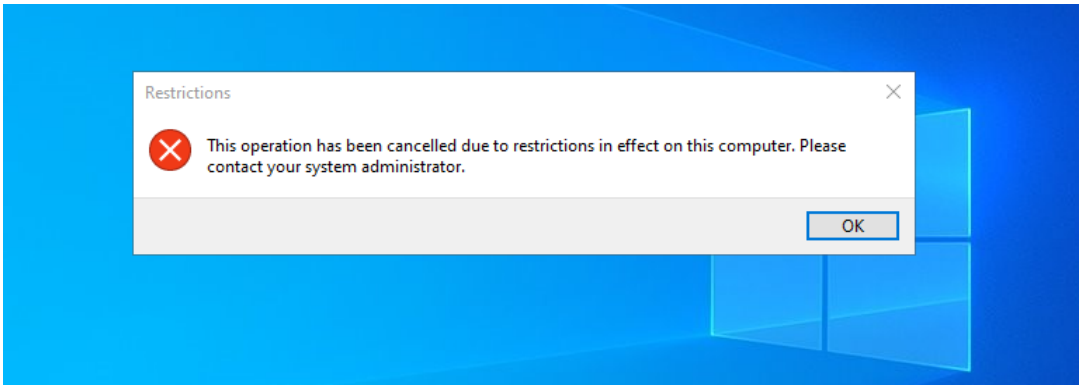
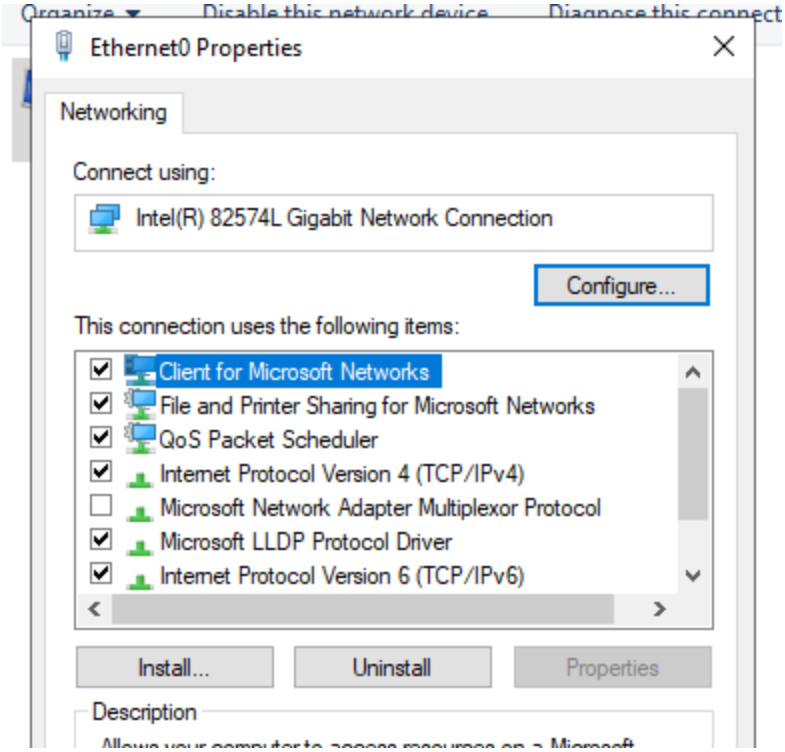
Configuring DNS and Joining the Client to the Domain

1. **Configure Server with a Static IP Address:**
    - **Rationale:** A server must always have a static IP address to ensure reliable identification, consistent remote access, and stable hosting for services like DNS and Active Directory.
    - We will open the Network Connections utility by pressing **Win + R**, typing ncpa.cpl, and pressing **Enter**.

2. **Note on Access Restrictions:** If we encounter a restriction (like the Control Panel being blocked), it is because we previously configured a GPO to restrict access.



