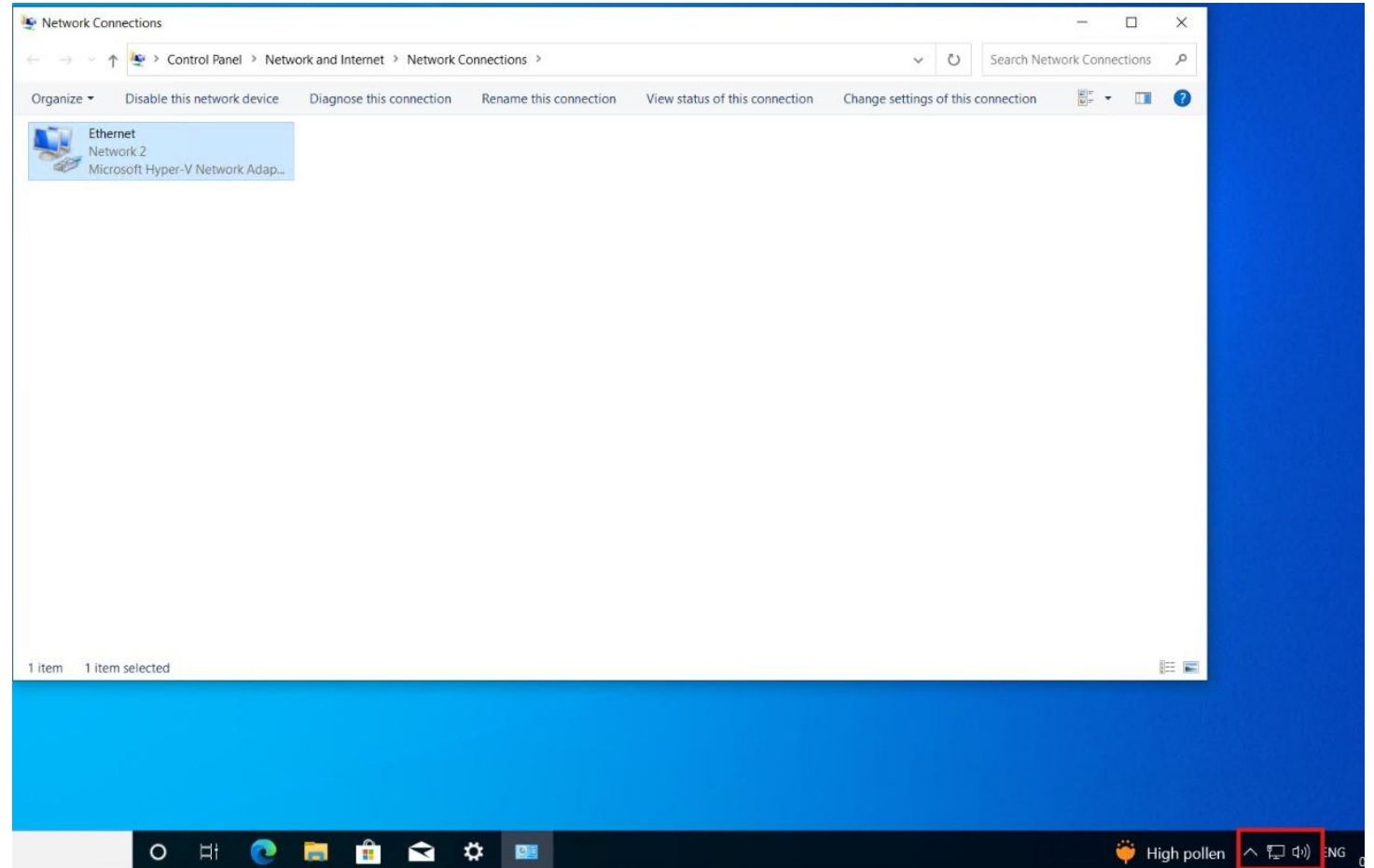
Ethernet Properties.

This will take us back to the Ethernet Properties screen. We now press “Close”.



