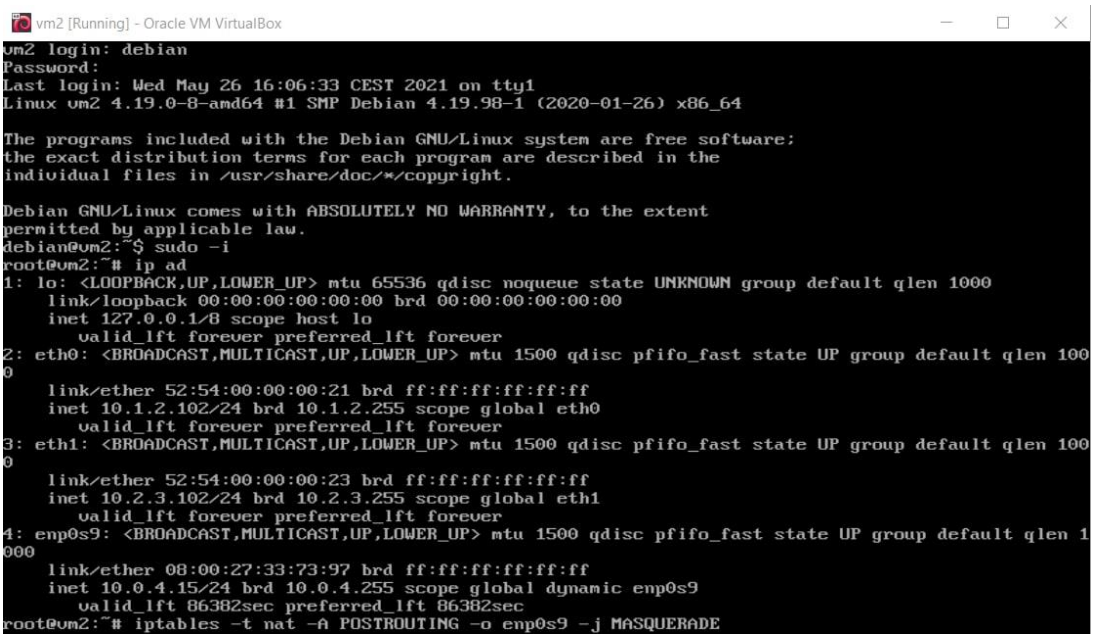
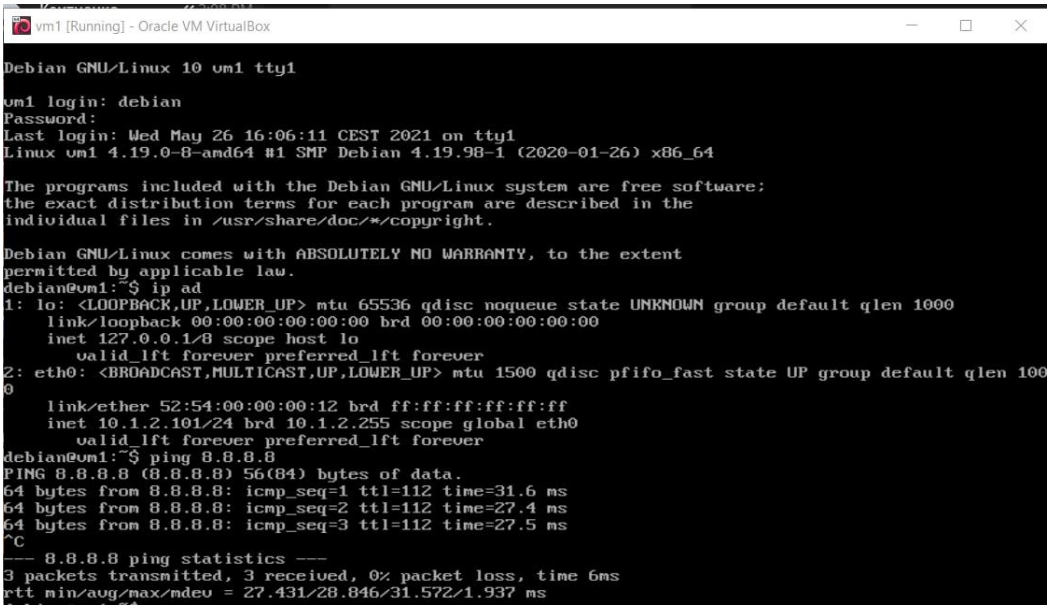
Prerequisites

