

LAB 1

Installing and Configuring Windows Server 2019 and Domain Controller

EXERCISE 1.1: INSTALLING WINDOWS SERVER 2019 (DESKTOP EXPERIENCE)

1. Create a Virtual Machine

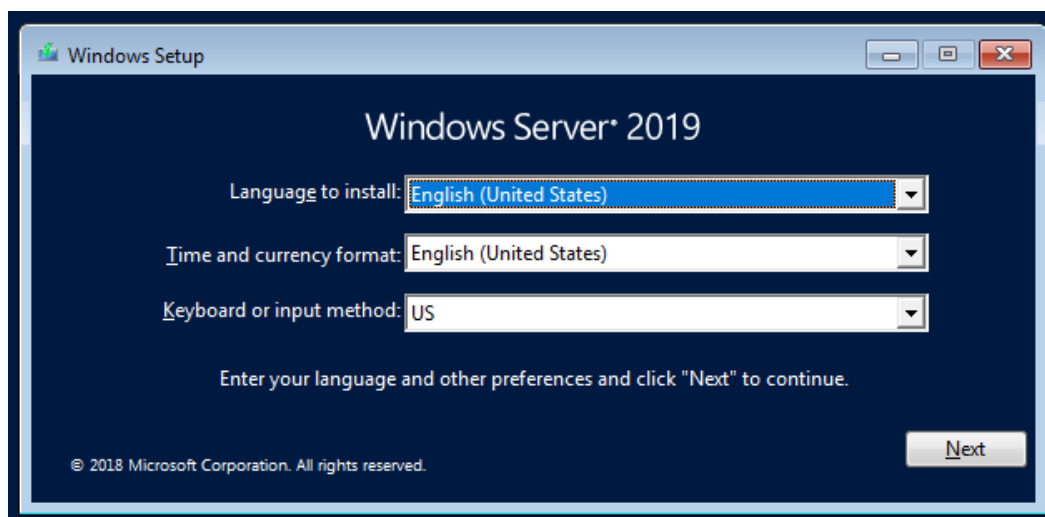
- Start VMWare Workstation and create a Virtual Machine (**File-> New Virtual Machine**). In the Type of configuration, choose the **Typical** and click **Next**
- In the **Guest Operating System Installation**, choose “**I will install the Operating System later**” and click **Next**
- In **Guest Operating System** windows, Choose **Microsoft Windows** and Version “**Windows Server 2016**” and click **Next**.
- Name the **Virtual Machine**, e.g, SVR-DC1 and select the location to store the file of VM.
- Then, input the maximum disk size (e.g., 32GB) and click **Next** and then click **Finish**.

2. Attach the Windows Server 2019 ISO file to VM

- Right-click on the created VM and choose **Settings...**
- Click on **CD/DVD (SATA)** and choose **ISO image file** and click **Browse ...** and select the windows server ISO file

3. Boot the VM to start the installation process

4. After the Windows Setup screen appears, select the correct language, time and currency format, and keyboard or input type for your locale and click **Next**.



5. Click **Install now**.

6. Select **Windows Server 2019 Datacenter (Desktop Experience)** from the list of Windows Server 2019 editions and click **Next**.

7. Place a check next to **I accept the license terms** and click **Next**.
8. Select **Custom: Install Windows only (advanced)**.
Note that the storage devices within your computer are displayed. Highlight any partitions under the storage device that you would like to install Windows Server 2019 on (e.g., Drive 0) and click **Delete** in turn until no more partitions exist under your storage device. Finally, highlight the storage device and click **Next** to install **Windows Server 2019** on it.
9. After the installation has completed, click **Restart now**, if necessary.
10. When the Customize settings window appears, supply the password CT209Hm\$ in the Password and Reenter password text boxes and click **Finish**.
11. Press **Ctrl+Alt+Del**. At the login screen, supply the password CT209Hm\$ for Administrator and press Enter to log into the system.

The machine will set up the properties of the administrator account.

