Virtual Machine Access and Virtual Network Setup

Pre-Requisite Knowledge and Skills

1. Understand the basics of computers and Virtual Machine (VM)
2. Be able to use computer applications such as command prompt

Learning Objective:

1. Understand the basics of computer networks
2. Be familiar to Virtual Machine (VM) Network concepts
3. Be familiar to virtual network setup practices

Recommended Running Environment and Software:

1. A Computers Running Windows OS
2. Windows Server 2012 License (up to 90 days trial may apply)
3. VMWare Workstation or VMWare Player

Instructional Material:

1. The Kali Linux VM
2. The Windows Server 2012 VM
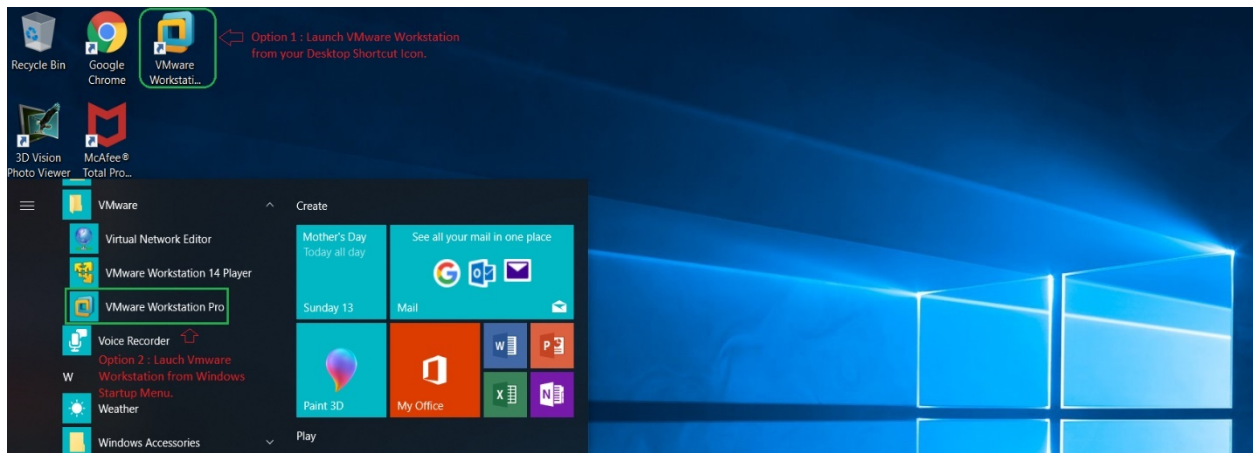
Video Demonstration:

1. N/A

Lab Assessment:

1. Windows OS

Lab Instructions

STEP 1: (Note that this lab has no relationship with previous lab, Create Virtual Machine lab)
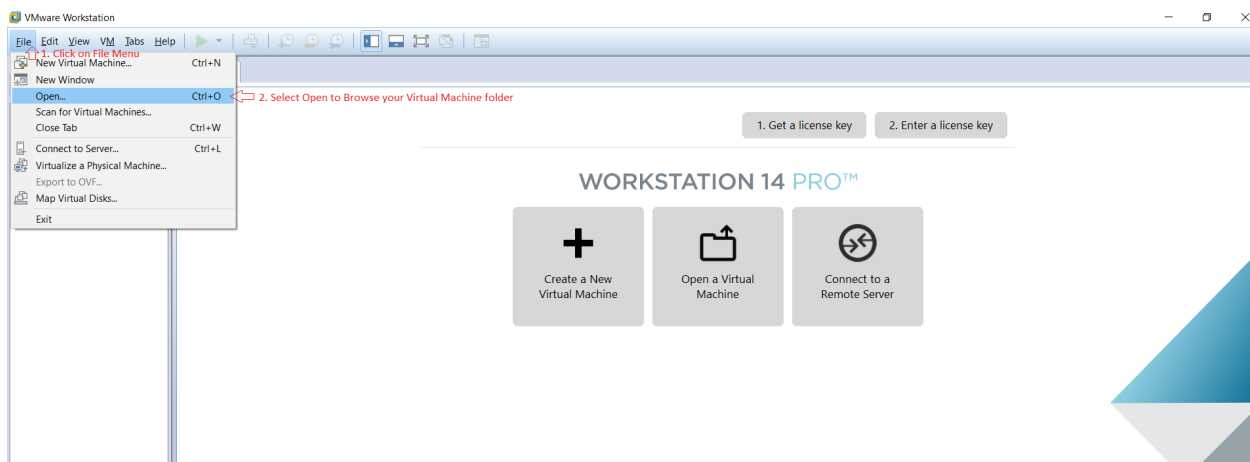
Launch your VMware Workstation from your Windows PC startup Menu or Desktop Shortcut icon (The virtual machines are created already and you do not need to create one by yourself).
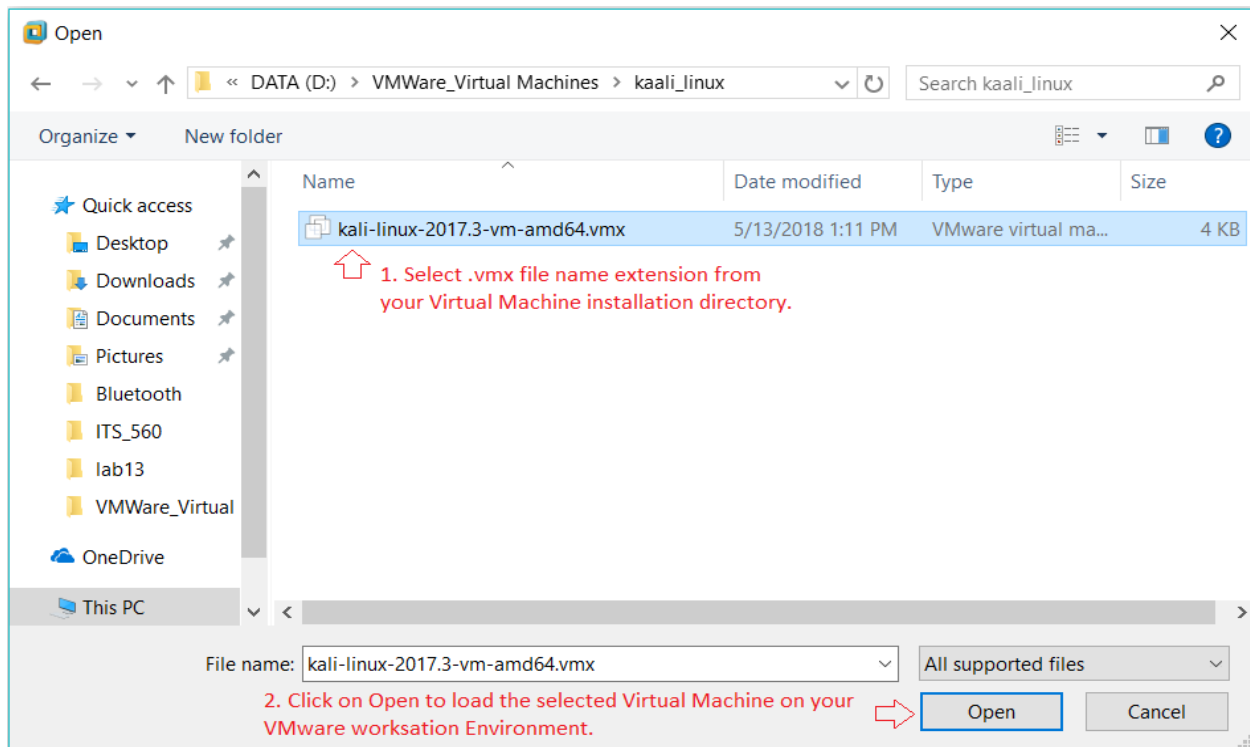
STEP 2:

Load your Virtual machine on your VMware Workstation.

Click on File on your VMware Menu bar and select Open from the file menu list.


Select your Virtual Machine *.vmx* file extension from your VMware open browse windows. We need two different virtual machines on our ethical hack lab. Students will have access to Kali Linux and Windows Server 2012 Virtual machine. Repeat the same steps to load both Virtual Machine on your VMware Workstation.

After successfully loading your Virtual Machine on your VMware Workstation you can now power on your virtual machine and start to boot up your first virtual machine.
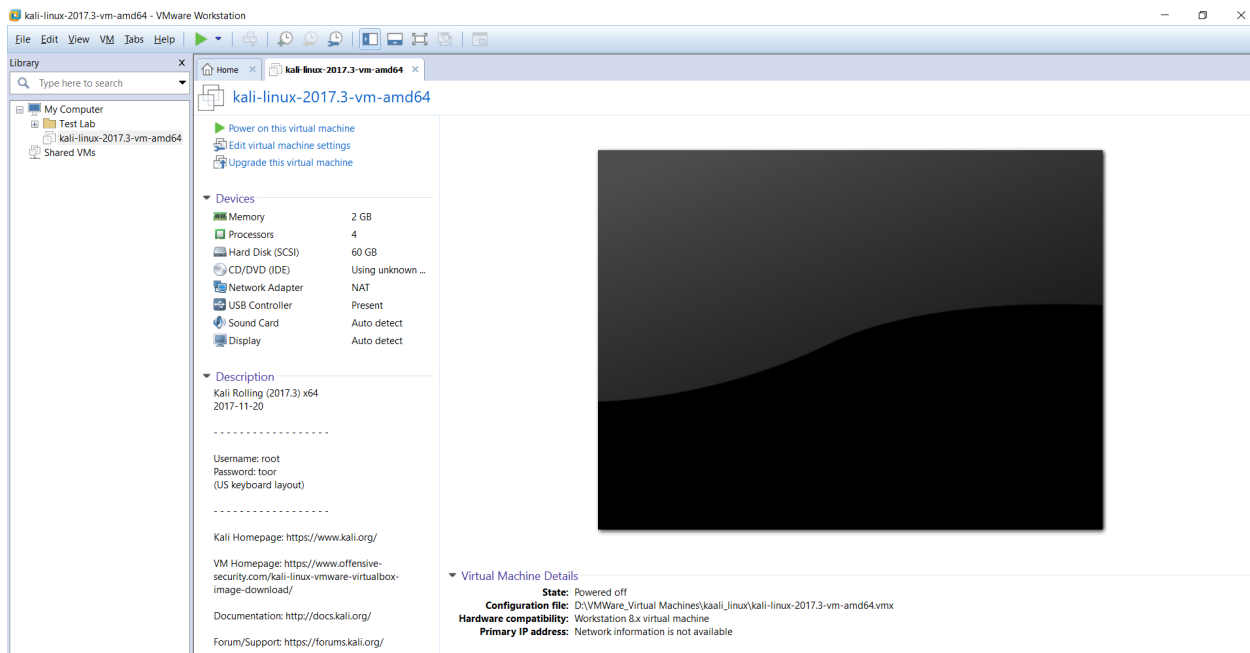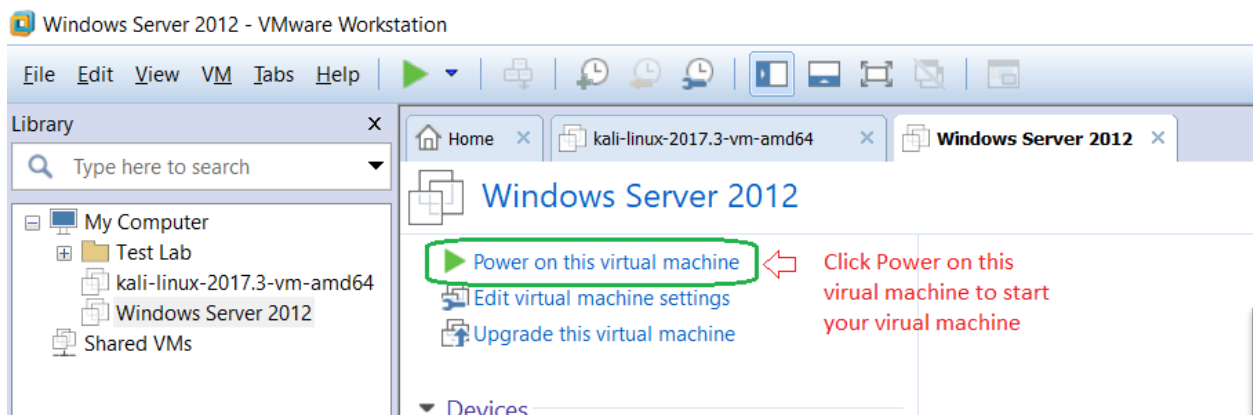