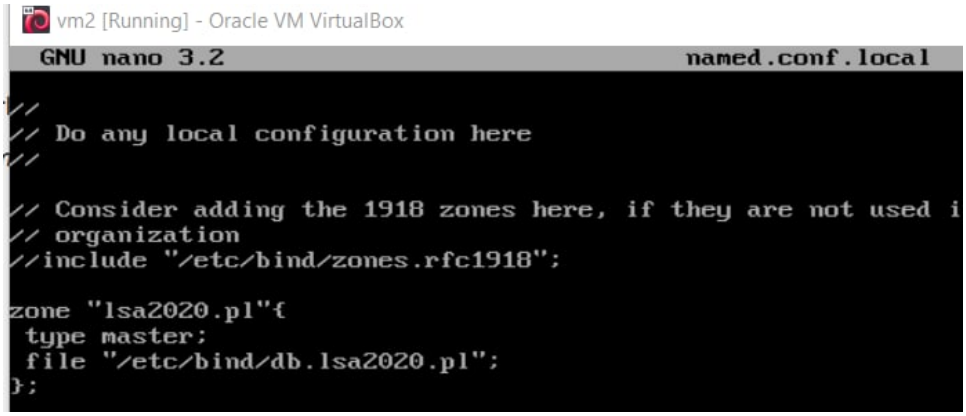
```
C:\Users\break\Desktop\routinglab>vboxmanage modifyvm vm2 --nic3 nat

C:\Users\break\Desktop\routinglab>
```



