GNS3_3

Oracle VirtualBox

GNS3 VM

Why we need a Virtual Machine in GNS3?

We need a virtual environment to run “heavy lifting” simulations, images and containers.

GNS3VM helps to execute end users and virtual switches, achieving NFV (Open vSwitch, **Mininet**).

In addition, to operate the SDN Controller (Ryu) scripting files can be deployed in Python.

GNS3 and Mininet, what is the difference?

Mininet has limited integration capabilities with non-simulating devices, such as traditional routers and switches.

GNS3 is the panel control and the main regulator of NFV functions.

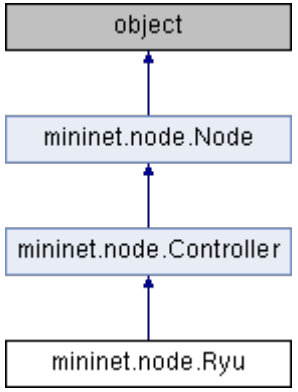
In addition, GNS3 support nesting of Mininet functions by using VM solutions.

Why we need an SDN Controller?

SDN controller is required for both front-haul and back-haul links in order to customize multiple types of services, such as traffic control, delay measurement, network slicing, throughput analysis or queue priority.

Why we need Ryu?

Ryu is a SDN controller with a well-defined API written in Python, embedded into Mininet, as shown in this diagram



Download VirtualBox (Win)

VirtualBox is a VM solution developed by Oracle, Personal Use is Free

https://www.virtualbox.org/wiki/Downloads

VirtualBox Installation tutorial (Win)

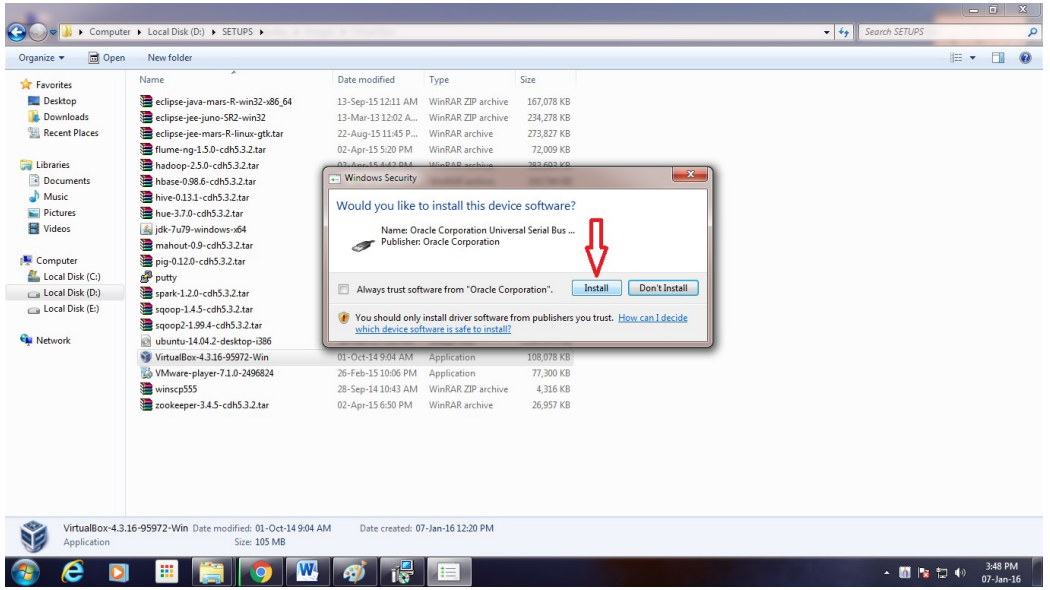
Installation guide is provided by the following link

