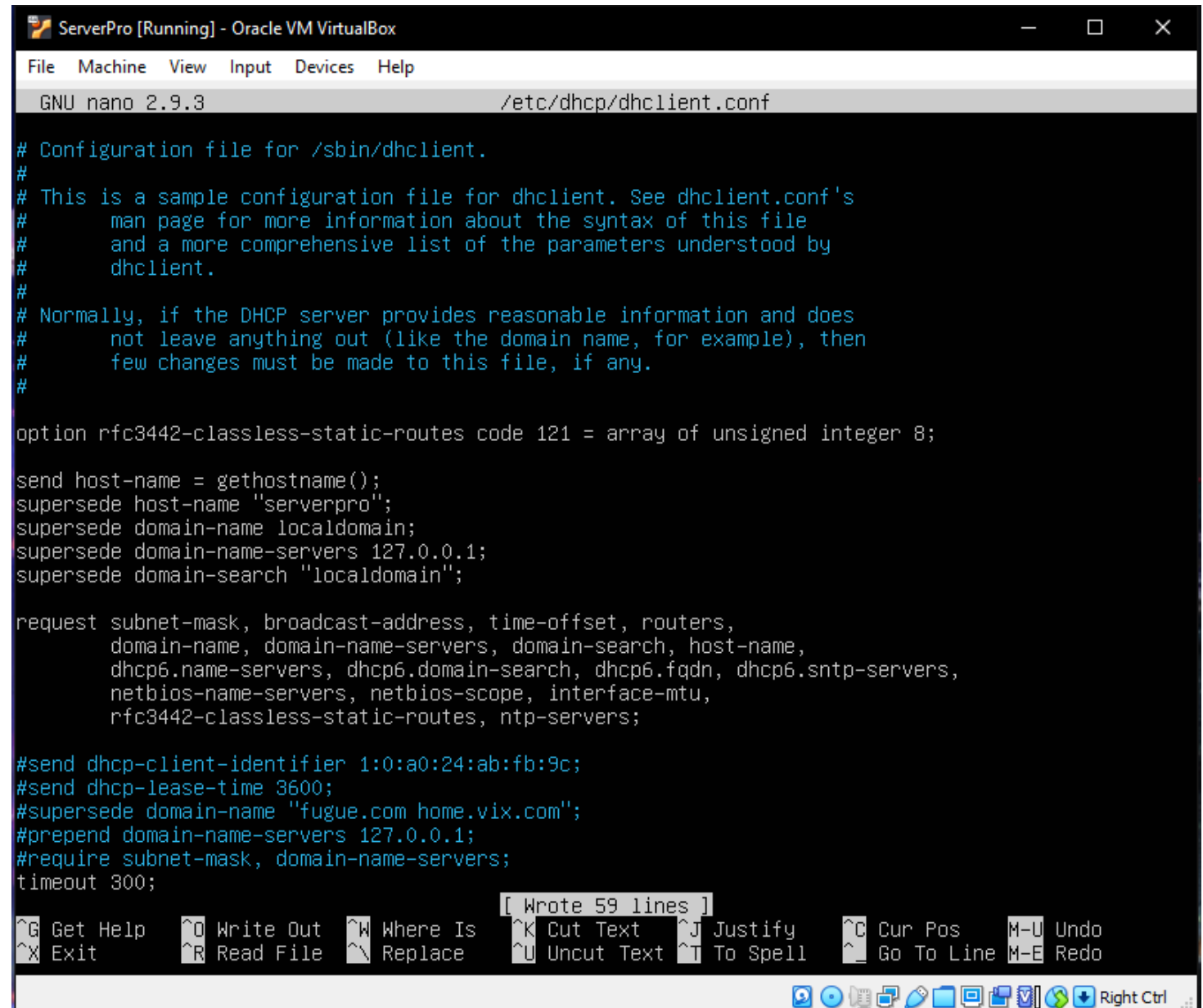


locDNS

Install the bind9 and ipv6 packages on serverpro

sudo apt-get install bind9{-host} ipv6calc

Edit /etc/ dhcp/dhclient.conf and add supersede before the request



```
ServerPro [Running] - Oracle VM VirtualBox
File Machine View Input Devices Help
GNU nano 2.9.3 /etc/dhcp/dhclient.conf

# Configuration file for /sbin/dhclient.
#
# This is a sample configuration file for dhclient. See dhclient.conf's
# man page for more information about the syntax of this file
# and a more comprehensive list of the parameters understood by
# dhclient.
#
# Normally, if the DHCP server provides reasonable information and does
# not leave anything out (like the domain name, for example), then
# few changes must be made to this file, if any.
#

option rfc3442-classless-static-routes code 121 = array of unsigned integer 8;

send host-name = gethostname();
supersede host-name "serverpro";
supersede domain-name localdomain;
supersede domain-name-servers 127.0.0.1;
supersede domain-search "localdomain";

request subnet-mask, broadcast-address, time-offset, routers,
        domain-name, domain-name-servers, domain-search, host-name,
        dhcp6.name-servers, dhcp6.domain-search, dhcp6.fqdn, dhcp6.sntp-servers,
        netbios-name-servers, netbios-scope, interface-mtu,
        rfc3442-classless-static-routes, ntp-servers;

#send dhcp-client-identifier 1:0:a0:24:ab:fb:9c;
#send dhcp-lease-time 3600;
#supersede domain-name "fugue.com home.vix.com";
#prepend domain-name-servers 127.0.0.1;
#require subnet-mask, domain-name-servers;
timeout 300;

[ Wrote 59 lines ]
^G Get Help  ^O Write Out  ^W Where Is   ^K Cut Text   ^J Justify    ^C Cur Pos    M-U Undo
^X Exit      ^R Read File  ^_ Replace    ^U Uncut Text ^T To Spell   ^_ Go To Line  M-E Redo
```

