

## CERT Lab 0 – Setting up the Environment

### Educational Objectives

1. Set up the lab environment using Oracle VirtualBox

### Tools

1. Oracle VirtualBox VMs:
  - i. Kali Linux
  - ii. Metasploitable

### Lab Topology:

Two virtual machines are used in throughout the course: the "attacker" and the "target." Using the attacker machine, you will conduct numerous investigations and attacks on the target machine. Both the attacker and the victim are Linux-based virtual computers that will operate on your (or the lab's) PC and form a private, virtual network.

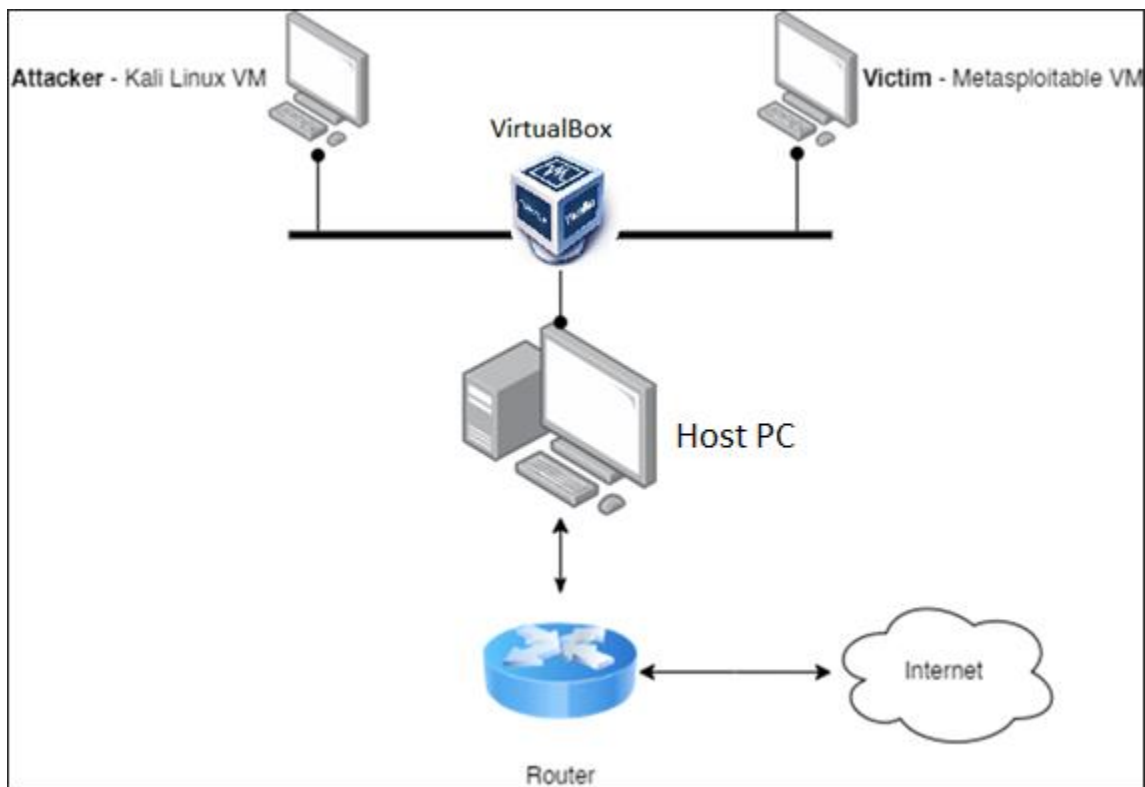
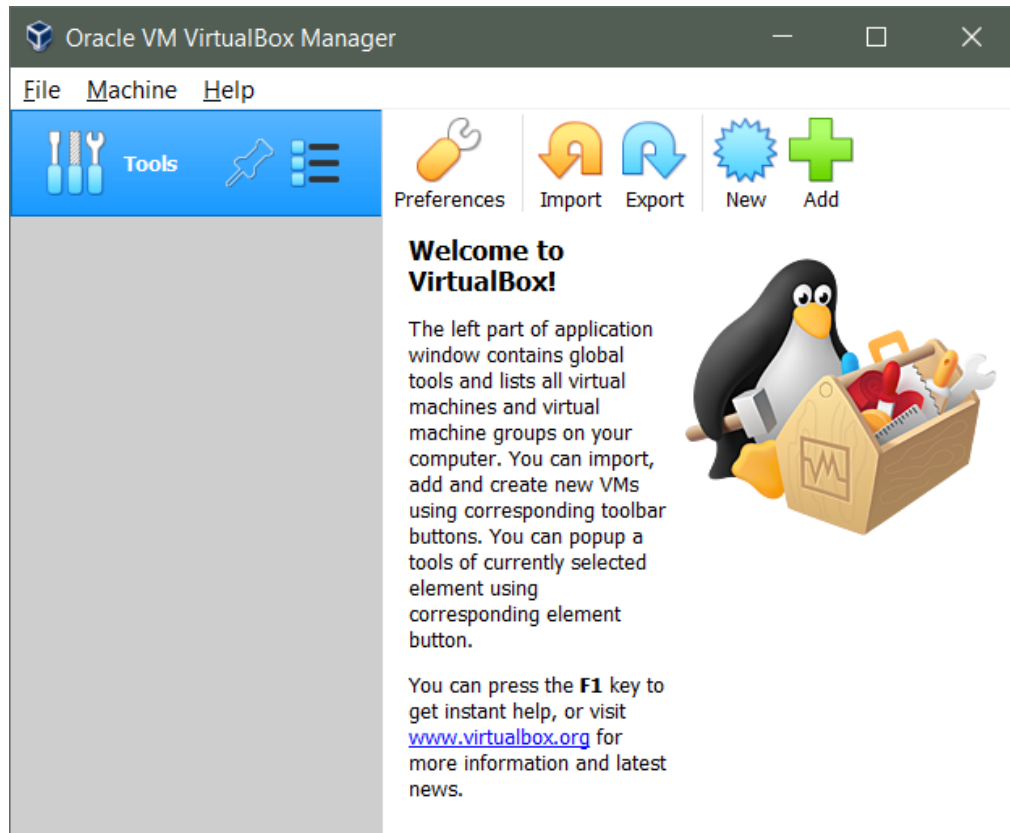