We need to load our Windows server 2012 Virtual machine too. Repeat STEP 2 and select your Windows server 2012 *.vmx* extension as similar to earlier steps.
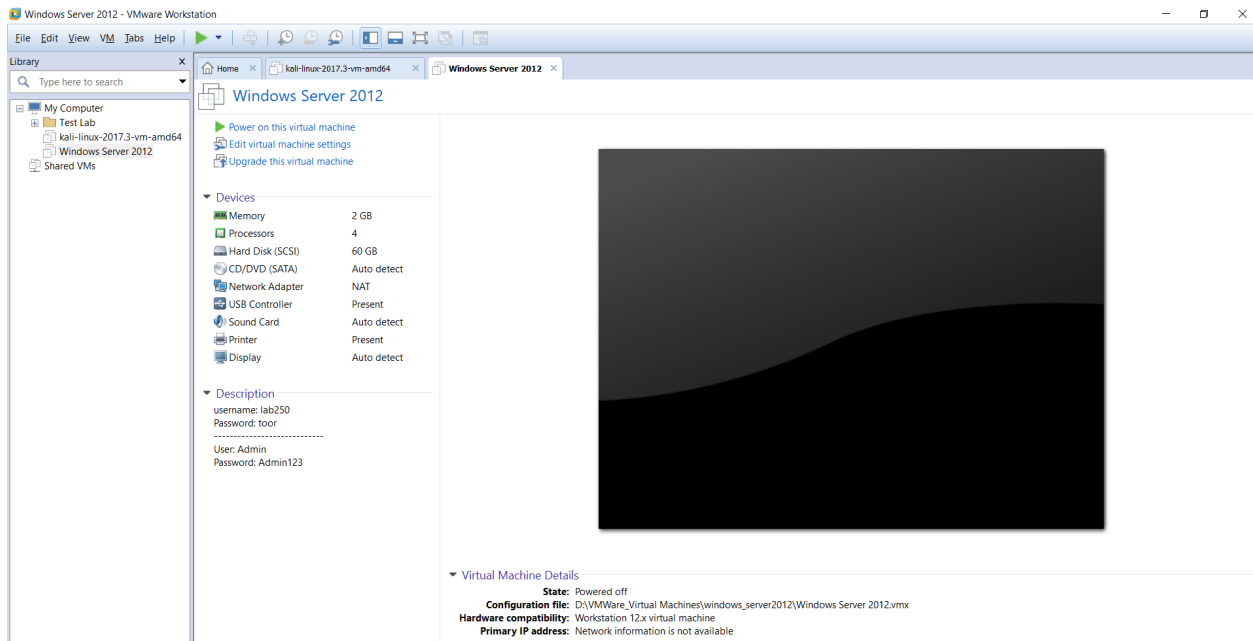
STEP 3:

Click Power on this virtual machine to boot up your virtual machine and it may take a while to boot up be patient and wait until your virtual machine boot up successfully.


Depending on your virtual machine setup it might prompt you with the user login screen or direct login to the system. The windows server 2012 is enabled with auto user login i.e. it will directly log you in on lab250 user account. The kali Linux will prompt you with user login screen. The user login credential is shared further on the lab document.

