Part 01 - Install OpnSense

This tutorial covers installing OpnSense firewall in Virtual-box, to serve as a Firewall, DHCP server, DNS server and IPS for your hack lab environment.

It is assumed that you have Virtual-box installed.

1) Go to the OpnSense website and download the latest copy of OpnSense.

2) Create a new VM with the following settings:

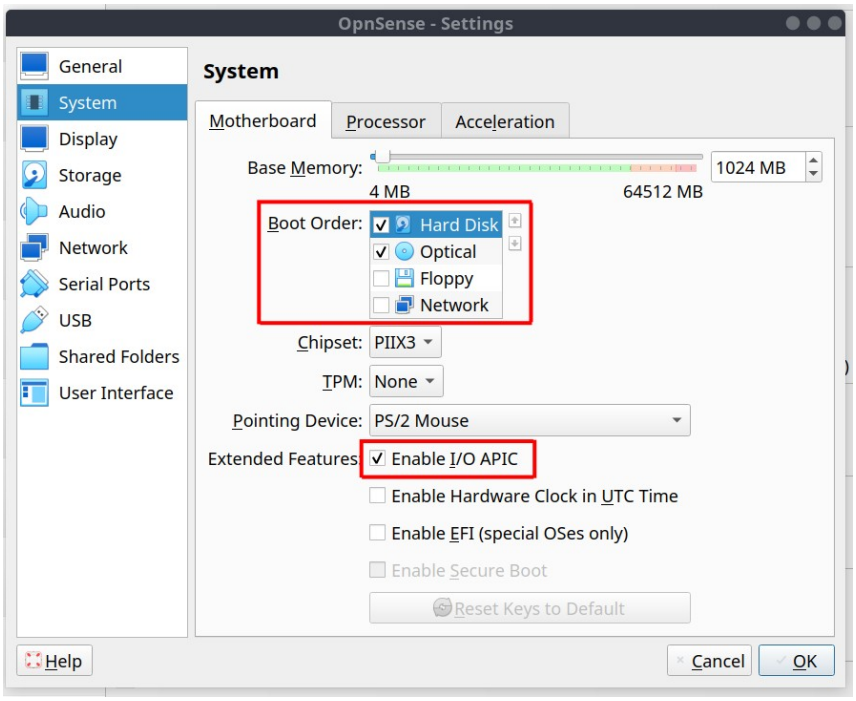
- Name: OpnSense
- Folder: *leave default*
- ISO: you can leave blank and load later, or select your OpnSense.iso
- Type: Free-BSD 64 bit

3) When building the VM, select the following hardware information:

- Base memory: 2048 MB (you can run at 1024 MB, but the IPS runs smoother @ 2048 MB)
- Processors: 1 vCPU
- Create Virtual Hard disk: 16 GB

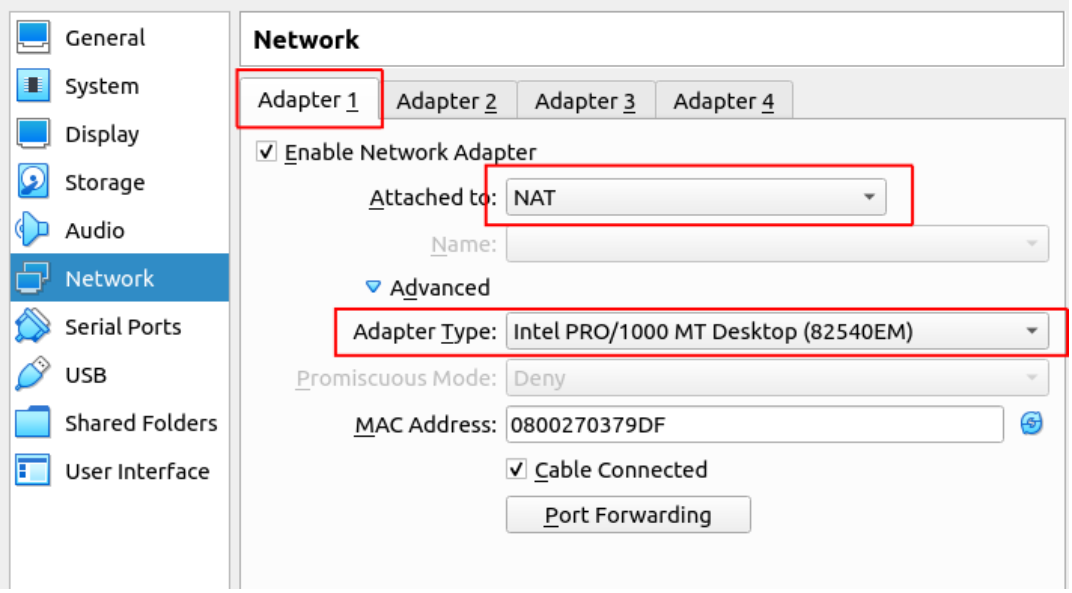
4) Now we are going to adjust some features in order for the installation to work properly. Select OpnSense VM, and go to the settings sub-menu.