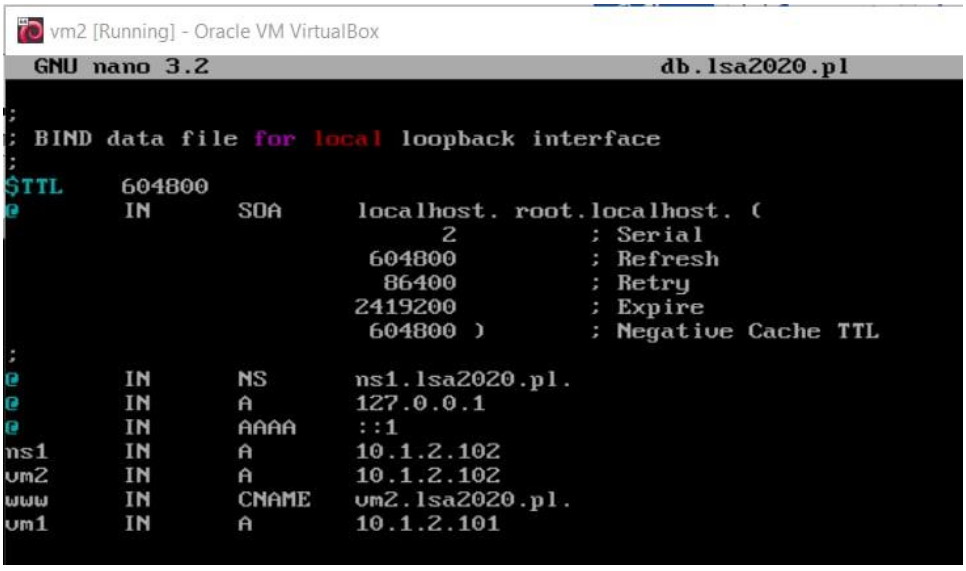


Task 1

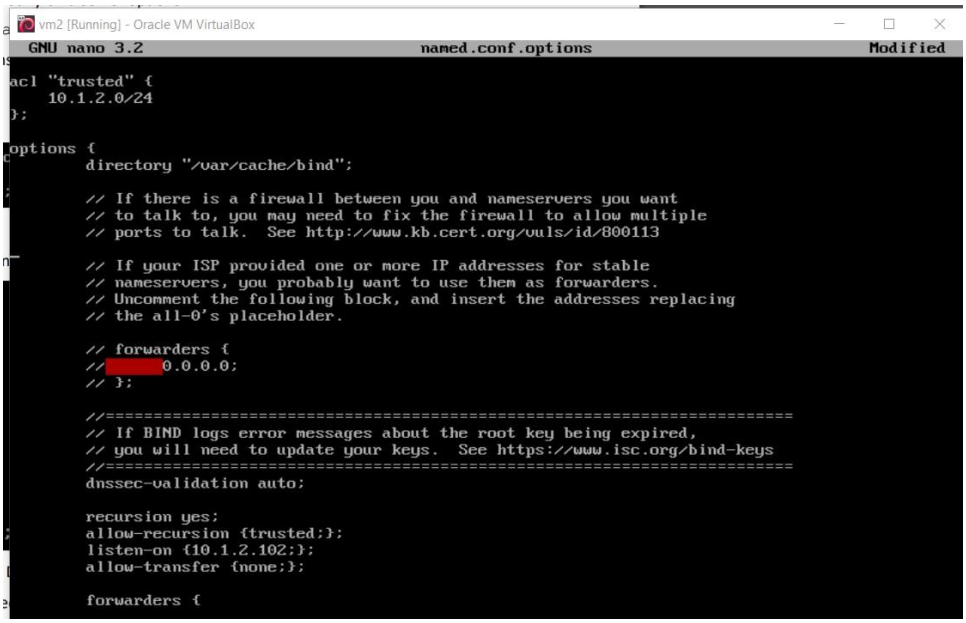
Configure location of the new DNS zone with name lsa2020.pl



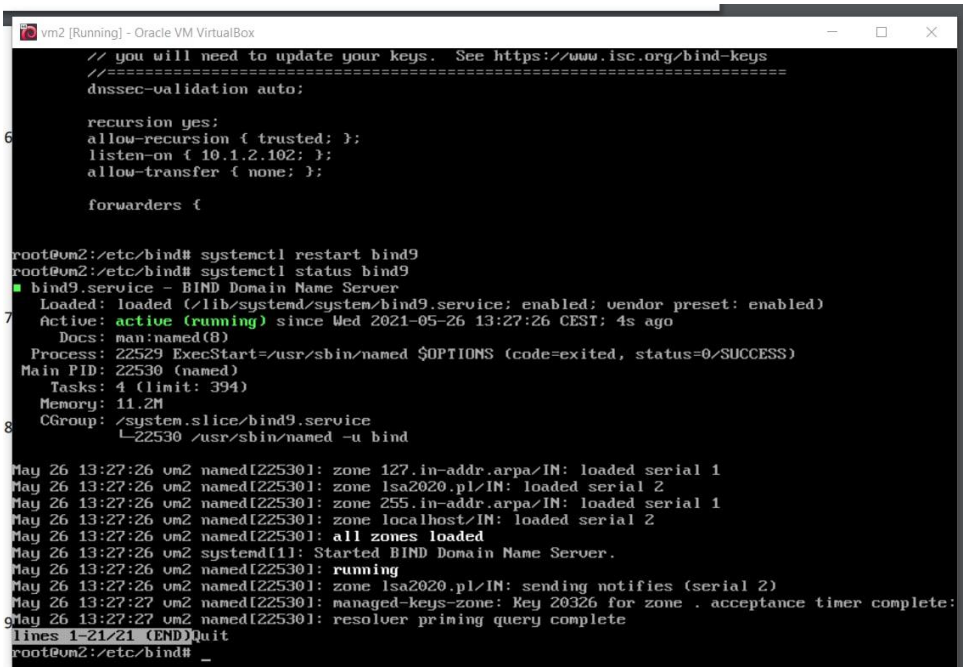
Change lsa2020.pl zone's configuration



modify bind server options:



Restart DNS:



Test if it's working on VM2

```
root@vm2:/etc/bind# nslookup ns1.lsa2020.pl
Server:         10.1.2.102
Address:        10.1.2.102#53

Name:   ns1.lsa2020.pl
Address: 10.1.2.102

root@vm2:/etc/bind# dig vm1.lsa2020.pl

; <<>> DiG 9.11.5-P4-5.1+deb10u5-Debian <<>> vm1.lsa2020.pl
;; global options: +cmd
;; Got answer:
;; ->>HEADER<<- opcode: QUERY, status: NOERROR, id: 12813
;; flags: qr aa rd ra; QUERY: 1, ANSWER: 1, AUTHORITY: 1, ADDITIONAL: 2

;; OPT PSEUDOSECTION:
; EDNS: version: 0, flags:; udp: 4096
; COOKIE: b314e3a53e449be435d4ca3e60ae31e598aa17f482d0e047 (good)
;; QUESTION SECTION:
;vm1.lsa2020.pl.                        IN      A

;; ANSWER SECTION:
vm1.lsa2020.pl.         604800  IN      A       10.1.2.101

;; AUTHORITY SECTION:
lsa2020.pl.             604800  IN      NS      ns1.lsa2020.pl.

;; ADDITIONAL SECTION:
ns1.lsa2020.pl.         604800  IN      A       10.1.2.102

;; Query time: 0 msec
;; SERVER: 10.1.2.102#53(10.1.2.102)
;; WHEN: Wed May 26 13:32:53 CEST 2021
;; MSG SIZE  rcvd: 121
```

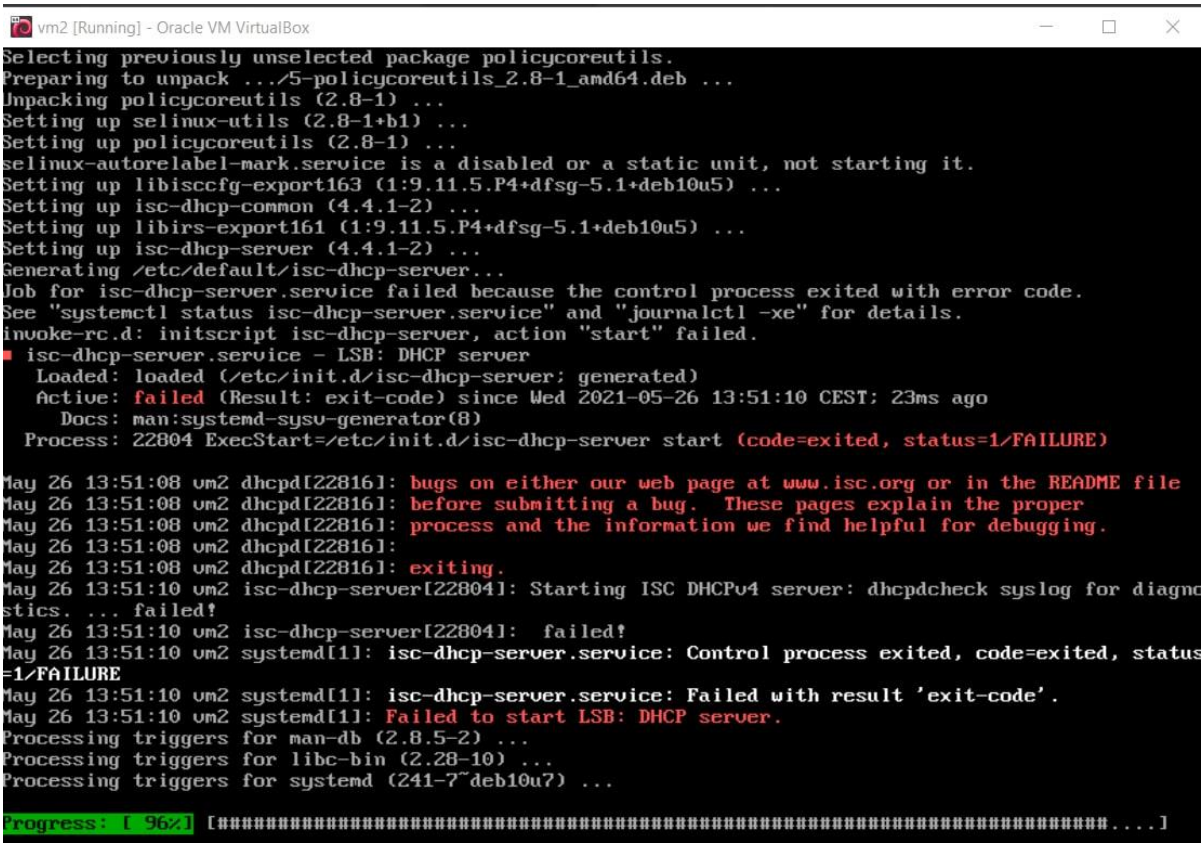
VM1 test

```
vm1 [Running] - Oracle VM VirtualBox
  GNU nano 3.2                                  /etc/resolv.conf

nameserver 10.1.2.102
```