https://data-flair.training/blogs/install-virtualbox/

Note

Set default values

Select “Install” when prompted by Windows Security



Download GNS3VM.zip

The .zip file contains the **.ova** file which will be used to run in VirtualBox

https://gns3.com/software/download-vm

GNS3 VM Initial Steps

1. Install VirtualBox
2. Download the .zip file from GNS3 (GNS3.VM.VirtualBox.2.2.31.zip)
3. Unzip GNS3.VM file

You can start to install the GNS3VM

Installation tutorial of GNS3VM

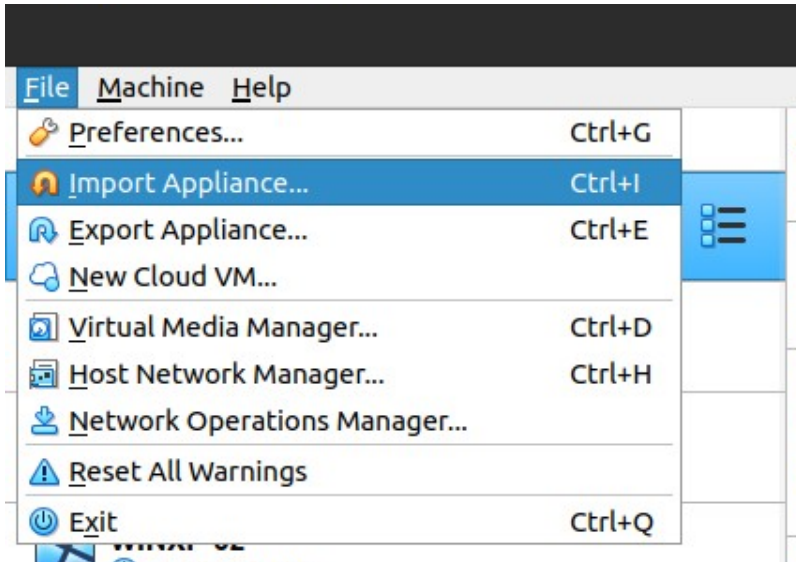
Installation guide is provided by the following link

https://techviewleo.com/how-to-run-gns3-vm-on-virtualbox/

Step 1

Select

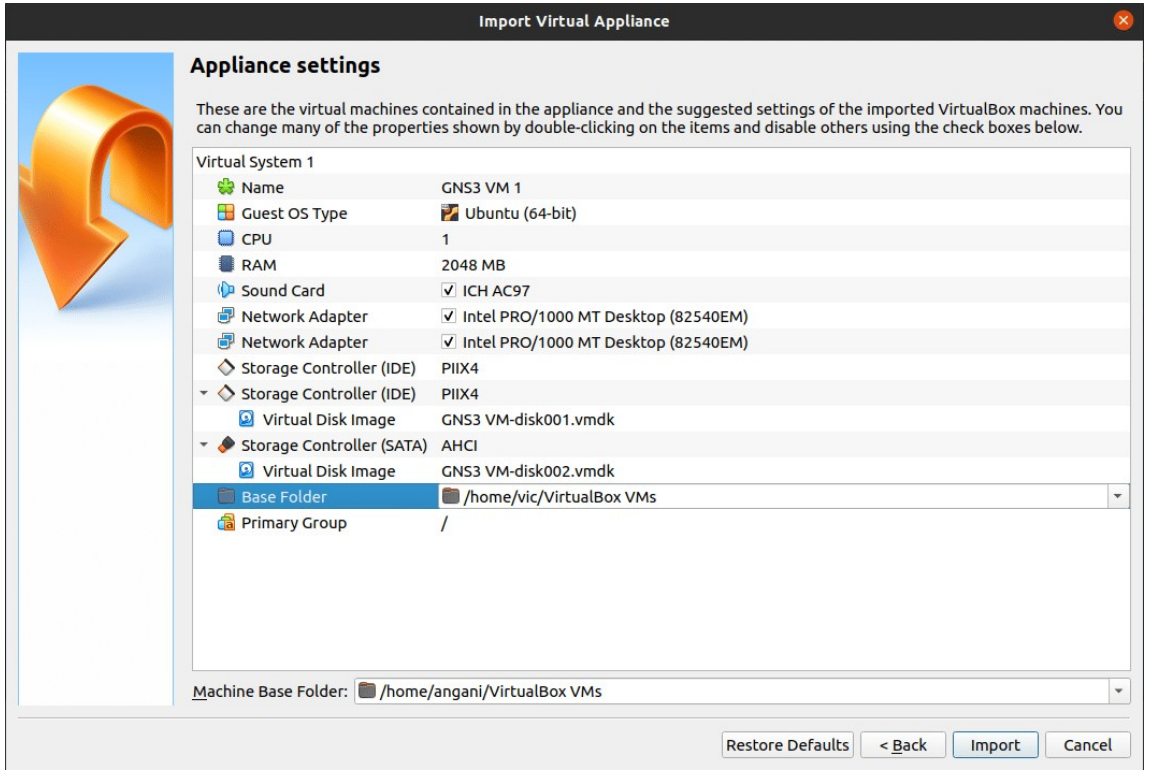
“File>Import Appliance(Ctrl+I)”



Step 2

Leave the virtual machine name as '**GNS3 VM**', and click 'Import'

"GNS3VM1" will generate errors in GNS3, do not use that name.

