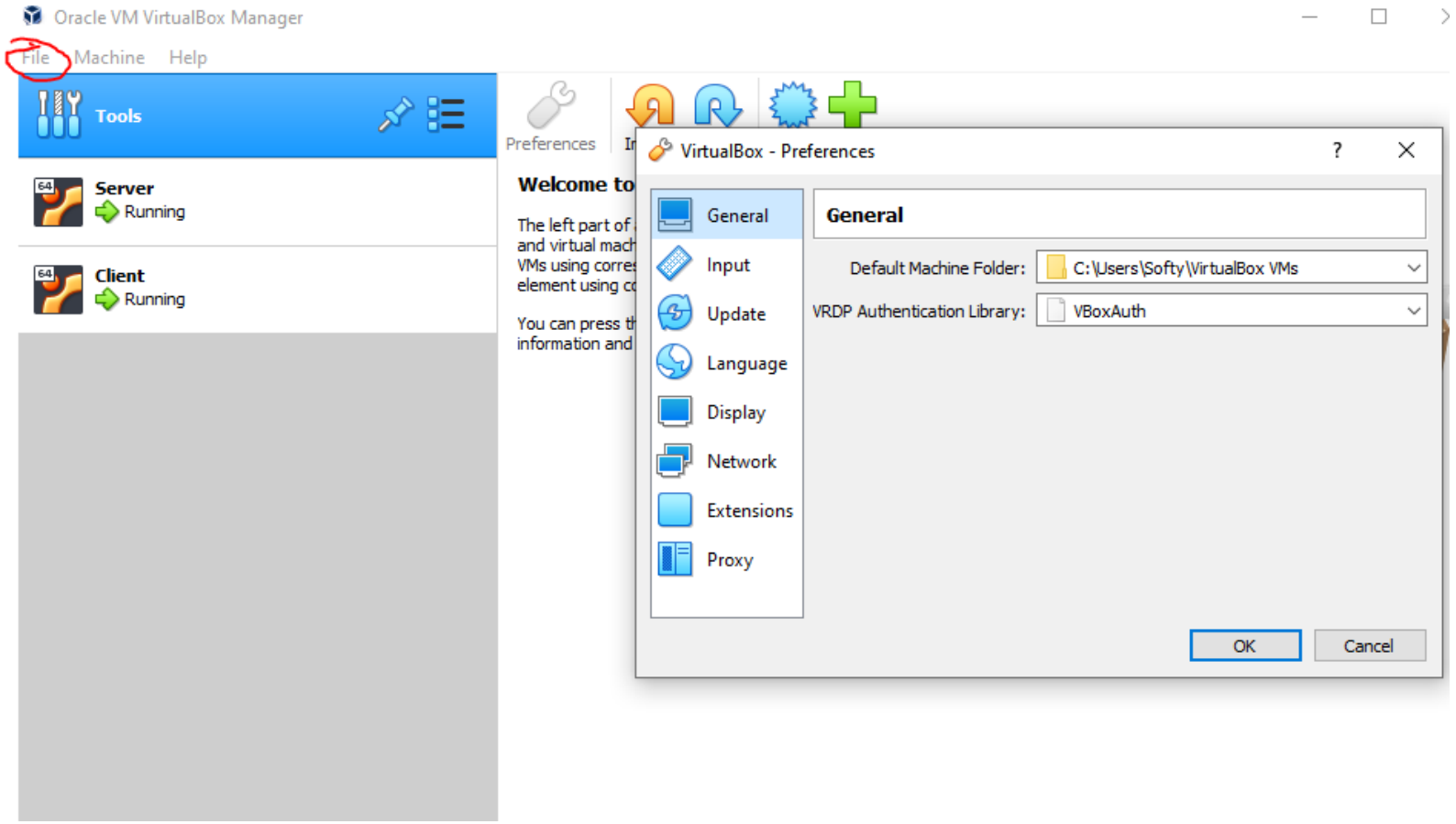
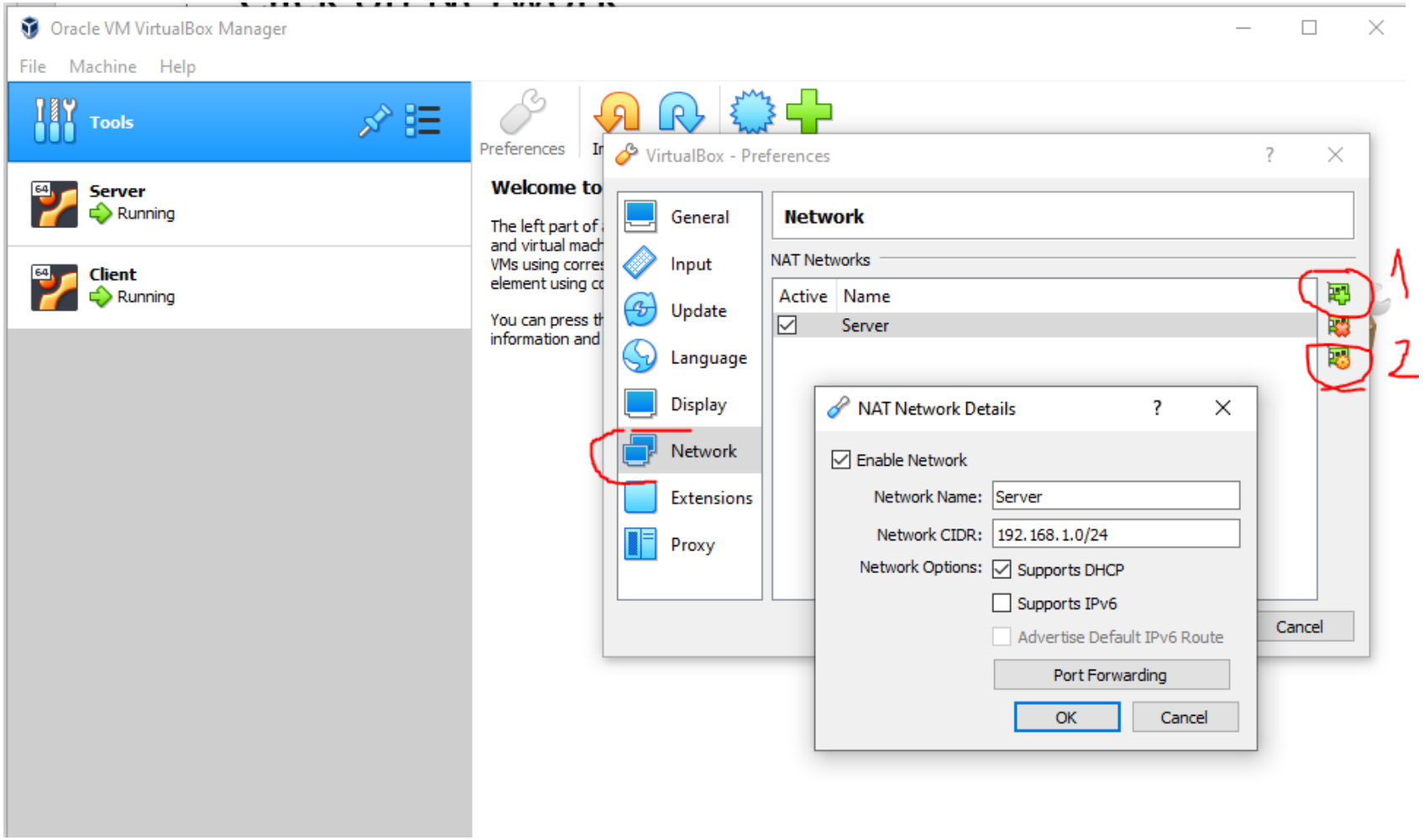
NTP server configuration

