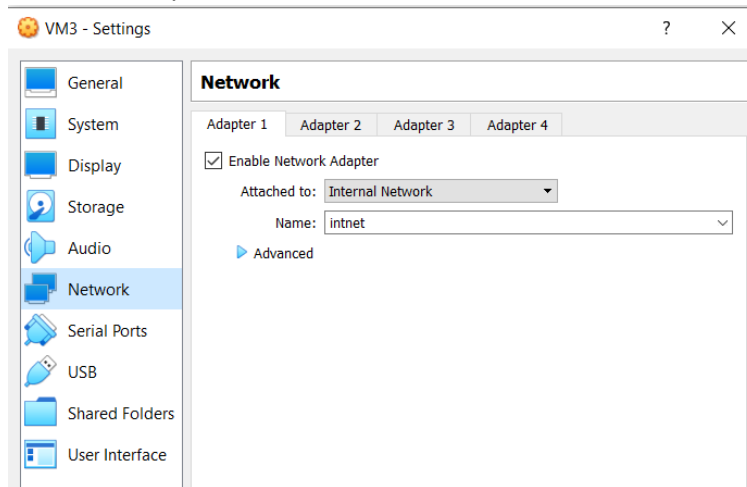


- 1) Use already created internal-network for three VMs (VM1-VM3). VM1 has NAT and internal, VM2, VM3 – internal only interfaces.



- 2) Install and configure DHCP server on VM1.

```
GNU nano 2.2.6 File: /etc/dnsmasq.conf
# 10.1.2.3 to 192.168.1.1 port 55 (there must be a interface with that
# IP on the machine, obviously).
# server=10.1.2.3@192.168.1.1#55

# If you want dnsmasq to change uid and gid to something other
# than the default, edit the following lines.
#user=
#group=

# If you want dnsmasq to listen for DHCP and DNS requests only on
# specified interfaces (and the loopback) give the name of the
# interface (eg eth0) here.
# Repeat the line for more than one interface.
interface=eth1
# Or you can specify which interface _not_ to listen on
#except-interface=
# Or which to listen on by address (remember to include 127.0.0.1 if
# you use this.)
#listen-address=

# 3) Provides the domain part for "expand-hosts"
#domain=thekelleys.org.uk

# Set a different domain for a particular subnet
#domain=wireless.thekelleys.org.uk,192.168.2.0/24

# Same idea, but range rather than subnet
#domain=reserved.thekelleys.org.uk,192.68.3.100,192.168.3.200

# Uncomment this to enable the integrated DHCP server, you need
# to supply the range of addresses available for lease and optionally
# a lease time. If you have more than one network, you will need to
# repeat this for each network on which you want to supply DHCP
# service.
dhcp-range=10.10.10.10,10.10.10.20,12h

# This is an example of a DHCP range where the netmask is given. This
# is needed for networks we reach the dnsmasq DHCP server via a relay
# agent. If you don't know what a DHCP relay agent is, you probably
```

- 3) Check VM2 and VM3 for obtaining network addresses from DHCP server.

```
VM3 [Running] - Oracle VM VirtualBox
File Machine View Input Devices Help
GNU nano 2.2.6 File: /etc/network/interfaces

# This file describes the network interfaces available on your system
# and how to activate them. For more information, see interfaces(5).

# The loopback network interface
auto lo
iface lo inet loopback

# The primary network interface
auto eth0
iface eth0 inet dhcp
```

```
student@VM3:~$ ifconfig -a
eth0      Link encap:Ethernet  HWaddr 08:00:27:80:43:33
          inet addr:10.10.10.20  Bcast:10.10.10.255  Mask:255.255.255.0
          inet6 addr: fe80::a00:27ff:fe80:4333/64 Scope:Link
          UP BROADCAST RUNNING MULTICAST  MTU:1500  Metric:1
          RX packets:10 errors:0 dropped:0 overruns:0 frame:0
          TX packets:34 errors:0 dropped:0 overruns:0 carrier:0
          collisions:0 txqueuelen:1000
          RX bytes:1726 (1.7 KB)  TX bytes:3400 (3.4 KB)

lo        Link encap:Local Loopback
          inet addr:127.0.0.1  Mask:255.0.0.0
          inet6 addr: ::1/128 Scope:Host
          UP LOOPBACK RUNNING  MTU:65536  Metric:1
          RX packets:32 errors:0 dropped:0 overruns:0 frame:0
          TX packets:32 errors:0 dropped:0 overruns:0 carrier:0
          collisions:0 txqueuelen:0
          RX bytes:2480 (2.4 KB)  TX bytes:2480 (2.4 KB)

student@VM3:~$
```

```
VM2 [Running] - Oracle VM VirtualBox
File Machine View Input Devices Help
GNU nano 2.2.6 File: /etc/network/interfaces

# This file describes the network interfaces available on your system
# and how to activate them. For more information, see interfaces(5).

# The loopback network interface
auto lo
iface lo inet loopback

# The primary network interface
auto eth0
iface eth0 inet dhcp
```

```
student@VM2:~$ ifconfig -a
eth0      Link encap:Ethernet  HWaddr 08:00:27:d4:88:39
          inet addr:10.10.10.10  Bcast:10.10.10.255  Mask:255.255.255.0
          inet6 addr: fe80::a00:27ff:fed4:8839/64 Scope:Link
          UP BROADCAST RUNNING MULTICAST  MTU:1500  Metric:1
          RX packets:22 errors:0 dropped:0 overruns:0 frame:0
          TX packets:44 errors:0 dropped:0 overruns:0 carrier:0
          collisions:0 txqueuelen:1000
          RX bytes:3856 (3.8 KB)  TX bytes:6820 (6.8 KB)

lo        Link encap:Local Loopback
          inet addr:127.0.0.1  Mask:255.0.0.0
          inet6 addr: ::1/128 Scope:Host
          UP LOOPBACK RUNNING  MTU:65536  Metric:1
          RX packets:32 errors:0 dropped:0 overruns:0 frame:0
          TX packets:32 errors:0 dropped:0 overruns:0 carrier:0
          collisions:0 txqueuelen:0
          RX bytes:2480 (2.4 KB)  TX bytes:2480 (2.4 KB)

student@VM2:~$
```



```
student@VM3:~$ dig g.co

; <<>> DiG 9.9.5-3ubuntu0.5-Ubuntu <<>> g.co
;; global options: +cmd
;; Got answer:
;; ->>HEADER<<- opcode: QUERY, status: NOERROR, id: 6962
;; flags: qr rd ra ad; QUERY: 1, ANSWER: 1, AUTHORITY: 0, ADDITIONAL: 0

;; QUESTION SECTION:
;g.co.                                IN      A

;; ANSWER SECTION:
g.co.                                240     IN      A      142.250.201.206

;; Query time: 3 msec
;; SERVER: 10.10.10.1#53(10.10.10.1)
;; WHEN: Sun Aug 20 13:08:04 UTC 2023
;; MSG SIZE rcvd: 38

student@VM3:~$
```