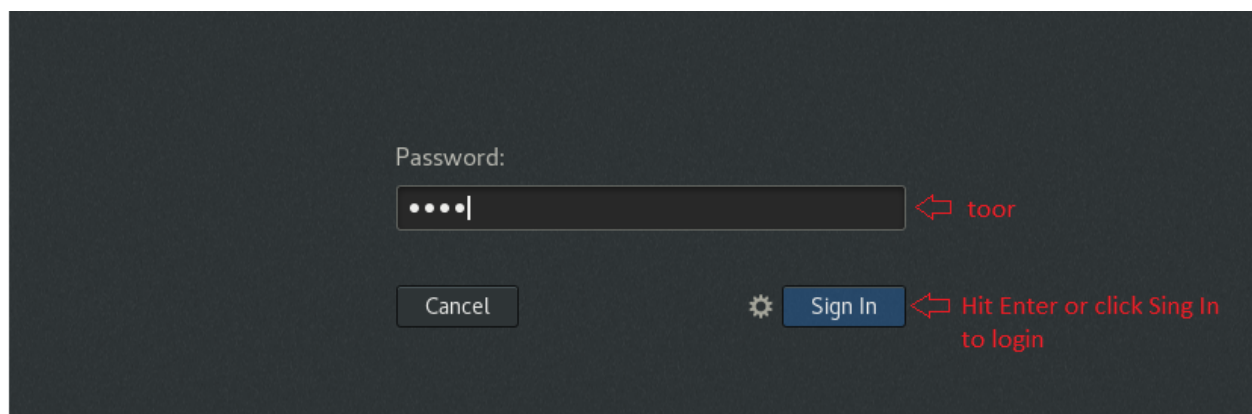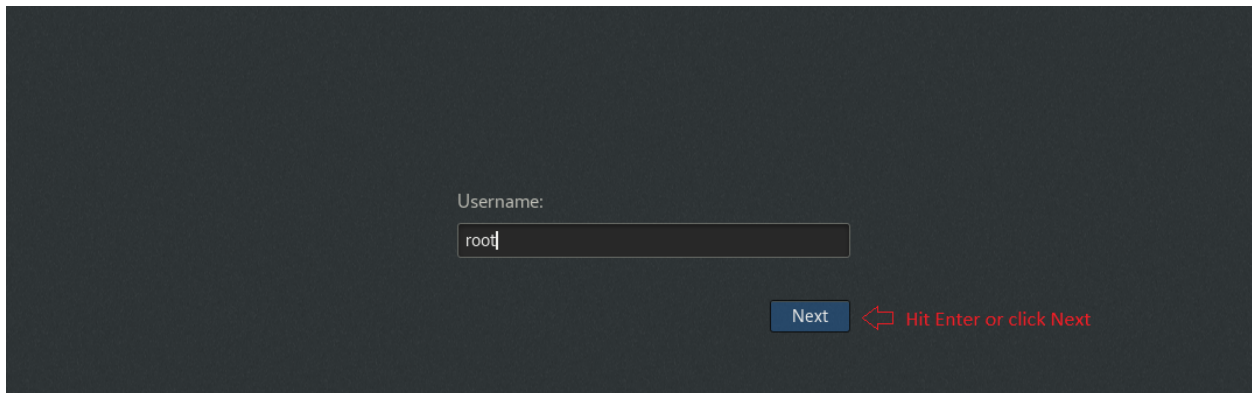Windows Server 2012 VM Desktop after successful boot up.

Username: lab250

Password: toor
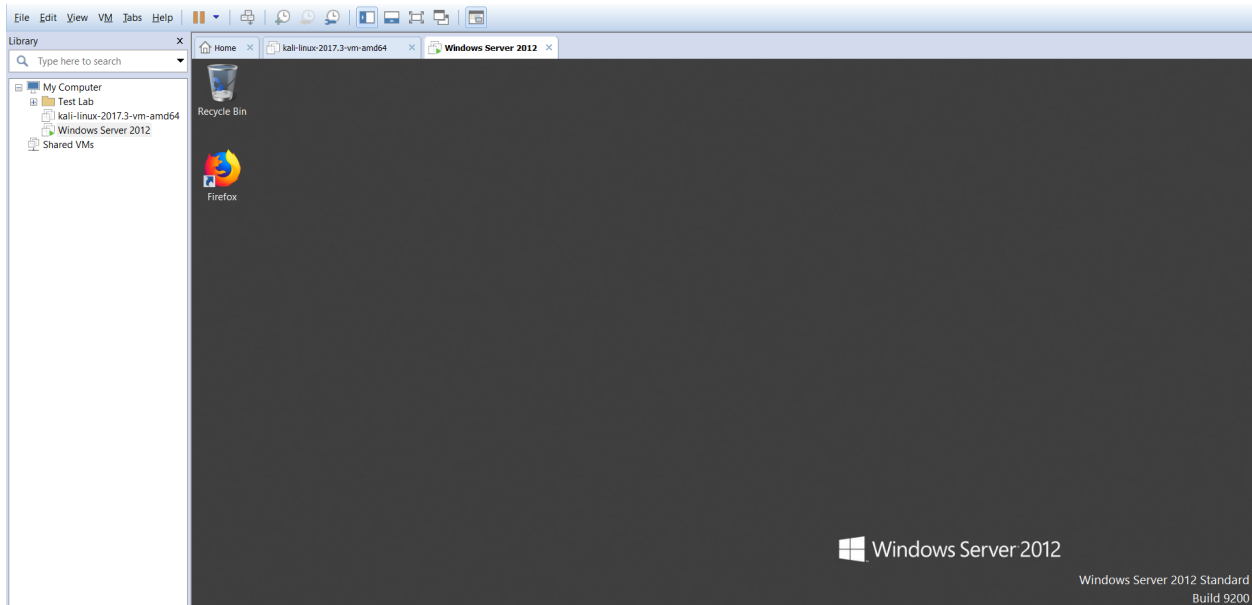
Kali Linux VM login prompt
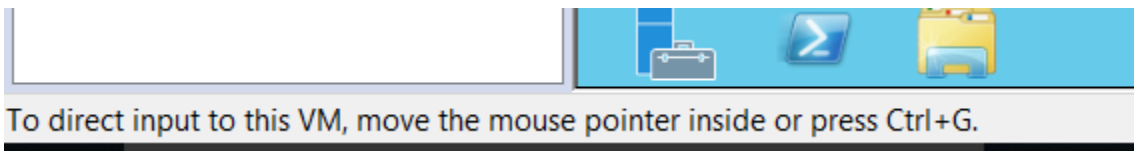
Username: root

Password: toor

After entering a valid username and password, you will get access to Kali Linux Desktop as show below.
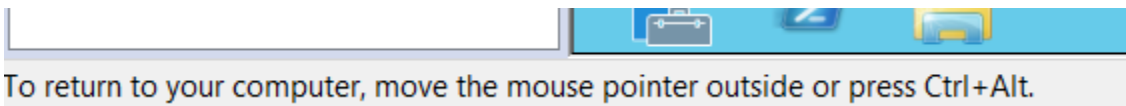
Note: click inside the Virtual Machine windows or press CTL + G key on your keyboard to enable direct input on your virtual machine environment you can return to your computer any time simply pressing CTRL + ALT key on your keyboard. You can find the instruction on your bottom left corner of your VMware workstation screen.