Set different IP for the VM

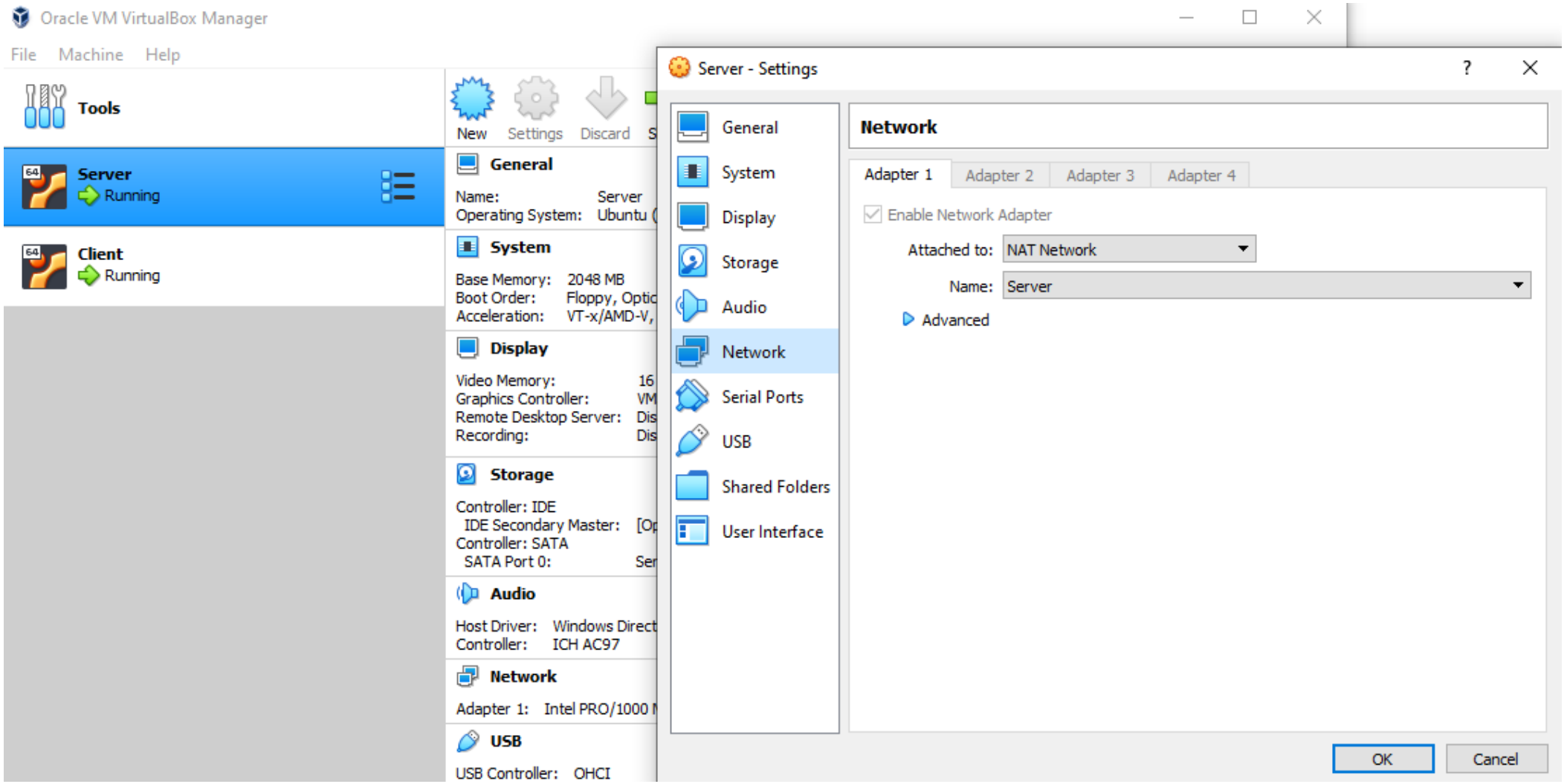
- Oracle VM-click on tools->
- Click on File-> preferences

