PROJECT MILESTONE 1 INSTRUCTIONS (DETAILED)

REMINDER, DO *NOT* CHANGE YOUR AZURE HOSTS DNS OR IP ADDRESS SETTINGS UNDER ANY CIRCUMSTANCES, EVEN IF YOU THINK YOUR INSTRUCTOR TOLD YOU TO DO IT.

First, setup your FirstNameDC1 virtual machine using the steps from the previous guides

Setting up the Network Based Installation (CHANGED: DONE ON YOUR DC1 VIRTUAL MACHINE)

1. Within Server Manager, select the Manage menu and then click **Add Roles and Features.**
   a. At the Select installation type page, click **Next**.
   b. At the Select destination server page, click **Next**.
   c. At the Select server roles page, select **DHCP Server**, and click **Add Features** when prompted.
   d. Next, **select Windows Deployment Service** and click **Add Features** when prompted. Click **Next** when finished.
   e. d. At the Select features page, click **Next**.
   f. e. At the DHCP Server page, read the information regarding best practices and click **Next**.
   g. At the WDS page, read the information regarding best practices and click **Next**.
   h. At the Role Services page, note that the Deployment Server and Transport Server are selected by default and click **Next**.Click **Install** to install the DHCP Server and Windows Deployment Service roles.
   DO NOT CLOSE THE WIZARD WHEN INSTALL IS COMPLETED
   a. After the installation has completed, click **Complete DHCP configuration**, click **Commit**, and then click **Close**.
   b. Click **Close** to close the Add Roles and Features Wizard.
3. Within Server Manager, **select the Tools** menu and then click **DHCP**.
4. In the DHCP tool, expand your server within the navigation pane and then expand IPv4. In the Actions pane, click **More Actions** and then click **New Scope**.
   a. In the Welcome page of the New Scope Wizard, click **Next**.
   b. At the Scope Name page, type **Internal Network** in the Name text box and click **Next**.
   c. At the IP Address Range page, supply a Start IP address of **172.16.0.50** and End IP address of **172.16.0.100** and click **Next**.
   d. At the Add Exclusions and Delay page, click **Next**.
   e. At the Lease Duration page, click **Next**.
   f. At the Configure DHCP Options page, **select No, I will configure these options later** and click **Next**.
   g. Click **Finish** to complete the New Scope Wizard.
5. In the DHCP tool, click **Scope [172.16.0.0] Internal Network** within the navigation pane. In the Actions pane, click **More Actions** and then click **Activate**. Close the DHCP tool when finished.
6. In the Host Azure VM's Desktop. **Open the Software Folde**r and **Mount Windows 2019 Server ISO**.
7. Within Server Manager, select the **Tools** menu and then click **Windows Deployment Services**.
8. In the Windows Deployment Services window, expand Servers within the navigation pane. **Right-click your server** and click **Configure Server**.
   a. At the Before You Begin page, click **Next**.
   b. At the Install Options page, **select Standalone server** and click **Next**.
   c. At the Remote Installation Folder Location page, create a folder in D:\ drive with the name **RemoteInstall** and choose that as its location. Click **Yes** when prompted.
   d. At the Proxy DHCP Server page, click **Next**.
   e. At the PXE Server Initial Settings page, **select Respond to all client computers (known and unknown)** and click **Next**.
   f. At the Task Progress screen, click **Finish** when available.
9. In the Windows Deployment Services window, **right-click Boot Images under your server** and click **Add Boot Image**.
   a. At the Image File page of the Add Image Wizard, click **Browse**. Navigate to the mounted iso, go to the \sources folder, click **boot.wim** and then click **Open**. Click **Next** when finished.
   b. At the Image Metadata page, click **Next**.
   c. At the Summary page, click **Next**.
   d. Click **Finish** to close the Add Image Wizard.
10. In the Windows Deployment Services window, **right-click Install Images** under your server and click **Add Install Image**.
    a. At the Image Group page of the Add Image Wizard, note the default image group name and click **Next**.
    b. At the Image File page, click **Browse**. Navigate to the \sources folder on your of your mounted disk, click **install.wim**, and then click **Open**. Click **Next** when finished.
    c. At the Available Images page, note the available editions and click **Next**.
    d. At the Summary page, click **Next**.
    e. Click **Finish** to close the Add Image Wizard
11. In the Windows Deployment Services window, **right-click your server** in the navigation pane, click **All Tasks**, and then click **Start**. Click **OK** to close the Server window.
12. Close the Windows Deployment Services window.