Notice that the Server Manager dashboard automatically appears. Your Windows Server 2019 installation is now complete.

EXERCISE 2: POST-INSTALLATION TASKS

1. In the left pane of **Server Manager**, click **Local Server**. Note the operating system version and hardware information shown
2. In the Server Manager Properties window, view the hyperlink next to Time zone. If your time and/or time zone are not correct, click the hyperlink to open the Date and Time window.
 - a. To change your time, click **Change date and time**, specify the correct time, and click **OK**.
 - b. To change your time zone, click **Change time zone**, select the correct time zone, and click **OK**.
 - c. Click **OK** to close the **Date and Time** window.
3. In the Server Manager Properties window, click the **On** hyperlink next to IE Enhanced Security Configuration. Select the **Off** button under the Administrators section and click **OK**.
4. In the Server Manager Properties window, click the **Public: On** hyperlink next to Windows Defender Firewall.
 - a. In the **Firewall & network protection** window, click **Domain network**.
 - b. Click the slider under **Windows Defender Firewall** to turn off the firewall.
 - c. Click the back arrow in the upper left of the window to return to the **Firewall & network protection** window.
 - d. Click **Private network** and repeat steps b and c.
 - e. Click **Public network** and repeat steps b and c.
 - f. Close the **Firewall & network protection** window.
5. In the Server Manager Properties window, click the **IPv4 address assigned by DHCP, IPv6 enabled** hyperlink next to your Ethernet network adapter.
 - a. In the Network Connections window, right-click your **Ethernet** adapter and click **Status**.
 - b. In the Ethernet Status window, click **Details** and note whether your network environment has successfully assigned IPv4 and IPv6 configuration to your

network interface automatically via a DHCP server or ICMPv6. Record this configuration and click **Close**.

- c. In the Ethernet Status window, click **Properties**.
- d. In the Ethernet Properties window, highlight **Internet Protocol Version 4 (TCP/IPv4)** and click **Properties**. If your network environment requires manual IPv4 configuration, select **Use the following IP address** and supply the correct information. Next, select **Use the following DNS server addresses** and supply the correct DNS server information. Click **OK** when finished.
- e. In the Ethernet Properties window, highlight **Internet Protocol Version 6 (TCP/IPv6)** and click **Properties**. If your network environment requires manual IPv6 configuration, select **Use the following IPv6 address** and supply the correct information. Next, select **Use the following DNS server addresses** and supply the correct DNS server information. Click **OK** when finished.
- f. Click **OK** to close the Ethernet Properties window, and click **Close** to close the Ethernet Status window. Finally, close the Network Connections window

Internet Protocol Version 4 (TCP/IPv4) Properties

General

You can get IP settings assigned automatically if your network supports this capability. Otherwise, you need to ask your network administrator for the appropriate IP settings.

☐ Obtain an IP address automatically

☒ Use the following IP address:

IP address: 10 . 0 . 0 . 101

Subnet mask: 255 . 255 . 255 . 0

Default gateway: . . .

☐ Obtain DNS server address automatically

☒ Use the following DNS server addresses:

Preferred DNS server: 10 . 0 . 0 . 101

Alternate DNS server: | . . .

☐ Validate settings upon exit

Advanced...