Disable systemd-resolved on serverpro and clientpro

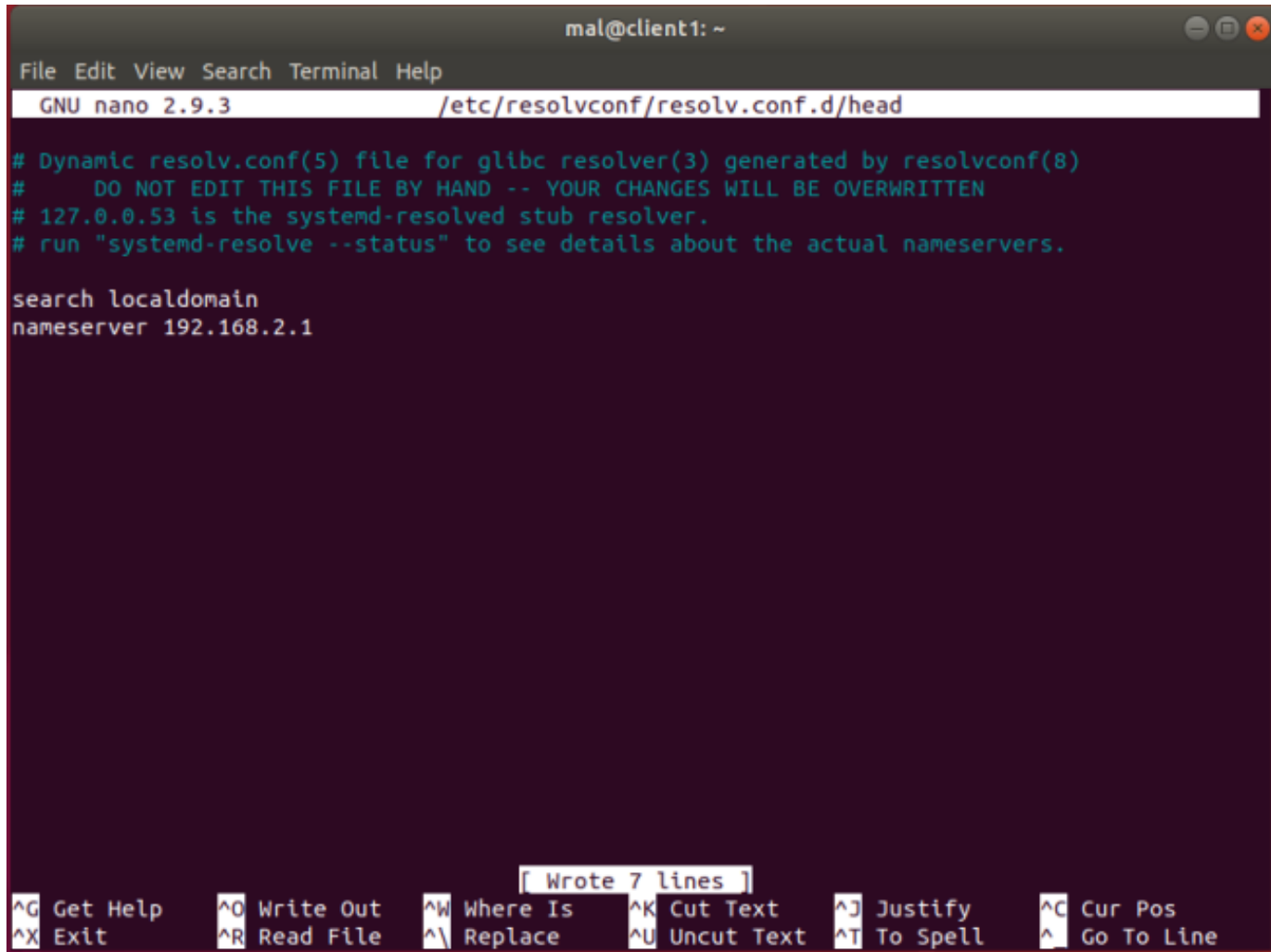
sudo systemctl disable systemd-resolved

sudo systemctl stop systemd-resolved

Then up and down outside

Go to ClientPro

Edit /etc/resolvconf/ resolv.conf.d/head and add the following



```
mal@client1: ~
File Edit View Search Terminal Help
GNU nano 2.9.3 /etc/resolvconf/resolv.conf.d/head

# Dynamic resolv.conf(5) file for glibc resolver(3) generated by resolvconf(8)
#     DO NOT EDIT THIS FILE BY HAND -- YOUR CHANGES WILL BE OVERWRITTEN
# 127.0.0.53 is the systemd-resolved stub resolver.
# run "systemd-resolve --status" to see details about the actual nameservers.

search localdomain
nameserver 192.168.2.1

[ Wrote 7 lines ]
^G Get Help  ^O Write Out  ^W Where Is   ^K Cut Text   ^J Justify    ^C Cur Pos
^X Exit      ^R Read File  ^\ Replace    ^U Uncut Text ^T To Spell   ^_ Go To Line
```

Then run command
sudo resolvconf -u

Go back to serverpro

Master bind configuration file

Edit /etc/bind/named.conf.options and /etc/bind/named.conf.local

ServerPro [Running] - Oracle VM VirtualBox

FileMachineViewInputDevicesHelp

GNU nano 2.9.3/etc/bind/named.conf.options

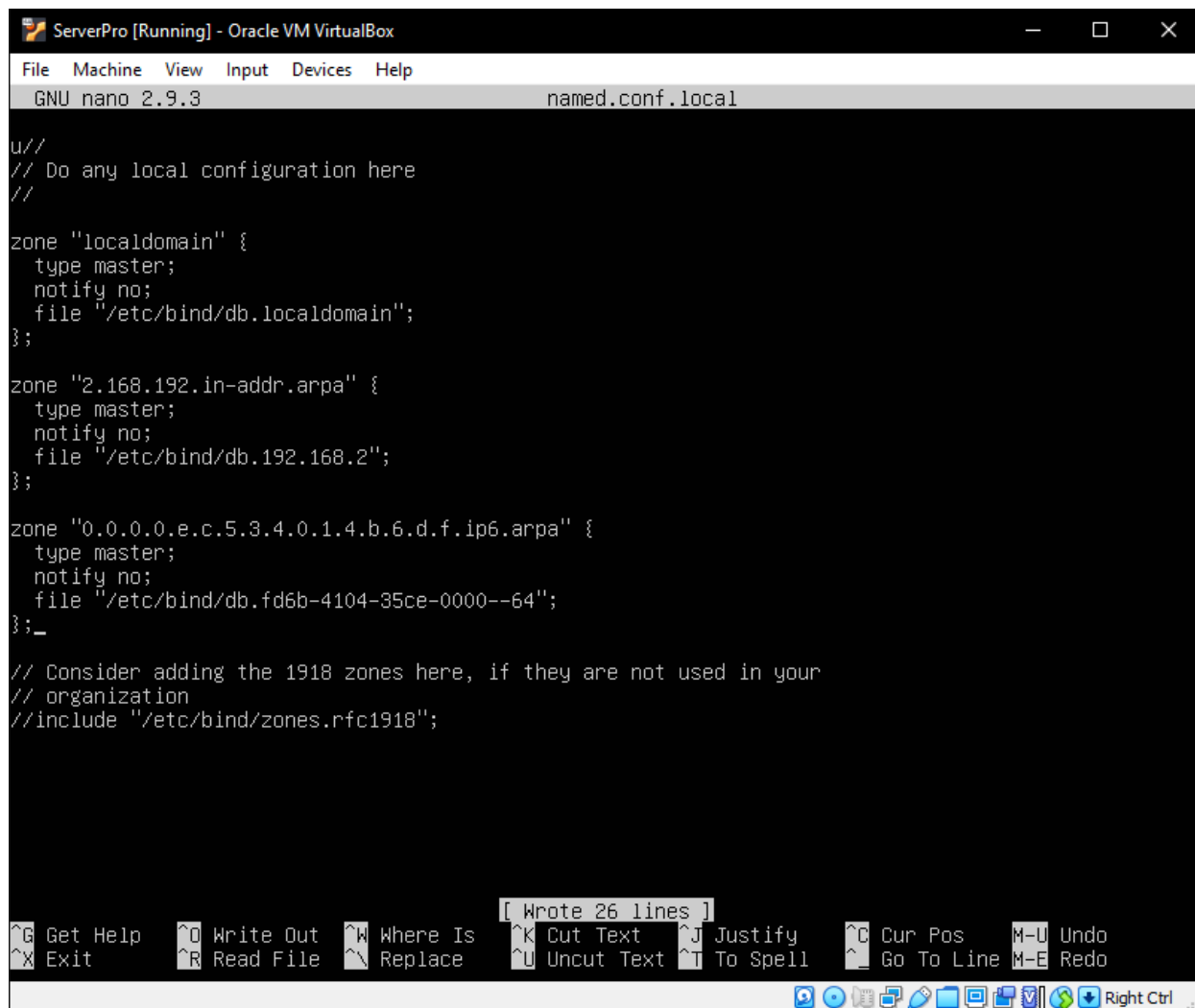
```
acl "clients" {
    192.168.2.0/24;
    fd6b:4104:35ce::/64;
    127.0.0.1;
    ::1;
};

options {
    directory "/var/cache/bind";
    allow-query { "clients"; };
    allow-transfer { 127.0.0.1; ::1; };
    allow-recursion { "clients"; };
    listen-on { any; };
    listen-on-v6 { any; };
    forwarders { 8.8.8.8; };
    auth-nxdomain yes;
};
```