Configuring WDS Deployment (CHANGED: DONE ON YOUR AZURE HOST VIRTUAL MACHINE)

1. Within Server Manager, **select the Tools** menu and then click **Hyper-V Manager**.
2. In the Actions pane of Hyper-V Manager, click **New**, and then click **Virtual Machine** to open the New Virtual Machine Wizard.
   a. At the Before You Begin page, **select Do not show this page again** and click **Next**.
   b. At the Specify Name and Location page, supply the name **FirstNameDM1**, (no spaces), select **Store the virtual machine in a different location** (Make sure it is in the D: Drive), and click **Next**.
   c. At the Specify Generation page, click **Next** to accept the default of Generation 1
   d. At the Assign Memory page, enter **4096** in the Startup memory text box and click **Next**.
   e. At the Configure Networking page, select VMNat from the dropdown box and click **Next**.
   f. At the Connect Virtual Hard Disk page, view the default options that create a **30 GB** d**ynamically expanding virtual hard disk** and click Next.
   g. At the Installation Options page, select **Install an operating system from a network-based installation server** and click **Next**.
   h. At the Completing the New Virtual Machine Wizard page, click **Finish**.

i. In Hyper-V select the child VM (Make sure it is off), click on **Settings** on the right column.
j. Select **Highlight SCSI Controller** under the Hardware section. Click **Add** to add an additional hard drive. Next, click **New** to create a new virtual hard disk file for this additional hard drive.
   i. At the Before You Begin page of the New Virtual Hard Disk Wizard, click **Next**.
   ii. On the Choose Disk Format page, note that VHDX is selected by default and click Next.
   iii. On the Choose Disk Type page, note that Dynamically expanding is selected by default and click **Next**.
   iv. On the Specify Name and Location page, type **[VMNAME]AdditionalDisk.vhdx** in the Name text box and click **Next**.
   v. On the Configure Disk page, set the default size of **20 GB** (D drive) and click **Next**.
   vi. Click **Finish** to create the new virtual hard disk file and associate it with your new SCSI virtual hard disk.

REPEAT THE STEPS ABOVE FOR THE OTHER CHILD VM (FirstNameClient1)

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Include a screenshot of your host's Hyper-V Manager with the child VMs correctly named on template

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3. In the Virtual Machines pane of Hyper-V Manager, select your **YourFirstNameDC1/YourFirstNameDM1** virtual machine and click **Connect** in the Actions pane.
4. In the Virtual Machine Connection window, click **Start** to boot your virtual machine, and press **F12** on your keyboard when prompted to boot from a network server. This will download the boot.wim file from the WDS server to your virtual machine to start the installation process.

Include a screenshot showing the WDS role on your host VM. and a screenshot showing a etwork install on a child VM (you can create another VM and screenshot that one if you already created all the VMs)*

***** IF DHCP TIMES OUT PLEASE REFER TO POSSIBLE SOLUTIONS AT THE BOTTOM *****

a. After the Windows Setup screen appears, select the correct locale and keyboard or input method and click **Next**.
b. When prompted to provide a valid user name and password for an account on the WDS server, supply the user name **ProjectVM\NTWK2007PROJECTVM** (This may be different if the Virtual machine with the WDS role is different) the and password **Secret555** and press **Enter**.
c. At the Select the operating system you want to install page, click **Windows Server 2019 SERVERSTANDARD** and click **Next**.
d. At the Where do you want to install Windows page, note your virtual hard disk and click **Next**.
e. After the installation has completed, click **Restart now**, if necessary. Your system will reboot twice.
f. When the OOBE wizard appears, select your country/region, preferred app language, and keyboard layout, and click **Next**.
g. At the License terms page, click Accept.
h. At the Customize settings page, supply the password **Secret555** in the Password and Re-enter password text boxes and click Finish.
i. At the login screen. at top under Actions bar, click the **Ctrl+Alt+Delete** button within the Virtual Machine Connection window, supply the password **Secret555** for Administrator, and press Enter to log into the system.

