Create the DC1 VM

1. Obtain Windows Server ISO

- Download the evaluation ISO for **Windows Server 2019** from Microsoft's official Evaluation Center.

2. Create a New VM in VirtualBox

1. **Name & OS**

   o   Name: DC1

   o   Type: Microsoft Windows

   o   Version: Windows 2019 (64-bit)

2. **Memory**

   o   Allocate **4 GB RAM** (6 GB if you have the headroom).

3. **Hard Disk**

   o   Create a new VDI, **40 GB**, dynamically allocated.

3. Configure Network Adapter

- **Adapter 1:**

   o   Enable and attach to **Internal Network** named Lab-Internal.

- **(Optional) Adapter 2:**

   o   If you want internet access for Windows Updates, you can add a second adapter on NAT. For isolation, we'll keep it internal.

4. Attach the ISO & Boot

1. Go to **Settings → Storage**.

2. Under the IDE controller, click the empty CD icon, then **Choose a disk file…** and select your Server 2019 ISO. (If not already done)

3. Start the VM.

5. Install Windows Server 2019

1. Select **Standard Installation (Desktop Experience)**.

2. Accept license terms.

3. Choose **Custom: Install Windows only**.

4. Select the disk, click **Next**.

5. Set Administrator password when prompted (e.g. P@ssw0rd!).

6. Promote to Domain Controller

Once the OS is up:

1. **Rename the machine** (optional but recommended):

   o Open **System Properties → Computer Name → Change**, set to DC1, reboot.

2. **Add Active Directory Domain Services (AD DS)**:

   o Open **Server Manager → Add roles and features →** select **Active Directory Domain Services →** proceed with defaults.

3. **Promote to domain controller**:

   o In Server Manager, click the **warning flag**, then **Promote this server to a domain controller**.

   o Choose **Add a new forest**, set the **Root domain name** (e.g. lab.local).

   o Use **Forest and Domain functional levels** of 2016 or higher.

   o Enter your **Directory Services Restore Mode (DSRM)** password.

   o Accept defaults for DNS delegation and NetBIOS name.

   o Review, then **Install**. The server will reboot.

7. Verify DC & DNS

- **Log in** as lab\Administrator.

- Open **DNS Manager** and ensure the Forward Lookup zone for lab.local exists.

- From another lab VM (when created), you'll be able to ping dc1.lab.local.

Your Task for Step 2.3

1. Download and attach the Windows Server 2019 ISO, create the DC1 VM as above.

2. Install Windows Server, rename to DC1, and promote it to a domain controller for the forest lab.local.

3. After the reboot, verify that DNS zone lab.local exists in DNS Manager