[Wrote 18 lines]

Get Help	Write Out	Where Is	Cut Text	Justify	Cur Pos	M-U Undo
Exit	Read File	Replace	Uncut Text	To Spell	Go To Line	M-E Redo

Right Ctrl

A screenshot of a virtual machine window titled "ServerPro [Running] - Oracle VM VirtualBox". Inside the VM, a terminal window shows the GNU nano 2.9.3 text editor editing the file named.conf.local. The editor's content includes comments and three zone definitions for "localdomain", "2.168.192.in-addr.arpa", and "0.0.0.0.e.c.5.3.4.0.1.4.b.6.d.f.ip6.arpa". The bottom of the window features a menu bar with options like "Get Help", "Write Out", "Where Is", "Cut Text", "Justify", "Cur Pos", "M-U Undo", "Exit", "Read File", "Replace", "Uncut Text", "To Spell", "Go To Line", and "M-E Redo". A status bar at the very bottom shows icons for file operations and a "Right Ctrl" indicator.

```
ServerPro [Running] - Oracle VM VirtualBox
File Machine View Input Devices Help
GNU nano 2.9.3 named.conf.local

u//
// Do any local configuration here
//

zone "localdomain" {
    type master;
    notify no;
    file "/etc/bind/db.localdomain";
};

zone "2.168.192.in-addr.arpa" {
    type master;
    notify no;
    file "/etc/bind/db.192.168.2";
};

zone "0.0.0.0.e.c.5.3.4.0.1.4.b.6.d.f.ip6.arpa" {
    type master;
    notify no;
    file "/etc/bind/db.fd6b-4104-35ce-0000--64";
};_

// Consider adding the 1918 zones here, if they are not used in your
// organization
//include "/etc/bind/zones.rfc1918";

[ Wrote 26 lines ]
^G Get Help ^O Write Out ^W Where Is ^K Cut Text ^J Justify ^C Cur Pos M-U Undo
^X Exit ^R Read File ^\ Replace ^U Uncut Text ^T To Spell ^_ Go To Line M-E Redo
Right Ctrl
```

Then run **named-checkconf** and it should output nothing

Forward zones

Edit /etc/ bind/db.localdomain

```
ServerPro [Running] - Oracle VM VirtualBox
File Machine View Input Devices Help
GNU nano 2.9.3 /etc/bind/db.localdomain

$TTL 3D
@ IN SOA ns1.localdomain. hostmaster.localdomain. (
    2020030601      ; serial
    8H             ; refresh
    2H             ; retry
    4W             ; expire
    1D             ; minimum
)

NS ns1.localdomainm.
; MX 0 mailhub1.localdomain.
; MX 5 mailhub2.localdomain.
; A 192.168.2.3

localhost      A      127.0.0.1
               AAAA   ::1

serverpro      A      192.168.2.1
               AAAA   fd6b:4104:35ce::1
serverpro.ipv4 A      192.168.2.1
serverpro.ipv6 AAAA   fd6b:4104:35ce::1
ns1            A      192.168.2.1
               AAAA   fd6b:4104:35ce::1

clientpro      A      192.168.2.11
               AAAA   fd6b:4104:35ce:0:a00:27ff:fef0:ee0d_

[ Wrote 27 lines ]
^G Get Help  ^O Write Out ^W Where Is  ^K Cut Text  ^J Justify  ^C Cur Pos  M-U Undo
^X Exit      ^R Read File ^N Replace   ^U Uncut Text ^T To Spell ^G Go To Line M-E Redo
```

Then run the following command to make sure it is set up correctly

```
mal@serverpro:~$ named-checkzone localdomain /etc/bind/db.localdomain
zone localdomain/IN: loaded serial 2020030601
OK
mal@serverpro:~$ _
```

Reverse Zones

Create and add following /etc/bind/db.192.168.2 and /etc/bind/db.fd6b-4104-35ce-0000--64