Enabling direct input to your VM

To direct input to this VM, move the mouse pointer inside or press Ctrl+G.

Return to your computer

To return to your computer, move the mouse pointer outside or press Ctrl+Alt.

Before we begin to exploit (attack), we need to understand our virtual machine operating environment, make sure our virtual machine is connected to a network and have access to internet. We need to know our virtual machine IP address too. Let's start!!!

On our Windows Server 2012 Virtual Machine Desktop launch a Window Run command prompt press windows + R key on your keyboard.

A small Run window will be popup on bottom left corner of your windows server 2012 VM screen. Type *cmd* and hit enter. Your will get access to Windows Server command prompt.
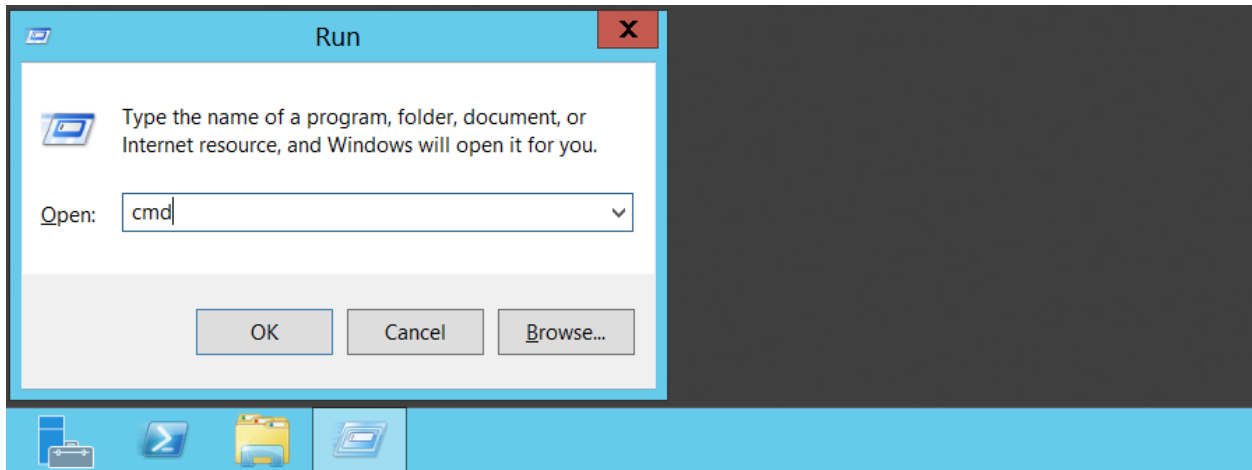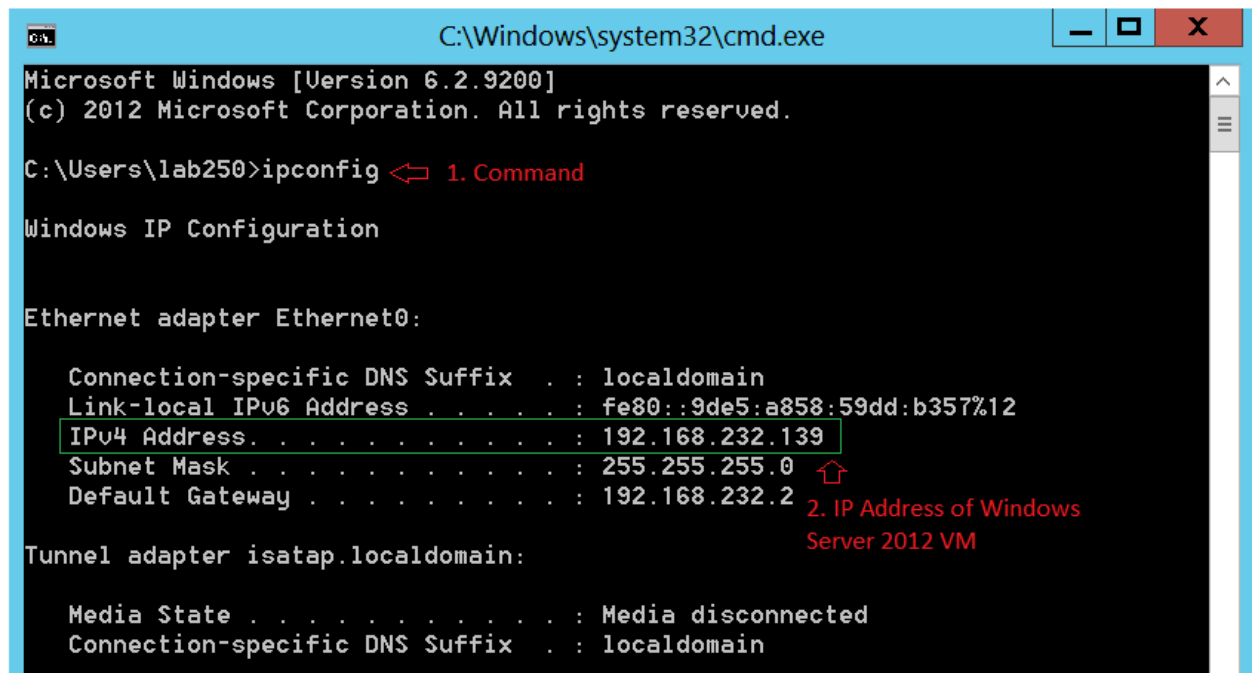
Windows Server 2012 Command Prompt i.e. windows shell. We can insert command on this terminal and collected information like IP address in our case.
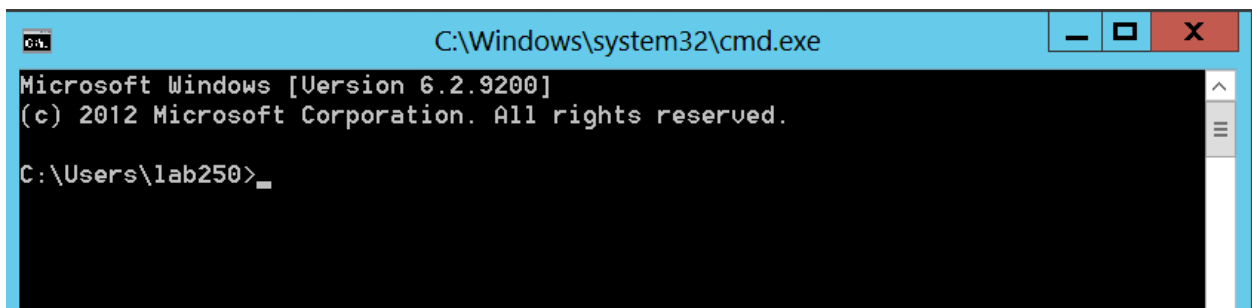
Type the following command on your windows terminal to collect IP address information.

