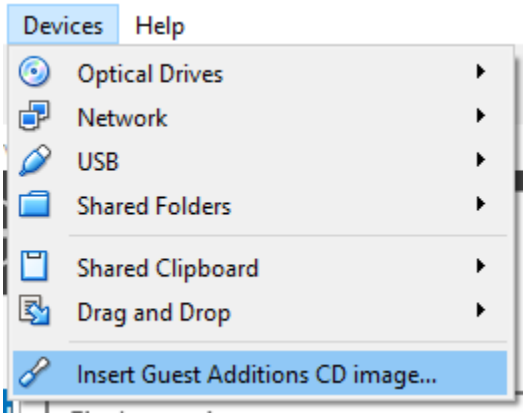
Basic Windows Server 2016 Configurations

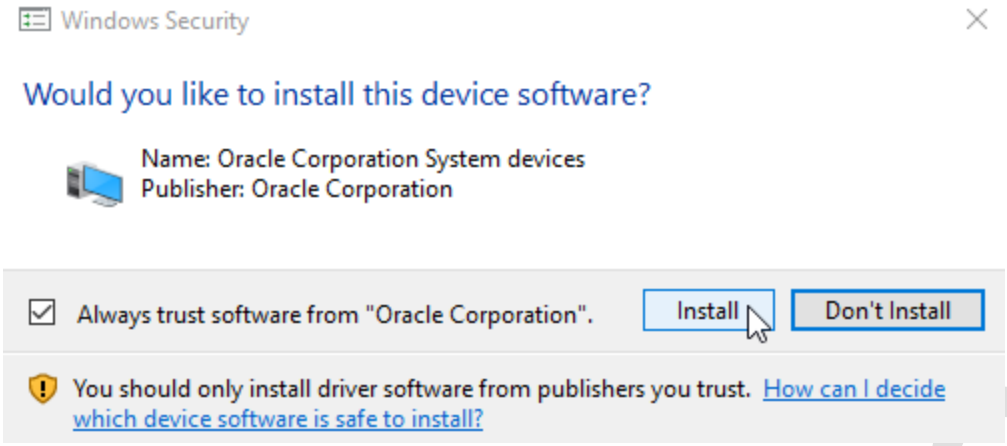
In this lecture we are going to install VirtualBox Guest Additions, setup the computer's network configuration and make sure it can reach the internet as well as communicate with our Host computer and finally, we will change the computer name.

Power on the VirtualMachine and press Right-Crtl+DEL and enter your login credentials. Wait for the server to fully load then at the top of the VM window, select “Devices > Insert Guest Additions CD image…”.



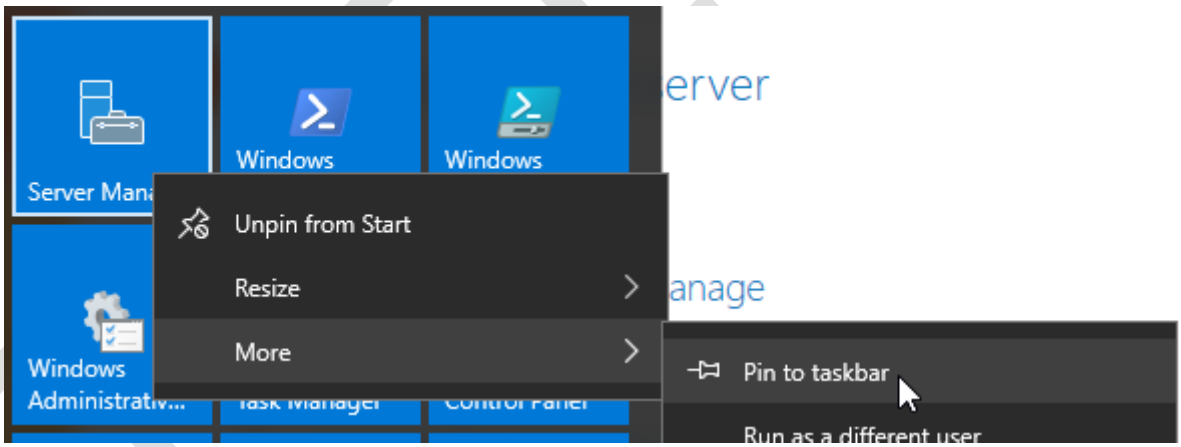
Open File Explorer by clicking the folder icon on the task bar. Select “This PC” on the left side of the File Explorer. Under Devices and Drives you should see the VirtualBox Guest Additions CD.