Restart bind

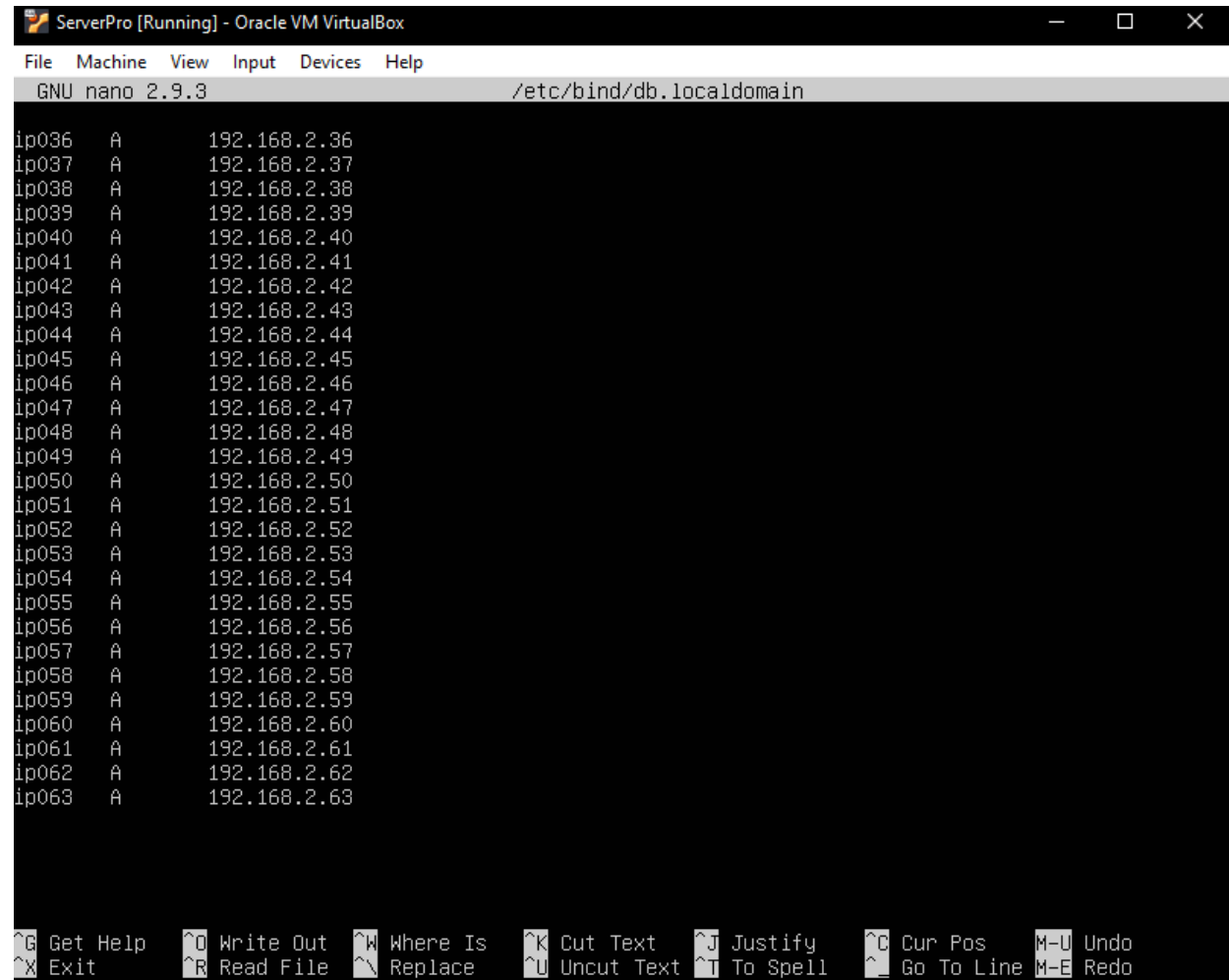
Sudo /etc/init.d/bind9 restart

Sudo rndc reload

DHCP

Install DHCP packages **sudo apt-get install isc-dhcp server**

Edit Forward zones and reverse zones to allow dynamic allocation



```
ServerPro [Running] - Oracle VM VirtualBox
File Machine View Input Devices Help
GNU nano 2.9.3 /etc/bind/db.localdomain

ip036 A 192.168.2.36
ip037 A 192.168.2.37
ip038 A 192.168.2.38
ip039 A 192.168.2.39
ip040 A 192.168.2.40
ip041 A 192.168.2.41
ip042 A 192.168.2.42
ip043 A 192.168.2.43
ip044 A 192.168.2.44
ip045 A 192.168.2.45
ip046 A 192.168.2.46
ip047 A 192.168.2.47
ip048 A 192.168.2.48
ip049 A 192.168.2.49
ip050 A 192.168.2.50
ip051 A 192.168.2.51
ip052 A 192.168.2.52
ip053 A 192.168.2.53
ip054 A 192.168.2.54
ip055 A 192.168.2.55
ip056 A 192.168.2.56
ip057 A 192.168.2.57
ip058 A 192.168.2.58
ip059 A 192.168.2.59
ip060 A 192.168.2.60
ip061 A 192.168.2.61
ip062 A 192.168.2.62
ip063 A 192.168.2.63

^G Get Help ^O Write Out ^W Where Is ^K Cut Text ^J Justify ^C Cur Pos M-U Undo
^X Exit ^R Read File ^\ Replace ^U Uncut Text ^T To Spell ^_ Go To Line M-E Redo
```

```
ServerPro [Running] - Oracle VM VirtualBox
File Machine View Input Devices Help
GNU nano 2.9.3 /etc/bind/db.192.168.2

$TTL 3D
@ IN SOA ns1.localdomain. hostmaster.localdomain. (
    2020030601 8H 2H 4W 1D)

    NS      ns1.localdomain.

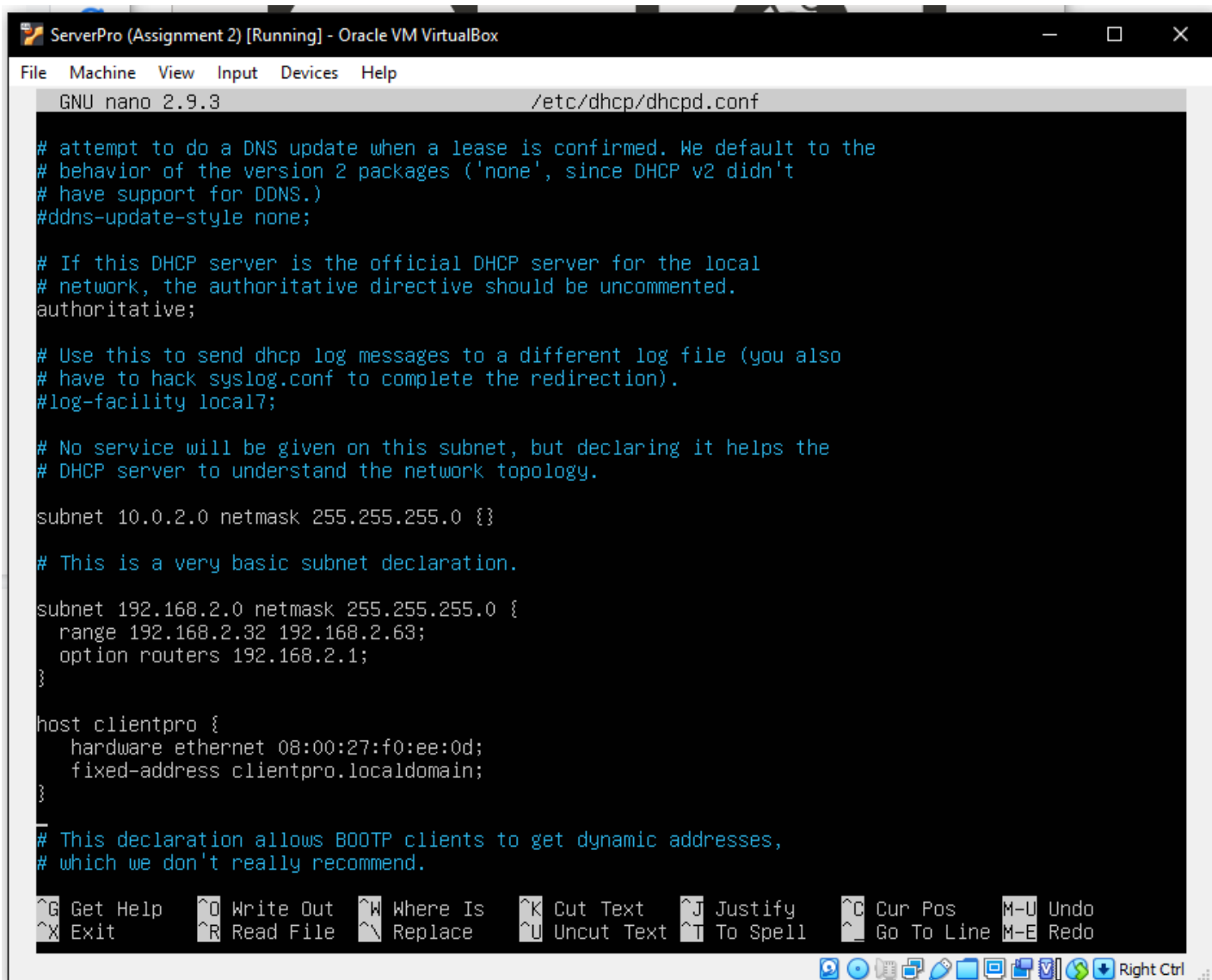
1 PTR serverpro.localdomain.
11 PTR clientpro.localdomain.
32 PTR ip032.localdomain.
33 PTR ip033.localdomain.
34 PTR ip034.localdomain.
35 PTR ip035.localdomain.
36 PTR ip036.localdomain.
37 PTR ip037.localdomain.
38 PTR ip038.localdomain.
39 PTR ip039.localdomain.
40 PTR ip040.localdomain.
41 PTR ip041.localdomain.
42 PTR ip042.localdomain.
43 PTR ip043.localdomain.
44 PTR ip044.localdomain.
45 PTR ip045.localdomain.
46 PTR ip046.localdomain.
47 PTR ip047.localdomain.
48 PTR ip048.localdomain.
49 PTR ip049.localdomain.
50 PTR ip050.localdomain.
51 PTR ip051.localdomain.
52 PTR ip052.localdomain.
53 PTR ip053.localdomain.
54 PTR ip054.localdomain.

^G Get Help  ^O Write Out  ^W Where Is   ^K Cut Text   ^J Justify    ^C Cur Pos    M-U Undo
^X Exit      ^R Read File  ^\ Replace    ^U Uncut Text ^T To Spell   ^_ Go To Line  M-E Redo

[Icons] Right Ctrl
```

