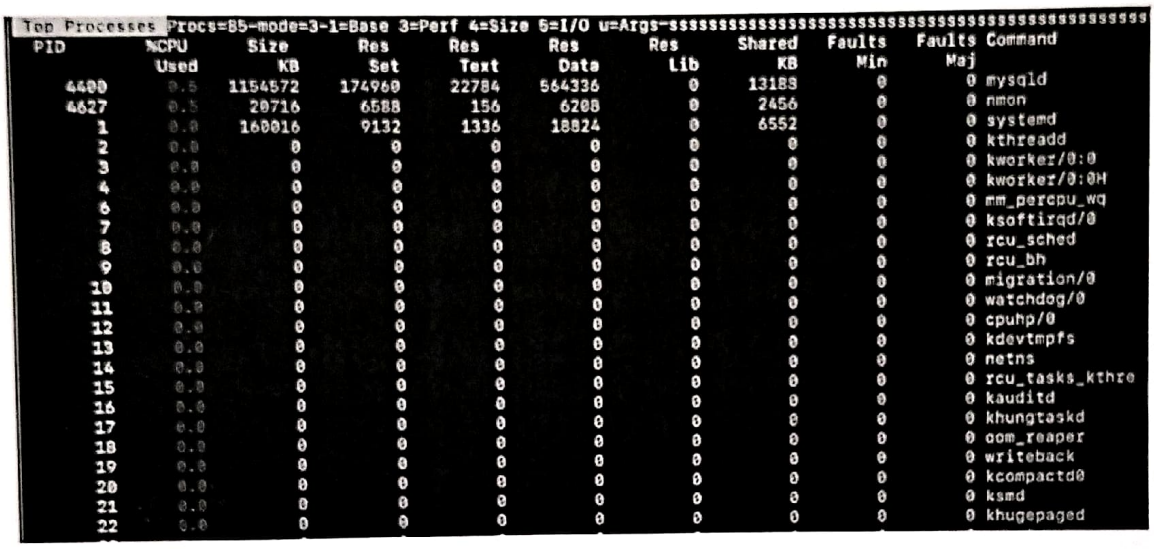
Experiment 8 : Automation of system task

Nmon – CPU Monitoring tool

Interactive command-line monitoring tool for CPU, memory, disks, network, NFS, and virtual memory utilization. To view the top process (by utilization), you can execute nmon and press t button.