Command: *ipconfig*

Make note of your Windows Server 2012 VM IP Address. The IP address in our case is 192.168.232.139 the IP address may be different on your virtual machine.

You can close the terminal type exit and hit enter.

Now let try to collect the IP address on our Kali Linux. Select Kali Linux tab just below from your VMware workstation main menu tool bar.
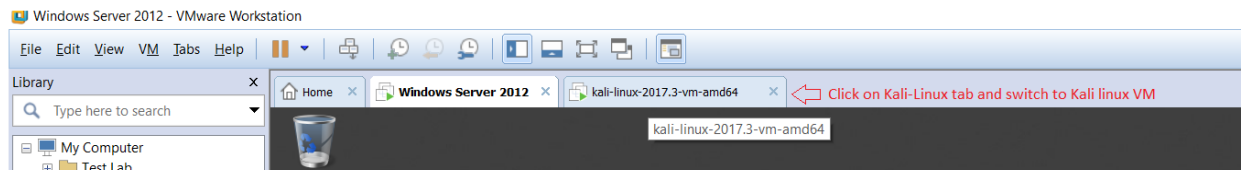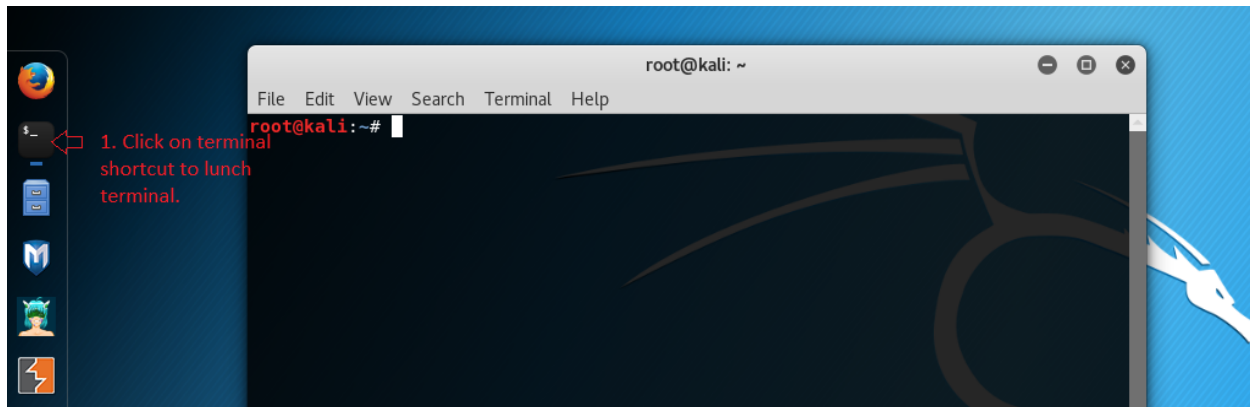