5) In the VM settings menu, select “System”. Under system, change the boot order as seen below. Also, tick the check box for “Enable I/O APIC”.

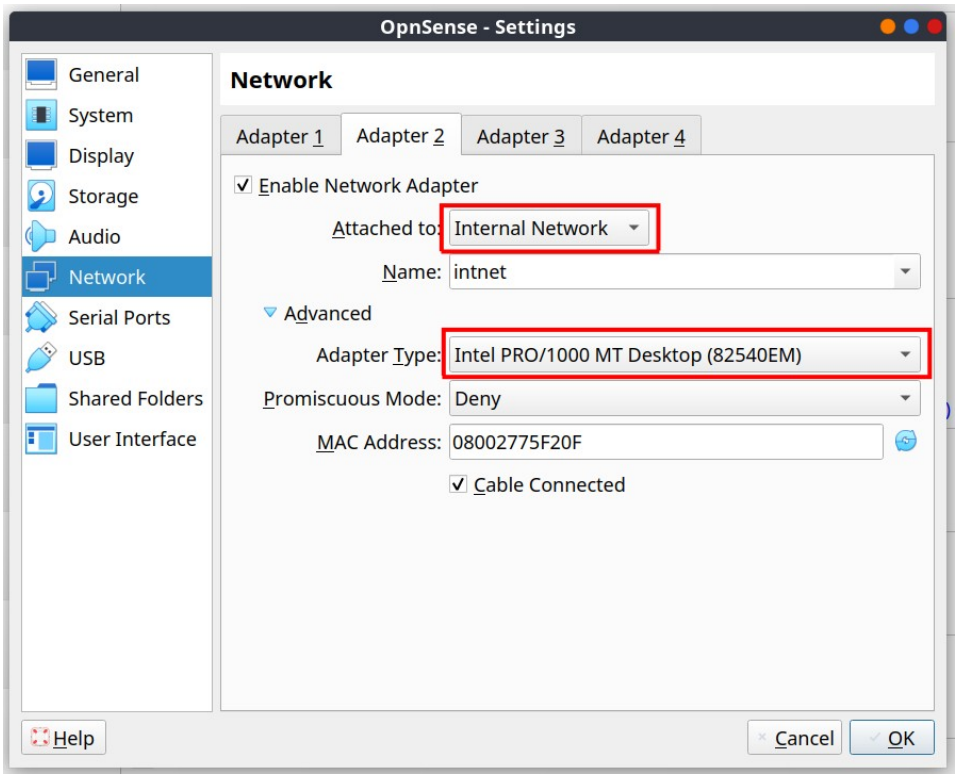


6) Next, we need to adjust our network adapters. One of our adapters will function as our outbound/internet connection, and the second interface will function as our VM network adapter, that will service as the LAN interface on our network.

Under the Network option in the settings menu select the network adapters. The first adapter, we will set to NAT, Be sure to set the interface adapter to: “Intel Pro/1000 MT Desktop”.