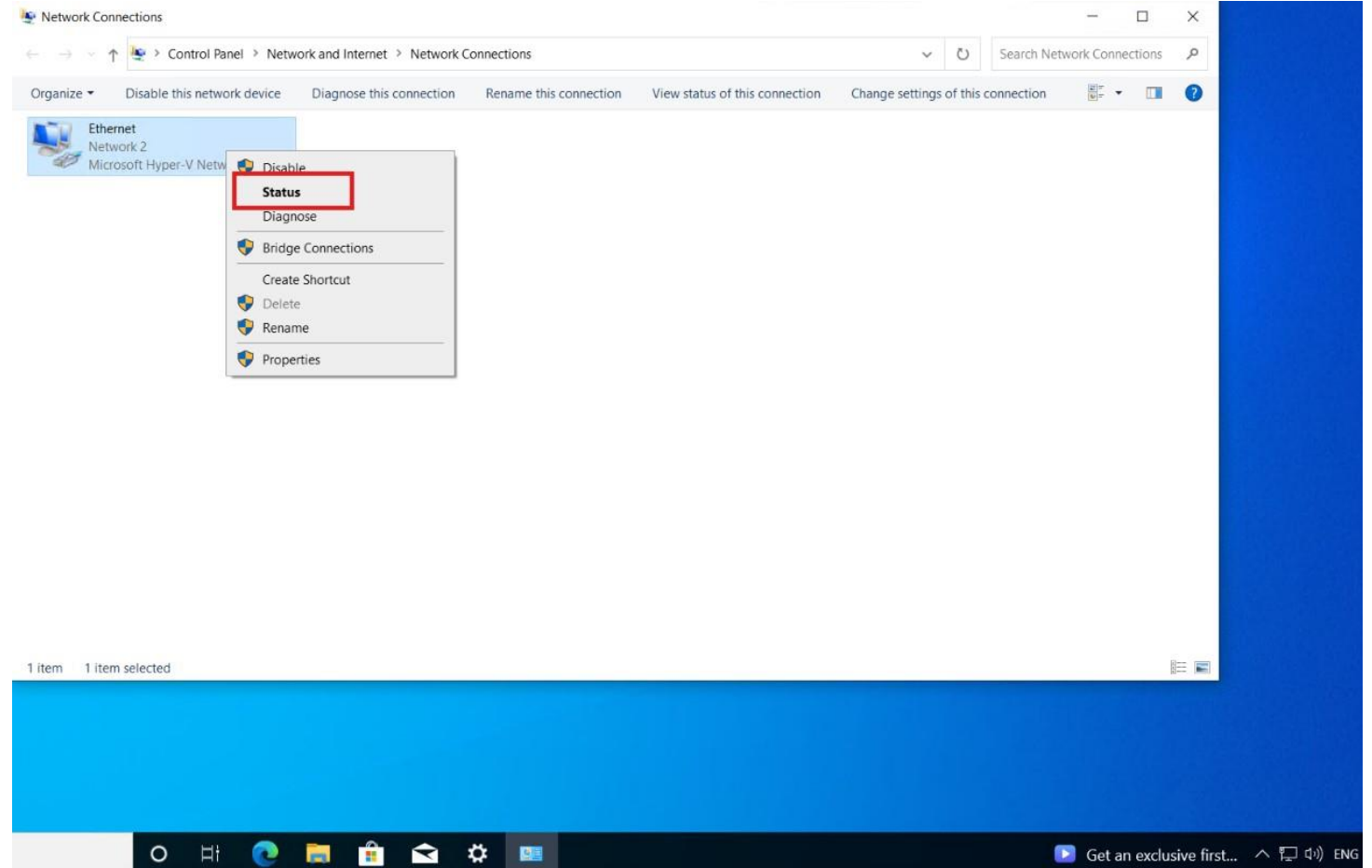
Network Connections.

- Back at the “Network Connections” screen, we can see we are now connected to the internet by the icon at the bottom left-hand corner of our operating system (OS).