Then run **sudo rndc reload** to put changes in effect

Edit /etc/dhcp/dhcpd.conf

The image shows a screenshot of a virtual machine window titled "ServerPro (Assignment 2) [Running] - Oracle VM VirtualBox". Inside the VM, the GNU nano 2.9.3 text editor is open, editing the file /etc/dhcp/dhcpd.conf. The editor's interface includes a menu bar at the top with "File", "Machine", "View", "Input", "Devices", and "Help". The main editing area contains the configuration file's content, which includes several commented-out lines and two active subnet declarations. The first subnet is for 10.0.2.0 with a netmask of 255.255.255.0. The second subnet is for 192.168.2.0 with a netmask of 255.255.255.0, including a range from 192.168.2.32 to 192.168.2.63 and a router option at 192.168.2.1. Below the subnets, there is a host declaration for "clientpro" with its hardware address and a fixed IP address. At the bottom of the editor, a status bar lists various keyboard shortcuts like "Get Help", "Write Out", "Where Is", "Cut Text", "Justify", "Cur Pos", "Exit", "Read File", "Replace", "Uncut Text", "To Spell", "Go To Line", "Undo", and "Redo". The bottom of the window shows the Oracle VM VirtualBox toolbar and a "Right Ctrl" button.

```
ServerPro (Assignment 2) [Running] - Oracle VM VirtualBox
File Machine View Input Devices Help
GNU nano 2.9.3 /etc/dhcp/dhcpd.conf

# attempt to do a DNS update when a lease is confirmed. We default to the
# behavior of the version 2 packages ('none', since DHCP v2 didn't
# have support for DDNS.)
#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 10.0.2.0 netmask 255.255.255.0 {}

# This is a very basic subnet declaration.

subnet 192.168.2.0 netmask 255.255.255.0 {
    range 192.168.2.32 192.168.2.63;
    option routers 192.168.2.1;
}

host clientpro {
    hardware ethernet 08:00:27:f0:ee:0d;
    fixed-address clientpro.localdomain;
}

# This declaration allows BOOTP clients to get dynamic addresses,
# which we don't really recommend.

^G Get Help  ^O Write Out ^W Where Is  ^K Cut Text  ^J Justify   ^C Cur Pos   M-U Undo
^X Exit      ^R Read File ^\ Replace   ^U Uncut Text ^T To Spell  ^_ Go To Line M-E Redo

Right Ctrl
```