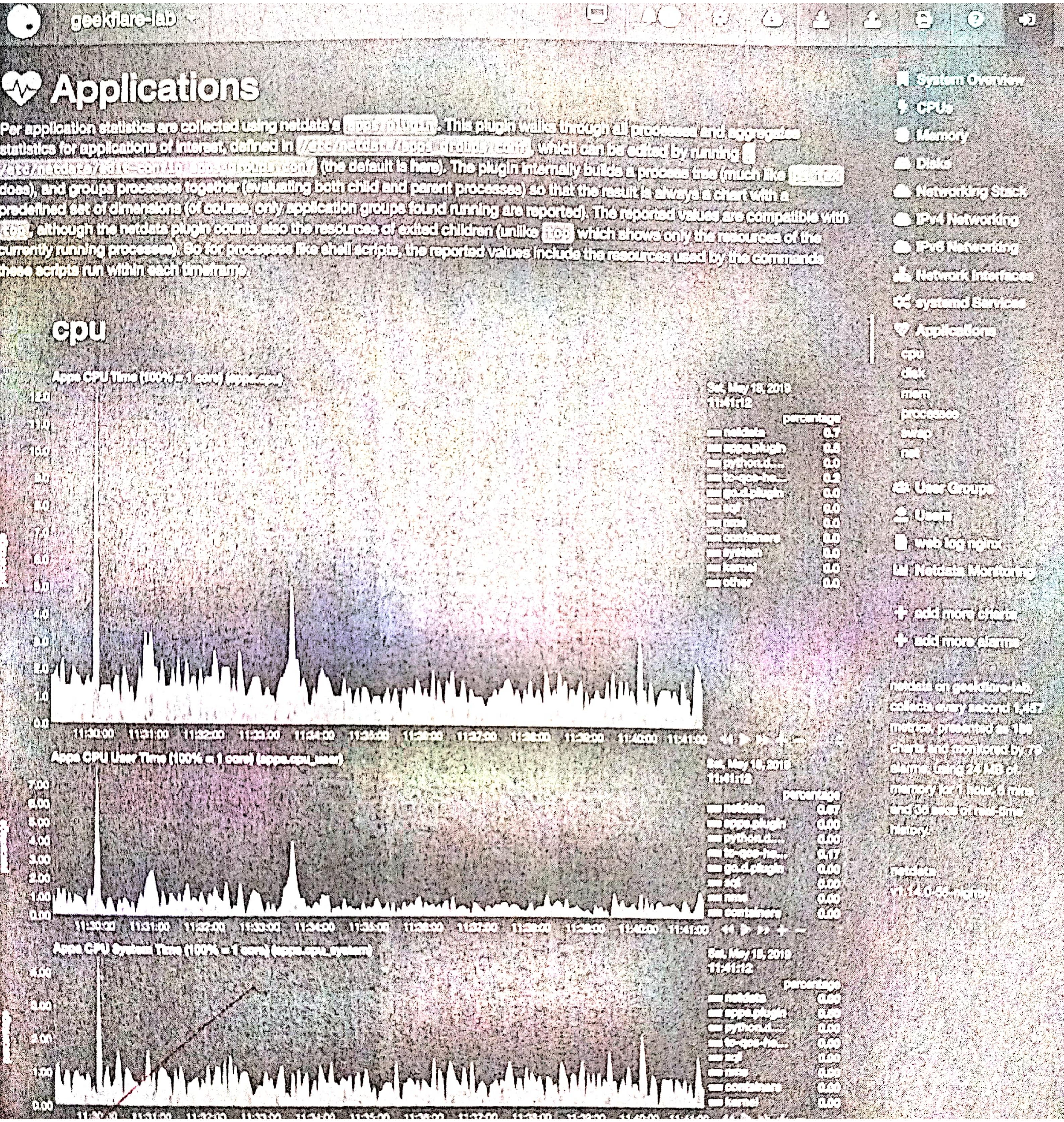
```
Top Processes Procs=85-mode=3-1=Base 3=Perf 4=Size 6=I/O u=Args-ssssssssssssssssssssssssssssssssssssssssssssssssss
  PID          %CPU  Size   Res    Res    Res    Res  Shared  Faults  Faults Command
               Used    KB   Set    Text   Data   Lib    KB     Min     Maj
 4400          0.5 1154572 174960  22784 564336    0  13188       0       0 mysqld
 4627          0.5   20716   6588    156   6208    0   2456       0       0 nmon
    1          0.0  160016   9132   1336  18824    0   6552       0       0 systemd
    2          0.0       0      0      0      0    0      0       0       0 kthreadd
    3          0.0       0      0      0      0    0      0       0       0 kworker/0:0
    4          0.0       0      0      0      0    0      0       0       0 kworker/0:0H
    6          0.0       0      0      0      0    0      0       0       0 mm_percpu_wq
    7          0.0       0      0      0      0    0      0       0       0 ksoftirqd/0
    8          0.0       0      0      0      0    0      0       0       0 rcu_sched
    9          0.0       0      0      0      0    0      0       0       0 rcu_bh
   10          0.0       0      0      0      0    0      0       0       0 migration/0
   11          0.0       0      0      0      0    0      0       0       0 watchdog/0
   12          0.0       0      0      0      0    0      0       0       0 cpuhp/0
   13          0.0       0      0      0      0    0      0       0       0 kdevtmpfs
   14          0.0       0      0      0      0    0      0       0       0 netns
   15          0.0       0      0      0      0    0      0       0       0 rcu_tasks_kthre
   16          0.0       0      0      0      0    0      0       0       0 kauditd
   17          0.0       0      0      0      0    0      0       0       0 khungtaskd
   18          0.0       0      0      0      0    0      0       0       0 oom_reaper
   19          0.0       0      0      0      0    0      0       0       0 writeback
   20          0.0       0      0      0      0    0      0       0       0 kcompactd0
   21          0.0       0      0      0      0    0      0       0       0 ksmd
   22          0.0       0      0      0      0    0      0       0       0 khugepaged
```