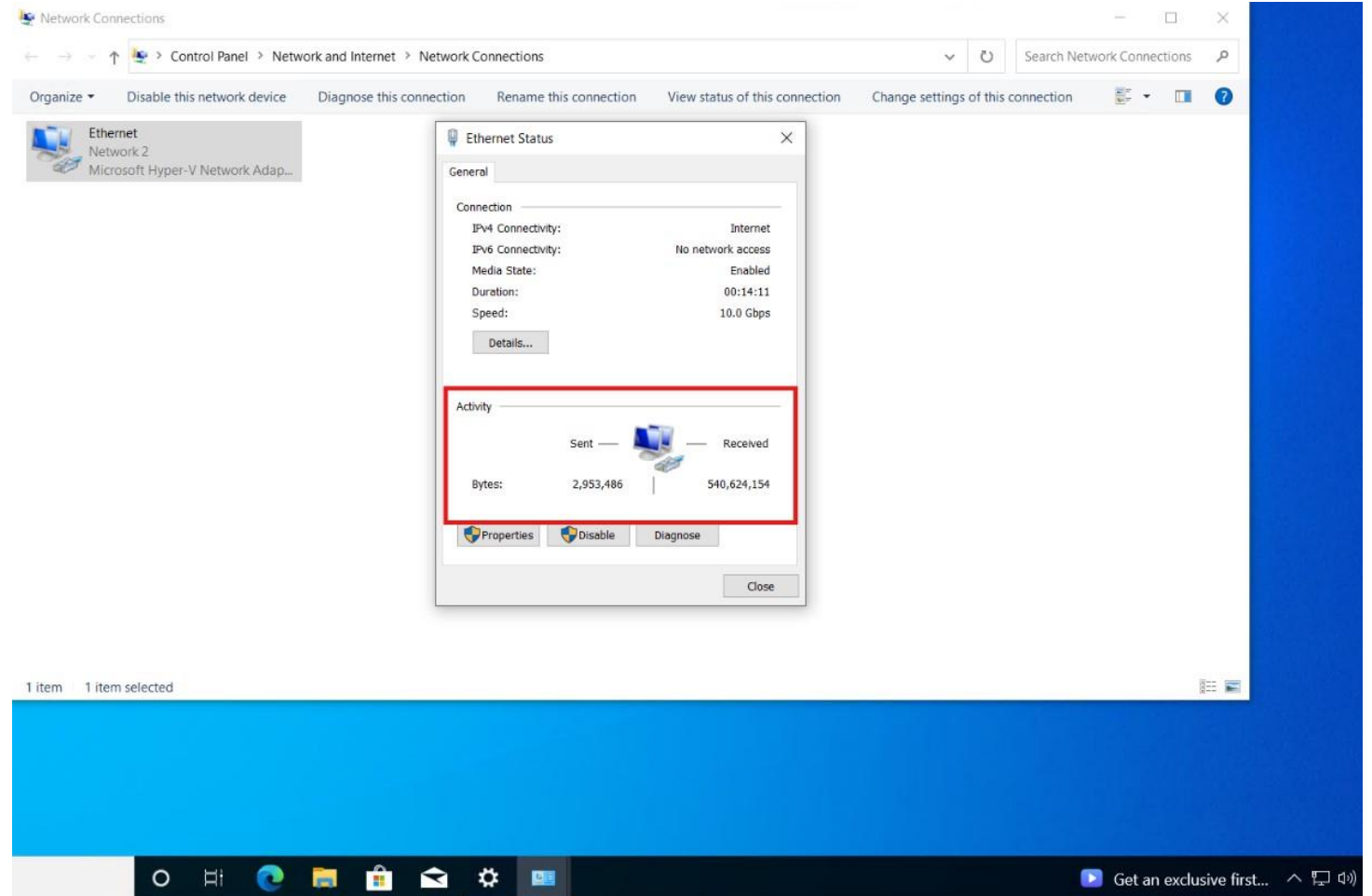
Checking our internet status.

- We can check our internet status by pressing right mouse button and selecting “Status”.



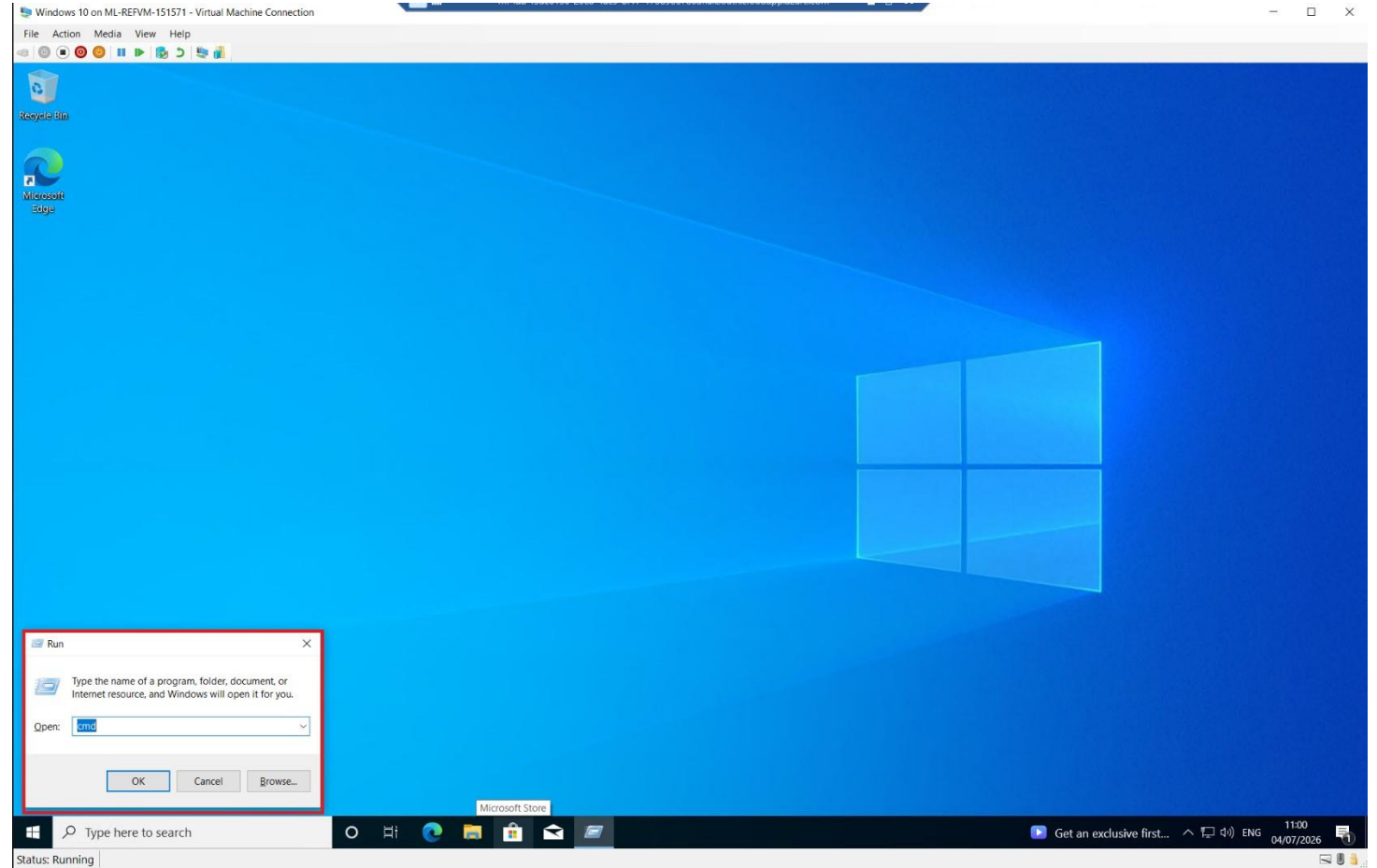
Ethernet Status.

