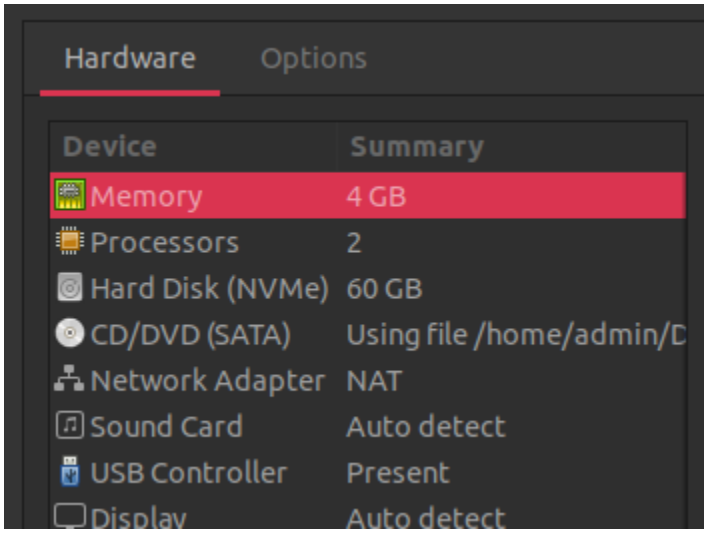
The Domain Controller

I knew that setting up the main server/domain controller would be the most important part of this process. It also proved to become the most difficult part. Everything that I would be doing in this virtual environment revolves around the domain controller, just like an enterprise environment. On the main server I created roles for Active Directory (Domain Controller), DNS, and DHCP. I know that it is best practice to have your DC separated from any other server roles, but it was more practical for me to have just one main server running everything.

Before we get into provisioning virtual machines, it is critical that you enable hardware virtualization in your system's BIOS. This will look different for different kinds of motherboards. For me, it was called "SVM Mode" under the Advanced/CPU tabs. Make sure that is enabled and you should be good to go.



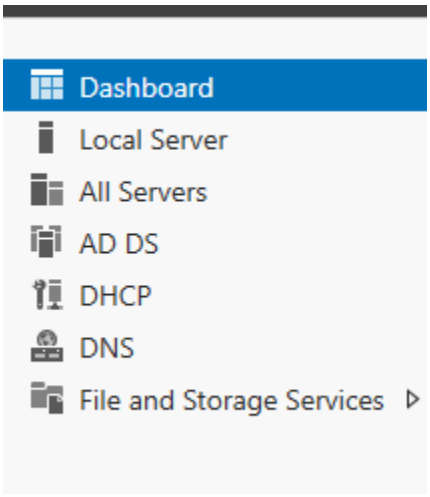
To start provisioning the server, I downloaded the ISO file for Windows Server 2016. Based on the operating system that you are trying to virtualize, VMware will have a pre-suggested setting for your hardware allocations. I stuck with the default of 60GB for the storage disk size, 2 processor cores, and I bumped the ram up to 4GB. Make sure to uncheck the option for "automatically power on machine" so you can go in and delete the Floppy Disk.

After all of the initial configuration, I booted up the VM and created my Admin user account. The next important step is to name your server/domain and set a static IP address. I just did a quick *'ipconfig'* to find the current IP settings and set all of them as static. Next, I added the roles that I wanted for this server; AD Domain Services, DNS,

and DHCP. I made sure to include the management tools in the installation, and continued through the installation wizard. Before closing, the wizard will ask you to promote this server to a domain controller, which you will obviously do and add it as a new forest. Make sure that your domain controller acts as a DNS server for networking purposes. Once everything is installed, you will have to restart the VM.

The next order of business is to configure DNS. In DNS, there are 2 forward lookup zones that get created automatically. What we need to do is create a reverse lookup zone. This is done as a primary IPv4 zone, and the network ID is the first 3 octets of your IP Address e.g., 192.16.162. I used the default settings to finish up using the wizard. You will then see a new reverse lookup zone that shows your network ID in reverse. Select this and create a new pointer. I just browsed the host name until I came to the name of my host, this should auto-fill the host IP address. The final step is to go to your network adapter settings, select IPv4 properties, and change the default DNS server to the address of the pointer you just created. Your DNS is now configured and ready to go.

The final role to configure on this server is DHCP. DHCP is very important for this process because we want every new VM that is provisioned to be on the same network as the Domain Controller. To start, open up the server manager and there should be an error that needs to be completed before you can configure DHCP. Select the error and it will basically just have you enter the admin username to create a security group. After that, open DHCP and right-click on IPv4. We need to create a new scope so that we can define the IP address range, length, subnet mask, default gateway, and DNS server. You can see the "New Scope Wizard" to the right of the screen. All of this information can be found by running the '*ipconfig*' command in the command prompt. Select the option to activate the scope now and DHCP is configured and the main server/ domain controller is complete.



Resources

Install Windows Server 2016

https://www.youtube.com/watch?v=lS9Eulfpffg

Install AD, DNS, and DHCP

https://www.youtube.com/watch?v=NE2nQlYcwao

Different Types of Network Connections

https://docs.vmware.com/en/VMware-Workstation-Player-for-Linux/17.0/com.vmware.player.linux.using.doc/GUID-FC54BCB2-9529-4FA8-9BD7-613BFFD4E103.html