You can install nmon as below.

```
dnf install nmon
```

Netdata – Real time performance monitoring

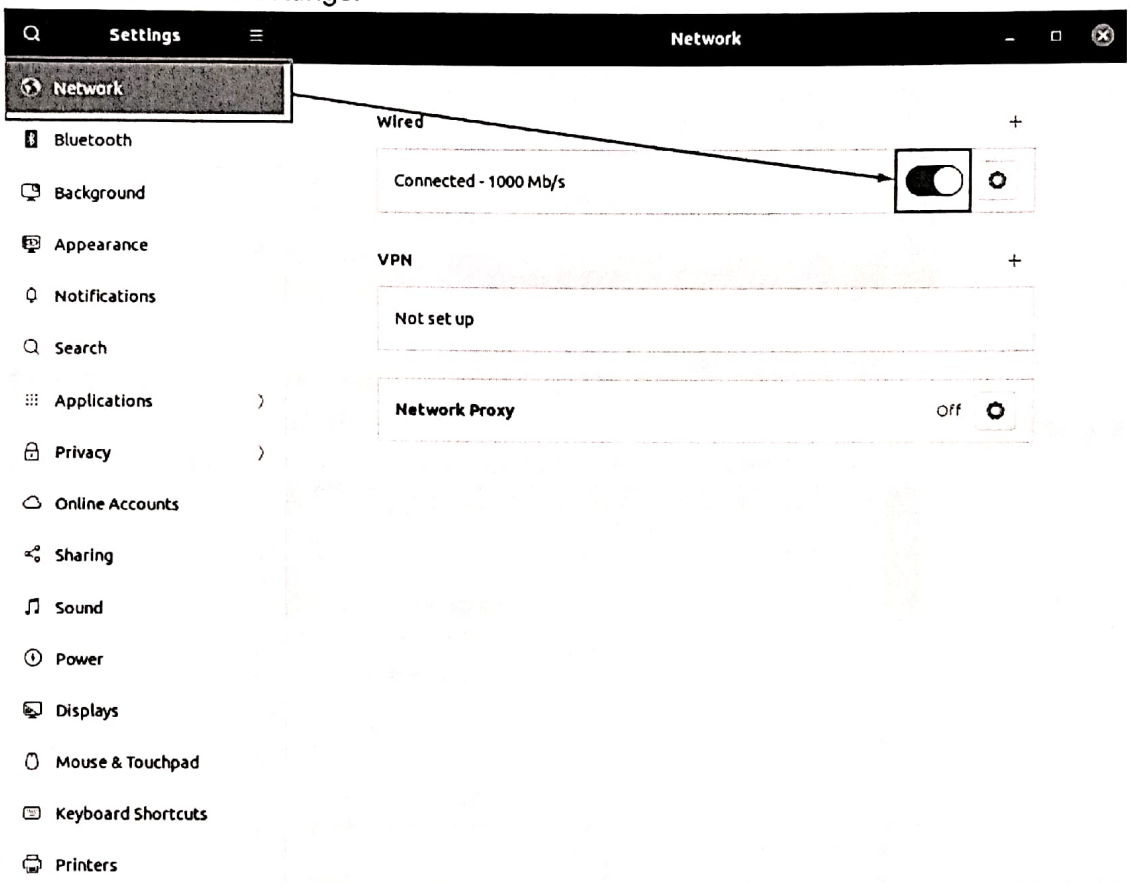
Netdata is a real-time performance monitoring for system resources, applications, web servers, databases, DNS, mail, hardware sensors, and a lot more. It is open-source and getting started is easy. All the data is collected, stored, and streamed for you to visualize interactively. Data is collected every second, so you never miss anything.