Run **sudo service isc-dhcp-server restart**

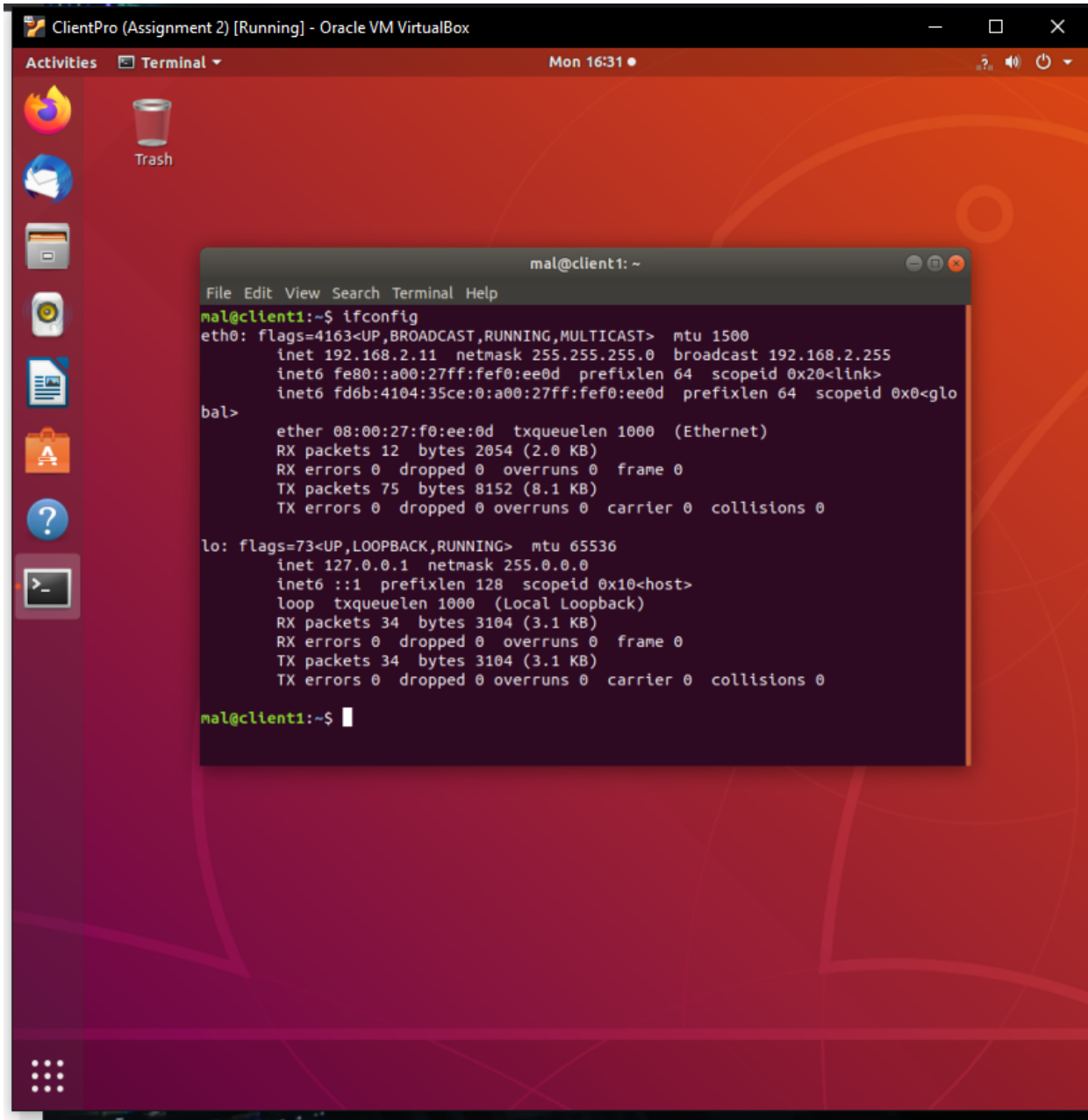
Edit /etc/network/interfaces in clientpro

```
mal@client1: ~  
File Edit View Search Terminal Help  
GNU nano 2.9.3 /etc/network/interfaces  
  
# interfaces(5) file used by ifup(8) and ifdown(8)  
auto lo  
iface lo inet loopback  
  
auto eth0  
iface eth0 inet dhcp  
  
[ Wrote 6 lines ]  
^G Get Help  ^O Write Out  ^W Where Is  ^K Cut Text  ^J Justify  ^C Cur Pos  
^X Exit      ^R Read File  ^\ Replace   ^U Uncut Text ^T To Spell  ^_ Go To Line
```

Client 2 dynamic ipv4 address

```
COSC301-client2 [Running] - Oracle VM VirtualBox  
File Machine View Input Devices Help  
Activities Terminal Mon 04:27 en: [Speaker] [Power]  
ubuntu@ubuntu: ~  
File Edit View Search Terminal Help  
Setting up net-tools (1.60+git20161116.90da8a0-1ubuntu1) ...  
Processing triggers for man-db (2.8.3-2ubuntu0.1) ...  
ubuntu@ubuntu:~$ ifcpmfig  
ifcpmfig: command not found  
ubuntu@ubuntu:~$ ifconfig  
enp0s3: flags=4163<UP,BROADCAST,RUNNING,MULTICAST> mtu 1500  
inet 192.168.2.32 netmask 255.255.255.0 broadcast 192.168.2.255  
inet6 fe80::9d68:6999:2c57:2c4a prefixlen 64 scopeid 0x20<link>  
inet6 fd6b:4104:35ce:0:dec8:460b:903:d8d9 prefixlen 64 scopeid 0x0<gl  
obal>  
lbal>  
ether 08:00:27:82:a4:a4 txqueuelen 1000 (Ethernet)  
RX packets 8166 bytes 10984386 (10.9 MB)  
RX errors 0 dropped 0 overruns 0 frame 0  
TX packets 4773 bytes 338592 (338.5 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 380 bytes 38119 (38.1 KB)  
RX errors 0 dropped 0 overruns 0 frame 0  
TX packets 380 bytes 38119 (38.1 KB)  
TX errors 0 dropped 0 overruns 0 carrier 0 collisions 0  
  
ubuntu@ubuntu:~$
```

ClientPro static ipv4 address



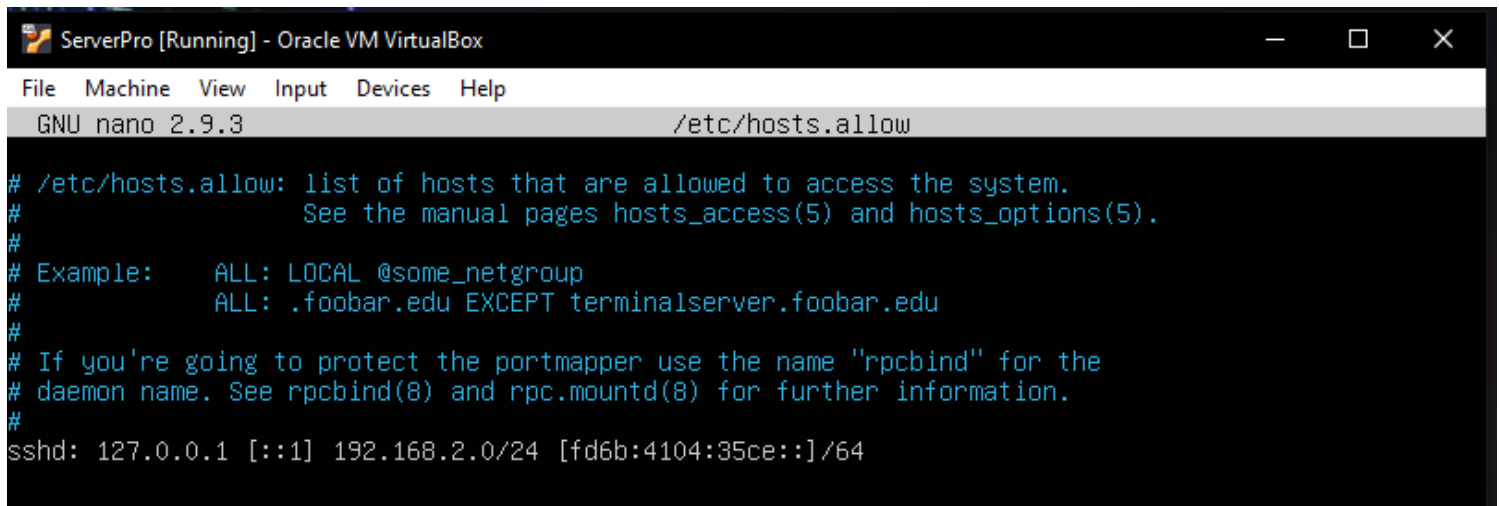
The screenshot shows a Linux desktop environment with a red background. A terminal window is open, displaying the output of the 'ifconfig' command. The terminal window has a title bar that reads 'mal@client1: ~'. The output shows the configuration for the 'eth0' interface, including its MTU, flags, and IP addresses (both IPv4 and IPv6). It also shows the configuration for the 'lo' (loopback) interface, including its MTU, flags, and IP addresses. The desktop environment includes a sidebar with various application icons and a top bar with system status information.

```
mal@client1: ~  
File Edit View Search Terminal Help  
mal@client1:~$ ifconfig  
eth0: flags=4163<UP,BROADCAST,RUNNING,MULTICAST>  mtu 1500  
        inet 192.168.2.11  netmask 255.255.255.0  broadcast 192.168.2.255  
        inet6 fe80::a00:27ff:fe0:ee0d  prefixlen 64  scopeid 0x20<link>  
        inet6 fd6b:4104:35ce:0:a00:27ff:fe0:ee0d  prefixlen 64  scopeid 0x0<glo  
bal>  
        ether 08:00:27:f0:ee:0d  txqueuelen 1000  (Ethernet)  
        RX packets 12  bytes 2054 (2.0 KB)  
        RX errors 0  dropped 0  overruns 0  frame 0  
        TX packets 75  bytes 8152 (8.1 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 34  bytes 3104 (3.1 KB)  
        RX errors 0  dropped 0  overruns 0  frame 0  
        TX packets 34  bytes 3104 (3.1 KB)  
        TX errors 0  dropped 0  overruns 0  carrier 0  collisions 0  
  
mal@client1:~$
```

