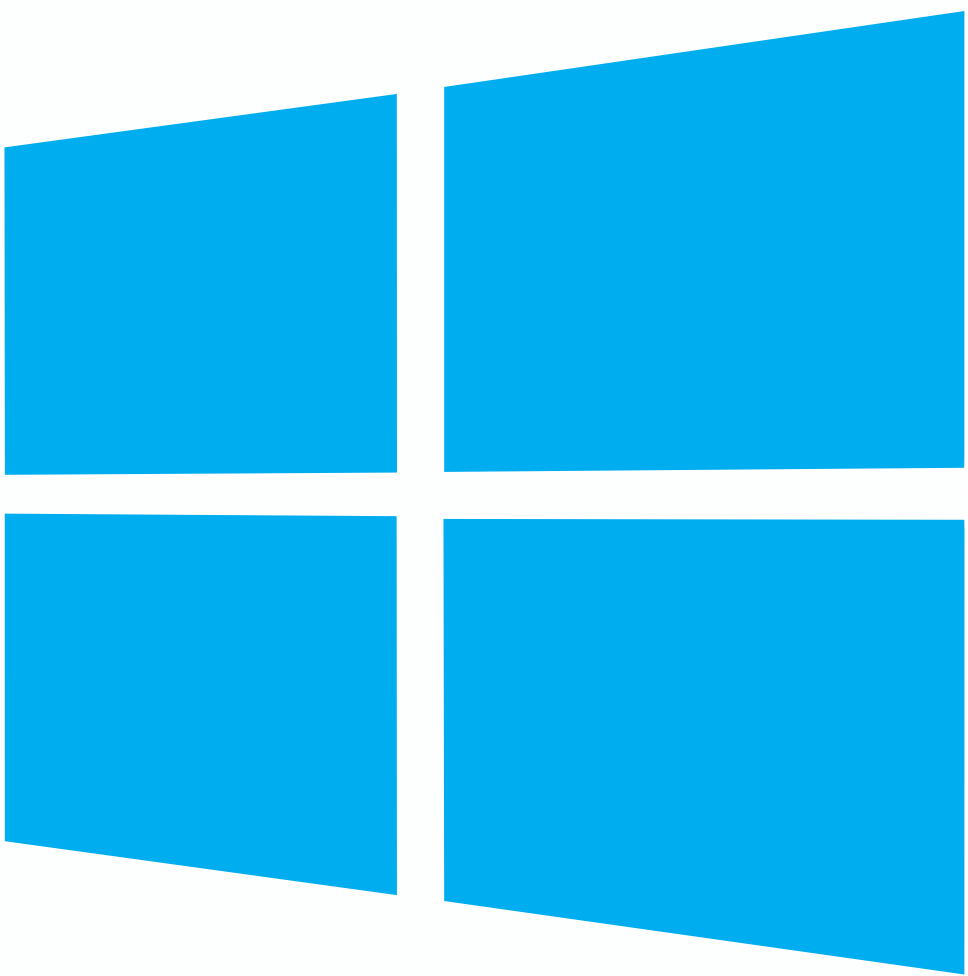# ACTIVE DIRECTORY LAB

▶ Install and set up VMware Workstation, and download the windows server 2016 ISO file. Then, when creating a new virtual machine, you may encounter an issue with the Windows License Key prompt. In this case, choose the "install the OS later" option and proceed with the setup.

- Once the VM is created, select "edit the VM settings" and increase the memory. For the network adapter, select "Bridged Network Connection" ('I prefer to use an ethernet connection for my PC'). To load the Windows Server ISO file, select "Use ISO image file" and click OK.

- Finally, launch the VM and follow the installation process to complete the setup of Windows Server 2016.

- After signing in, the Server Manager dashboard should appear. If it doesn't, search for it and open it. Once you're in the Server Manager, select the "Manage" option from the top right menu bar and choose "Add roles and features."
- From there, complete the process by installing the Active Directory Domain Services (AD DS) role. In the Configuration Wizard, choose "Add a new forest" and enter the domain name you want to use for your Active Directory domain.
- Follow the remaining steps in the wizard to complete the installation of the Active Directory.