It might ask you for password if your Kali Linux screen is locked. Enter your root user password i.e toor and hit enter.
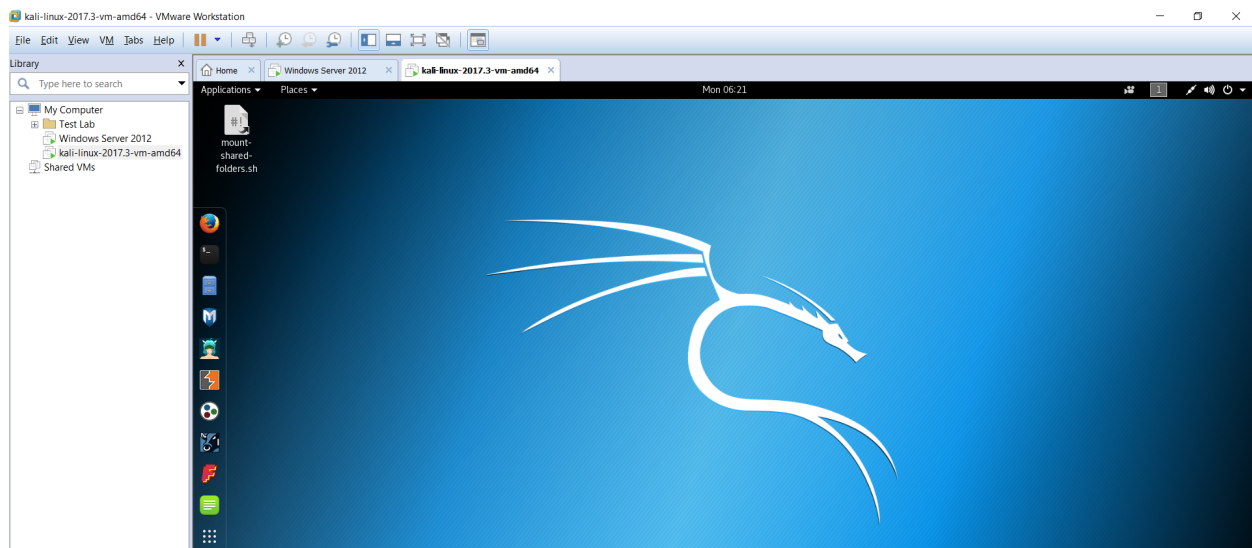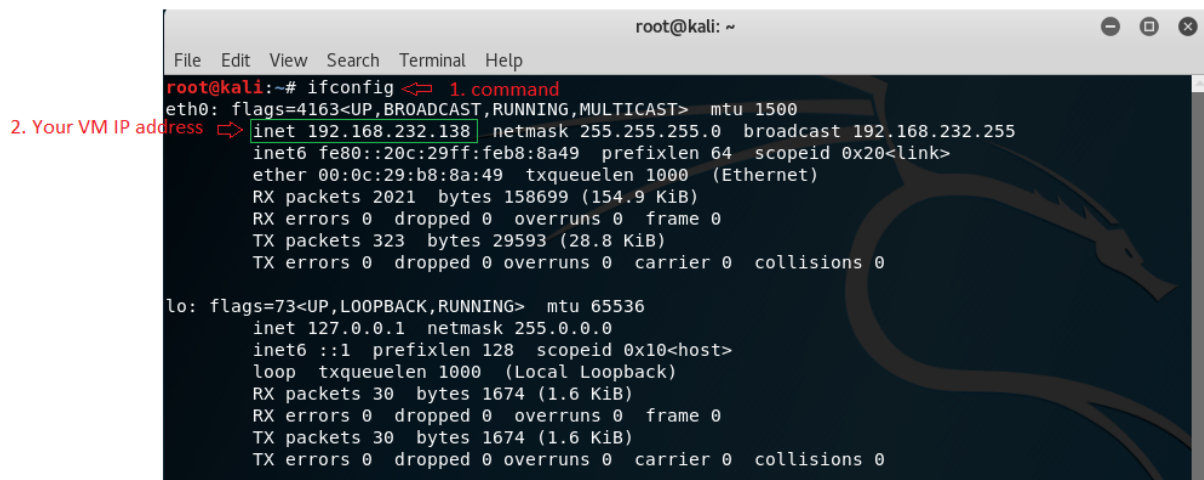

On our left we have a desktop short cut lunch menu. The second one from the top is a shortcut to Kali Linux shell (terminal) just like Windows Server 2012 command prompt. Click on the terminal shortcut in order to lunch a terminal window.

Type *ifconfig* and hit enter it will display your Kali Linux network information like IP address, interface etc.

The IP Address may vary on your Virtual machine. In our case the IP address is 192.168.232.138.

Now let's test the network connectivity. We will run a ping test form each virtual machine and try to see if they both are reachable to each other or not and at the same time we will try to ping google web server to verify the internet access.

Let's start our test from Kali Linux VM terminal. Type the following command on your Kali Linux VM.

We already knew our Windows Server 2012 VM IP address i.e. 192.168.232.139. Please make sure of your Windows Server 2012 VM IP address and replace the IP address with yours Windows Server 2012 VM IP address.

Command: *ping 192.168.232.139*

The ping command will follow with the IP address i.e. *ping IP Address*.

Hit enter after you type in your Windows server 2012 VM IP address on your Kali Linux terminal as follow. A successful ping reply will respond back with ICMP ping request back to request machine i.e. Kali Linux in our case. The ping command will continuous send a ping request after successful respond back from the Windows server 2012 VM we can end the ping request with simply pressing CTRL + C key on our keyboard.

Now let's test the internet connectivity. We can test the internet connectivity with ping command. We will test a connectivity to Google web server. Enter the following command from your Kali Linux terminal.

Command: *ping www.google.com*

Now let's test the ping request from our Windows Server 2012 VM.

Click on Window Server 2012 VM tab on your VMware workstation and get back to your Window server 2012 VM Desktop.

NOTE: Before making the selecting on virtual machine tab you need to return to your computer environment. Press **CTRL + ALT** on your keyboard and feel free to move your mouse cursor back to your computer.
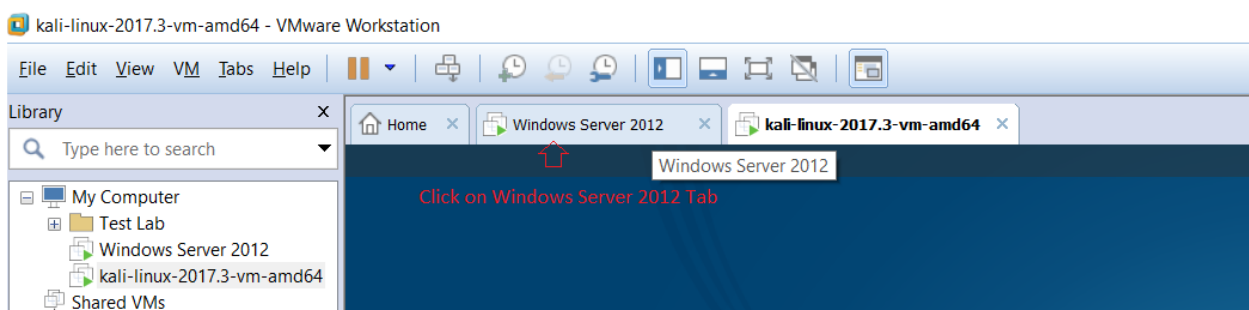
Once you select back to Windows Server 2012 VM click inside the VM desktop or press **CTRL + G** key on your keyboard to enable direct control on your virtual machine windows.