Figure 1: Lab topology

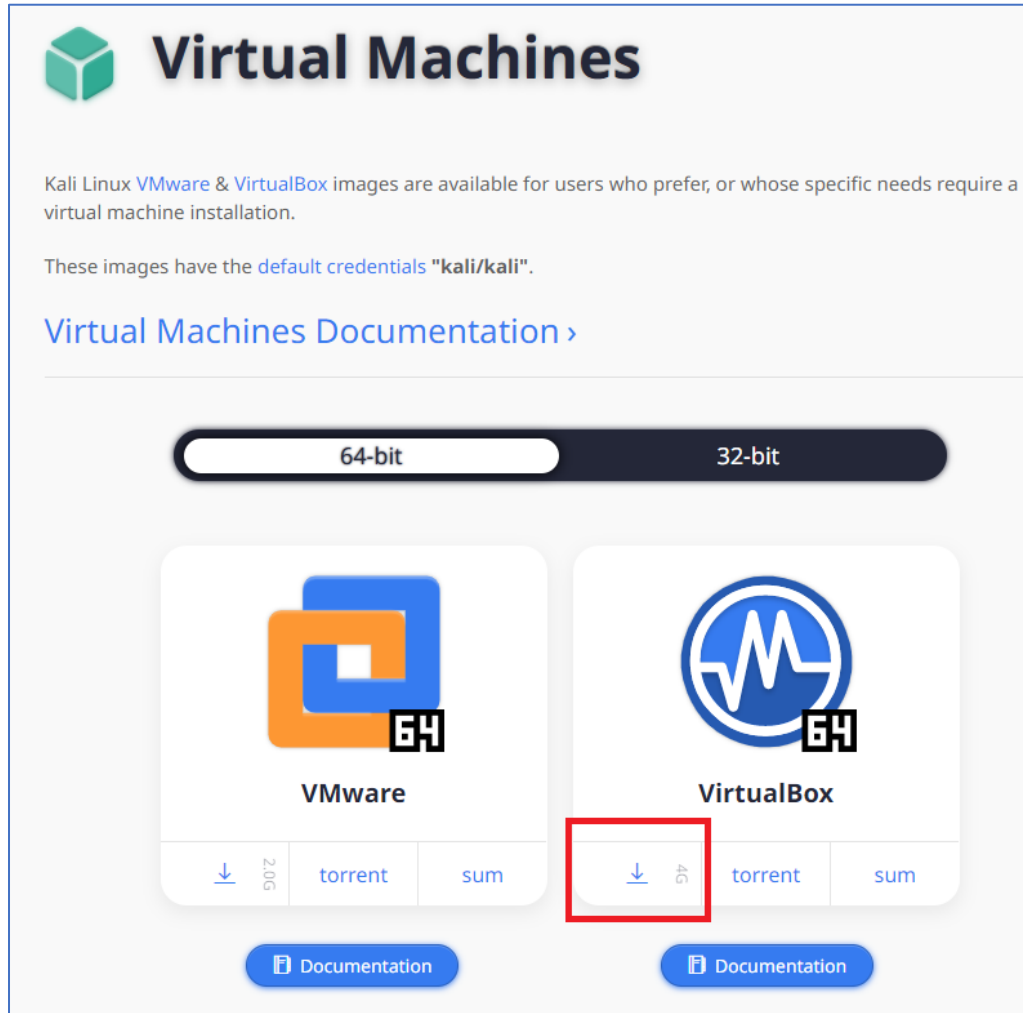
## Step 1 – Installing VirtualBox

1. Go to <https://www.virtualbox.org/wiki/Downloads>
2. Download the package for your OS distribution
3. Install the downloaded package



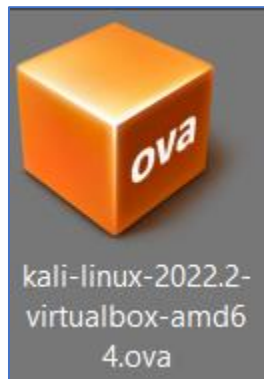
## Step 2 – Installing Kali Linux Virtual Machine

1. Go to <https://www.kali.org/get-kali/#kali-virtual-machines>
2. Scroll down to Virtual machines section and click on the  button to download the VM for Virtual Box. The download size is roughly 4 gigabytes.