*** POSSIBLE SOLUTIONS ***

1. Solution #1 – Reinstalling DHCP
   a. Assuming, window's deployment installed correctly. From server manager, click remove roles and features. Select DHCP and remove.
   b. Shutdown Azure VM, and stop running the VM.
   c. Turn it back on and add the DHCP role and feature again.
   d. Start from Step 2 in [Setting up the Network Installation (AZURE HOST VM)].
2. Solution #2 – Restart Method
   a. After you have commited the DHCP. Restart the VM and continue with the instructions.
3. Solution #3 – Forgetting to Activate Internal Network Scope and/or starting the Windows Deployment
   a. Make sure the scope 176.16.0.0 is activated.
   b. Make sure Windows Deployment has started.
4. Solution #4 – Stopping the DHCP
   a. Stop the DHCP server, delete the 176.16.0.0 scope.
   b. Refresh the DHCP.
   c. Recreate the Scope again.
   d. A restart may be needed.

Child VMs Setup Initialization (MUST BE DONE IN ALL CHILD VMs)

1. Initial Setups
   a. In Server Manager, change Computer Name to their corresponding name.
   b. Timezone should be set to central US/Canada
   c. Press Windows Key + R on keybaord and type **sconfig**.
      i. Go to Windows Update and set it to **Manual**
      ii. Close sconfig
2. Disk initialization
   a. Press Windows Key + R, enter "**diskmgmt.msc**" and click **run**.
   b. Right click Disk 1, click **Online.**
   c. Right click Disk 1 again and **Initialize Disk.**
   d. Make sure Disk 1, and **MBR** are both selected. Choose **OK**
   e. Right click the box right of Disk 1 and click "**New Simple Volume**"
   f. Repeatedly press Next and until the Format Partition page. Give the storage a new name or click **next**, then click **Finish**.

REPEAT FOR OTHER CHILD VMS

3. Network Configuration
   d. Make sure that VmNAT is selected under network adapter in virtual machine settings. VmNAT is an internal NAT virtual Switch configured on your Azure machines. This network adapter will provide internet access as well as communication between virtual machines. This can be setup during installation or after installing the operating system.
   e. Make sure that the DNS on the **Child VMs matches the HOST AZURE DNS**

FirstNameDC1 – 172.16.0.2 (255.255.0.0)

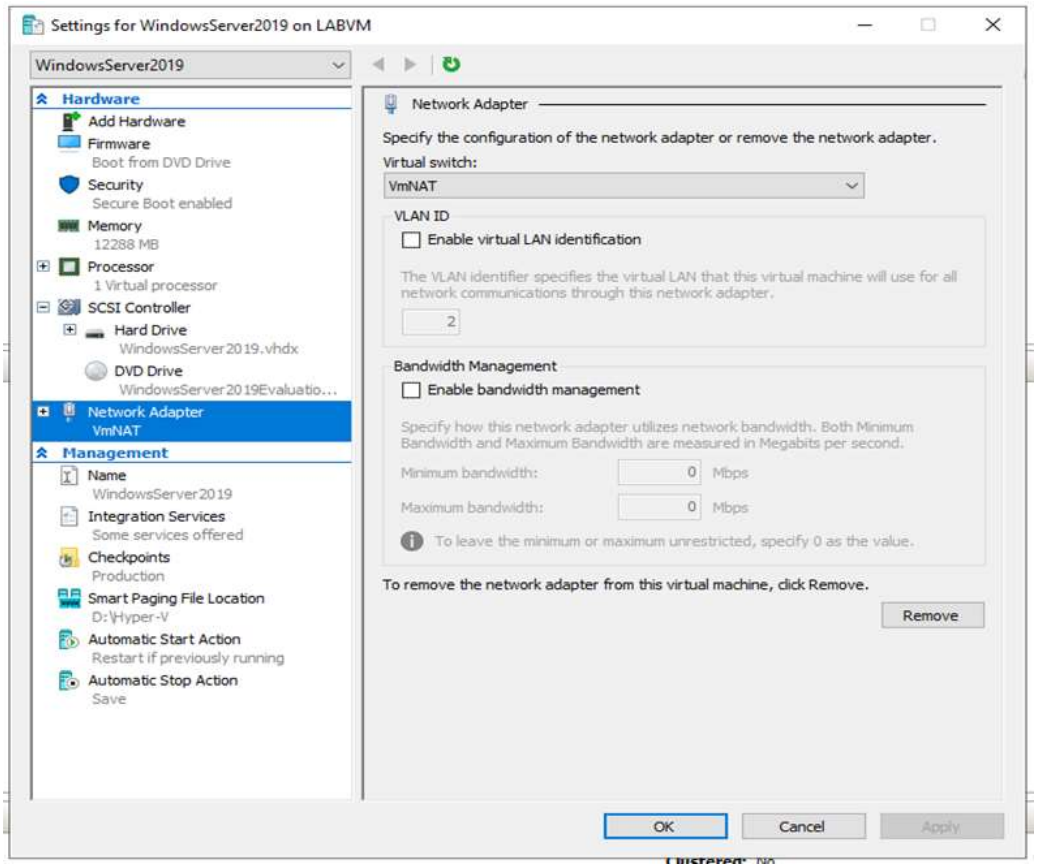
FirstNameDM1 – 172.16.0.3 (255.255.0.0)