        - We can temporarily override this by opening the Run dialog (**Win + R**), typing regedit, and pressing **Enter**.
        - We should back up the registry (**File > Export**) before proceeding.
        - Navigate to: HKEY_CURRENT_USER\Software\Microsoft\Windows\CurrentVersion\Policies\Explorer.
        - We will look for and **delete** the key named NoViewControlPanel.
    - Once the Network Connections window is open, **right-click Ethernet0** and click **Properties**.

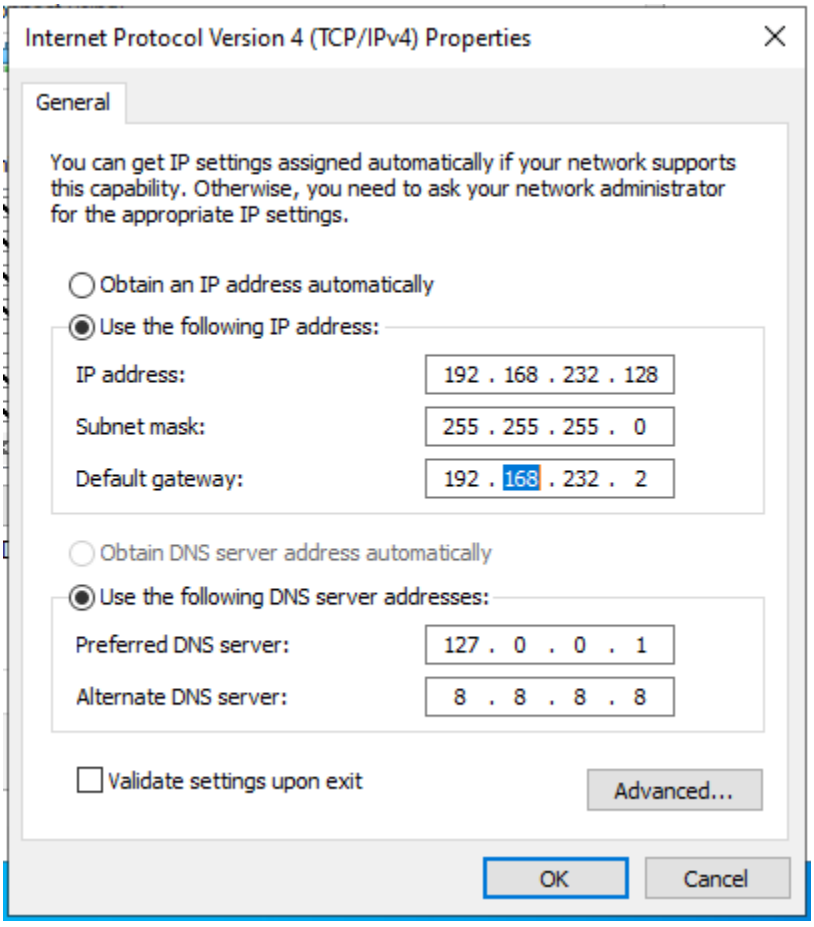


- We will double-click on **Internet Protocol Version 4 (TCP/IPv4)**.

3. **Determine Current IP and Subnet:**
   - Before changing settings, we will open Command Prompt and type ipconfig to see the IP address, subnet mask, and Default Gateway currently assigned by the DHCP server (usually the router).
   - We will use this existing IP address as our static IP to simplify the configuration process.

4. **Apply Static IP and DNS Settings:**
   - In the **Internet Protocol Version 4 (TCP/IPv4)** box, we will select **"Use the following IP address"**.
   - We will input our:
     - **IP address**
     - **Subnet mask**
     - **Default gateway**