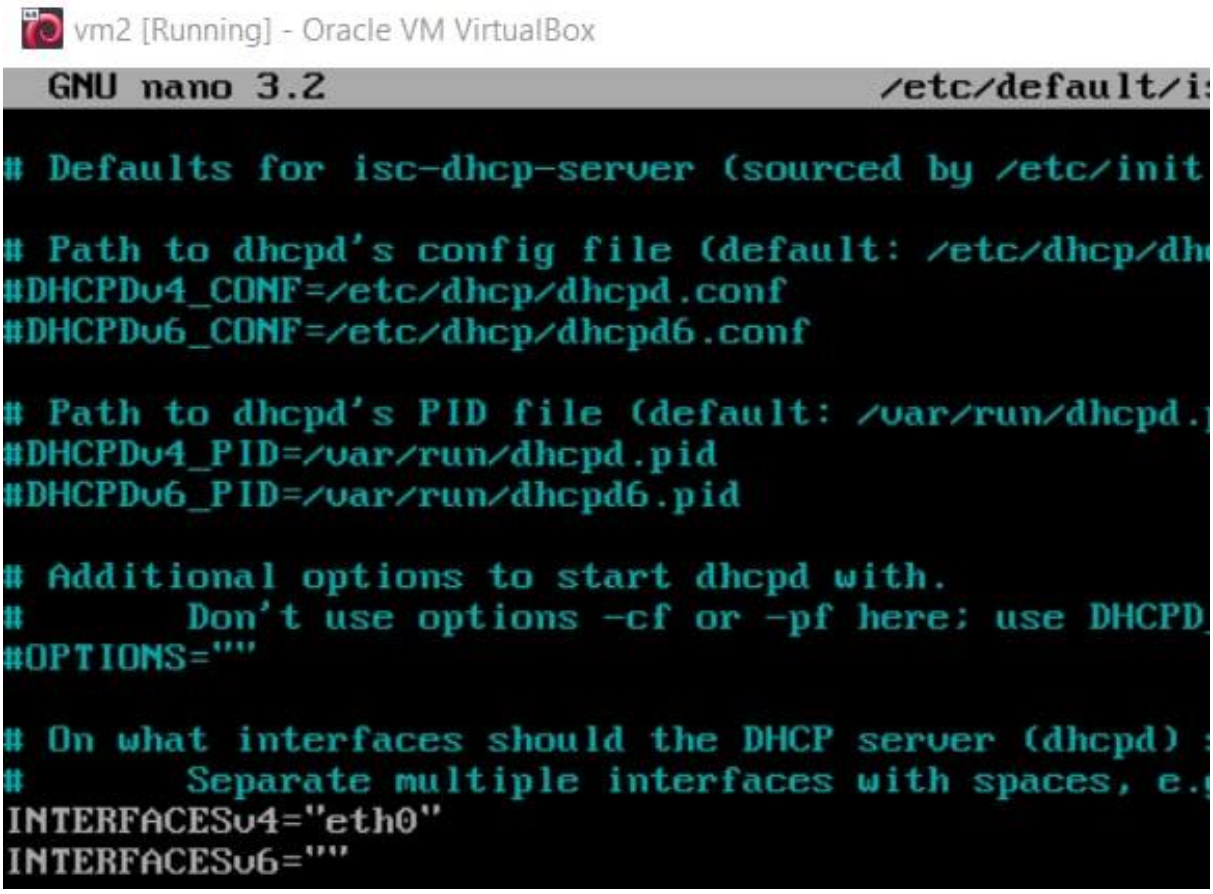
```
root@vm1:/etc# host vm2.lsa2020.pl
vm2.lsa2020.pl has address 10.1.2.102
root@vm1:/etc# ping vm1.lsa2020.pl
PING vm1.lsa2020.pl (10.1.2.101) 56(84) bytes of data.
64 bytes from vm1 (10.1.2.101): icmp_seq=1 ttl=64 time=0.014 ms
64 bytes from vm1 (10.1.2.101): icmp_seq=2 ttl=64 time=0.026 ms
64 bytes from vm1 (10.1.2.101): icmp_seq=3 ttl=64 time=0.027 ms
^C
--- vm1.lsa2020.pl ping statistics ---
3 packets transmitted, 3 received, 0% packet loss, time 44ms
rtt min/avg/max/mdev = 0.014/0.022/0.027/0.007 ms
root@vm1:/etc# _
```