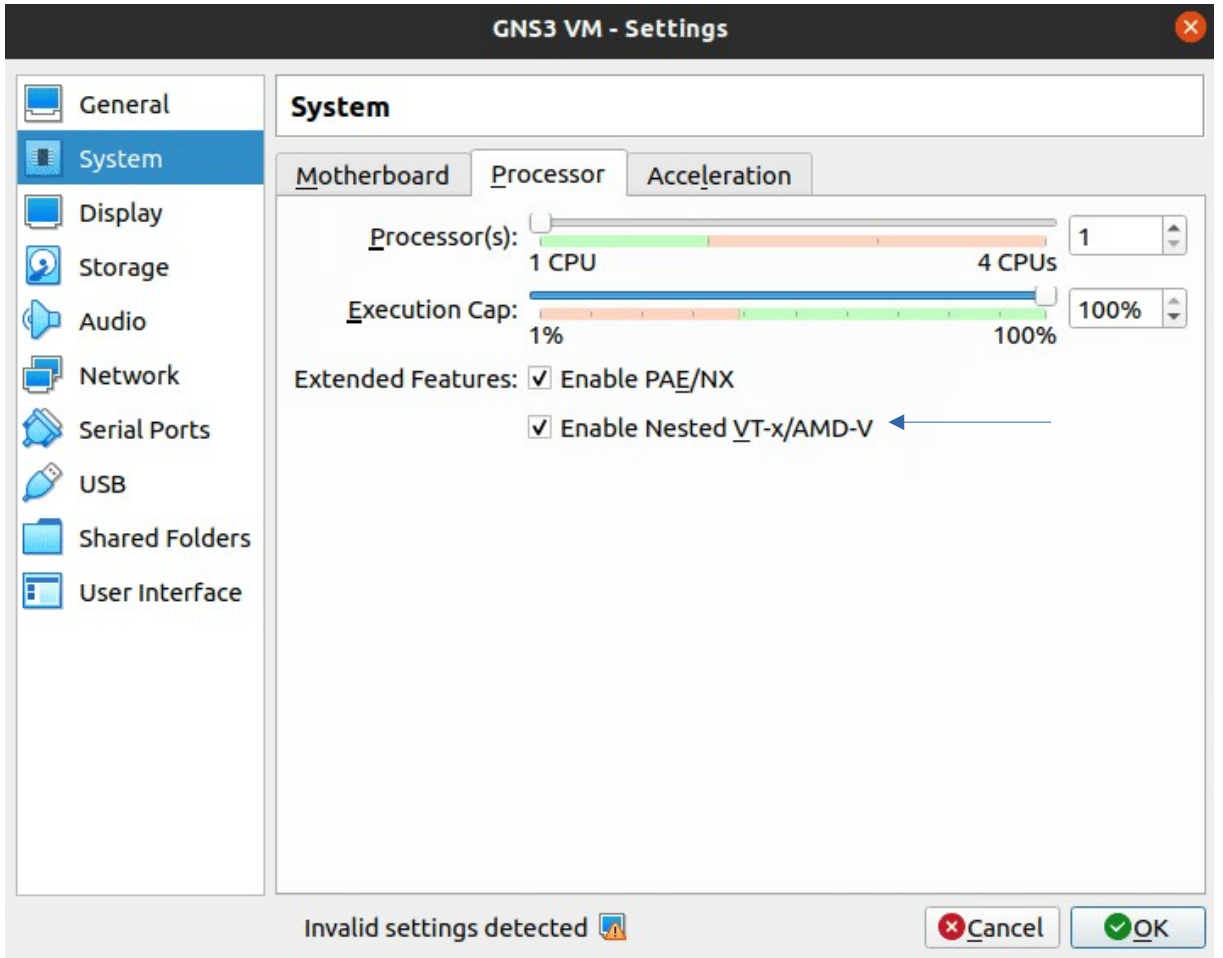


Step 3

Click “GNS3 VM Settings”