- Here we can see how many bytes of data or packets that have been sent from our system to the internet, and the number of packets received back. This confirms we are connected to the internet.



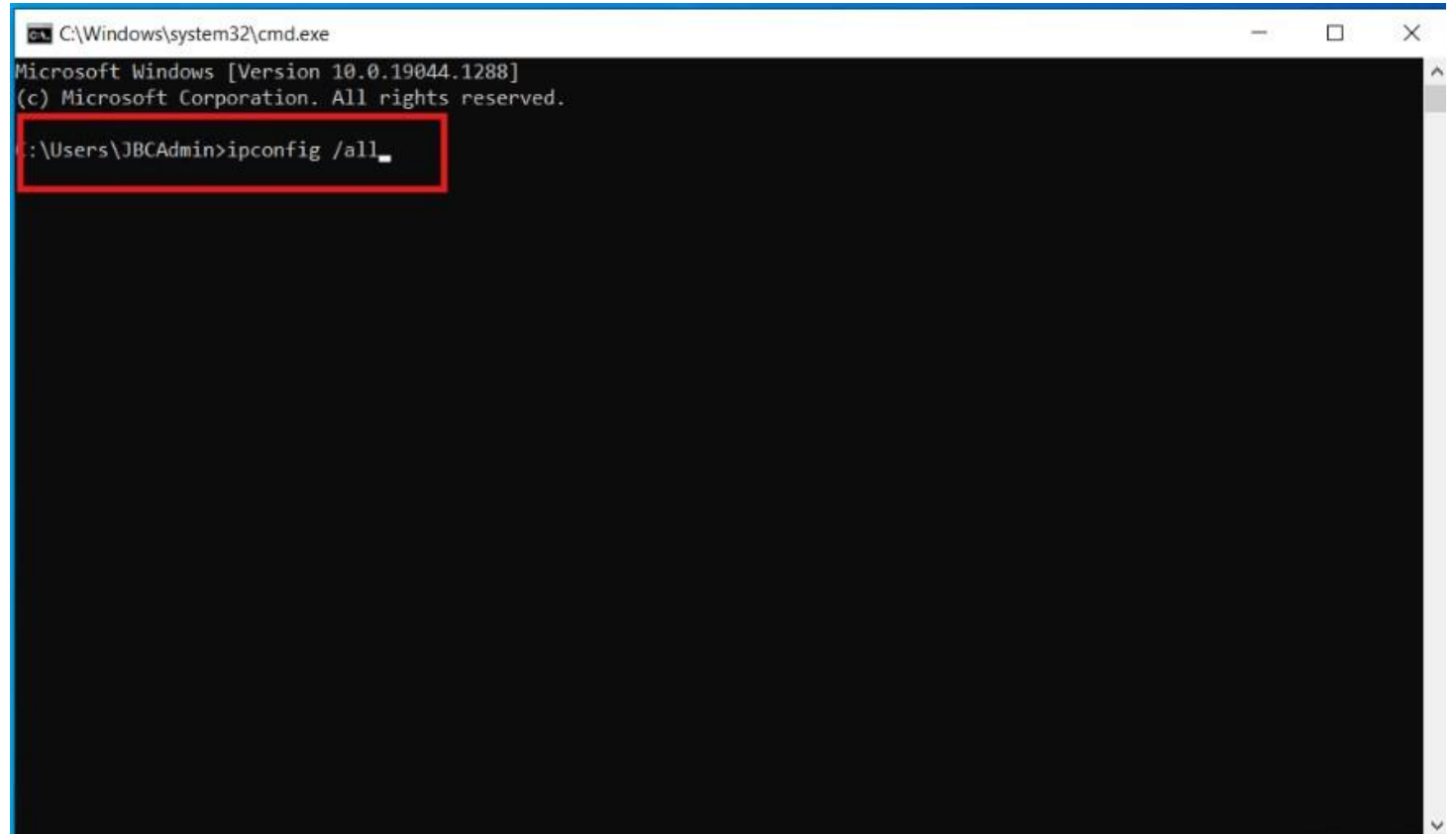
Run Command Prompt.