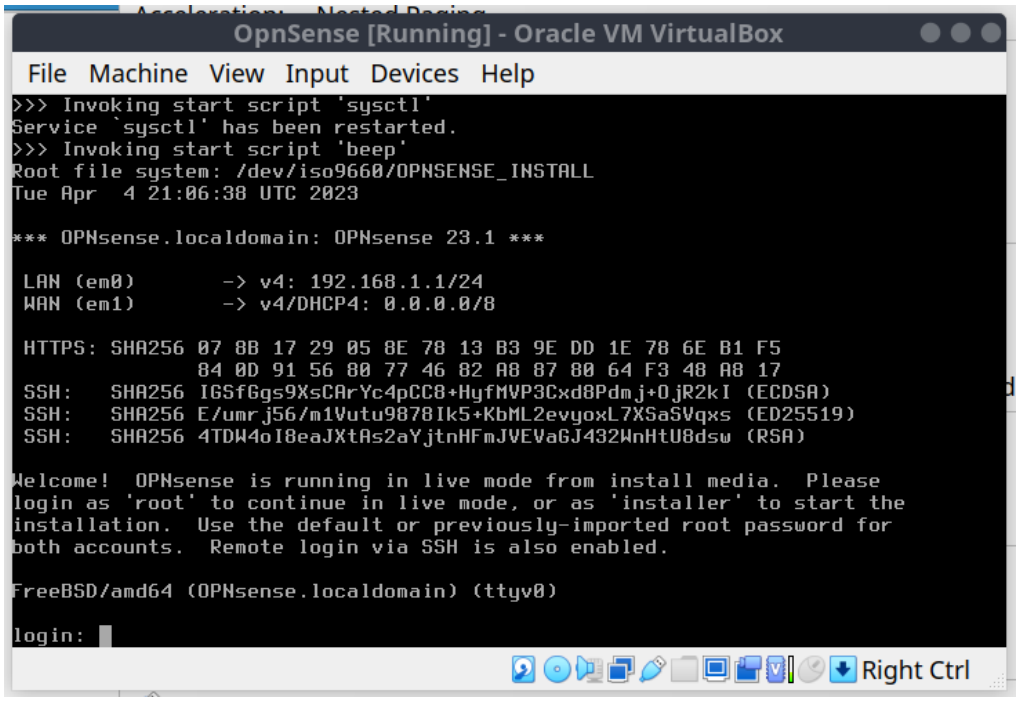


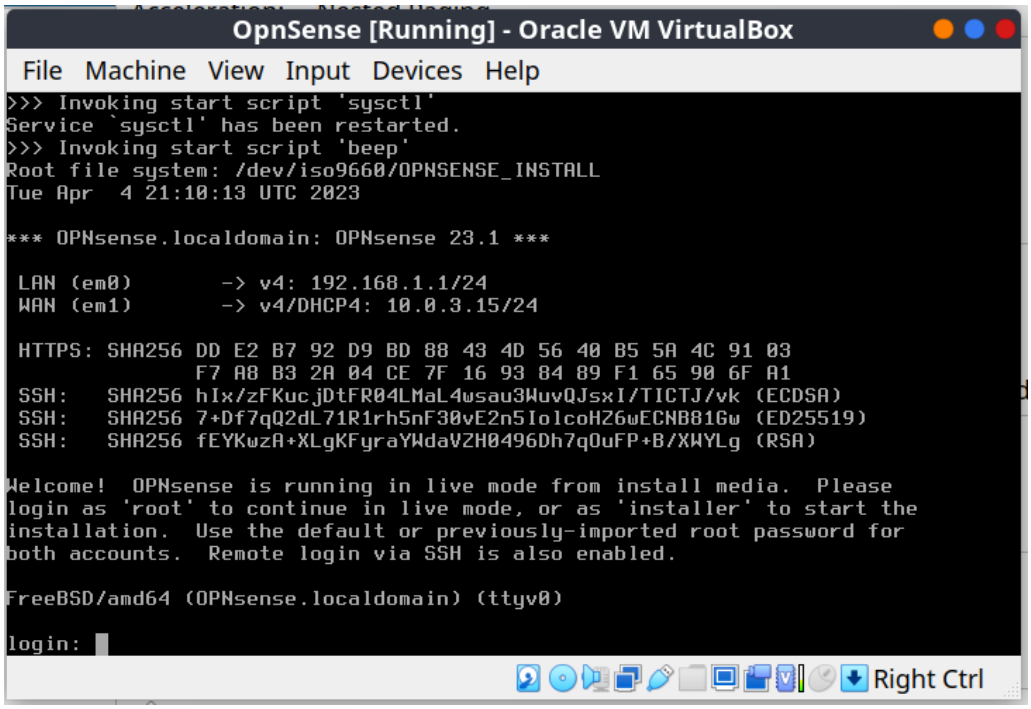
7) On the second adapter, make this your internal/LAN adapter. Use the same interface adapter.



8) Start the OpnSense VM. If you did not attach the OpnSense ISO, attach it at boot.

9) **Known Issues**When the VM boots up, it will notify you of your Network adapter settings. Sometimes, the network adapters get flipped. If this occurs, your WAN output will indicate and address of 0.0.0.0/0. In this case, you will need to shut down the VM, and adjust the network settings. Change the adapter 1 to the “Internal” adapter and adapter 2 to the “NAT” adapter.