OK Cancel

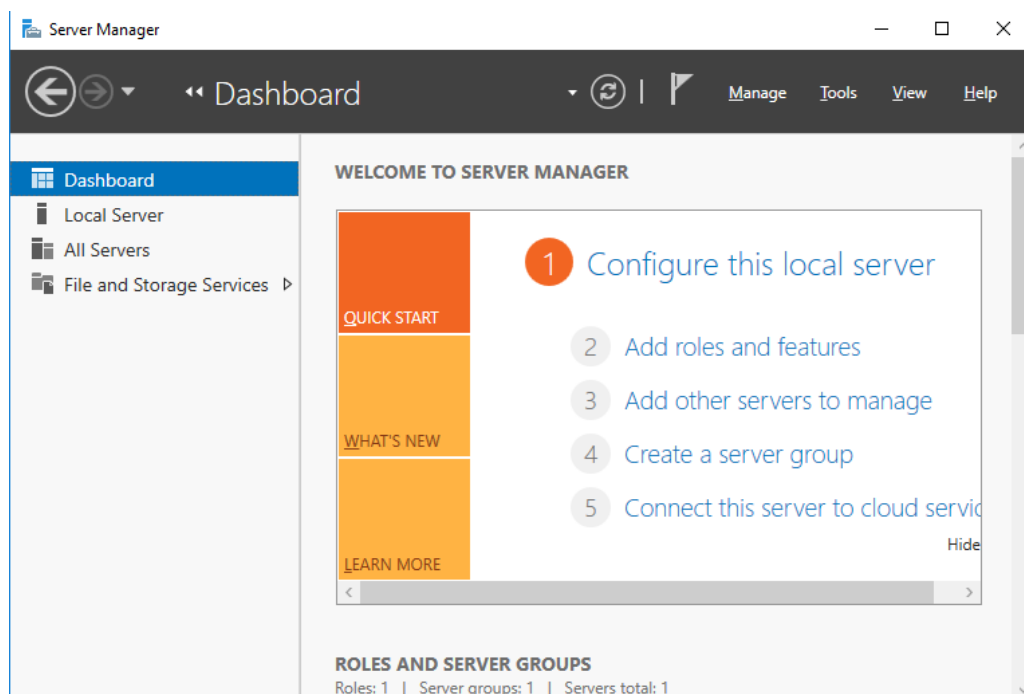
Replace these with student's own information (Please see the requirement assignment for the IP address assigned to each student)

6. In the Server Manager Properties window, click the hyperlink next to Computer name.
 - a. At the System Properties window, click **Change**. Note that your computer received a generated computer name and is part of a workgroup called WORKGROUP.

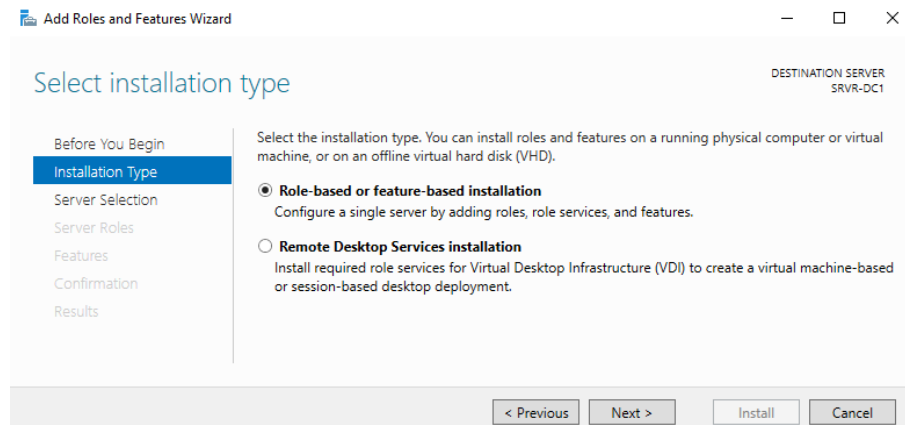
- b. In the Computer name box, type a new computer name of **SVR-DC1**, where X is a number that is uniquely assigned to you by your instructor, and click **OK**.
 - c. Click **OK** at the Computer Name/Domain Changes window, and click Close in the System Properties window.
 - d. Click **Restart Now** to restart your Windows Server 2019 server.
7. After your server has rebooted, log into the system as Administrator using the password CT209Hm\$. After a few moments, Server Manager will open.
8. Within Server Manager, navigate to **Local Server** and note the hyperlink next to Product ID. Depending on the installation media that you used to install your server and the nature of your organization's network environment, you may see that your Windows Server 2019 system is activated. If it is not activated, click the **Not activated** hyperlink and follow the prompts to supply the correct product key and license information for your environment. When finished, close the Settings window and Server Manager.
9. Click the Internet Explorer icon on the Windows taskbar.
 - a. Click OK at the Internet Explorer 11 window.
 - b. Enter the URL <https://www.google.com/chrome> and follow the prompts to download and install the latest version of the Chrome Web browser.
10. Right-click the Start menu and select Shut down or sign out, and click Shut down. Click Continue to shut down your system.