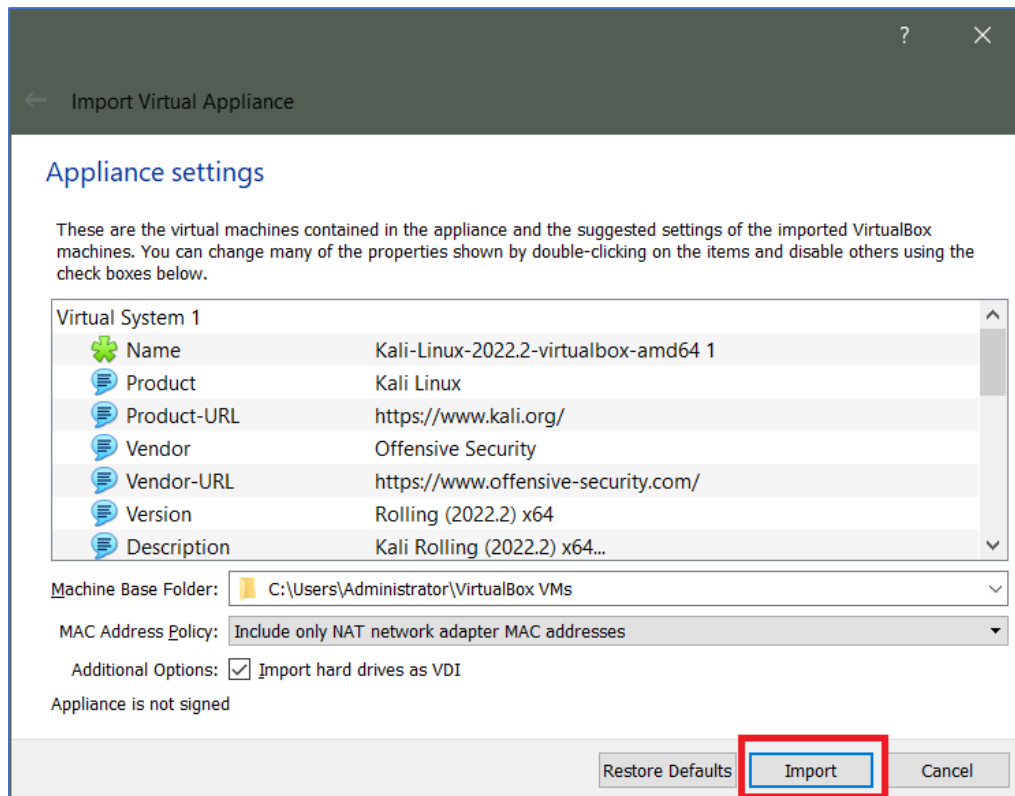


The screenshot shows the 'Virtual Machines' section of the Kali Linux website. At the top, there's a green cube icon and the title 'Virtual Machines'. Below this, a paragraph states that Kali Linux VMware & VirtualBox images are available for users who prefer, or whose specific needs require a virtual machine installation. It also mentions that these images have the default credentials 'kali/kali'. A link for 'Virtual Machines Documentation' is provided. A toggle switch allows users to select between '64-bit' (selected) and '32-bit'. Below the toggle, there are two main cards: 'VMware' and 'VirtualBox'. The VMware card features its logo, a '64' badge, and download options for '2.0G', 'torrent', and 'sum'. The VirtualBox card features its logo, a '64' badge, and download options for '4G', 'torrent', and 'sum'. The '4G' download button for VirtualBox is highlighted with a red rectangle. Both cards have a 'Documentation' button at the bottom.

- Once downloaded, double click on the .ova file to open the file by using VirtualBox



- Leave the settings as is and click on import



### Step 3 – Installing Metasploitable Virtual Machine

1. Go to <https://drive.google.com/open?id=1hI0uGVSwAkq79KkFJlcwVB51XAYTmg7c> and click on

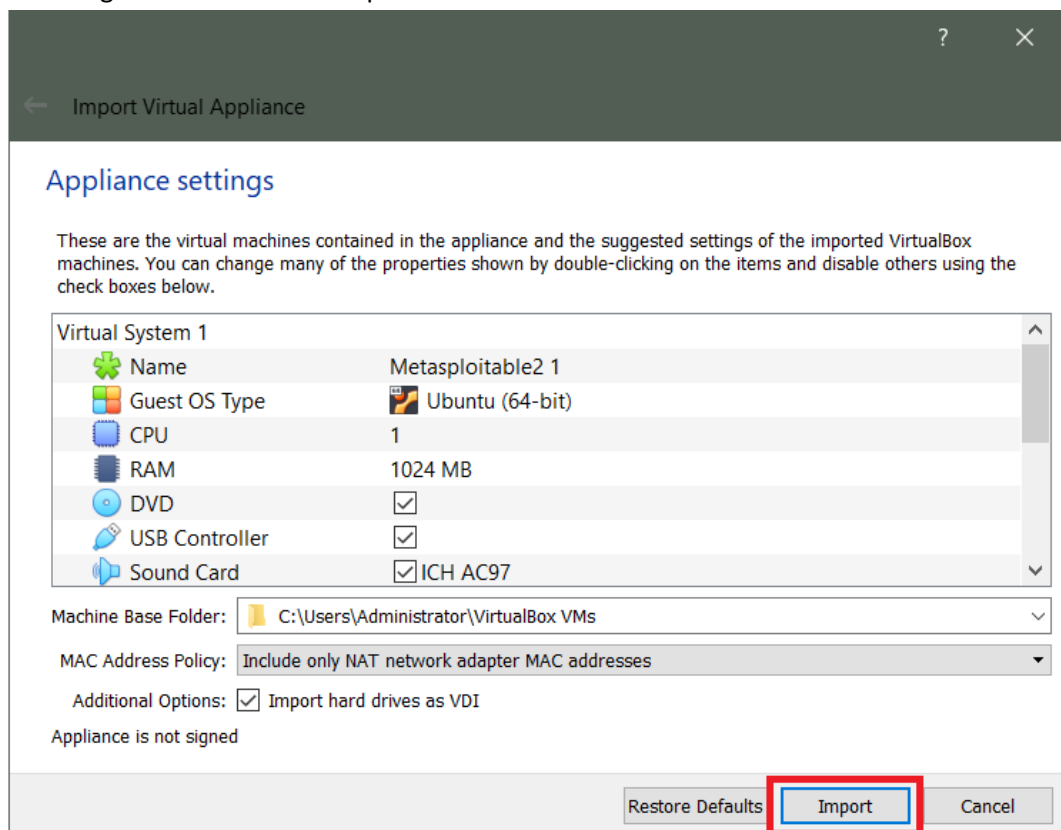


. The download size is roughly 851 megabytes.