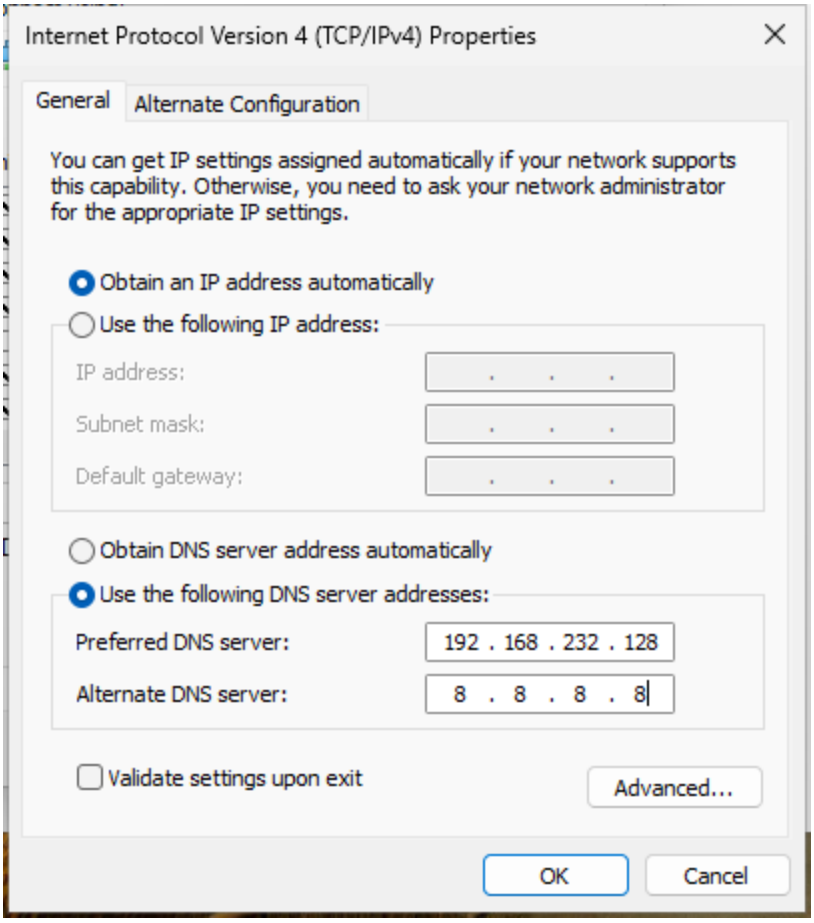
- **DNS Server Configuration:** Since our server is the Domain Controller running the DNS service, the Preferred DNS Server must be the server itself. We will use the **loopback address**: 127.0.0.1.
- For the Alternate DNS Server, we can use a reliable public DNS service, such as Google's DNS: 8.8.8.8.



- Click **OK**, and **OK** again to close the **Ethernet0 Properties** window and save the changes.
- **Verification:** Open Command Prompt and type ipconfig /all. The IP address should now be listed as Static.

```
Ethernet adapter Ethernet0:

   Connection-specific DNS Suffix  . :
   Description . . . . . . . . . . . : Intel(R) 82574L Gigabit Network Connection
   Physical Address. . . . . . . . . : 00-0C-29-1D-96-1D
   DHCP Enabled. . . . . . . . . . . : No
   Autoconfiguration Enabled . . . . : Yes
   Link-local IPv6 Address . . . . . : fe80::2d1c:34fa:e6c1:70f4%7(Preferred)
   IPv4 Address. . . . . . . . . . . : 192.168.232.128(Preferred)
   Subnet Mask . . . . . . . . . . . : 255.255.255.0
   Default Gateway . . . . . . . . . : 192.168.232.2
   DHCPv6 IAID . . . . . . . . . . . : 100666409
   DHCPv6 Client DUID. . . . . . . . : 00-01-00-01-30-C0-FF-DC-00-0C-29-1D-96-1D
   DNS Servers . . . . . . . . . . . : ::1
                                       127.0.0.1
                                       8.8.8.8
   NetBIOS over Tcpip. . . . . . . . : Enabled
```