client ip 172.16.0.2

DEFAULT GATEWAY for Both VMs – 172.16.0.1

DNS – Check your HOST (AZURE) for DNS (ipconfig /all) or Network Adapter under IPv4

DNS 168.63.129.16



Include screenshots showing the Server Manager page of each child VM, the IP address and Windows Update status should be visible on template

Include screenshots showing the results of nslookup on both VMs on template

Configuring Azure Server (DO THIS ON DC1 CHILDVM)

1. On your Windows Server 2019 host, log into the system as Administrator using the password **Secret555**. Next, click **Start** and then click **Server Manager**.
2. Within Server Manager, click the **Manage** menu and then click **Add Roles and Features**.
3. At the Select installation type page, click **Next.**
4. At the Select destination server page, click **Next**.
5. At the Select server roles page, select **Active Directory Domain Services** and click Add **Features** when prompted. Click **Next**.
6. At the Select features page, click **Next**.
7. At the Hyper-V page, read the information regarding best practices and click **Next**.
8. At the Active Directory Domain Services page, read the information provided and click **Next**.
9. On the Confirm installation selections page, click **Install** to install the files needed for Active Directory Domain Services.

DO NOT CLOSE THE WIZARD WHEN INSTALL IS COMPLETED

10. On the Installation progress page, click **Promote this server to a domain controller** to start the Active Directory Domain Services Configuration Wizard.
    a. At the Deployment Configuration page, select **Add a new forest**. In the Root domain name text box, type **YourLastNameProject.local**, and click **Next.**
    b. At the Domain Controller Options page, select a Forest functional level of **Windows Server 2008**, and then select a Domain functional level of **Windows Server 2008**.
    c. Type **Secret555** in the Password and Confirm password text boxes and click **Next**.
    d. At the DNS Options page, click **Next**.
    e. At the Additional Options page, note the NetBIOS name of your domain and click **Next**.
    f. At the Paths page, note the default folders displayed and click **Next**.
    g. At the Review Options page, click **Next**.
    h. At the Prerequisites Check page, click **Install**. Your computer will automatically reboot following installation.
2. After your Windows Server 2019 host has started, log into **YourLastNameProject.local** (If it does not work try "YourLastNameProject\Administrator" as the username) as Administrator using the password **Secret555**. Next, click **Start** and then click **Server Manager**.
11. Within Server Manager, click **Local Server** within the navigation pane, and then click the hyperlink next to your **vEthernet (External Virtual Switch)** network interface.
    a. In the Network Connections window, right-click **vEthernet (External Virtual Switch)** and click **Properties**.
    b. Highlight **Internet Protocol Version 4 (TCP/IPv4)** within the **vEthernet (External Virtual Switch or vmNAT)** Properties window and click **Properties**. Note that the Preferred DNS server has been set to 127.0.0.1 to ensure that your domain controller can locate Active Directory services using the locally-installed DNS service.

c. Click **OK**. Click **OK** again to close the **vEthernet (External Virtual Switch)** Properties window.
d. Close the Network Connections window.