Click “System”

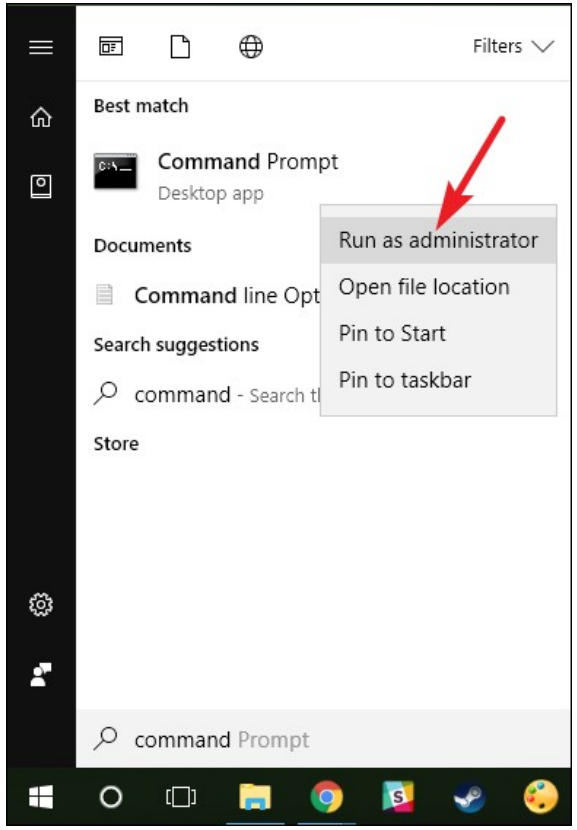
Select “Enable Nested VT-x/AMD-V”



Step 3 Troubleshooting (I)

If “Enable Nested VT-x/AMD-V” not available

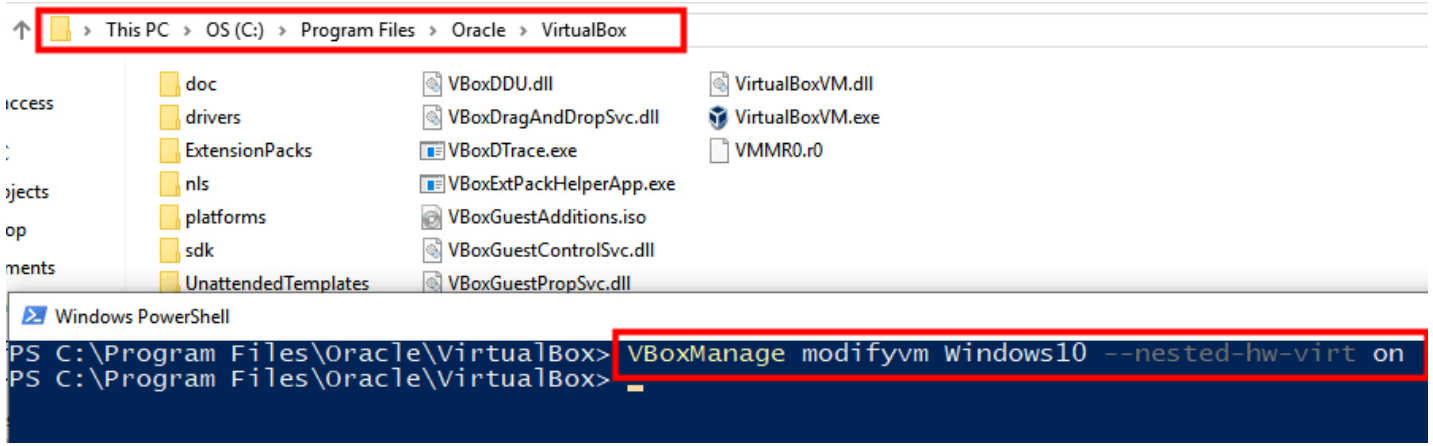
Open cmd as admin



Step 3 Troubleshooting (II)