2. Once downloaded, double click on the Metasploitable2-H4K.ova file to open the file by using VirtualBox.



3. Leave the settings as is and click on import



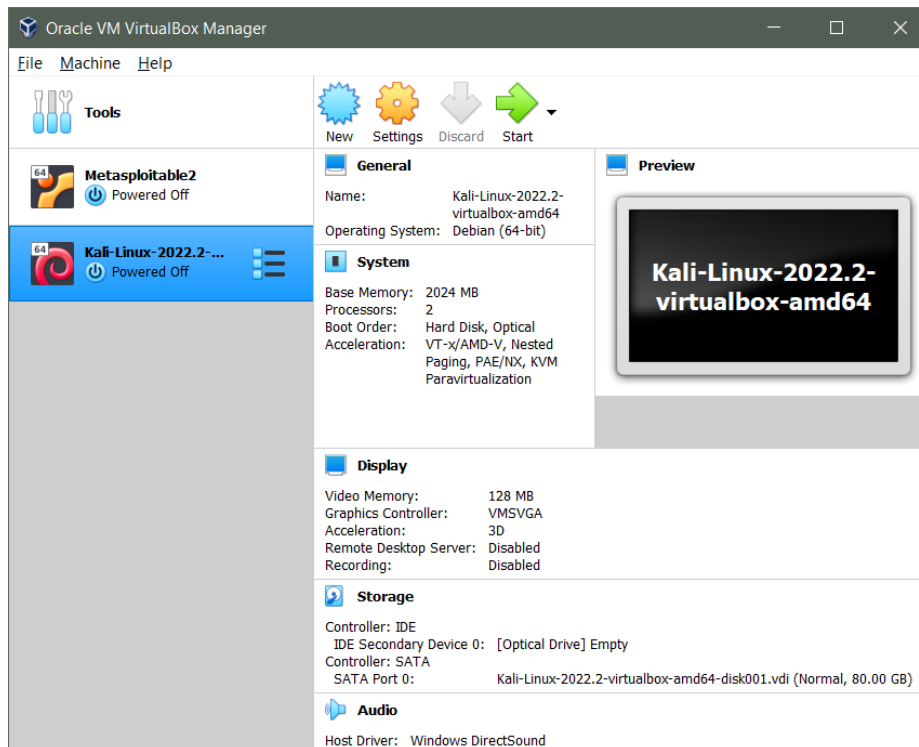
## Configuring Network Settings based on your connection

If you are connected into your home network, proceed to [Step 4a](#).

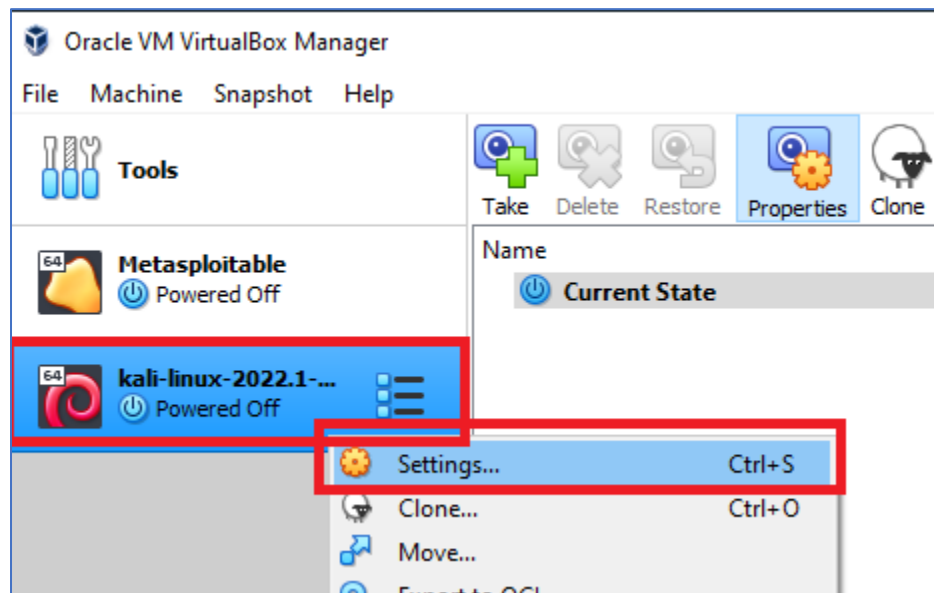
Otherwise, if you are connected to a public network, for example: UTB StuWiFi, proceed to [Step 4b](#).