Include a screenshot of this VMs Server Manager window showing the Domain Controller Role, along with the name of the domain

12. Within Server Manager, click the **Tools** menu and then click **DNS**.
    a. In the DNS Manager window, right-click the SERVERX object within the navigation pane and click Properties.
    b. In the **SERVERX Properties** window, highlight the **Forwarders** tab. Note that the DNS service on your computer is set to forward requests it cannot resolve to the DNS servers that were previously used by your vEthernet network interface, and click **OK**.
    c. Close the DNS Manager window.

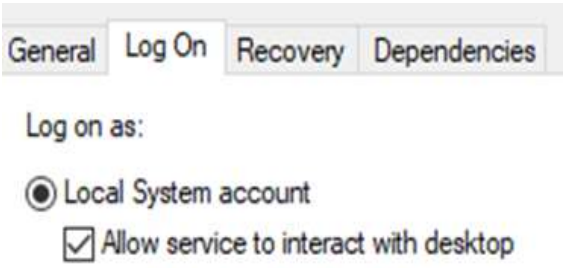
HOW TO ADD MEMBERS TO THE DOMAIN (DM1 as Member because DC1 is the Domain Controller)

1. On DM1, head over to your **Network Adapter** and change your **Preferred DNS to the IP of DC1** and move the current one to Alternate (Optional). Close the window
2. On Server Manager (DM1), under Local Server on the left pane, select **WORKGROUP** then click **Change** and select **Domain** circle and enter in **YourLastNameProject.local**
    a. For the login prompt, it should be **Administrator** and **Secret555** and afterwards it should show Welcome to YourLastNameProject.local domain message box.

Include a screenshot showing the Member Server in the domain

HOW TO CREATE A SERVER GROUP

1. Turn OFF **Windows Firewall (Public, Private, and Domain)** on BOTH DC1 and DM1, close Window.
2. On DM1, open **services.msc** and scroll down until you see **Virtual Disk,** right-click and select **Properties**
    a. For Startup drop down, choose **Automatic** then select **Log On** on the tabs at the top and make sure you select **Allow service to interact with desktop.** Now you may **start** the service.



3. On DC1 Dashboard, click **Create a Server Group**
    a. On the tabs, select Active Directory, click **Find Now** (both VMs should populate) then select both DM1 and DC1 and click the **Arrow** and it should then populate on the right-hand box.
    b. At the top, Server Group Name box, put an appropriate name for the group then click **OK.** A new Server Group should be added on the left-hand side.

HOW TO ACCESS DISK MANAGEMENT

1. On **Server Manager**, click on your server group on the left-hand pane.
2. Right Click on **DM1** and click on **Computer Management** and a new Window should appear. (Make sure DM1 is active and running).
3. On the left-hand pane in computer management click **disk management** to access the drives in DM1.
4. If it is giving you an error saying "The RPC Server is Unavailable", follow these steps
    a. Open Windows Powershell as admin and run this following command on both **DC1** and **DM1.**
        i. **netsh advfirewall firewall set rule group="Remote Volume Management" new enable=yes**
5. If no errors occur, disk management should load after you click on it.

**Include a screenshot showing the Server Group with both servers being members. And Include a second screenshot showing access to the disk management. **

Powershell scripts

o Processes running on the system

```
Get-Process
```

o All environment variables for user and for system

```
dir env:
Get-ChildItem –Path Env:
```

o The system processor

```
Get-WmiObject Win32_Processor
Gwmi win32_processor
```

o Computer system information such as name and domain membership

```
Get-ComputerInfo
Get-WmiObject win32_computersystem
gwmi win32_computersystem
```

o The logical disks on the system– with disk size and free space information

Try all commands, see which one works

```
Get-WmiObject –Class Win32_LogicalP
```

Get-WmiObject –Class Win32_LogicalDisk

Get-CimInstance win32_logicaldisk

gwmi win32_logicaldisk

o A list of the shares on your drives

The commands below all seem to work?

net share

Get-WMIObject -Query "SELECT * FROM Win32_Share" | FT

gwmi win32_share

o The configuration of your network adapter

Get-NetAdapter

Gwmi win32_networkadapterconfiguration