SSH

Install openssh-server on serverpro **sudo install openssh-server**

Edit hosts.allow to allow ssh access



```
ServerPro [Running] - Oracle VM VirtualBox
File Machine View Input Devices Help
GNU nano 2.9.3 /etc/hosts.allow

# /etc/hosts.allow: list of hosts that are allowed to access the system.
#                  See the manual pages hosts_access(5) and hosts_options(5).
#
# Example:        ALL: LOCAL @some_netgroup
#                  ALL: .foobar.edu EXCEPT terminalserver.foobar.edu
#
# If you're going to protect the portmapper use the name "rpcbind" for the
# daemon name. See rpcbind(8) and rpc.mountd(8) for further information.
#
sshd: 127.0.0.1 [::1] 192.168.2.0/24 [fd6b:4104:35ce::]/64
```

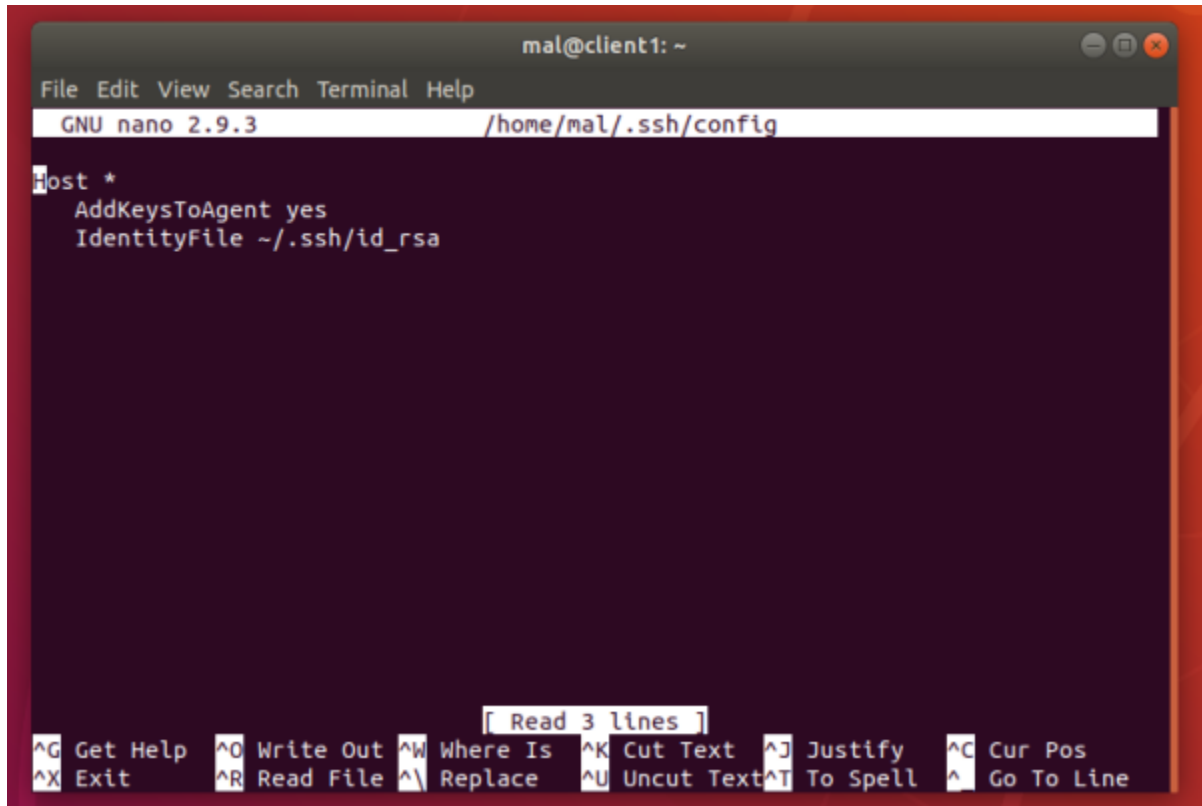
On clientpro use **ssh-keygen -b 2048 -t rsa** to generate a key for client pro then paste generated key in serverpro `~/.ssh/authorized_keys`



```
mal@client1:~$ ssh-keygen -b 2048 -t rsa
Generating public/private rsa key pair.
Enter file in which to save the key (/home/mal/.ssh/id_rsa):
Enter passphrase (empty for no passphrase):
Enter same passphrase again:
Your identification has been saved in /home/mal/.ssh/id_rsa.
Your public key has been saved in /home/mal/.ssh/id_rsa.pub.
The key fingerprint is:
SHA256:nxh9gCFdYsRAwGVrgNEyLEfrkryLDUW1SaV5JedRY5U mal@client1
The key's randomart image is:
+---[RSA 2048]---+
|  ==X==0=0o=...  |
| . @.+B 0o* .E   |
| + == + o .      |
| . . o . .       |
| + . S . .       |
| . o      + o     |
|      . o         |
|                  |
+---[SHA256]-----+
mal@client1:~$ sudo nano
```