- We can also confirm that we have setup our internet correctly by checking to see if we now show a Gateway IP address in command prompt.
- We do this by holding the windows logo button and pressing “R”. In the “open” search box, we enter “cmd”, then press “Ok”.



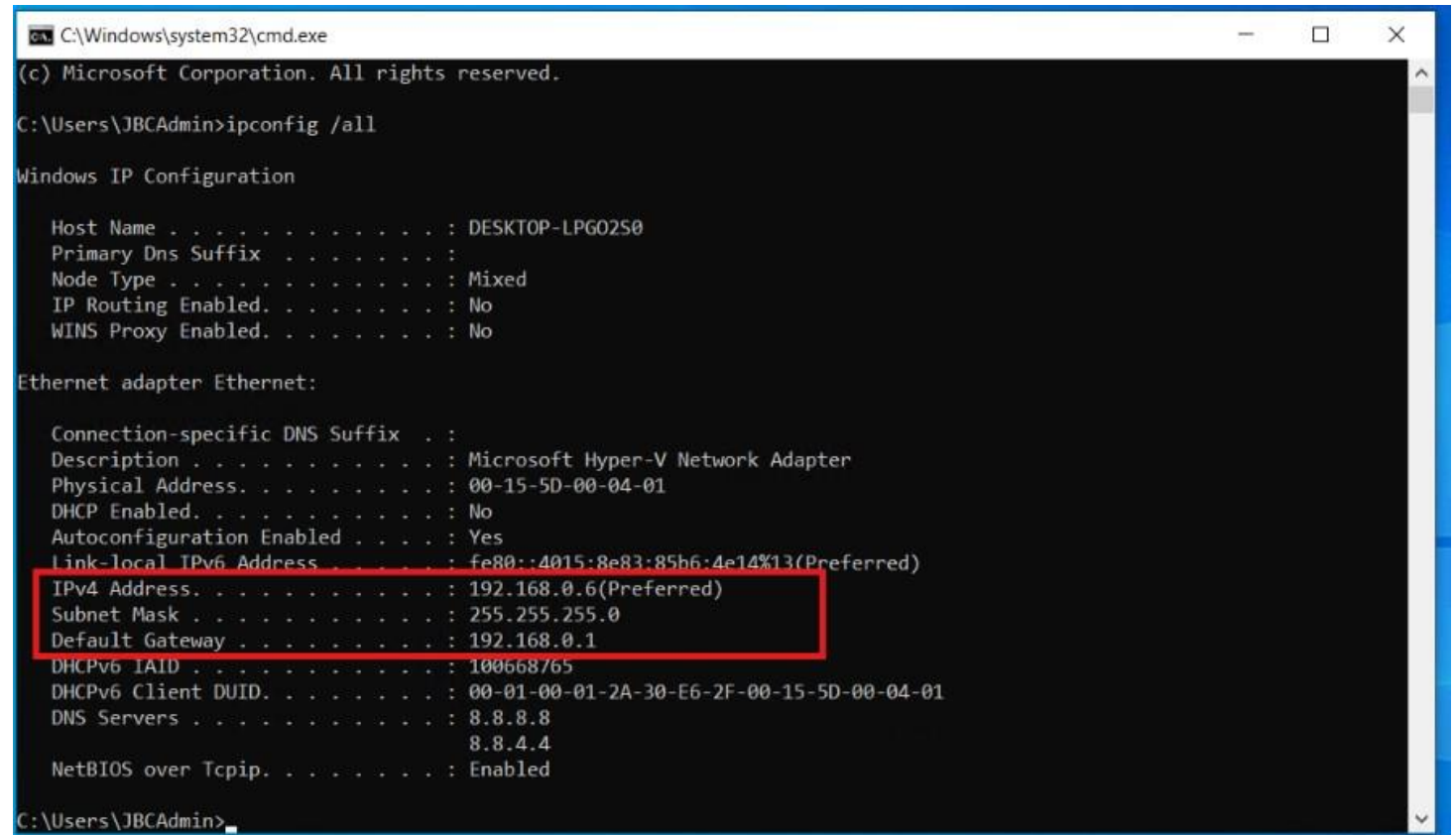
Command Prompt.

- In command prompt we now enter “ipconfig /all” then press enter on our keyboard.