Now let's launch the run prompt on Windows Server 2012 VM and enter *cmd* to start windows command prompt (terminal)
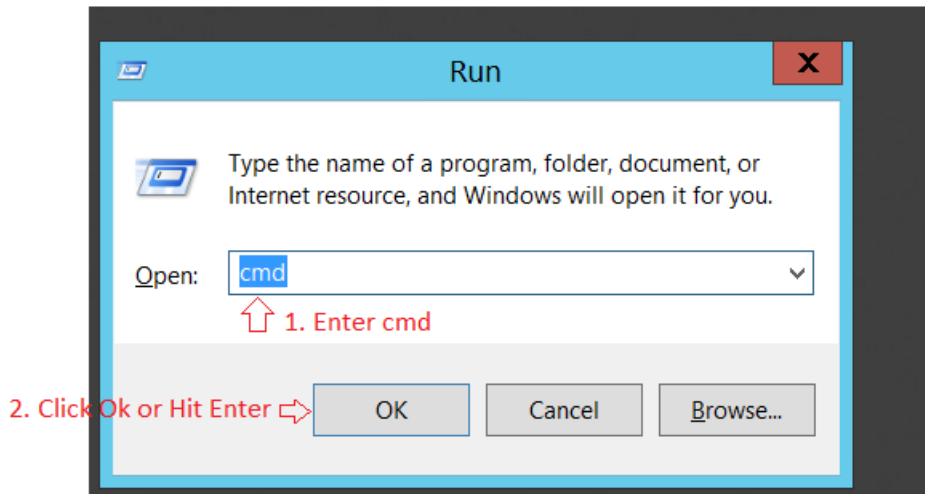

Enter ping request to Kali Linux VM. We already knew the IP address of our Kali Linux VM from our earlier steps i.e. 192.168.232.138. Make note the IP address may vary depending on your virtual machine network setting. Please enter your Kali Linux IP address.

Command: *ping 192.168.232.138*

The ping command will follow with the IP address i.e. *ping IP Address*.

The ping request will send 4 consecutive ping request and stops. A successful ping request will receive a reply back from Kali Linux VM as follow in the screenshot.
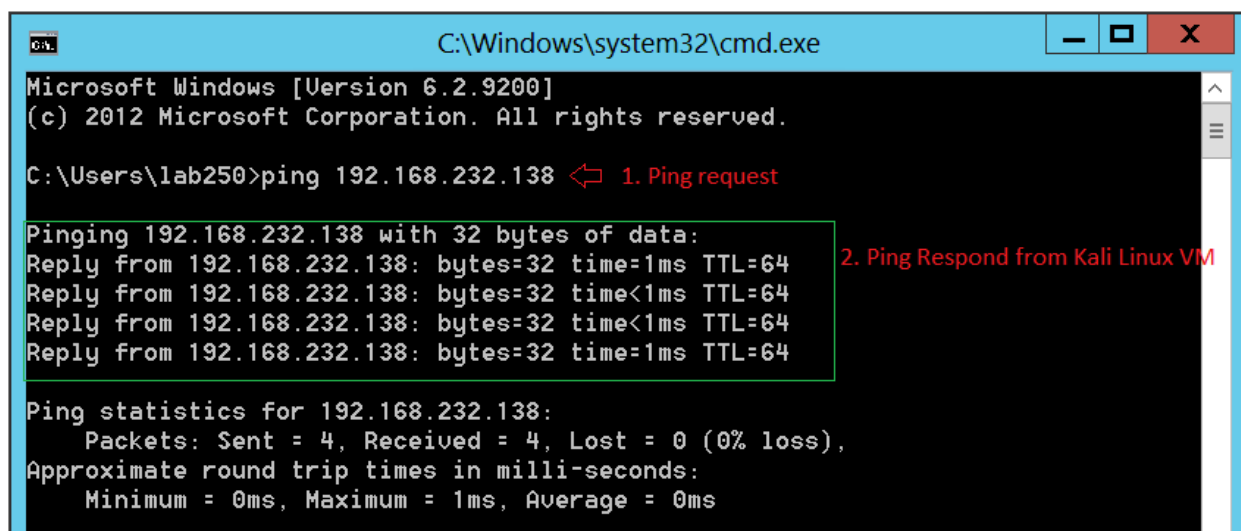
Now let's send a ping request to google web server and test the internet connectivity.

```
C:\Users\lab250>ping www.google.com <□ 1. Ping Request to Google web server..

Pinging www.google.com [172.217.9.132] with 32 bytes of data:
Reply from 172.217.9.132: bytes=32 time=50ms TTL=128
Reply from 172.217.9.132: bytes=32 time=54ms TTL=128        □ 2. Ping Respond Back
Reply from 172.217.9.132: bytes=32 time=52ms TTL=128          from Google Web
Reply from 172.217.9.132: bytes=32 time=56ms TTL=128          server.

Ping statistics for 172.217.9.132:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
Approximate round trip times in milli-seconds:
    Minimum = 50ms, Maximum = 56ms, Average = 53ms
```

If We have an internet connectivity we will get a successful ping respond back from google web server.

We need to have a network connectivity on both the Virtual Machine i.e. Windows Server 2012 and Kali Linux and must reach to each other. We did the test with help of ping command and assure internet connectivity too. Now we are ready to test exploit on these virtual machines.

Let's Start!!!

NOTE: Make note of your Virtual Machine IP address, we need it further.