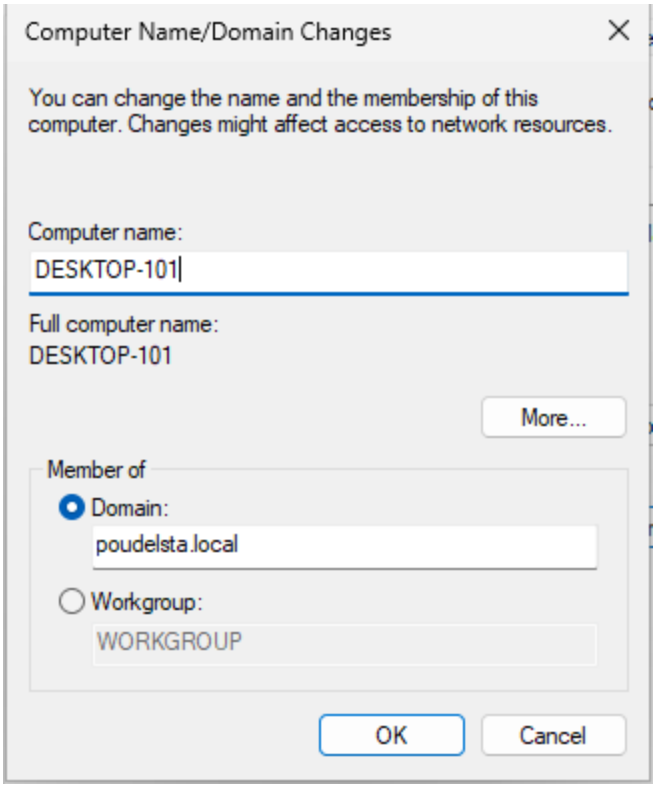
5. **Configure Windows 11 Client for Domain Join:**
    - For the client machine (Windows 11 Ent), we do **not** need a static IP address; it can obtain an IP automatically from the DHCP server.
    - **DNS Configuration on Client:** We must, however, set the Preferred DNS Server to point to our Domain Controller's IP address.
    - On the Windows 11 VM, open Network Connections (**Win + R**, type ncpa.cpl).
    - **Right-click Ethernet0** and click **Properties**, then double-click **Internet Protocol Version 4 (TCP/IPv4)**.
    - We will leave **"Obtain an IP address automatically"** selected.
    - We will select **"Use the following DNS Server address"** and input our **Server's IP address** as the Preferred DNS Server. Click **OK**.



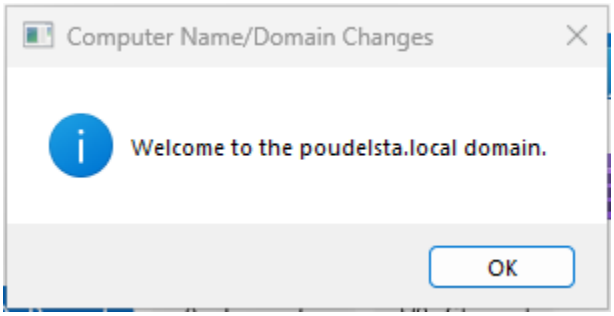
6. **Test Connectivity and DNS Resolution:**
    - Open Command Prompt on the Windows 11 VM to test the connection:
        - **Ping Test:** Type ping 192.168.232.128 and verify that 4 packets were sent and received.
        - **DNS Test:** Type nslookup poudelsta.local to verify that the DNS server is resolving the domain name to the correct IP address.

```
C:\Users\User101>ping 192.168.232.128

Pinging 192.168.232.128 with 32 bytes of data:
Reply from 192.168.232.128: bytes=32 time<1ms TTL=128
Reply from 192.168.232.128: bytes=32 time<1ms TTL=128
Reply from 192.168.232.128: bytes=32 time<1ms TTL=128
Reply from 192.168.232.128: bytes=32 time<1ms TTL=128

Ping statistics for 192.168.232.128:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
Approximate round trip times in milli-seconds:
    Minimum = 0ms, Maximum = 0ms, Average = 0ms

C:\Users\User101>nslookup poudelsta.local
Server:  UnKnown
Address:  192.168.232.128

Name:    poudelsta.local
Address:  192.168.232.128
```

7. **Join the Windows 11 VM to the Domain:**
    - Open the System Properties dialog by pressing **Win + R**, typing sysdm.cpl, and pressing **Enter**.
    - Click the **Change** button under the "Computer Name" tab.
    - We will rename the computer to a standard naming convention, **Desktop-101**.
    - Under "Member of," select the **Domain** option and type our domain name: poudelsta.local. Click **OK**.