Double click on this CD to launch the installation. Once the welcome screen appears click next through the prompts and select Install. Durring the installation process you will be asked to install device software. Click the Install button to continue.

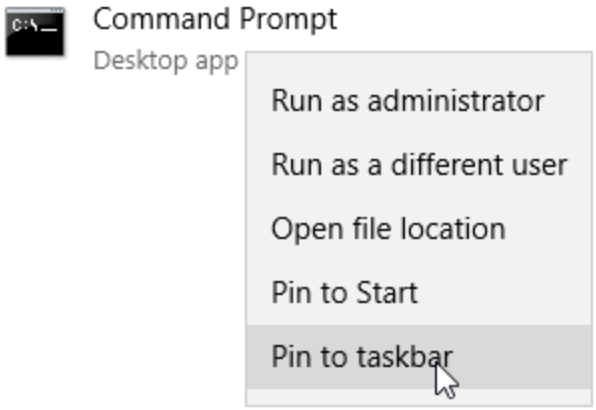


Once the installation is complete you will be required to reboot the server. Choose the finish button and wait for the server to complete the reboot.

Once the computer reboots, l og back into your desktop and wait for Windows to fully load. Once Windows is fully loaded we need to open Server Manager and Command Prompt. To do this, click the windows button in the bottom left and choose the server manager button. I recommend that you right-click on this button, choose “More > Pin to taskbar” as you will be using it quite often.



Once you are done with that I also recommend that you pin command prompt to the taskbar. You can find the command prompt launcher by clicking the windows button again and searching for “cmd”.



Now we are going to setup our network connection for our Host-only network. If you are running a physical Server or your particular environment doesn't use VirtualBox or a Host-only network you can skip this step. However, if you have been following all of th e steps I have done so far continue on and follow these steps.

Open command prompt and enter the commnad "ipconfig". This command will list our computers networking adapters and configurations. We are looking for your two ethernet adapters 1 and 2.

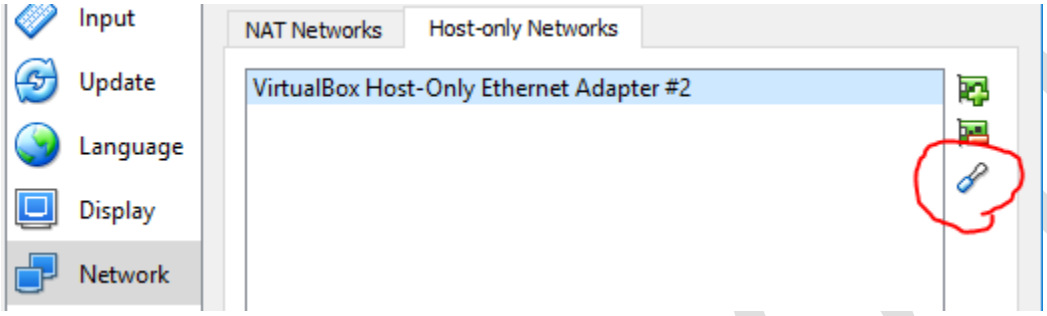
```
Ethernet adapter Ethernet:

   Connection-specific DNS Suffix  . :
   Link-local IPv6 Address . . . . . : fe80::7183:465c:908e:a913%2
   IPv4 Address. . . . . . . . . . . : 10.0.2.15
   Subnet Mask . . . . . . . . . . . : 255.255.255.0
   Default Gateway . . . . . . . . . : 10.0.2.2

Ethernet adapter Ethernet 2:

   Connection-specific DNS Suffix  . :
   Link-local IPv6 Address . . . . . : fe80::9c6d:2a66:5d80:433a%4
   Autoconfiguration IPv4 Address. . : 169.254.67.58
   Subnet Mask . . . . . . . . . . . : 255.255.0.0
   Default Gateway . . . . . . . . . :
```