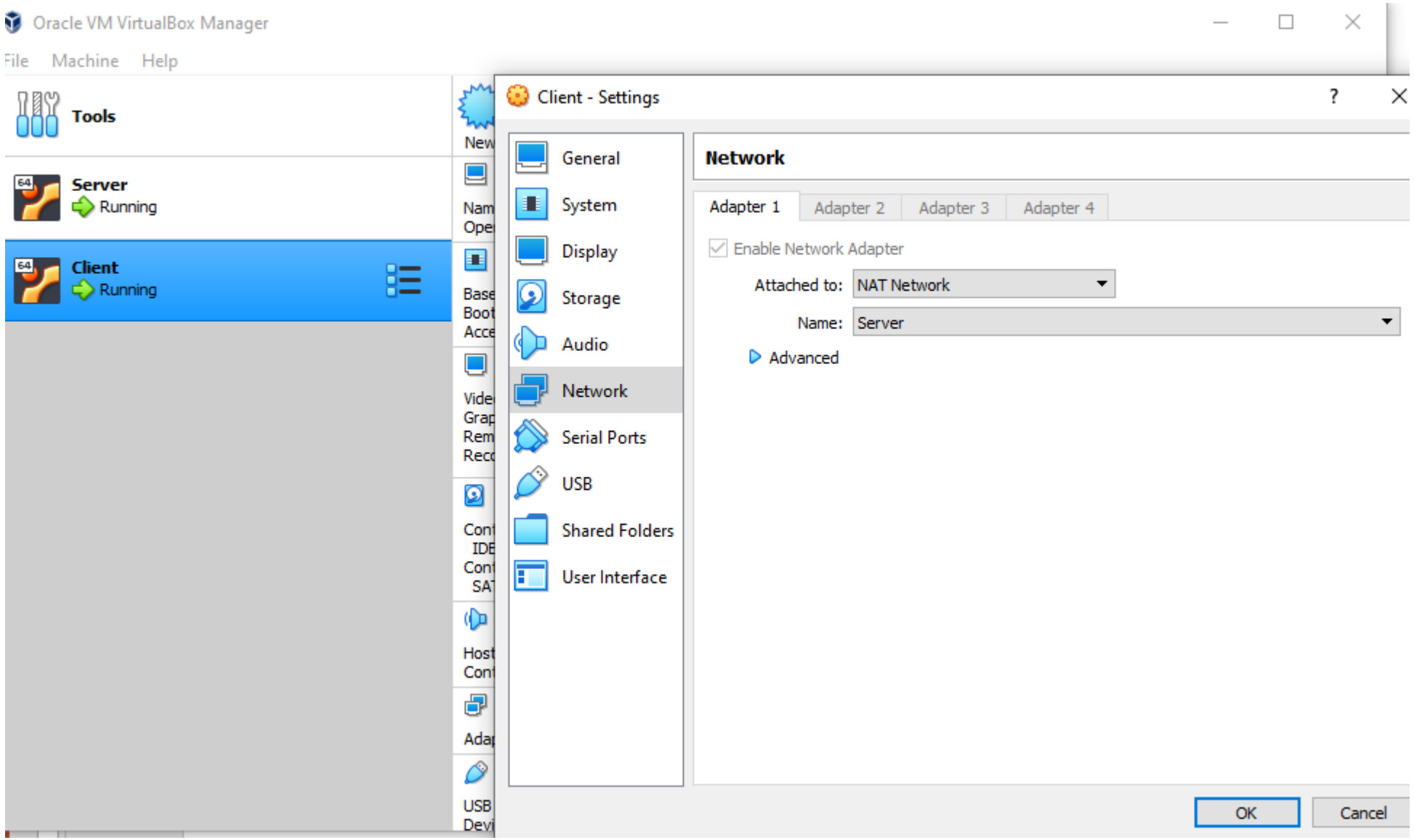


- Click on Network->click the add button ->then click the network created and click on the wheel button and give it a new name,
- Enable support DHCP, ->set an network IP



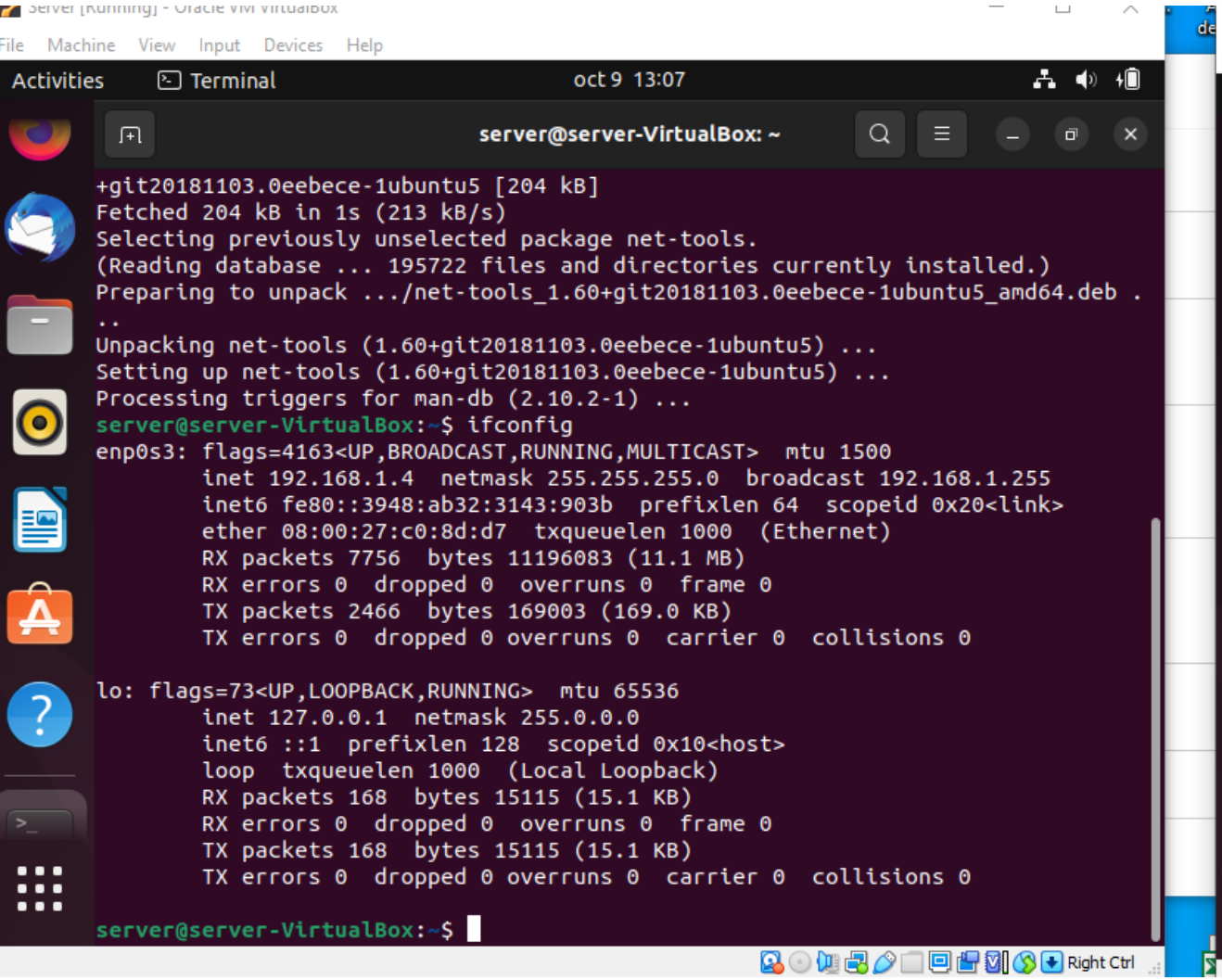
- Click a Virtrual Machine-Settings->Network
- Select from Drop down NAT Network – select your server that you have set, repeat the steps on this slide for the client as well