EXERCISE 3: Installing Active Directory Domain Services Role

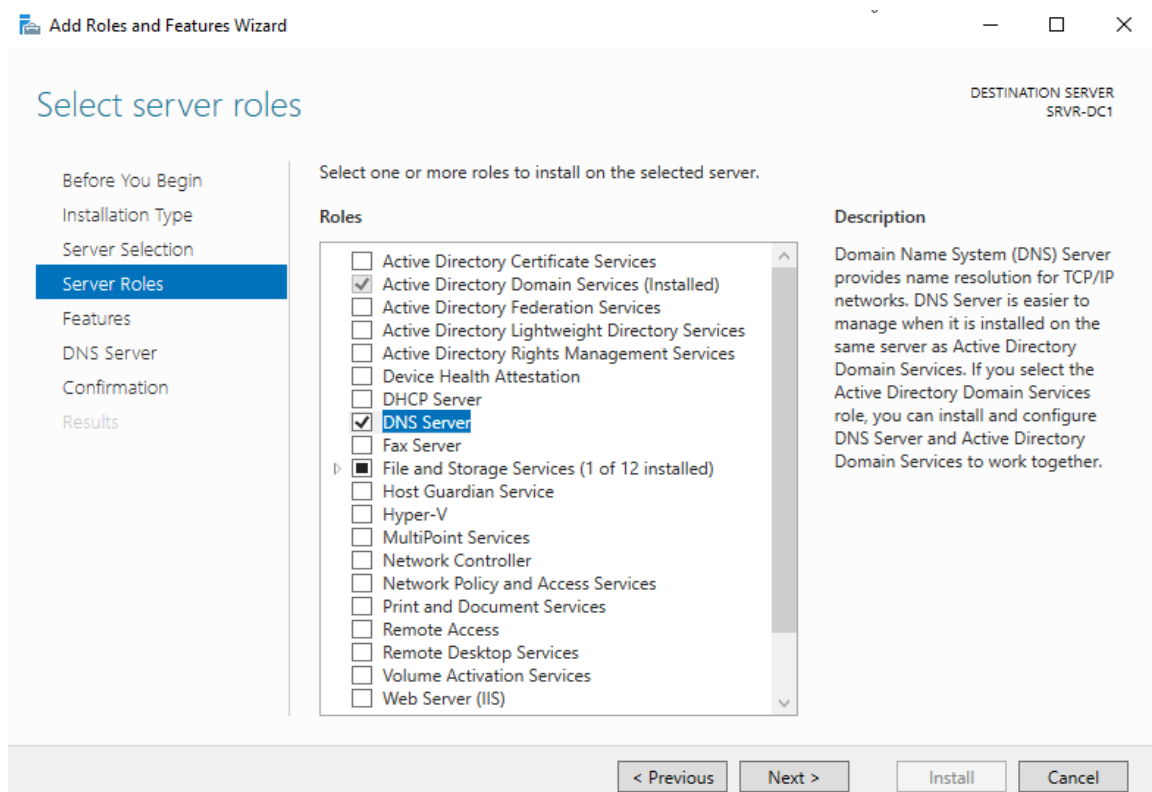
1. Click Dashboard in left pane of Server Manager, then click Add Roles and Features, and the Click Next



2. In **Select Installation Type** Windows, select “**Role-based of feature-based installation**”



3. Click **Next** to accept the default local server. The **Select Server Roles** page appears



Add the following roles:

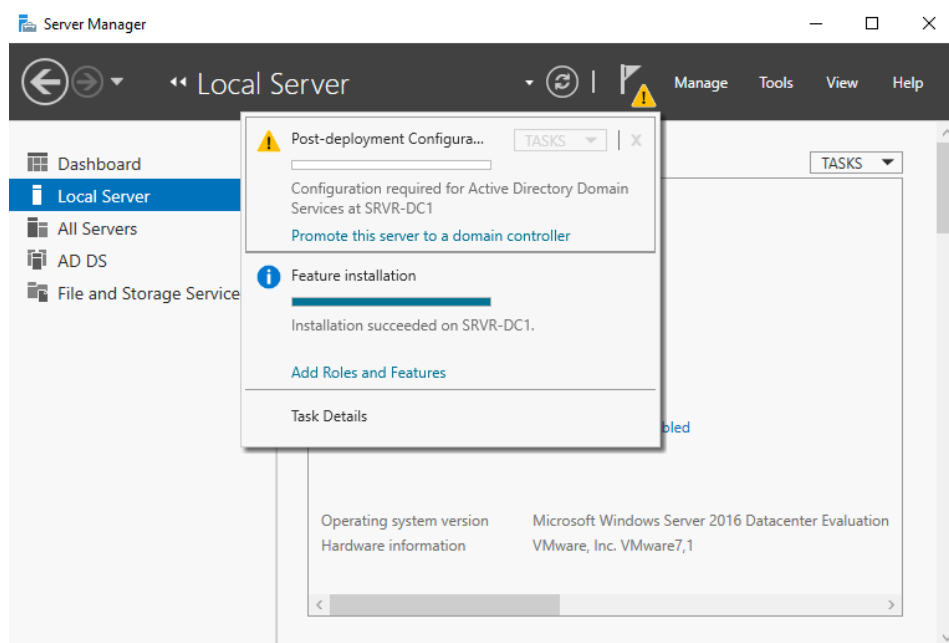
- *Active Directory Domain Services*
- *DNS Server*
- *DHCP Server*

4. Click **Next** three times and the click **Install**

EXERCISE 4: Promoting a Domain Controller

1. On **SVR-DC1**, in **Server Manager**, click the **AD DS** link in the left pane. The AD DS home page appears, with a **warning** message stating that configuration is required for AD DS
2. Click the More link. The **All Servers Task Details** window appears
3. Click the **Promote this server to a domain controller** link. The **Active Directory Domain Services Configuration Wizard** appears, displaying the Deployment Configuration page.

(Or simply click on Exclamation next to Manage and choose **Promote this server to a domain controller**)



4. In **Deployment Configuration** window, select **Add a new forest**, and in the **Root domain name** text box, type *the domain name assigned to the student* and click **Next**.

The screenshot shows the 'Deployment Configuration' window of the Active Directory Domain Services Configuration Wizard. The left sidebar lists the steps: Deployment Configuration (selected), Domain Controller Options, Additional Options, Paths, Review Options, Prerequisites Check, Installation, and Results. The main area is titled 'Deployment Configuration' and contains the following options:

- Select the deployment operation:**
 - ☐ Add a domain controller to an existing domain
 - ☐ Add a new domain to an existing forest
 - ☒ Add a new forest
- Specify the domain information for this operation:**
 - Root domain name:** A text box containing 'clc.com'.

A red-bordered box with red text is overlaid on the text box, stating: 'Replace with domain name assigned to student'.

At the bottom, there are four buttons: '< Previous', 'Next >', 'Install', and 'Cancel'.

5. The **Domain Controller Options** page appears, and click **Next**

6. In the Password and Confirm Password text boxes, type CT209Hm\$ and click **Next**. The **DNS Options** page appears

The screenshot shows the 'Domain Controller Options' window of the Active Directory Domain Services Configuration Wizard. The left sidebar lists the steps: Deployment Configuration, Domain Controller Options (selected), DNS Options, Additional Options, Paths, Review Options, Prerequisites Check, Installation, and Results. The main area is titled 'Domain Controller Options' and contains the following options:

- Select functional level of the new forest and root domain:**
 - Forest functional level:** A dropdown menu showing 'Windows Server 2016'.
 - Domain functional level:** A dropdown menu showing 'Windows Server 2016'.
- Specify domain controller capabilities:**
 - ☒ Domain Name System (DNS) server
 - ☒ Global Catalog (GC)
 - ☐ Read only domain controller (RODC)
- Type the Directory Services Restore Mode (DSRM) password:**
 - Password:** A text box with masked characters (dots).
 - Confirm password:** A text box with masked characters (dots).