A screenshot of a Windows Command Prompt window. The title bar at the top reads "C:\Windows\system32\cmd.exe". The main text area shows the following: "Microsoft Windows [Version 10.0.19044.1288]" and "(c) Microsoft Corporation. All rights reserved." Below this, the command prompt shows the user's location as "C:\Users\JBCAdmin>" followed by the command "ipconfig /all" which is currently being typed, with a cursor at the end of the line. The command and the prompt text are highlighted with a red rectangular box.

Command Prompt.

- Here we can see that our configuration for the gateway is showing. Default gateway IP address allows us internet connection to the outside world. This also shows our subnet mask of 255.255.255.0 is Subnet Mask “C”. This is automatically generated from our IPv4 address.

A screenshot of a Windows Command Prompt window titled "C:\Windows\system32\cmd.exe". The prompt shows the command "ipconfig /all" being executed. The output displays various system configuration details. A red rectangular box highlights the IPv4 configuration section, which includes the IPv4 Address (192.168.0.6), Subnet Mask (255.255.255.0), and Default Gateway (192.168.0.1).

```
C:\Windows\system32\cmd.exe
(c) Microsoft Corporation. All rights reserved.

C:\Users\JBCAdmin>ipconfig /all

Windows IP Configuration

    Host Name . . . . . : DESKTOP-LPG0250
    Primary Dns Suffix . . . . . :
    Node Type . . . . . : Mixed
    IP Routing Enabled. . . . . : No
    WINS Proxy Enabled. . . . . : No

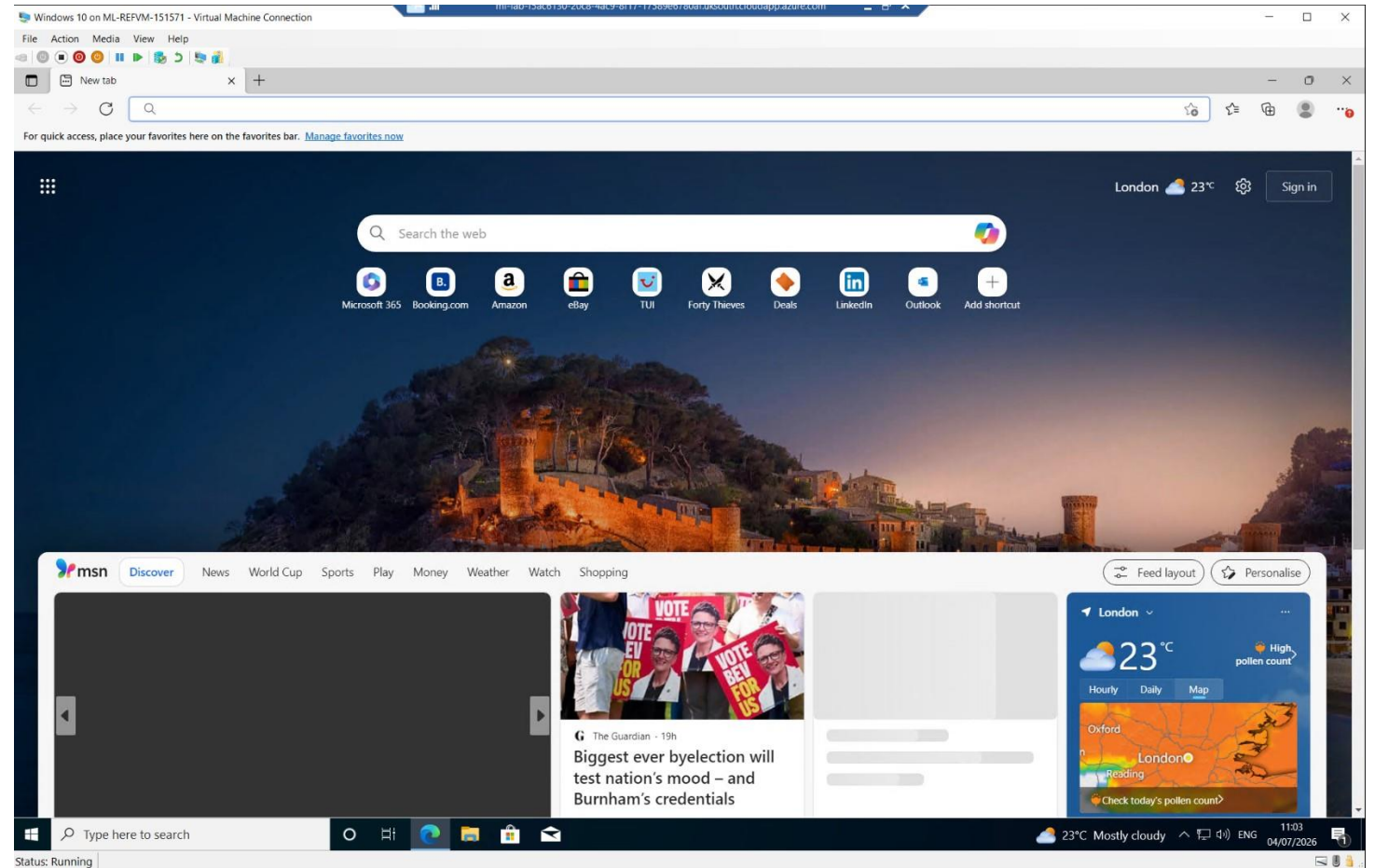
Ethernet adapter Ethernet:

    Connection-specific DNS Suffix . :
    Description . . . . . : Microsoft Hyper-V Network Adapter
    Physical Address. . . . . : 00-15-5D-00-04-01
    DHCP Enabled. . . . . : No
    Autoconfiguration Enabled . . . . : Yes
    Link-local IPv6 Address . . . . . : fe80::4015:8e83:85b6:4e14%13(Preferred)
    IPv4 Address. . . . . : 192.168.0.6(Preferred)
    Subnet Mask . . . . . : 255.255.255.0
    Default Gateway . . . . . : 192.168.0.1
    DHCPv6 IAID . . . . . : 100668765
    DHCPv6 Client DUID. . . . . : 00-01-00-01-2A-30-E6-2F-00-15-5D-00-04-01
    DNS Servers . . . . . : 8.8.8.8
                           : 8.8.4.4
    NetBIOS over Tcpip. . . . . : Enabled

C:\Users\JBCAdmin>
```