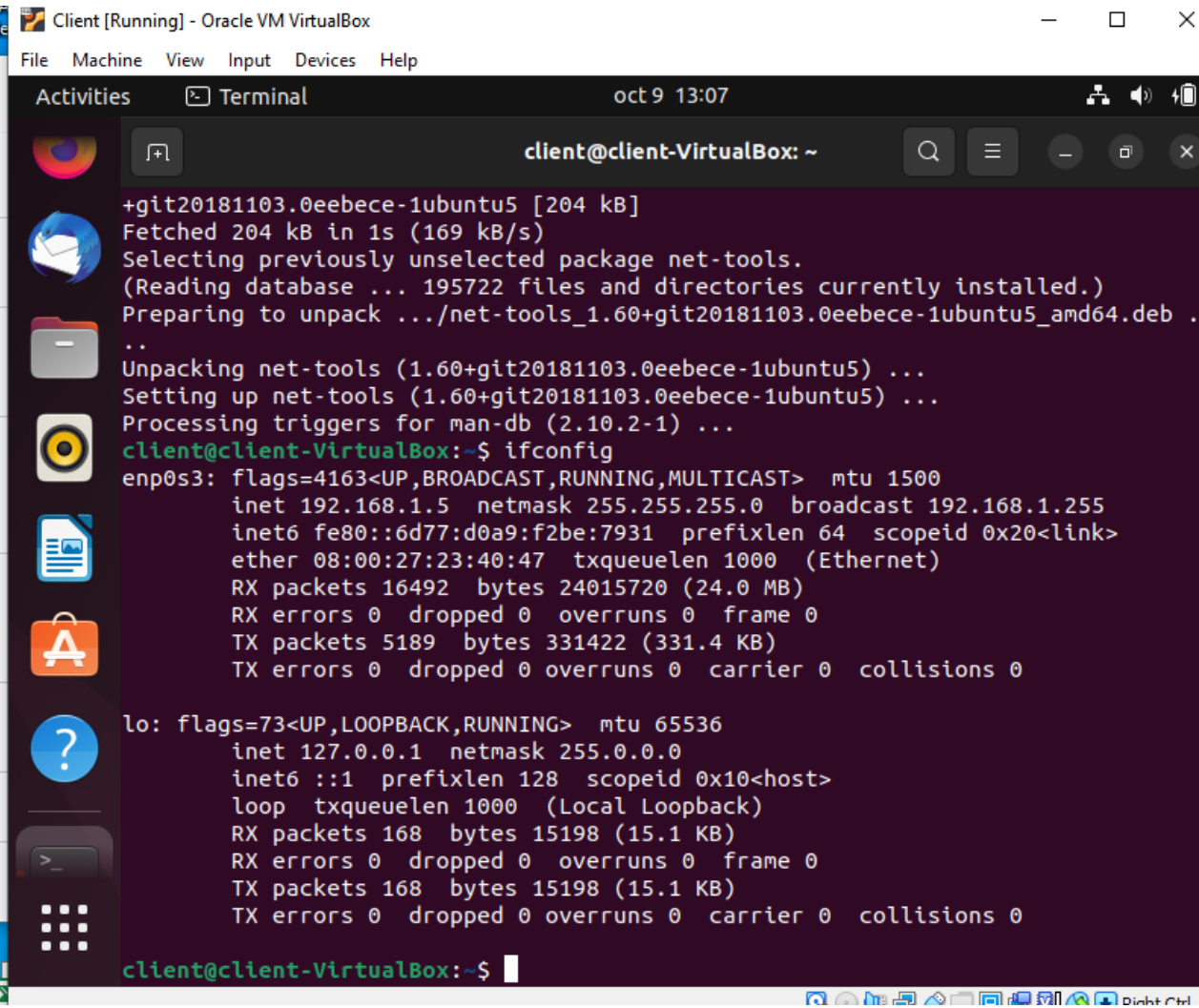



Oracle VM VirtualBox Manager
File
Machine
Help
Tools
Server
Running
Client
Running
Client - Settings
General
System
Display
Storage
Audio
Network
Serial Ports
USB
Shared Folders
User Interface
Network
Adapter 1
Adapter 2
Adapter 3
Adapter 4
Enable Network Adapter
Attached to:
NAT Network
Name:
Server
Advanced
OK
Cancel

Check if IP is set

- Sudo apt update
- sudo apt install net-tools
- Get ip with command “ifconfig”


File Machine View Input Devices Help
Activities
Terminal
oct 9 13:07
server@server-VirtualBox: ~
+git20181103.0eebece-1ubuntu5 [204 kB]
Fetched 204 kB in 1s (213 kB/s)
Selecting previously unselected package net-tools.
(Reading database ... 195722 files and directories currently installed.)
Preparing to unpack .../net-tools_1.60+git20181103.0eebece-1ubuntu5_amd64.deb .
..
Unpacking net-tools (1.60+git20181103.0eebece-1ubuntu5) ...
Setting up net-tools (1.60+git20181103.0eebece-1ubuntu5) ...
Processing triggers for man-db (2.10.2-1) ...
server@server-VirtualBox:~$ ifconfig
enp0s3: flags=4163<UP,BROADCAST,RUNNING,MULTICAST> mtu 1500
inet 192.168.1.4 netmask 255.255.255.0 broadcast 192.168.1.255
inet6 fe80::3948:ab32:3143:903b prefixlen 64 scopeid 0x20<link>
ether 08:00:27:c0:8d:d7 txqueuelen 1000 (Ethernet)
RX packets 7756 bytes 11196083 (11.1 MB)
RX errors 0 dropped 0 overruns 0 frame 0
TX packets 2466 bytes 169003 (169.0 KB)
TX errors 0 dropped 0 overruns 0 carrier 0 collisions 0
lo: flags=73<UP,LOOPBACK,RUNNING> mtu 65536
inet 127.0.0.1 netmask 255.0.0.0
inet6 ::1 prefixlen 128 scopeid 0x10<host>
loop txqueuelen 1000 (Local Loopback)
RX packets 168 bytes 15115 (15.1 KB)
RX errors 0 dropped 0 overruns 0 frame 0
TX packets 168 bytes 15115 (15.1 KB)
TX errors 0 dropped 0 overruns 0 carrier 0 collisions 0
server@server-VirtualBox:~$
Right Ctrl