- Once Active Directory is installed, you can set the IP address of the domain controller to be static by going to the "Network and Sharing Center" in Control Panel. Select the adapter with the domain controller's IP address, and choose "Properties". From there, select "Internet Protocol Version 4 (TCP/IPv4)" and set the IP address to a static IP. (You can find the IP address by opening the command prompt and typing "ipconfig").
- To promote the server to a domain controller, open Server Manager and click on the notification that says "Configure this server as a domain controller". Follow the prompts to complete the promotion process.

- Simultaneously, on the top left of the VM, click on "Player" and select "Removable Devices" followed by "CD/DVD (SATA)" and click on "Connect". Navigate to File Explorer and select "This PC". Then, open the CD/DVD drive and run the "VM Tools" installation program. Follow along with the setup wizard to complete the installation.

▶ To create another Windows Server VM, follow the same process as before, but only sign in to the VM. Note the AD Domain Controller's IP and set that as the new Windows Server VM's DNS server IP. Also, make sure to set the IPv4 address to a static IP. You can find the IP address by opening the command prompt and typing "ipconfig". Make sure the IP addresses set are of the same group.

- Once you have set the IP address to a static value, open the "System" control panel on the Windows Server VM. Click on "Advanced system settings" and go to the "Computer Name" tab. From there, click on the "Change" button to change the computer name and join the domain.

- To join the domain, open the "System" control panel on the Windows Server VM, click on "Advanced system settings", and go to the "Computer Name" tab. From there, click on the "Change" button and enter the name of the domain you want to join. Enter domain administrator credentials when prompted, and then follow the remaining prompts to complete the domain join process.

After joining the domain, open the "Active Directory Users and Computers" console on the domain controller from the "Tools" menu. Right-click on the domain or an existing organizational unit (OU) and choose "New > Organizational Unit". Enter a name for the new OU.

- To create a new user, right-click on the OU or AD Domain Controller where you want to create the user and choose "New > User". Enter a username, such as "user1", set a password, and choose any other options as needed.

To create users in Active Directory using PowerShell ISE. Here's an example script to create users:

```
# Import AD Module
Import-Module ActiveDirectory

#get variable from user
$fullname = Read-Host -Prompt "Enter the Full Name"
$username = Read-Host -Prompt "Enter the User Name"

#create the AD User
New-ADUser `
  -Name $fullname `
  -UserPrincipalName $username `
  -AccountPassword (ConvertTo-SecureString
"user@123" -AsPlainText -Force) `
  -Path "DC=ACTIVEDIRECTORY,DC=LOCAL" `
  -ChangePasswordAtLogon 1 `
  -Enabled 1
```

- To find the path, right-click the destination folder or domain from the "Active Directory Users and Computers" console, ->Properties -> Attribute Editor, and find and copy the distinguishedName.

- You can modify the script to fit your specific domain and organizational unit names.

▶ Choose a Linux OS of your choice and download the ISO file. Install the Linux OS in a new virtual machine using the same process as setting up the Windows Server VM.

- Install PuTTY on the AD DC and take note of the IP address of the Linux VM.
- From the command prompt, try to ping the IP address of the Linux VM. If the ping is successful, open PuTTY and enter the IP address of the Linux VM under "Hostname". Under "Saved Sessions", give the session a name of your choice and select "Save".

- Go to Connection -> Data and enter the auto-login username for the Linux machine.
- Go back to the Sessions tab and click on "Open" once it works.
- Generate a public-private key pair on your local machine using PuTTYgen.

- Save the public and private keys somewhere safe on the AD machine, and copy the public key text.
- Go back to PuTTY, select your saved session, click on "Load", and then "Open".
- In the terminal, enter the password.
- Use the following commands:

sudo mkdir ~/.ssh   -> hit enter
sudo chmod 700 ~/.ssh   -> hit enter
sudo vi ~/.ssh/authorized_keys   -> hit enter

In the editor, press i to enter INSERT mode, then paste the public key we copied from PuTTYgen.

Press -> Shift+: -> type wq!   -> hit enter

sudo chown username:username(your Linux login username) ~/.ssh -R -> hit enter
sudo service sshd restart -> hit enter
Type exit -> hit enter

- To use the private key for authentication, go to PuTTY and click on "SSH" in the left panel, then select "Auth", and then "credentials". Browse to the private key file and select it. After that, go back to the "Session" panel, select the saved session, click on "Load", and then click "Open" to connect to the Linux machine.

If everything is set up correctly, you should be able to log in to the Linux VM without entering a password.

Happy Learning! :)