geekflare-lab
Applications
Per application statistics are collected using netdata's apps.plugin. This plugin walks through all processes and aggregates statistics for applications of interest, defined in /etc/netdata/apps_groups.conf, which can be edited by running $ /etc/netdata/edit-config apps_groups.conf (the default is here). The plugin internally builds a process tree (much like ps fax does), and groups processes together (evaluating both child and parent processes) so that the result is always a chart with a predefined set of dimensions (of course, only application groups found running are reported). The reported values are compatible with top, although the netdata plugin counts also the resources of exited children (unlike top which shows only the resources of the currently running processes). So for processes like shell scripts, the reported values include the resources used by the commands these scripts run within each timeframe.
cpu
Apps CPU Time (100% = 1 core) (apps.cpu)
Apps CPU User Time (100% = 1 core) (apps.cpu_user)
Apps CPU System Time (100% = 1 core) (apps.cpu_system)
Sat, May 18, 2019
11:41:12
percentage
netdata
apps.plugin
python.d...
tc-qos-he...
go.d.plugin
sql
rails
containers
system
kernel
other
System Overview
CPUs
Memory
Disks
Networking Stack
IPv4 Networking
IPv6 Networking
Network Interfaces
systemd Services
Applications
cpu
disk
mem
processes
swap
net
User Groups
Users
web log nginx
Netdata Monitoring
add more charts
add more alarms
netdata on geekflare-lab, collects every second 1,457 metrics, presented as 199 charts and monitored by 79 alarms, using 24 MB of memory for 1 hour, 6 mins and 36 secs of real-time history.
netdata

Experiment 9 : Enabling Internet on Linux VM

Step 1: Ensure the internet connection

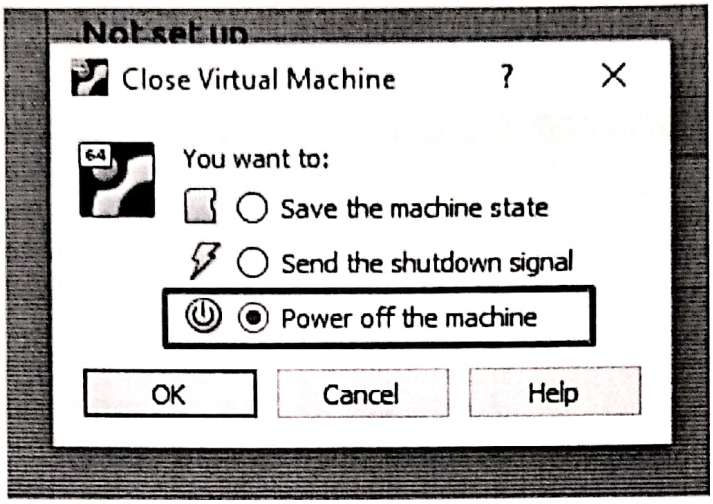
First, ensure that the wired network connection is already turned on by going to the network tab in the settings.



If the highlighted toggle button in the screenshot attached is OFF, then turn it ON and establish the internet connection.