Client [Running] - Oracle VM VirtualBox
File Machine View Input Devices Help
Activities
Terminal
oct 9 13:07
client@client-VirtualBox: ~
+git20181103.0eebece-1ubuntu5 [204 kB]
Fetched 204 kB in 1s (169 kB/s)
Selecting previously unselected package net-tools.
(Reading database ... 195722 files and directories currently installed.)
Preparing to unpack .../net-tools_1.60+git20181103.0eebece-1ubuntu5_amd64.deb .
..
Unpacking net-tools (1.60+git20181103.0eebece-1ubuntu5) ...
Setting up net-tools (1.60+git20181103.0eebece-1ubuntu5) ...
Processing triggers for man-db (2.10.2-1) ...
client@client-VirtualBox:~$ ifconfig
enp0s3: flags=4163<UP,BROADCAST,RUNNING,MULTICAST> mtu 1500
inet 192.168.1.5 netmask 255.255.255.0 broadcast 192.168.1.255
inet6 fe80::6d77:d0a9:f2be:7931 prefixlen 64 scopeid 0x20<link>
ether 08:00:27:23:40:47 txqueuelen 1000 (Ethernet)
RX packets 16492 bytes 24015720 (24.0 MB)
RX errors 0 dropped 0 overruns 0 frame 0
TX packets 5189 bytes 331422 (331.4 KB)
TX errors 0 dropped 0 overruns 0 carrier 0 collisions 0
lo: flags=73<UP,LOOPBACK,RUNNING> mtu 65536
inet 127.0.0.1 netmask 255.0.0.0
inet6 ::1 prefixlen 128 scopeid 0x10<host>
loop txqueuelen 1000 (Local Loopback)
RX packets 168 bytes 15198 (15.1 KB)
RX errors 0 dropped 0 overruns 0 frame 0
TX packets 168 bytes 15198 (15.1 KB)
TX errors 0 dropped 0 overruns 0 carrier 0 collisions 0
client@client-VirtualBox:~$

- Try the ping command and check if all is ok

```
client@client-VirtualBox:~$ ping 192.168.1.4
PING 192.168.1.4 (192.168.1.4) 56(84) bytes of data.
64 bytes from 192.168.1.4: icmp_seq=1 ttl=64 time=0.720 ms
64 bytes from 192.168.1.4: icmp_seq=2 ttl=64 time=0.403 ms
64 bytes from 192.168.1.4: icmp_seq=3 ttl=64 time=0.556 ms
64 bytes from 192.168.1.4: icmp_seq=4 ttl=64 time=0.427 ms
64 bytes from 192.168.1.4: icmp_seq=5 ttl=64 time=0.397 ms
64 bytes from 192.168.1.4: icmp_seq=6 ttl=64 time=0.411 ms
64 bytes from 192.168.1.4: icmp_seq=7 ttl=64 time=0.474 ms
64 bytes from 192.168.1.4: icmp_seq=8 ttl=64 time=0.381 ms
64 bytes from 192.168.1.4: icmp_seq=9 ttl=64 time=0.470 ms
^C
--- 192.168.1.4 ping statistics ---
9 packets transmitted, 9 received, 0% packet loss, time 8196ms
rtt min/avg/max/mdev = 0.381/0.471/0.720/0.101 ms
```

NTP server-client configuration

Install server with

-sudo apt-get install ntp

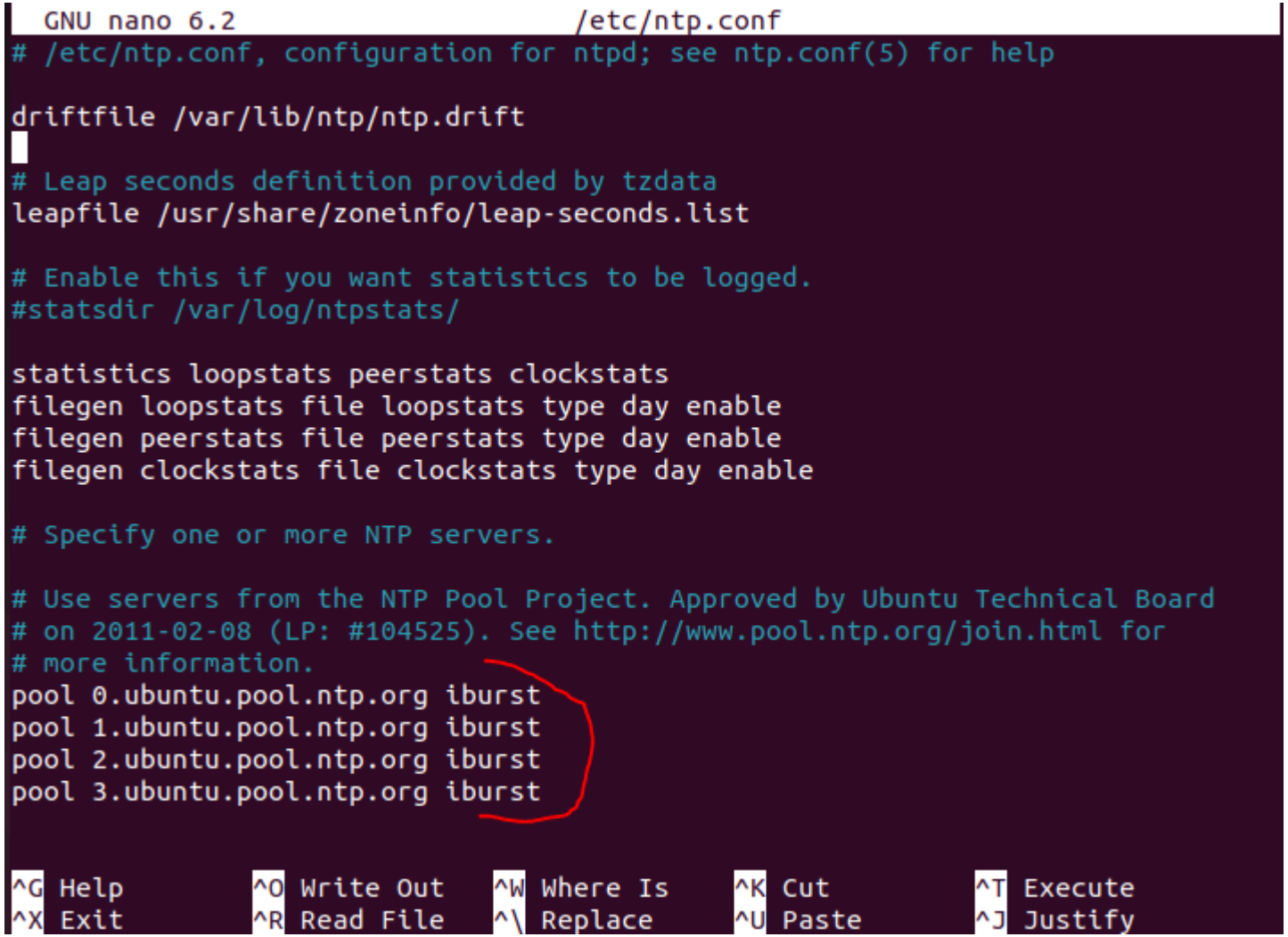
Check Installation with

-sntp –version

Edit server pool configuration

-sudo nano /etc/ntp.conf

- Here you can see your NTP pool servers
- Can change the default with the ones available at the site in the document
- CTRL-O to write out and
- CTRL-X to exit