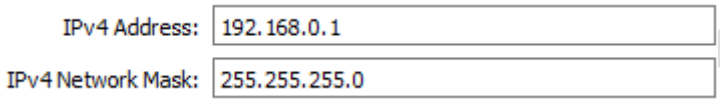
If you do not see the same settings I do then you likely do not have the exact same network settings that I have on the Guest VM. Notice the first adapter has an IP address of 10.0.2.15. I have assigned adapter 1 on my VM to be a NAT adapter and this is the IP address that was automatically configured for my VM (note that yours could be different). If I attempt to run the command "ping google.com" for example, I can test to see if I have internet connectivity.

```
Pinging google.com [74.125.192.102] with 32 bytes of data:
Reply from 74.125.192.102: bytes=32 time=25ms TTL=44
Reply from 74.125.192.102: bytes=32 time=32ms TTL=44
Reply from 74.125.192.102: bytes=32 time=25ms TTL=44
Reply from 74.125.192.102: bytes=32 time=25ms TTL=44

Ping statistics for 74.125.192.102:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
Approximate round trip times in milli-seconds:
    Minimum = 25ms, Maximum = 32ms, Average = 26ms
```

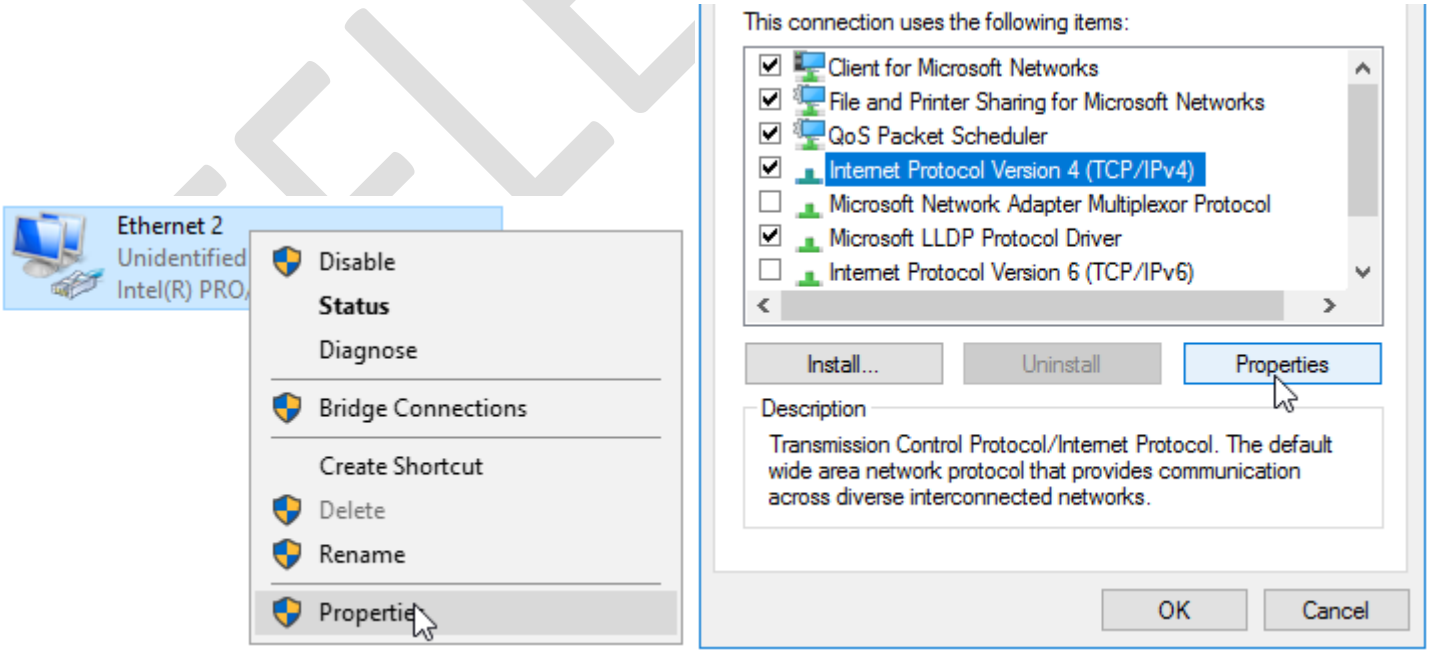
I can see I am getting replies from Google.com. This tells me that I am connected to the internet. Now I need to get the second adapter working. Notice the IP is is a 169.254.***.*** address. This means that the computer itself was unable

to find a DHCP server on the network and instead assigned a private IP address to itself. We need to configure an IP address the is on the same network as the Host-only network we have created in previous lessons. To do this, we need to exit the full screen on the VM (Crtl + F) and open File > Preferences on the VirtualBox window. Navigate to Network tab and select “Host-only Networks”. Select your Host-only network and click the “Edit Selected” button.