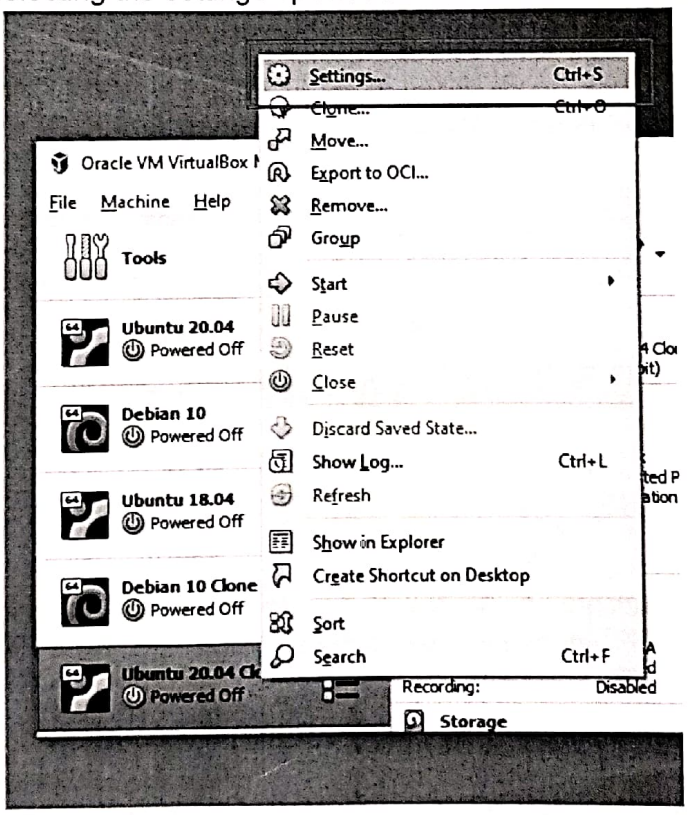
Step 2: Turn OFF the Virtual Machine

If you still do not have the internet connection established, you need to change the machine's network adapter settings from the Virtual machine settings.
For changing the network settings and for the modifications to take effect, turn off the virtual machine.

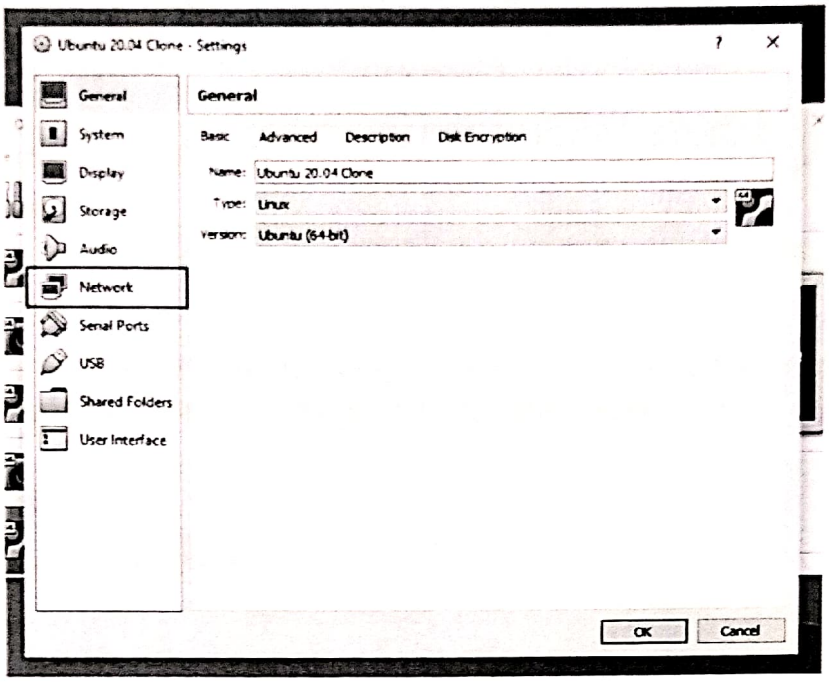


Step 3: Open network settings of Virtual Machine

After closing the Virtual Machine, open the virtual machine settings by right-clicking on the machine and selecting the settings option from the context menu.