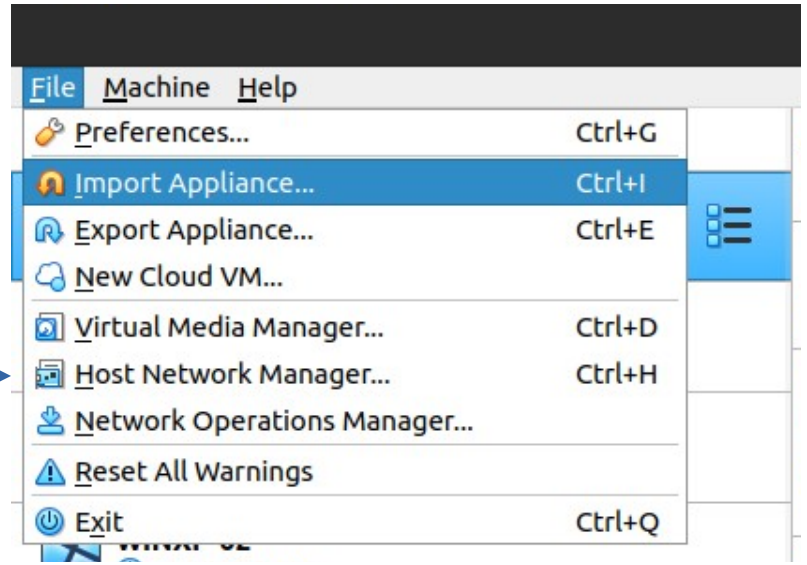
Find the path where **your** VM is stored and write:
cd Cd:\Program Files\Oracle\VirtualBox

Write:
VBoxManage modifyvm **"GNS3 VM"** --nested-hw-virt on



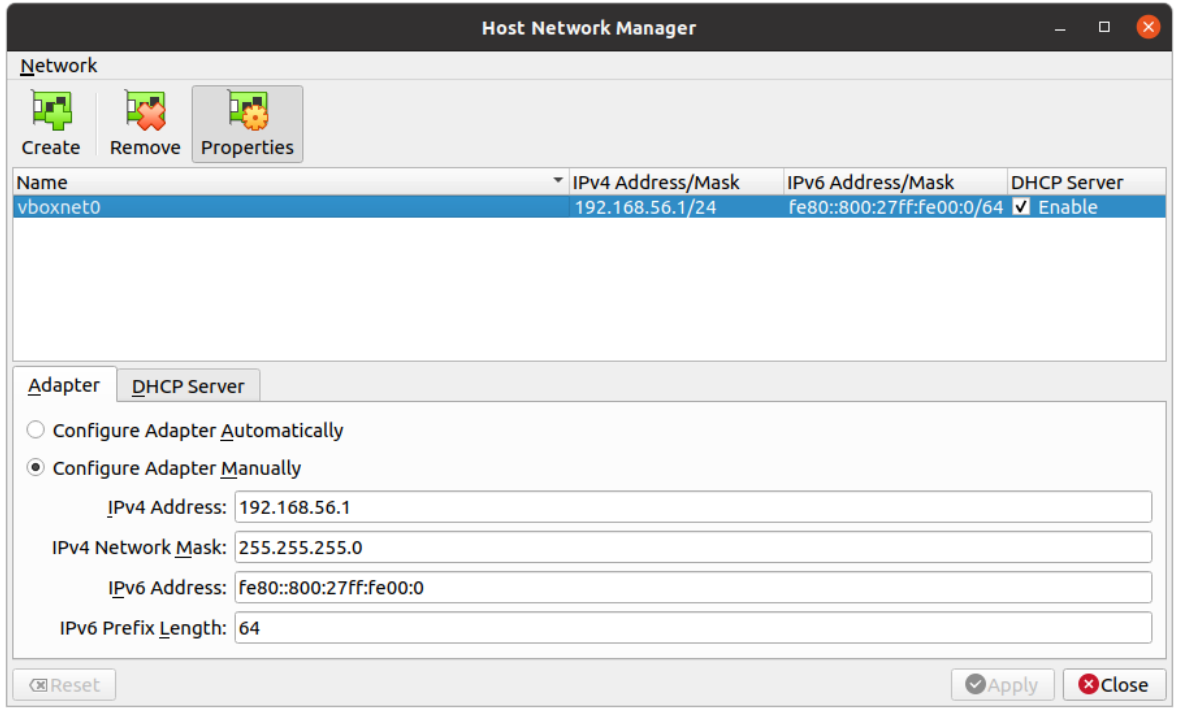
Step 4

To add a Network Adapter, Click on “Host Network Manager” (Ctrl+H)