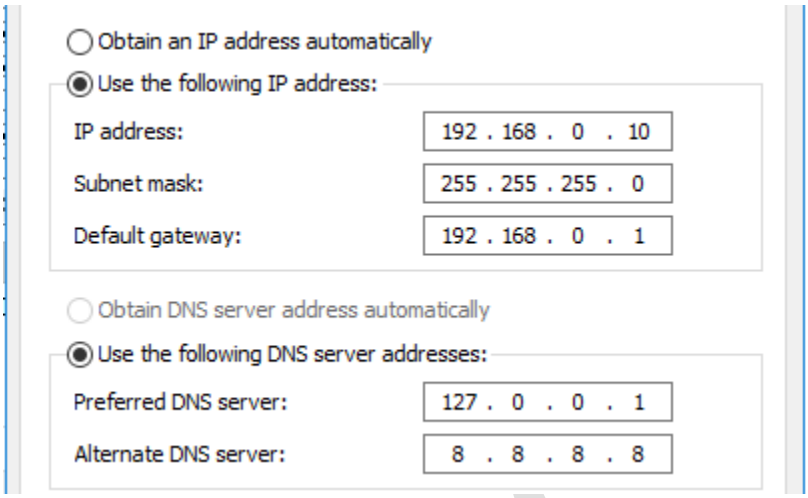




Notice if you navigate to the DHCP Server tab it is turned off. This is what our VM got a 169.254.***.*** address. Do not turn this back on however as we will be creating our own DHCP server on this VM later . We need to give our VM’s second adapter an IP address in the range of 192.168.0.2-254. Navigate back to your Guest VM and open the Server Manager Window. Choose the “Local Server” tab and edit the settings for “Ethernet 2” by selecting the blue “IPv4…” text to the right. Ethernet 2 IPv4 address assigned by DHCP, IPv6 enabled Right click on the Ethernet 2 Adapter and choose Properties.



Uncheck the “Internet Protocol Version 6” checkbox, select “Internet Protocal Version 4” and choose Properties. Check the “Use the following IP address:” and enter the following information.

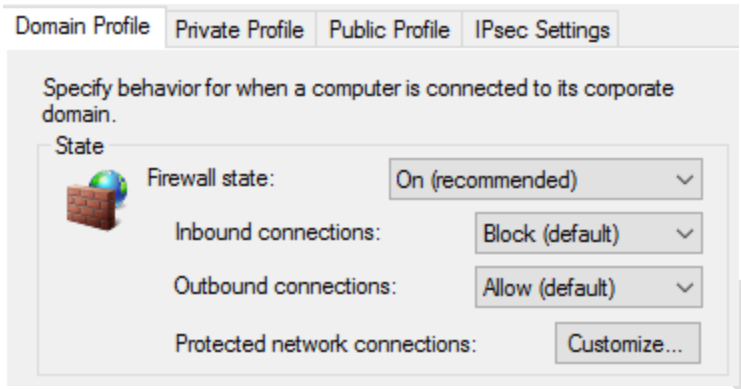


Each group of numbers between the dots are referred to as octets. Remember, you can use any address between 2 – and 254 for the last octet of your IP address. The reason behind this is that the .1 address is our network gateway, and .255 is our broadcast address – the imporant thing to remember is that neither of these ip address are available for use. I am going to choose .10. Choose the subnect mask and this information will be automatically prefilled. Next, choose the “Default Gateway”. This will be the address of our network. If you remember, we set this in VirtualBox to be the 192.168.0.1 address.

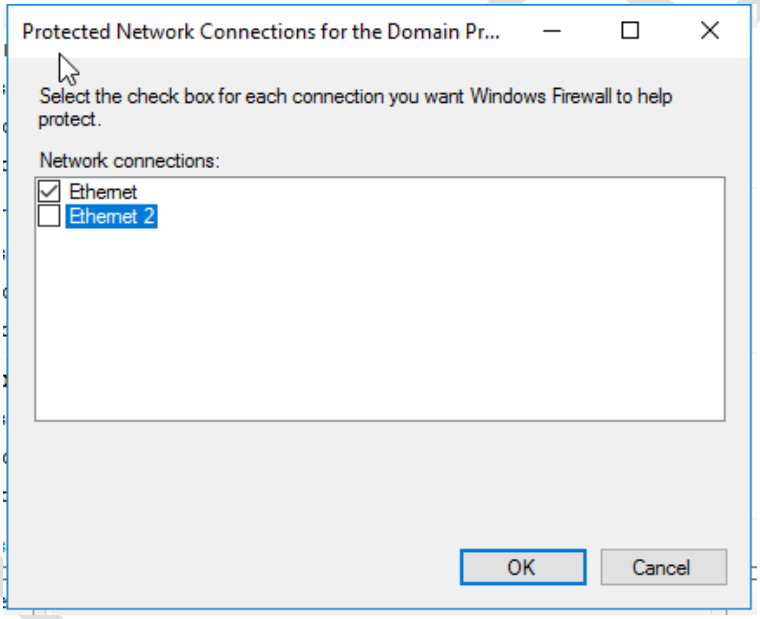
For DNS settings we are going to set the preferred DNS server to a loopback IP address which is 127.0.0.1. This IP address points back to the local server, and although we haven’t built the DNS server yet we will be doing that in the future. For the alternate IP address we will use Google’s DNS servers which is 8.8.8.8. Select OK and close out of the Properties window.