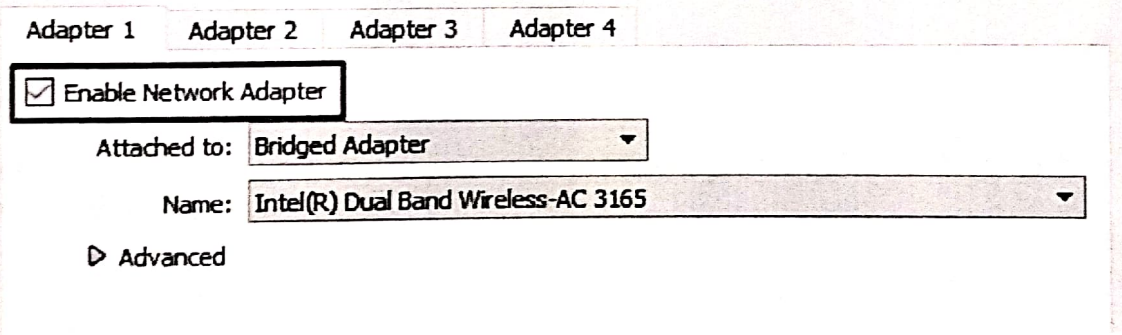


In the settings window that appeared, click on the Network tab from the left bar.



Step 4: Enable the Network Adapter

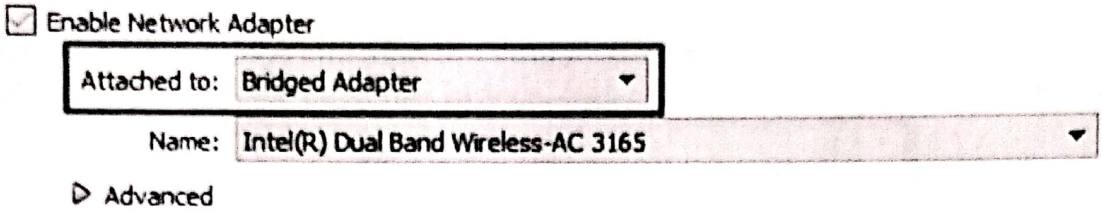
In the machine's Network Adapter settings, click on the "Enable Network Adapter" to enable the network adapter and modify its settings.



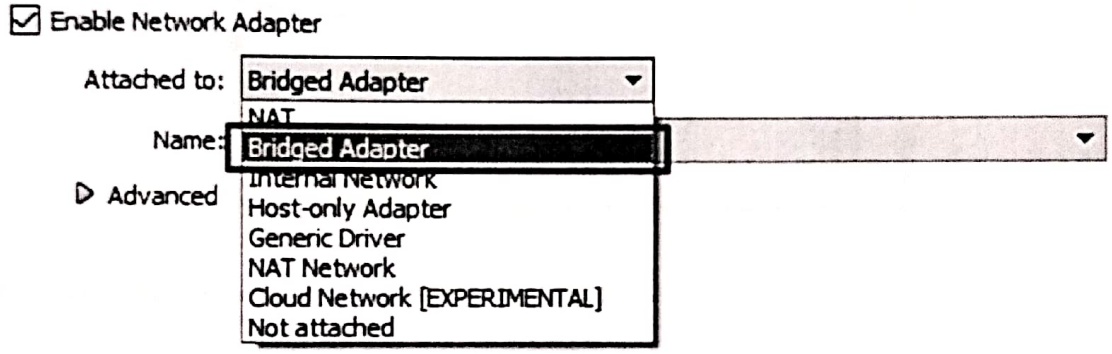
If it is unchecked, then definitely this was the reason behind the internet connection not working because there was no network adapter assigned to the Virtual machine by the VirtualBox.