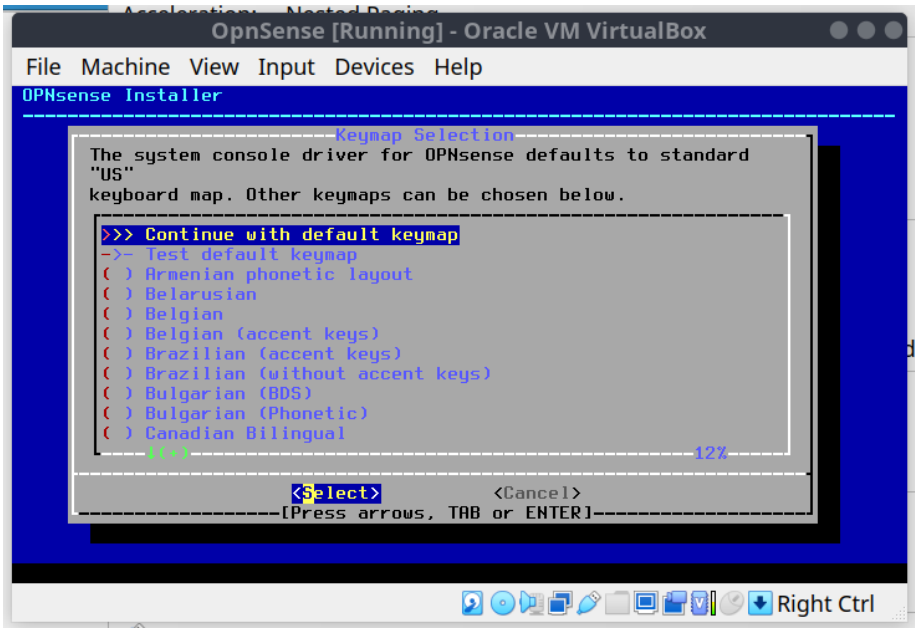


10) With your network adapters set correctly, we can now start the installation. At the login prompt, login into the command line system to start the install. The username and password are:

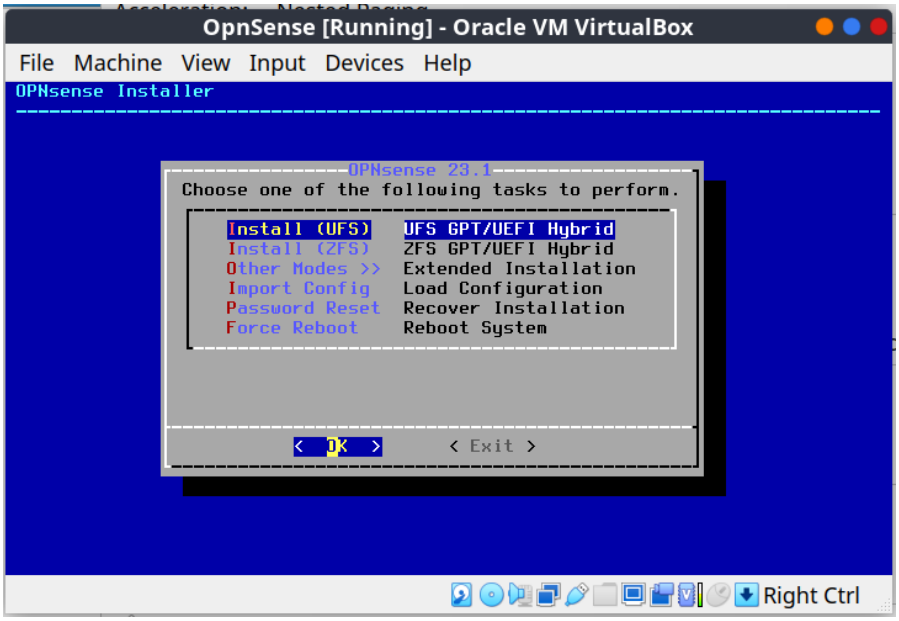
- username: root
- password: opnsense

11) When you login in, you will be welcomed by a TUI (terminal/text user interface). Navigate the TUI interface with your arrow keys, enter, and tab.