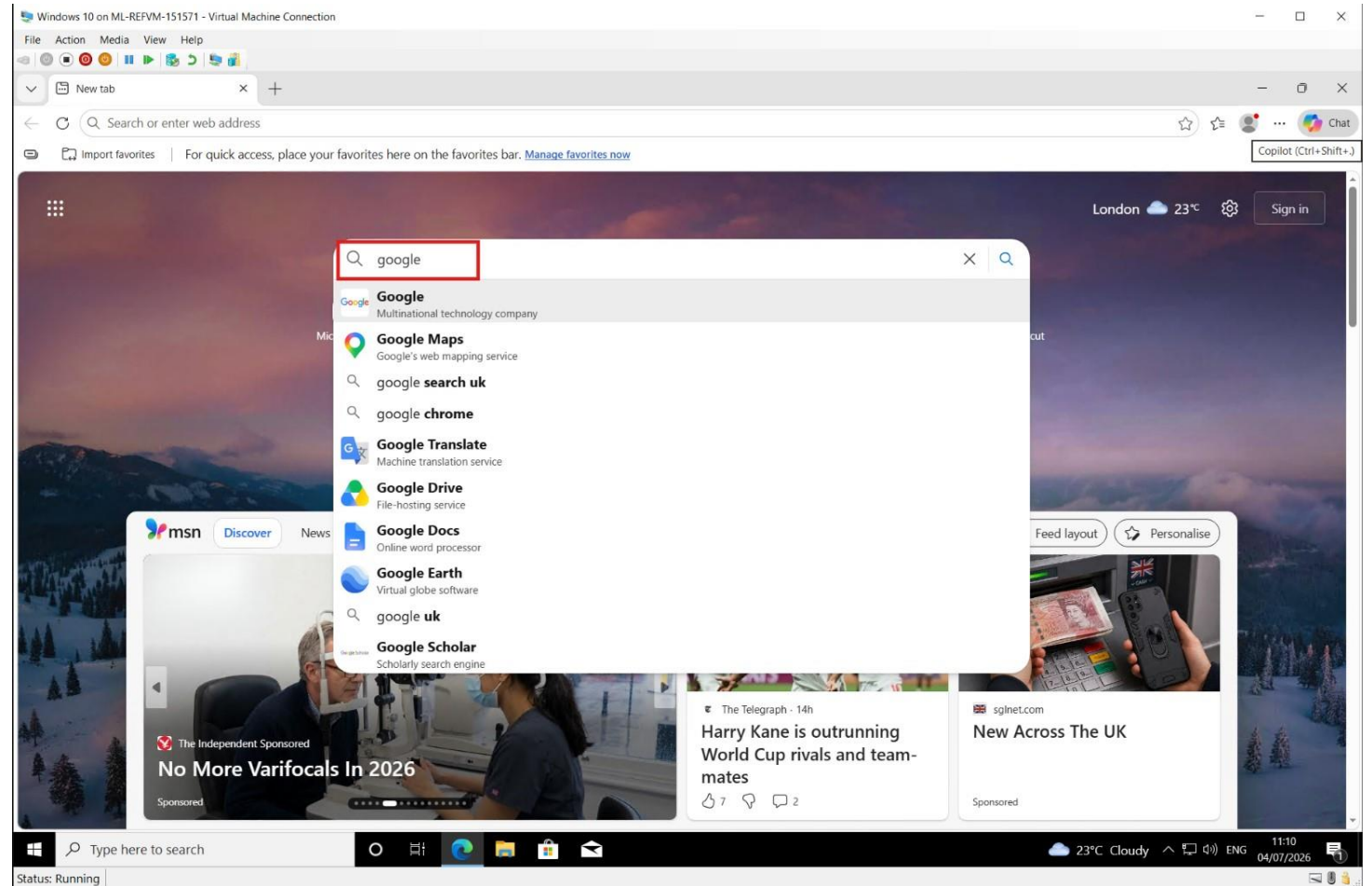
Checking Internet Explorer.