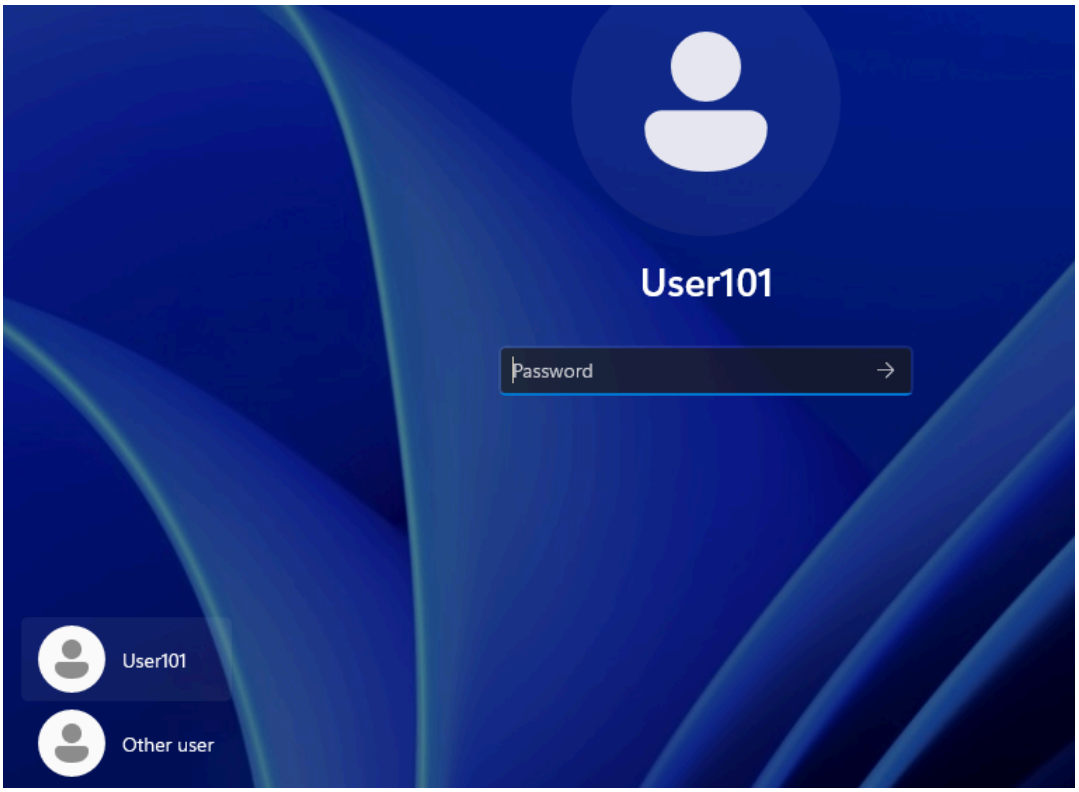


- A dialog box will pop up, asking for the administrator username and password of the domain (e.g., Administrator and the DSRM password we set).
- After inputting the credentials, a dialog box will open showing **"Welcome to the poudelsta.local domain."** Click **OK**.



- We will be prompted to restart the computer, which we will do now.

8. **Verify Domain Join and Test GPOs:**
   - After the restart, when the computer is back up, we will see the login screen still showing the previous local user (**User101**).



- We will ignore this and click on **"Other user"** at the bottom-left/right.
- **Login as a Domain User:** We will input the credentials for one of the users we created earlier (e.g., sushii.poudel).
- Because we checked the box **"User must change password at next logon"** during the user creation, the system will immediately inform us that we need to change the password. This confirms the successful domain join and the application of a **User Policy (Password Policy)**.
- We can test the other **Computer Configuration GPOs** (like the USB restriction) and **User Configuration GPOs** (like the Desktop Wallpaper) that we set up earlier.