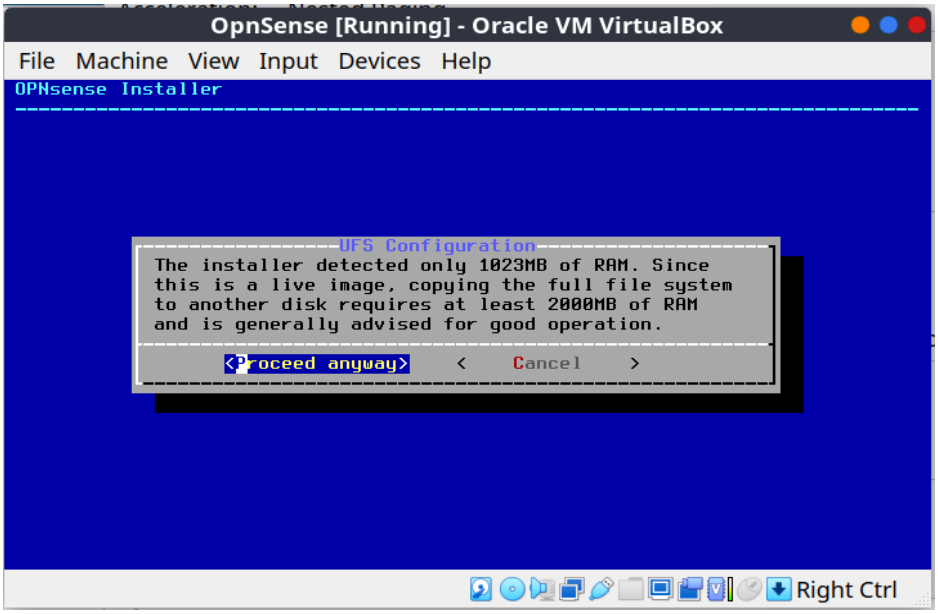
Start by keeping the default keymap.



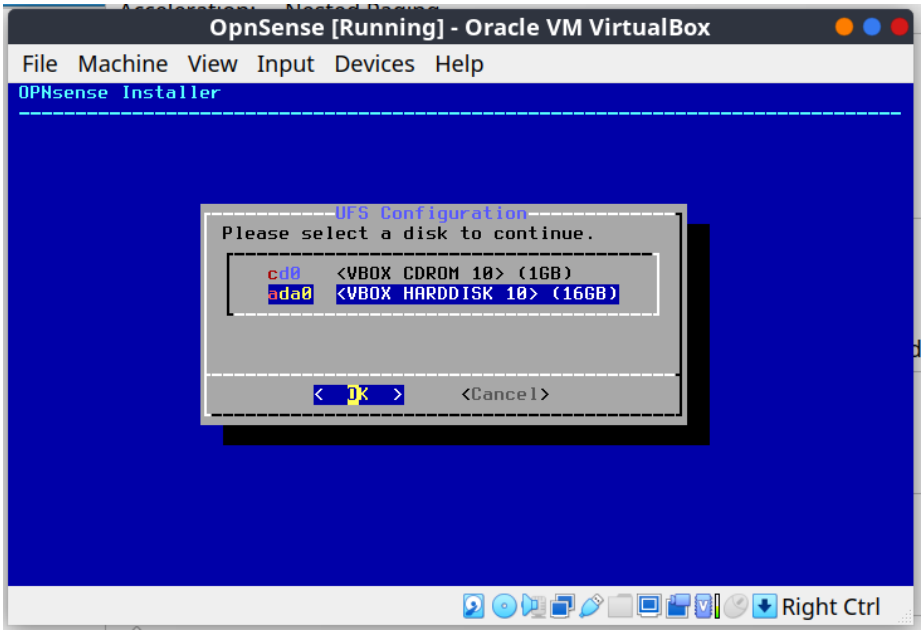
12) Next, select the installation method. Here we will use the UFS option (Install (UFS)).