**Step 4a – Configuring Network Settings in home network**

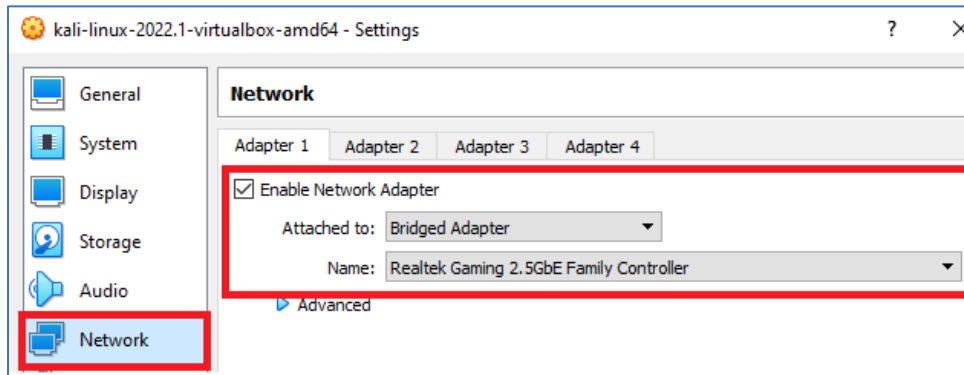
1. Open VirtualBox Manager, you should have the 2 virtual machines installed.



2. Right click on the Kali Linux machine and click on settings.



- Under the Network tab, set the “Attached to:” into “Bridged Adapter”.  
Next, set the “Name:” to your current PC’s network adapter.



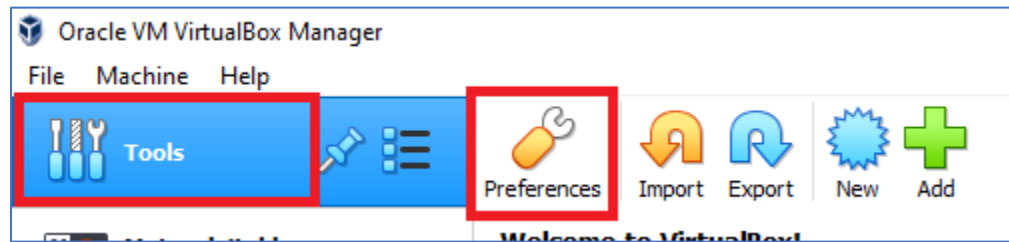
Click on OK.

- Repeat Steps 1-4 for the Metasploitable machine.
- The two virtual machines must be attached to the Bridged Adapter.