Restart service with : “sudo systemctl restart ntp”

Check service status with “sudo systemctl status ntp”

Enable firewall if its disabled

To check status use:

« sudo ufw status verbose »

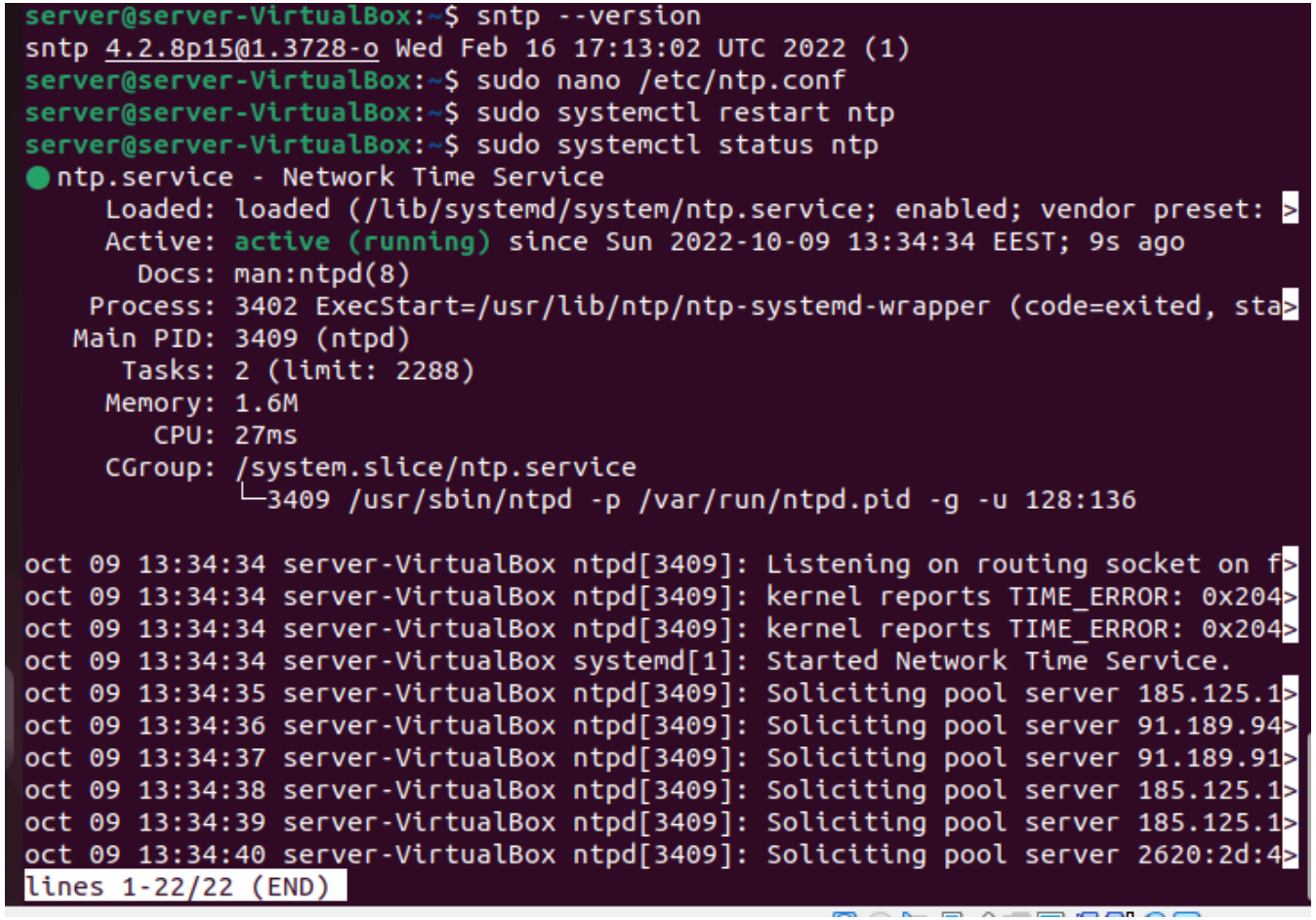
To enable if is inactive use:

« sudo ufw enable »