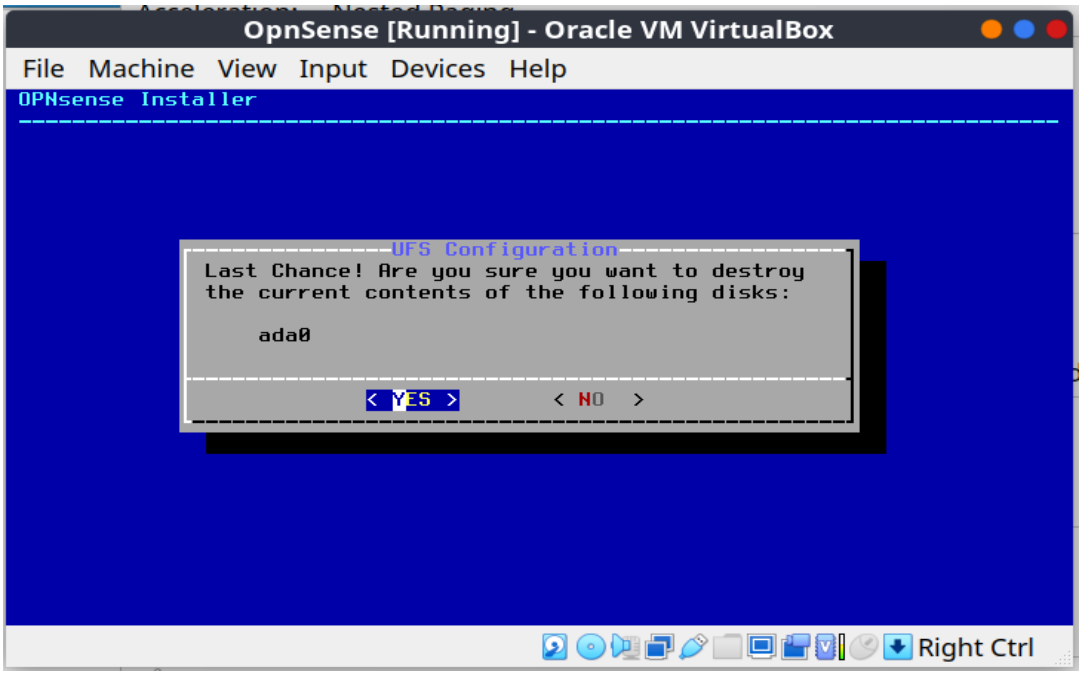
13) The installer will issue a warning indicating that it will wipe the entire drive (your VM's virtual disk) and do a full install. Select "Proceed Anyway".



14) Select the installation disk. Select the "ada0" Vbox hard disk (your 16 GB virtual disk).

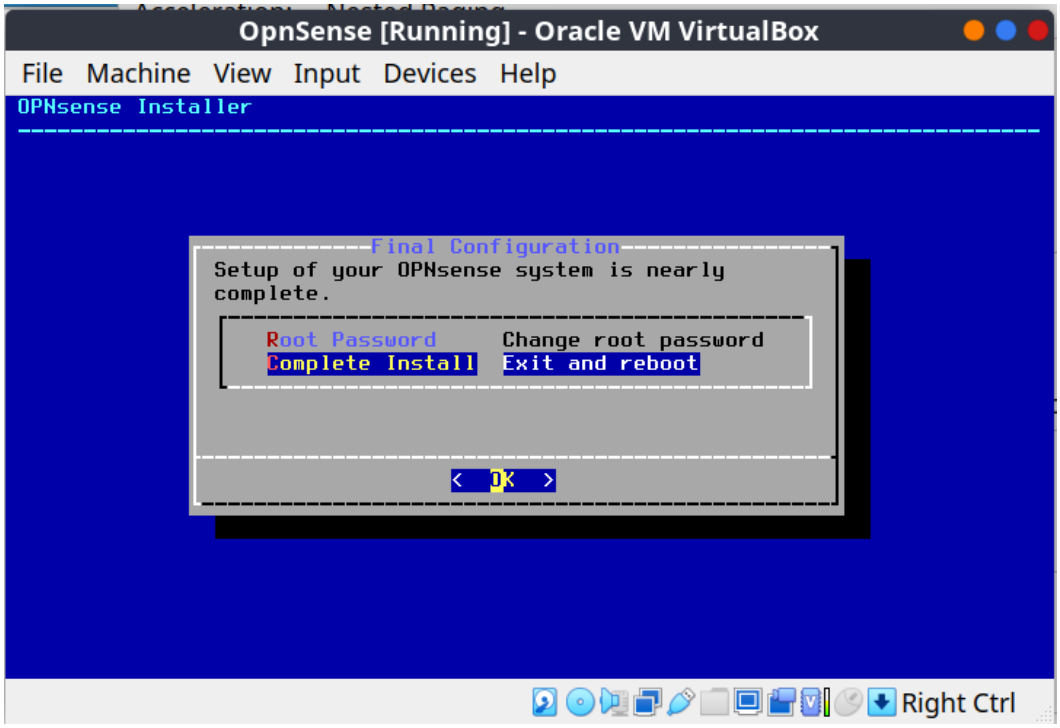


15) The installer will warn you again. Select “YES” to start the installation.



16) Towards the end of the installation, you have the option to change the root password. While generally a good idea, for a lab environment, you may opt to not change the password. Your call.

17) Select “Complete Install” to exit and reboot the installation.



18) Once your VM is completed and rebooted, your VM should be like the image below.