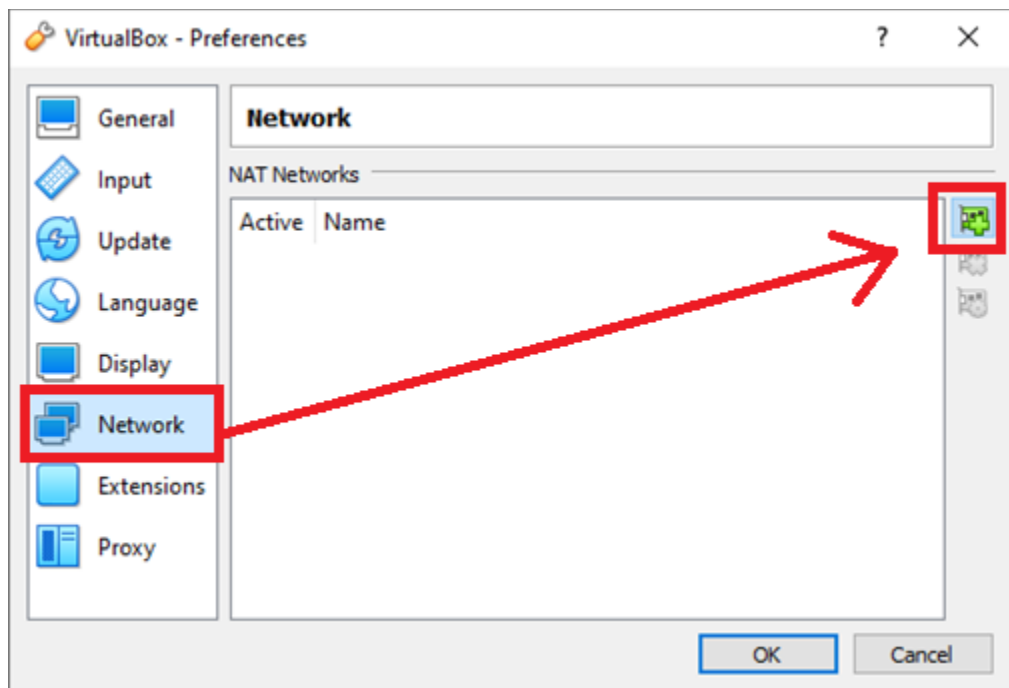


### Step 4b – Configuring Network Settings in public network (for example campus network)

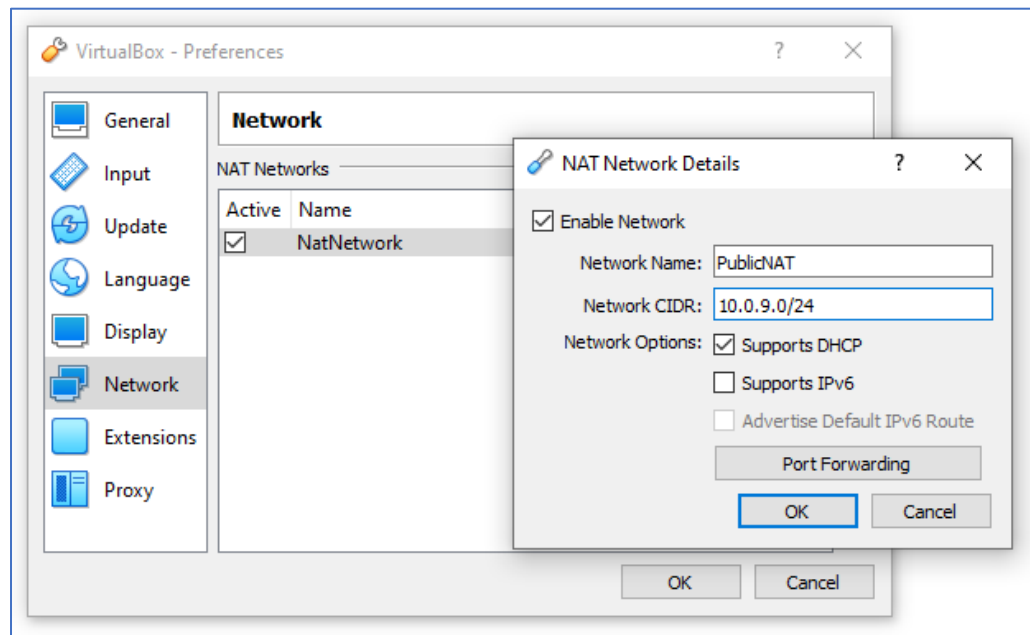