At the bottom, there are four buttons: '< Previous', 'Next >', 'Install', and 'Cancel'.

7. Follow the wizard to finish AD DS configuration

EXERCISE 5: Install Windows 10 computer

EXERCISE 56 Join a computer to an Active Directory Domain

1. Right-click on the Start menu and choose System.
2. Click on the section called Rename This PC (Advanced) and then click the Change Settings link.
3. In the Member Of section, choose the Domain option. Type the name of the Active Directory domain that this computer should join. Click OK.
4. When prompted for the username and password of an account that has permission to join computers to the domain, enter the information for an administrator of the domain. Click OK to commit the changes. If you successfully joined the domain, you will see a dialog box welcoming you to the new domain.
5. You will be notified that you must reboot the computer before the changes take place. Select Yes when prompted to reboot.

EXERCISE 7: Install the second Domain Controller (SVR-DC2)

EXERCISE 8: Installing AD DS on Server Core Using PowerShell

6. At the Server Core command prompt, type **cd c:\windows\system32** and press Enter.
7. Type **timedate.cpl** and set your date, local time zone, and time. Click OK.
8. Type **Netsh** and press Enter (display or modify the network configuration of a computer)
9. Type **Interface**, and press Enter.
10. Type **IPv4**, and press Enter.
11. Type **Show IP** and press Enter. This will show you the current TCP/IP address and the interface with which the TCP/IP address is associated.
12. To change the IP configuration for an interface, type the following command and press Enter (suppose that the Interface ID is 2 and the IP address is 172.30.100.3):
Netsh interface ipv4> Set address name="2" source=static address=172.30.100.3 mask=255.255.255.0 gateway=172.30.100.1
(Replace the address, mask, and gateway based on your local settings).
13. Type **Show IP** and press Enter. You should see that the new address is now manual and set to the IP address you set.

14. Type **Exit** and press Enter.
15. Type **Net User Administrator *** and press Enter.
16. Type in the password of user administrator and then confirm the password. (CT209Hm\$).
17. Type the following command (to change the computer name) and press Enter:
Netdom renamecomputer %computername% /newname:DC3
18. Type Y and press Enter.
19. Type **Shutdown /R /T 0** and press Enter. This will reboot the machine. After the reboot, log back into the system.
20. Type **PowerShell** and press Enter.
21. At the PowerShell prompt, type **Add-WindowsFeature DNS** and press Enter. This will add DNS to the server.
22. At the PowerShell prompt, type **Add-WindowsFeature AD-Domain-Services -IncludeManagementTools** and press Enter.
23. At the PowerShell prompt, type **Import-Module ADDSDeployment**.
24. Configure DNS
Set-DnsClientServerAddress -InterfaceIndex 2 -ServerAddresses 172.30.100.2
25. Promote the server to a domain controller in an existing domain
Install-ADDSDomainController -InstallDns -Credential (Get-Credential A\Administrator) -DomainName A.lab -SafeModeAdministratorPassword (ConvertTo-SecureString -AsPlainText "" -Force) -NoGlobalCatalog \$false
26. You will be prompted to enter again the password for the domain administrator. Input the password of the domain administrator
27. Type Y and press Enter.
28. After restarting, running **sconfig** on the server core to verify that Windows Server core has joined the domain on the first DC.
29. Verifying that the Windows 2016 core server now is a domain controller
Nltest /dclist:<domain>
Or using the tool **ADUC** on the Enterprise Desktop DC.