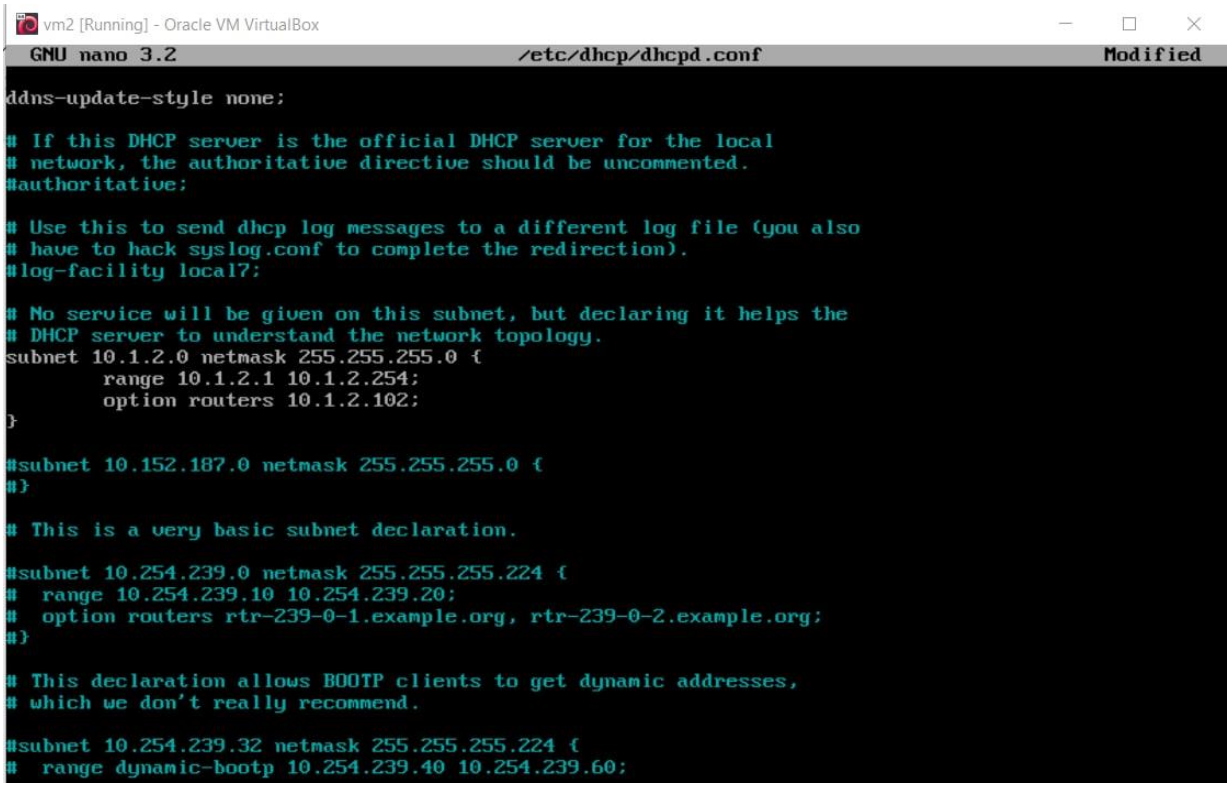
DHCP server installation

Install DHCP server on VM2



Change configuration


vm2 [Running] - Oracle VM VirtualBox
GNU nano 3.2 /etc/default/i
Defaults for isc-dhcp-server (sourced by /etc/init
Path to dhcpd's config file (default: /etc/dhcp/dh
#DHCPDv4_CONF=/etc/dhcp/dhcpd.conf
#DHCPDv6_CONF=/etc/dhcp/dhcpd6.conf
Path to dhcpd's PID file (default: /var/run/dhcpd.
#DHCPDv4_PID=/var/run/dhcpd.pid
#DHCPDv6_PID=/var/run/dhcpd6.pid
Additional options to start dhcpd with.
Don't use options -cf or -pf here; use DHCPD
#OPTIONS=""
# On what interfaces should the DHCP server (dhcpd)
# Separate multiple interfaces with spaces, e.
INTERFACESv4="eth0"
INTERFACESv6=""


vm2 [Running] - Oracle VM VirtualBox
GNU nano 3.2 /etc/dhcp/dhcpd.conf Modified
ddns-update-style none;
If this DHCP server is the official DHCP server for the local
network, the authoritative directive should be uncommented.
#authoritative;
Use this to send dhcp log messages to a different log file (you also
have to hack syslog.conf to complete the redirection).
#log-facility local7;
# No service will be given on this subnet, but declaring it helps the
# DHCP server to understand the network topology.
subnet 10.1.2.0 netmask 255.255.255.0 {
range 10.1.2.1 10.1.2.254;
option routers 10.1.2.102;
}
#subnet 10.152.187.0 netmask 255.255.255.0 {
#}
This is a very basic subnet declaration.
#subnet 10.254.239.0 netmask 255.255.255.224 {
range 10.254.239.10 10.254.239.20;
option routers rtr-239-0-1.example.org, rtr-239-0-2.example.org;
#}
This declaration allows BOOTP clients to get dynamic addresses,
which we don't really recommend.