1. Open VirtualBox, click on Tools and select Preferences



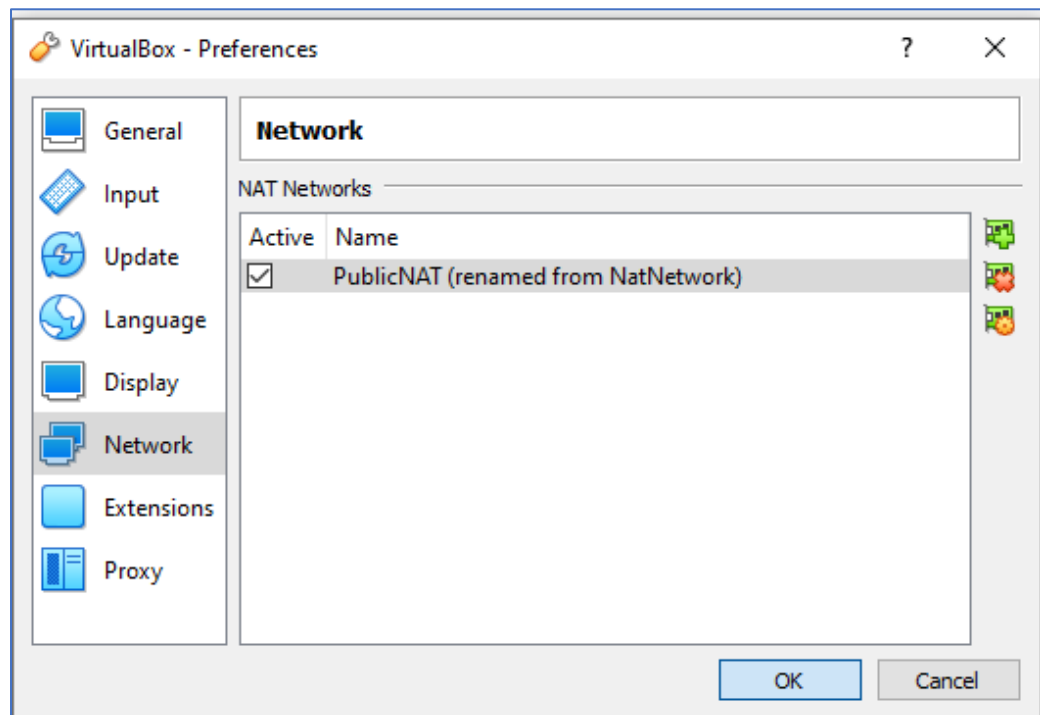
2. Select the Network button, and inside the network tab, click on the + button to add new NAT network