- Finally to confirm we have internet connection, we can load up internet explorer.



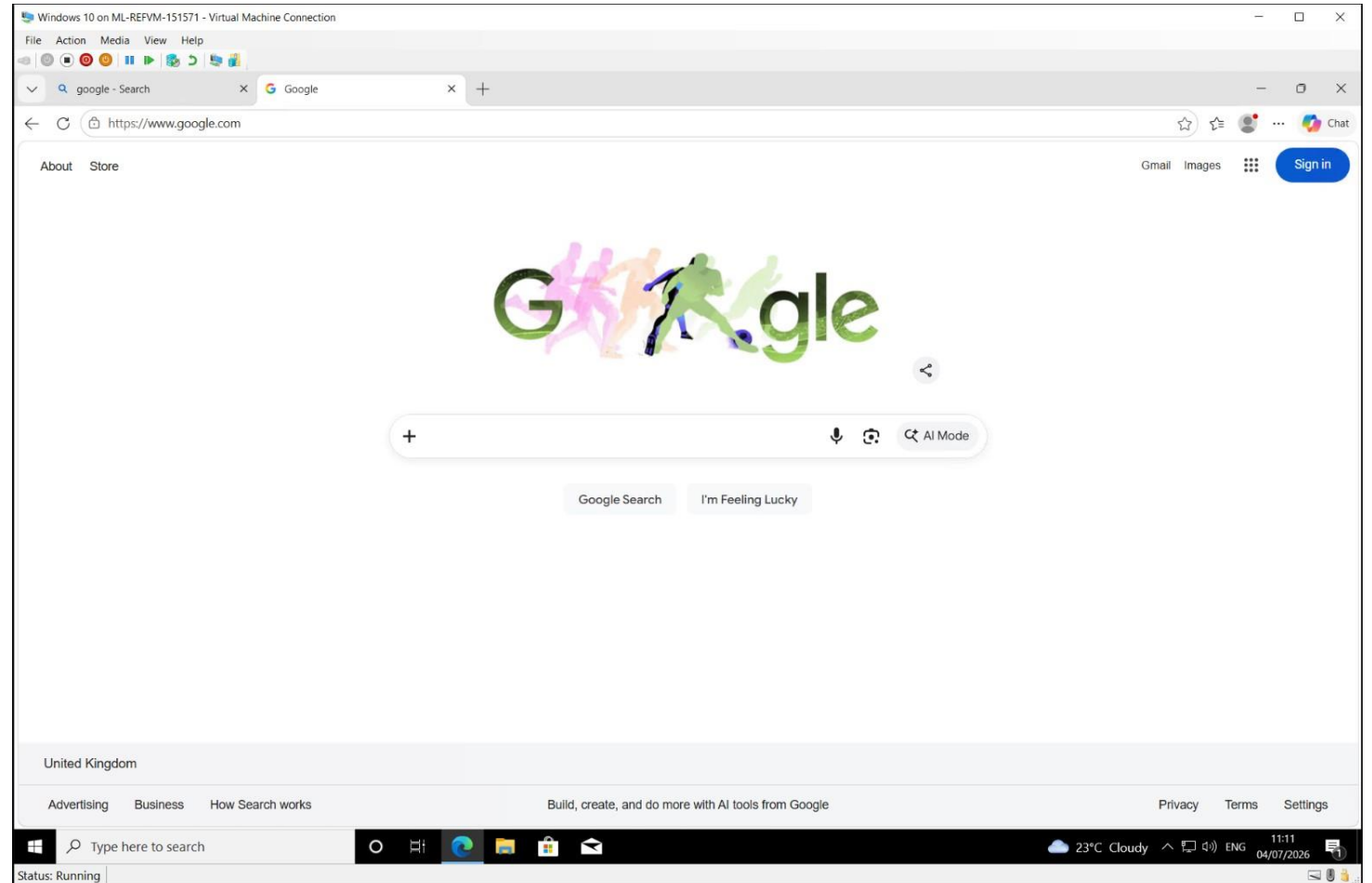
Searching for Google.

- We can enter “Google” in the search box and press enter on our keyboard.



Google Website.

- Google website has loaded. This confirms our internet connection test.





END of Task!