Step 5

If **vboxnet0** is not listed
Click on “Create”

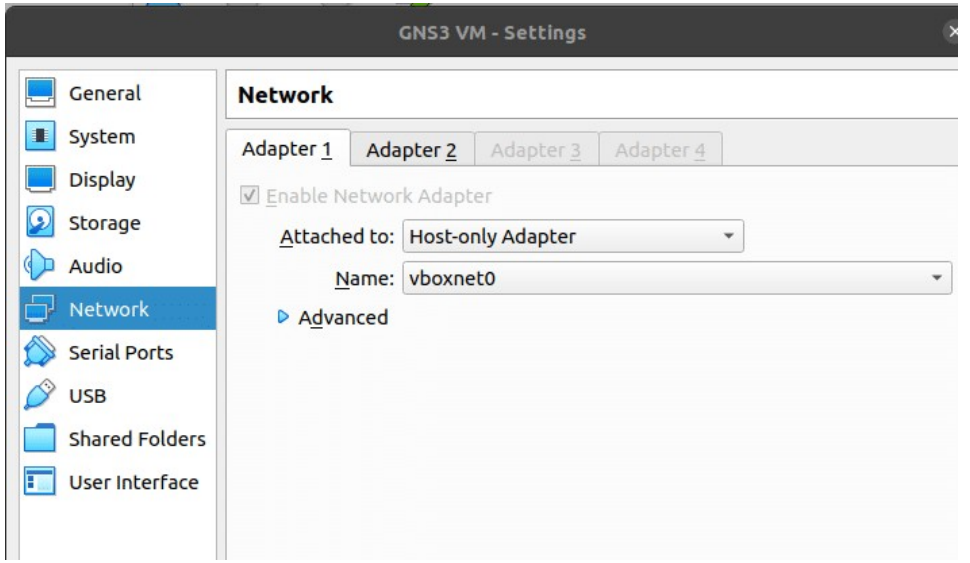


Step 6

Click “GNS3 VM Settings”>“Network”

Select “Enable Network Adapter”

Attached to: Host-only Adapter
Name: vboxnet0



Step 7

Start “GNS3 VM”

VirtualBox will display the GNS3VM interface

```
GNS3 server version: 2.2.31
Release channel: 2.2
VM version: 0.13.0
Ubuntu version: focal
Qemu version: 4.2.1
Virtualization: virtualbox
kvm
KVM support available: True
Uptime: up 0 minutes

IP: 192.168.56.101 PORT: 80
```