#subnet 10.254.239.32 netmask 255.255.255.224 {
range dynamic-bootp 10.254.239.40 10.254.239.60;

Start DHCP server:

```
root@vm2:/etc/bind# systemctl start isc-dhcp-server
root@vm2:/etc/bind#
```

VM1 modify interface

Start interface:

```
root@vm1:/etc# ifup eth0
Internet Systems Consortium DHCP Client 4.4.1
Copyright 2004-2018 Internet Systems Consortium.
All rights reserved.
For info, please visit https://www.isc.org/software/dhcp/

[ 2970.109064] e1000: eth0 NIC Link is Up 1000 Mbps Full Duplex, Flow Control:
Listening on LPF/eth0/52:54:00:00:00:12
Sending on   LPF/eth0/52:54:00:00:00:12
Sending on   Socket/fallback
Created duid "\000\001\000\001(@\364WRT\000\000\000\022".
DHCPDISCOVER on eth0 to 255.255.255.255 port 67 interval 7
DHCPOFFER of 10.1.2.1 from 10.1.2.102
DHCPREQUEST for 10.1.2.1 on eth0 to 255.255.255.255 port 67
DHCPACK of 10.1.2.1 from 10.1.2.102
bound to 10.1.2.1 -- renewal in 253 seconds.
root@vm1:/etc# _
```

```
root@vm1:/etc# dhclient eth0
root@vm1:/etc# ip ad
1: lo: <LOOPBACK,UP,LOWER_UP> mtu 65536 qdisc noqueue state UNKNOWN group default qlen 1000
    link/loopback 00:00:00:00:00:00 brd 00:00:00:00:00:00
    inet 127.0.0.1/8 scope host lo
       valid_lft forever preferred_lft forever
2: eth0: <BROADCAST,MULTICAST,UP,LOWER_UP> mtu 1500 qdisc pfifo_fast state UP group default qlen 100
0
    link/ether 52:54:00:00:00:12 brd ff:ff:ff:ff:ff:ff
    inet 10.1.2.1/24 brd 10.1.2.255 scope global dynamic eth0
       valid_lft 536sec preferred_lft 536sec
    inet 10.1.2.2/24 brd 10.1.2.255 scope global secondary dynamic eth0
       valid_lft 598sec preferred_lft 598sec
root@vm1:/etc#
```