Allow other machines to access

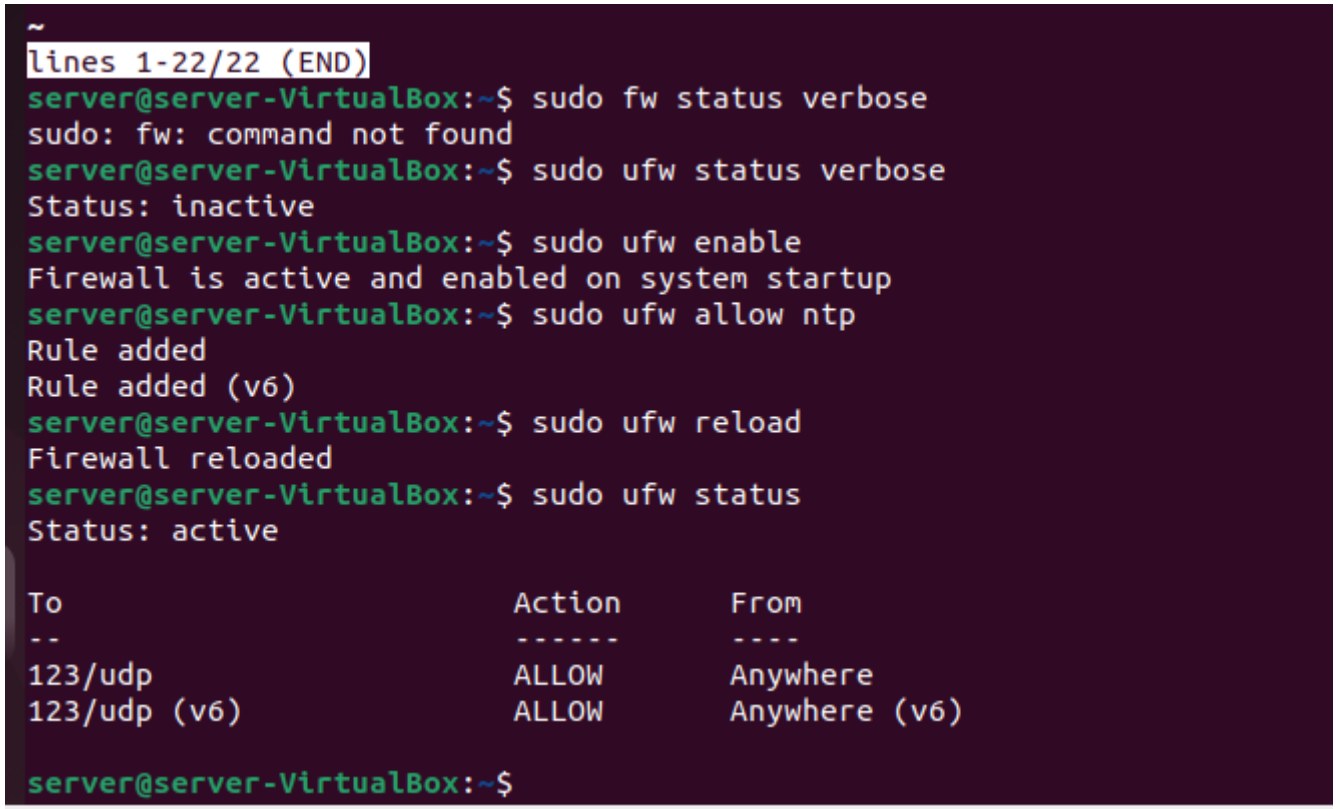
Ntp across firewall with

« sudo ufw allow ntp »



Reload firewall: “sudo ufw reload”

Check firewall status: “sudo ufw status”

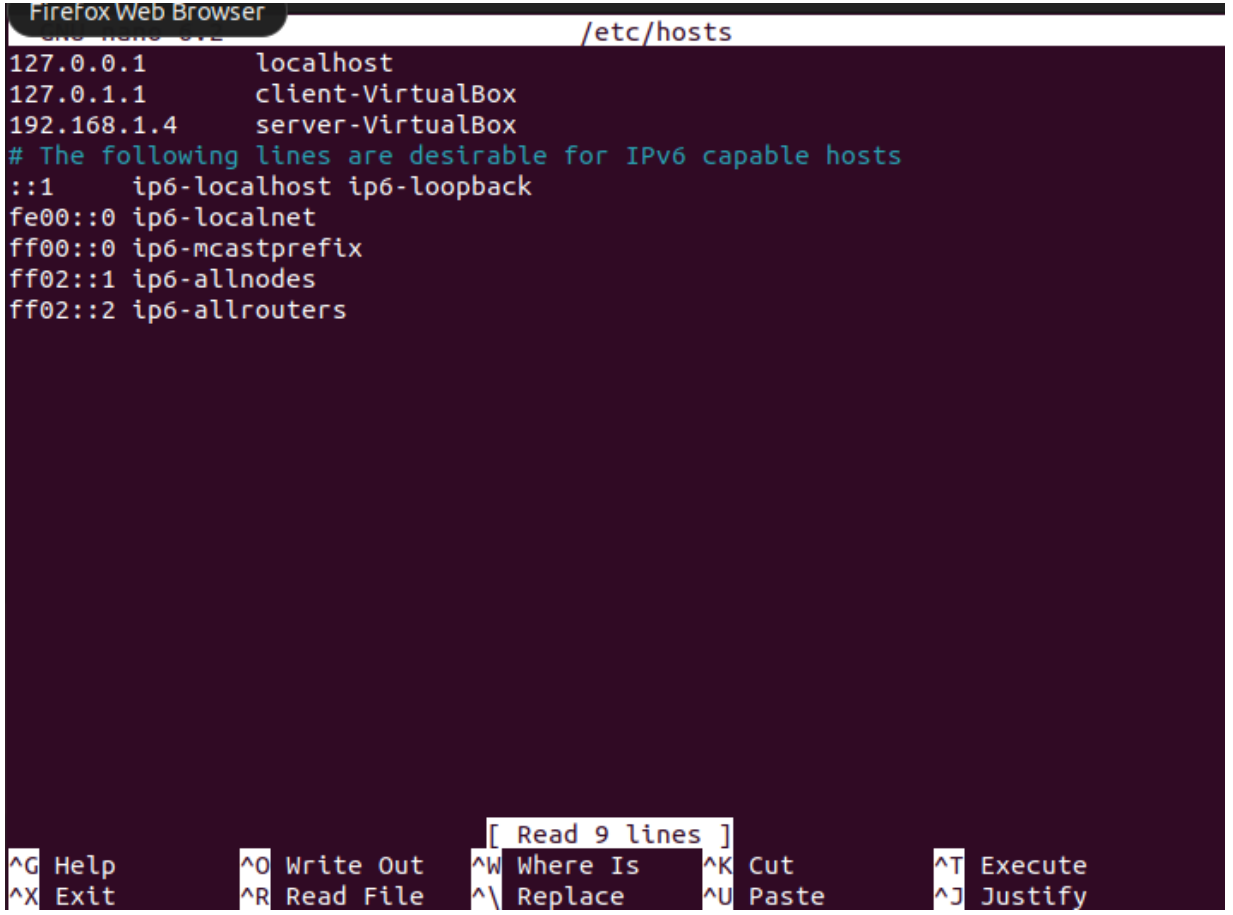


NTP Client side installation

- “sudo apt install ntpdate”- on the client machine
- “hostname –I “ on the server machine to get the name and ip

Add the hostname and ip to the client host file:

- sudo nano /etc/hosts



Dissable timesyncd service on the client:

- “sudo timedatectl set-ntp off

Install ntp on client

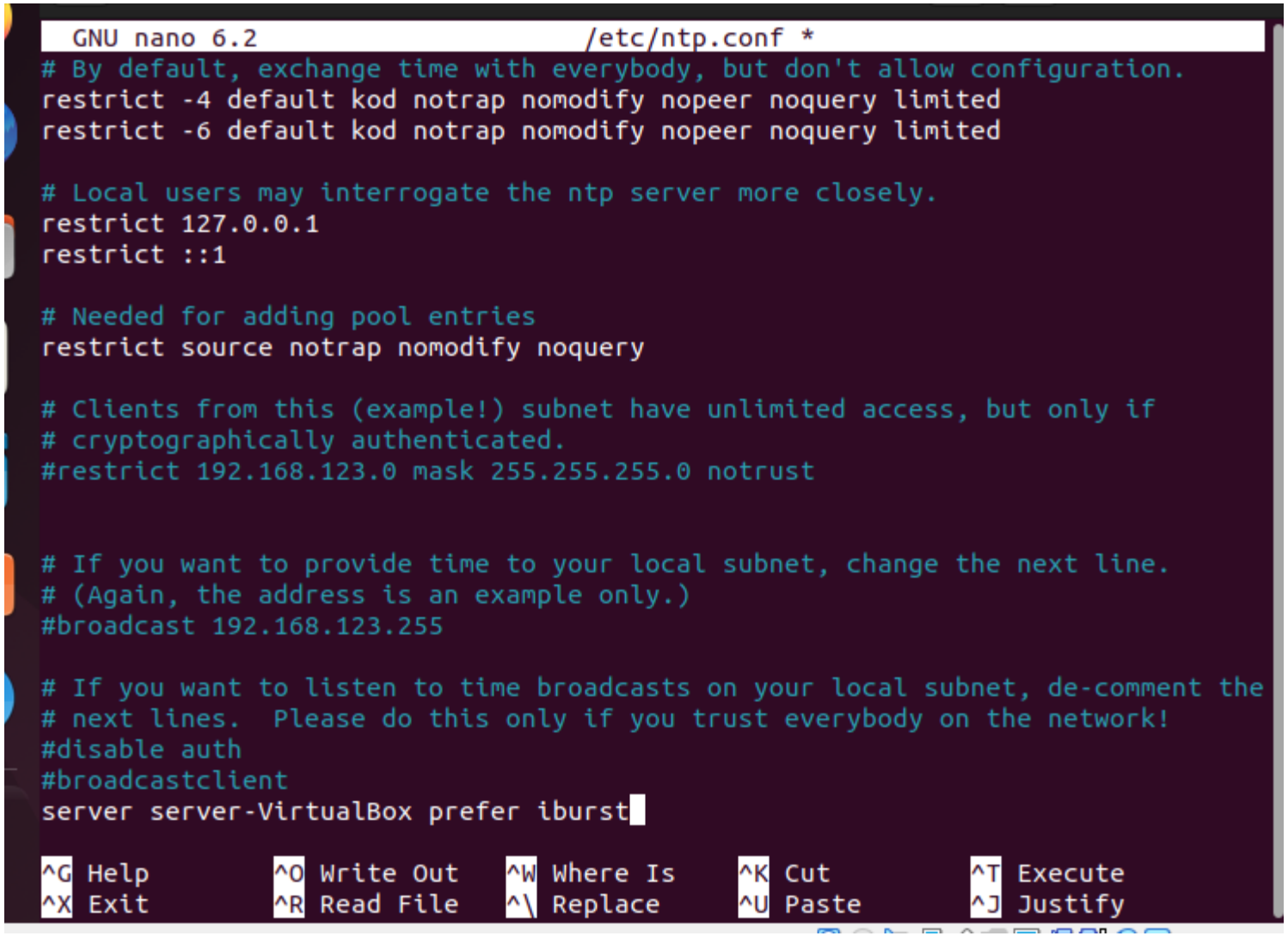
“sudo apt install ntp”

Set Up the ntp client

“sudo nano /etc/ntp.conf”

Add at the end of the file

“server Hostname(put your server name here) prefer iburst”


GNU nano 6.2 /etc/ntp.conf *
By default, exchange time with everybody, but don't allow configuration.
restrict -4 default kod notrap nomodify nopeer noquery limited
restrict -6 default kod notrap nomodify nopeer noquery limited
Local users may interrogate the ntp server more closely.
restrict 127.0.0.1
restrict ::1
Needed for adding pool entries
restrict source notrap nomodify noquery
Clients from this (example!) subnet have unlimited access, but only if
cryptographically authenticated.
#restrict 192.168.123.0 mask 255.255.255.0 notrust
If you want to provide time to your local subnet, change the next line.
(Again, the address is an example only.)
#broadcast 192.168.123.255
If you want to listen to time broadcasts on your local subnet, de-comment the
next lines. Please do this only if you trust everybody on the network!
#disable auth
#broadcastclient
server server-VirtualBox prefer iburst
^G Help ^O Write Out ^W Where Is ^K Cut ^T Execute
^X Exit ^R Read File ^\ Replace ^U Paste ^J Justify

- Restart ntp service on client:
- “sudo systemctl restart ntp”
- View synchronization by using:
- “ntpq –p”

```
     remote           refid      st t when poll reach   delay   offset  jitter
==============================================================================
 0.ubuntu.pool.n .POOL.          16 p    -   64    0    0.000   +0.000   0.000
 1.ubuntu.pool.n .POOL.          16 p    -   64    0    0.000   +0.000   0.000
 2.ubuntu.pool.n .POOL.          16 p    -   64    0    0.000   +0.000   0.000
 3.ubuntu.pool.n .POOL.          16 p    -   64    0    0.000   +0.000   0.000
 ntp.ubuntu.com  .POOL.          16 p    -   64    0    0.000   +0.000   0.000
*server-VirtualB 185.125.190.58   3 u   24   64    1    0.724  -16.592   1.151
+ntp1.chroot.ro  13.161.101.224   2 u   23   64    1   42.105   +3.721   2.351
-185.86.67.2     115.75.236.158   2 u   22   64    1   45.862   +6.980   5.173
#46.97.187.202                   1 u   22   64    1   69.899  -40.733   8.021
+86.124.75.41 (c 192.53.103.104   2 u   24   64    1   56.610   -4.251   2.196
-92.86.106.228   213.209.109.44   3 u   22   64    1   64.005   +7.446   7.131
-corporate1.blue 193.5.68.2       2 u   27   64    1   52.456   +8.184   4.539
-cache.alsys.ro  193.190.230.65   2 u   26   64    1   52.958   +8.096   7.023
-time.xindi.eu   134.71.66.21     2 u   29   64    1   42.150   +3.781   2.397
-time.cloudflare 10.100.8.54      3 u   27   64    1   78.530  +11.117  10.046
-ntp0.chroot.ro  210.100.177.101  2 u   28   64    1   34.479   +2.952   1.827
 136.255.128.126 78.130.168.61    2 u   25   64    1   43.991   +5.561   7.926
 185.125.190.57  48.134.154.62    2 u   34   64    1   84.367   -0.435   0.000
 birlic.alsys.ro 131.188.3.220    2 u   24   64    1   28.195   -1.771   2.973
 alphyn.canonica 94.198.159.10    2 u   37   64    1  147.035   -4.319   0.000
 185.125.190.56  48.134.154.62    2 u   36   64    1   65.412   -6.592   0.000
client@client-VirtualBox:~$ ntpq -ps
/usr/bin/ntpq: illegal option -- s
ntpq - standard NTP query program - Ver. 4.2.8p15
Usage:  ntpq [ -<flag> [<val>] | --<name>[{=| }<val>] ]... [ host ...]
```

Exercise

- Configure an SMTP Server-Client