Step 8

Open GNS3

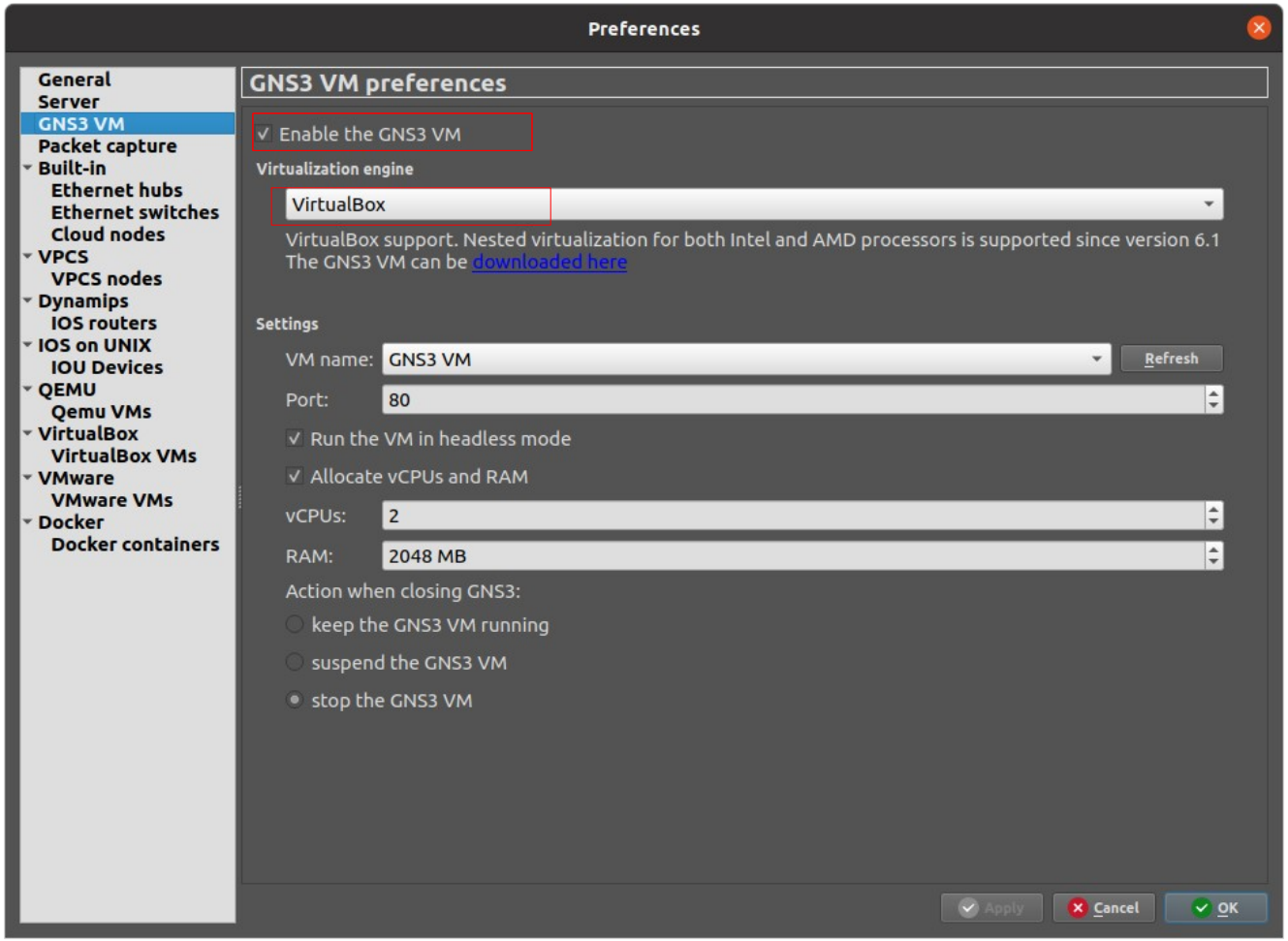
Select “Edit>Preferences (Ctrl+Shift+P)”

“Enable the GNS3 VM”

Select “VirtualBox” as your Virtualization engine

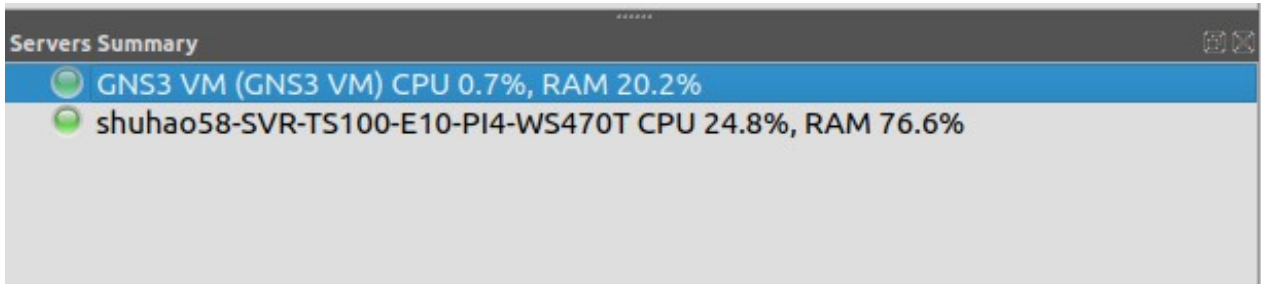
The program will automatically scan the VM

After the program find the VM, click on “Apply”



Step 9

If the previous steps are correct, you will be able to see the GNS3 VM listed in “Servers Summary”



Thank you