Step 5: Select the Network Device

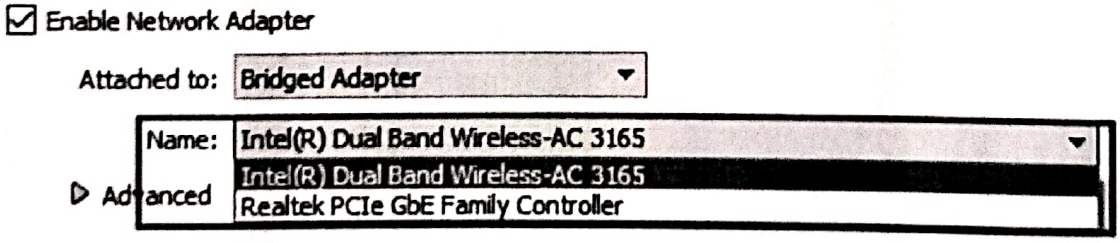
After enabling the network adapter for the virtual machine, you can select the preferred method from the "attached to" dropdown menu to attach the virtual network adapter to your host OS network.



We will suggest selecting the **Bridged Adapter** because this way, the virtual machine will be connected to the network using the host OS Ethernet adapter.

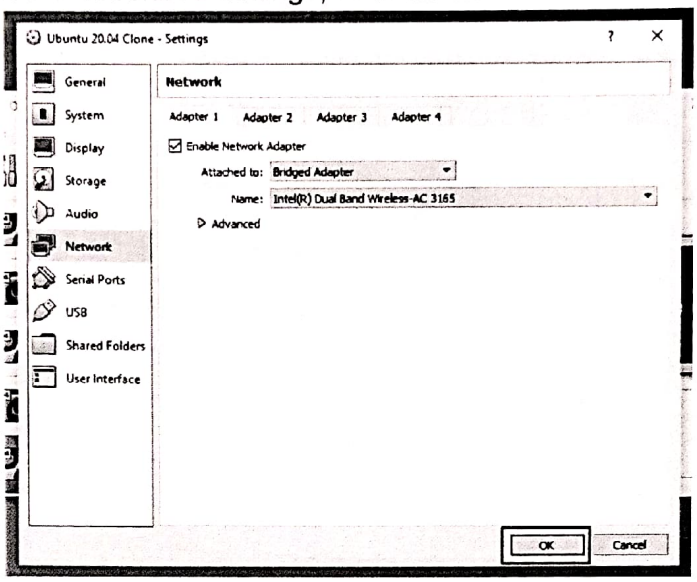


After selecting the appropriate method from the "Name" drop-down, select the right device that you want to choose.

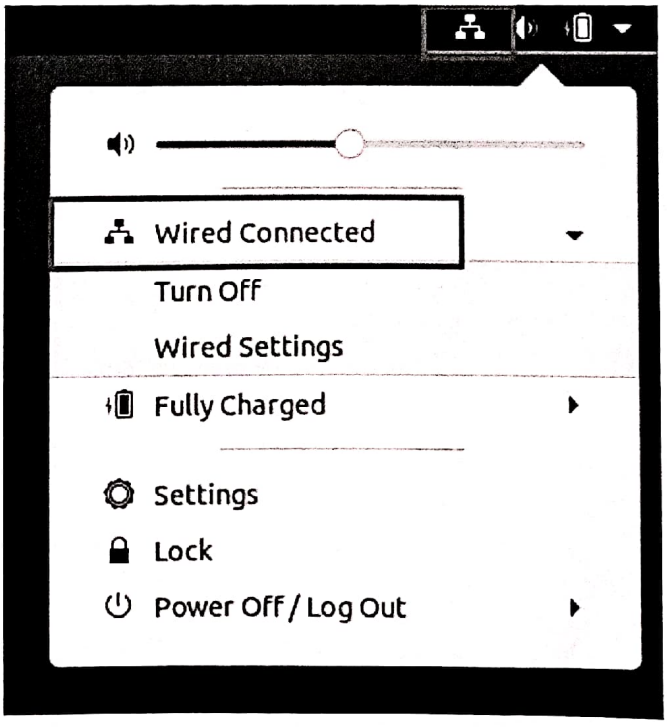


Step 6: Save Settings and start the Virtual Machine

After configuring all the described settings, click on the OK button to save the settings.



And start the machine by double-clicking on the machine.



You will have the internet connection working perfectly fine on your virtual machine in the virtual box.