Now before we can communicate between our other VMs and our Host we need to modify the firewall settings of our local server. Go back to the Server Manager > Local Server and modify the settings for “Windows Firewall”.

Choose Advanced settings on the left hand side of the screen and click “Windows Firewall Properties”.



We need to custoize the protected network connections for Domain, Private, and Public profiles. Choose the "Customize" button for "Protected Network Connections" and uncheck your Host-only network which in my case is "Ethernet 2".



Select OK and repeate these steps for the Private and Public profiles. This will allow traffic on our Host-only network to passthrough our network adapter without being blocked or rejected.

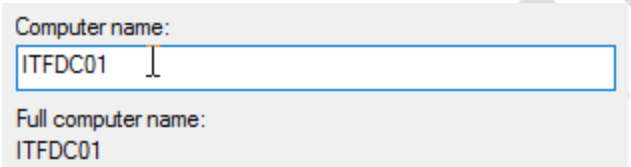
Now we need to verify that we can communicate between our Host computer and our Guest VM. To do this we are going to attempt to ping our Guest VM from our Host computer. Exit full-screen on the VM and on your Host Computer open Command Prompt. Attempt to ping the VM by typing the ping command followed by the IP address of the Server you just configured. In my case I set it to 192.168.0.10 so I will attempt to ping this address.

```
C:\Users\hillbro>ping 192.168.0.10

Pinging 192.168.0.10 with 32 bytes of data:
Reply from 192.168.0.10: bytes=32 time<1ms TTL=128
Reply from 192.168.0.10: bytes=32 time<1ms TTL=128
Reply from 192.168.0.10: bytes=32 time<1ms TTL=128
Reply from 192.168.0.10: bytes=32 time<1ms TTL=128

Ping statistics for 192.168.0.10:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
Approximate round trip times in milli-seconds:
    Minimum = 0ms, Maximum = 0ms, Average = 0ms
```

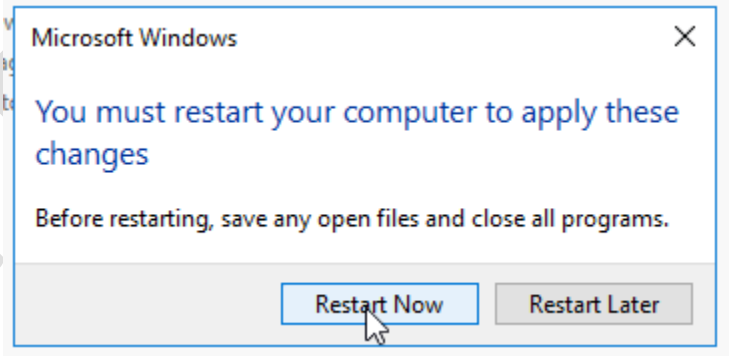
Here we can see that I can successfully ping the Guest VM. Now we have a VM server that can reach the internet as well as communicate with other VMs and the Host computer.

Next we are going to rename the server. By default the server will be named with a "WIN" prefix. To change your server name, open the Server Manager and navigate to Local Server. Click the computer name to open the System Properties.

Select "Change" and enter a new name. I am going to type in the name "ITFDC01". ITF stands for my website name, "itFlee" and DC stands for "Domain Controller". The 01 simply means that this is the first domain controller on this network.



Click OK and click OK again when you are notified you must restart. Select Close on the "System Properties" and choose "Restart Now" when the window appears.



Now we are done making the basic configuration changes. See you in the next lecture!