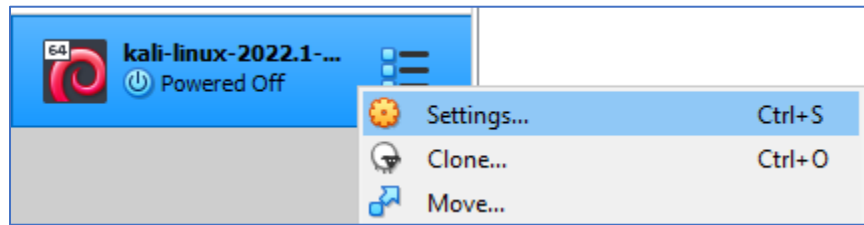
3. Double click on the NatNetwork and change the network name to whichever you like, and change the Network CIDR to **10.0.9.0/24**



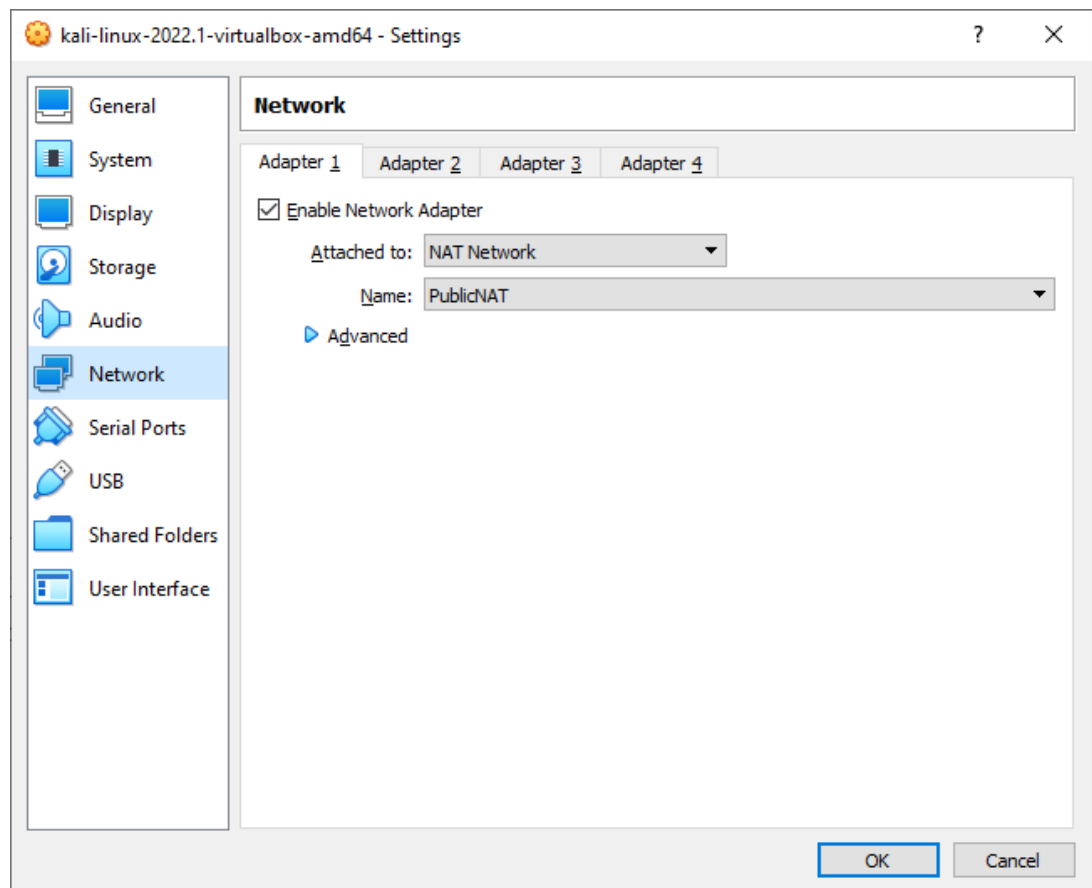
Once done, click on OK



4. Right click on the Kali Linux VM and go to Settings



5. Select the Network button and change the network adapter to NAT Network > PublicNAT from the previous configuration



6. Repeat Steps 4-5 for the Metasploitable machine.
7. The two virtual machines must be in the same NAT Network.