cde~ls

Add following to clientpro ~/.ssh/config

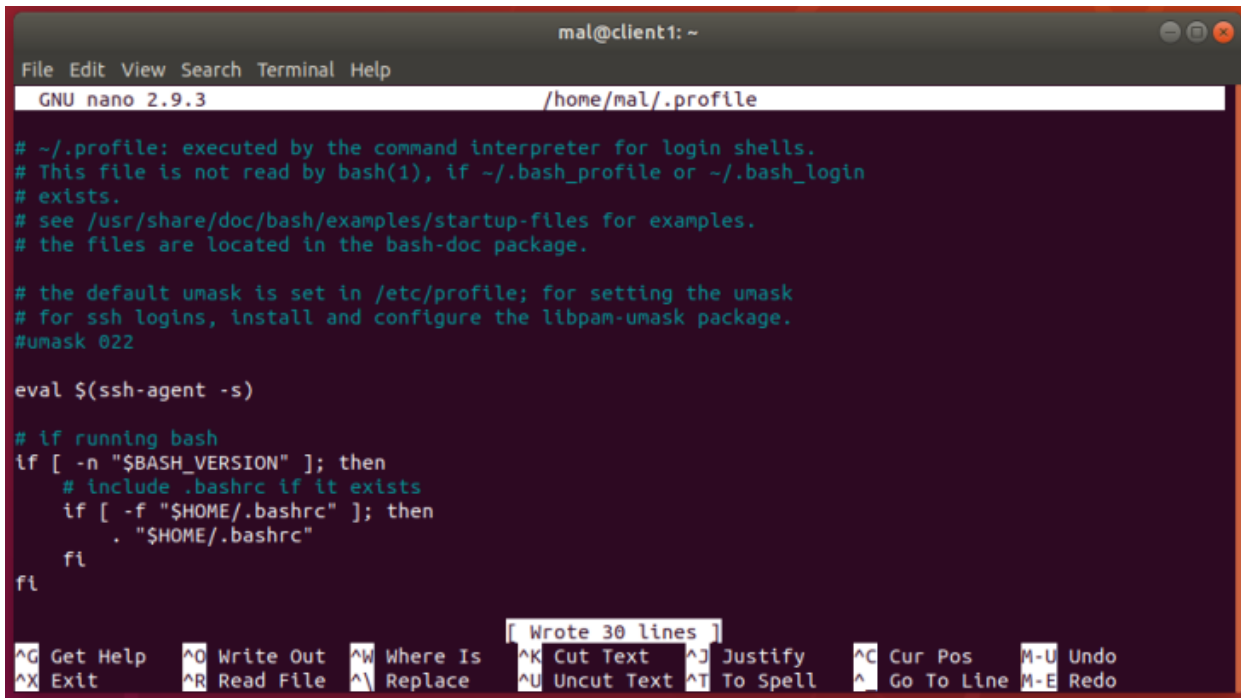


```
mal@client1: ~
File Edit View Search Terminal Help
GNU nano 2.9.3 /home/mal/.ssh/config

Host *
  AddKeysToAgent yes
  IdentityFile ~/.ssh/id_rsa

[ Read 3 lines ]
^G Get Help  ^O Write Out ^W Where Is  ^K Cut Text  ^J Justify   ^C Cur Pos
^X Exit      ^R Read File ^\ Replace   ^U Uncut Text ^T To Spell  ^_ Go To Line
```

Add following to ~/.profile and ~/.bashrc



```
mal@client1: ~
File Edit View Search Terminal Help
GNU nano 2.9.3 /home/mal/.profile

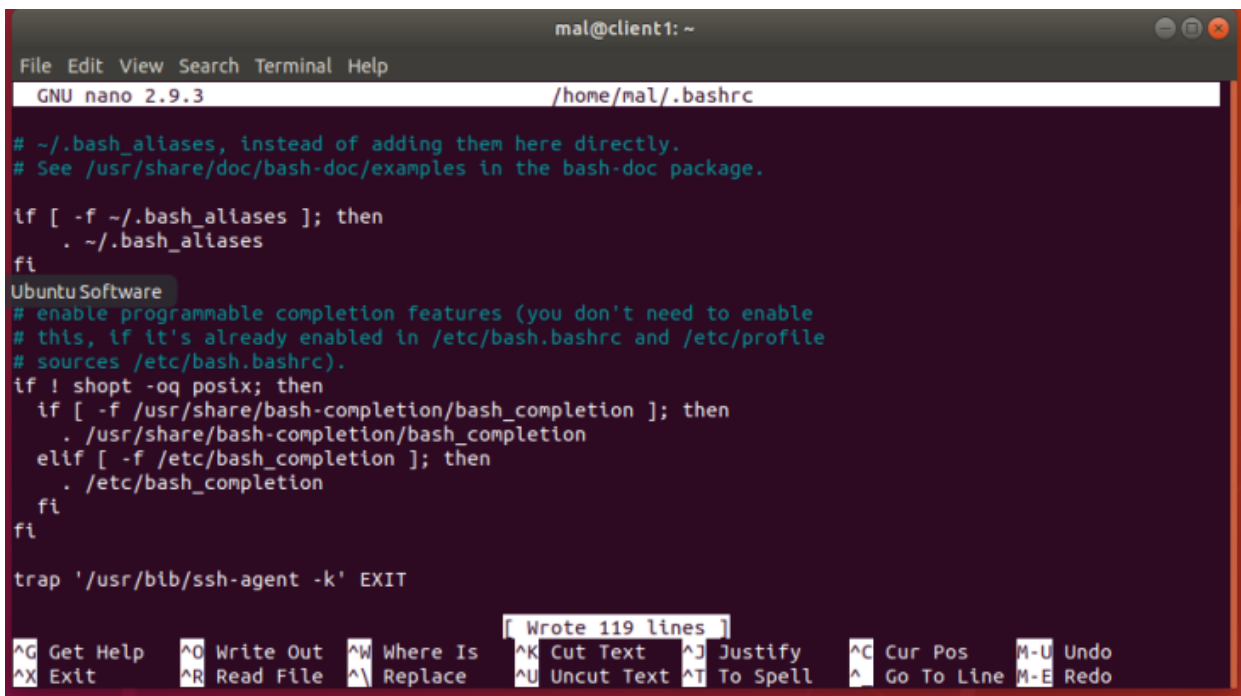
# ~/.profile: executed by the command interpreter for login shells.
# This file is not read by bash(1), if ~/.bash_profile or ~/.bash_login
# exists.
# see /usr/share/doc/bash/examples/startup-files for examples.
# the files are located in the bash-doc package.

# the default umask is set in /etc/profile; for setting the umask
# for ssh logins, install and configure the libpam-umask package.
#umask 022

eval $(ssh-agent -s)

# if running bash
if [ -n "$BASH_VERSION" ]; then
    # include .bashrc if it exists
    if [ -f "$HOME/.bashrc" ]; then
        . "$HOME/.bashrc"
    fi
fi

[ Wrote 30 lines ]
^G Get Help  ^O Write Out  ^W Where Is   ^K Cut Text   ^J Justify    ^C Cur Pos    M-U Undo
^X Exit      ^R Read File  ^\ Replace    ^U Uncut Text ^T To Spell   ^_ Go To Line  M-E Redo
```



```
mal@client1: ~
File Edit View Search Terminal Help
GNU nano 2.9.3 /home/mal/.bashrc

# ~/.bash_aliases, instead of adding them here directly.
# See /usr/share/doc/bash-doc/examples in the bash-doc package.

if [ -f ~/.bash_aliases ]; then
    . ~/.bash_aliases
fi

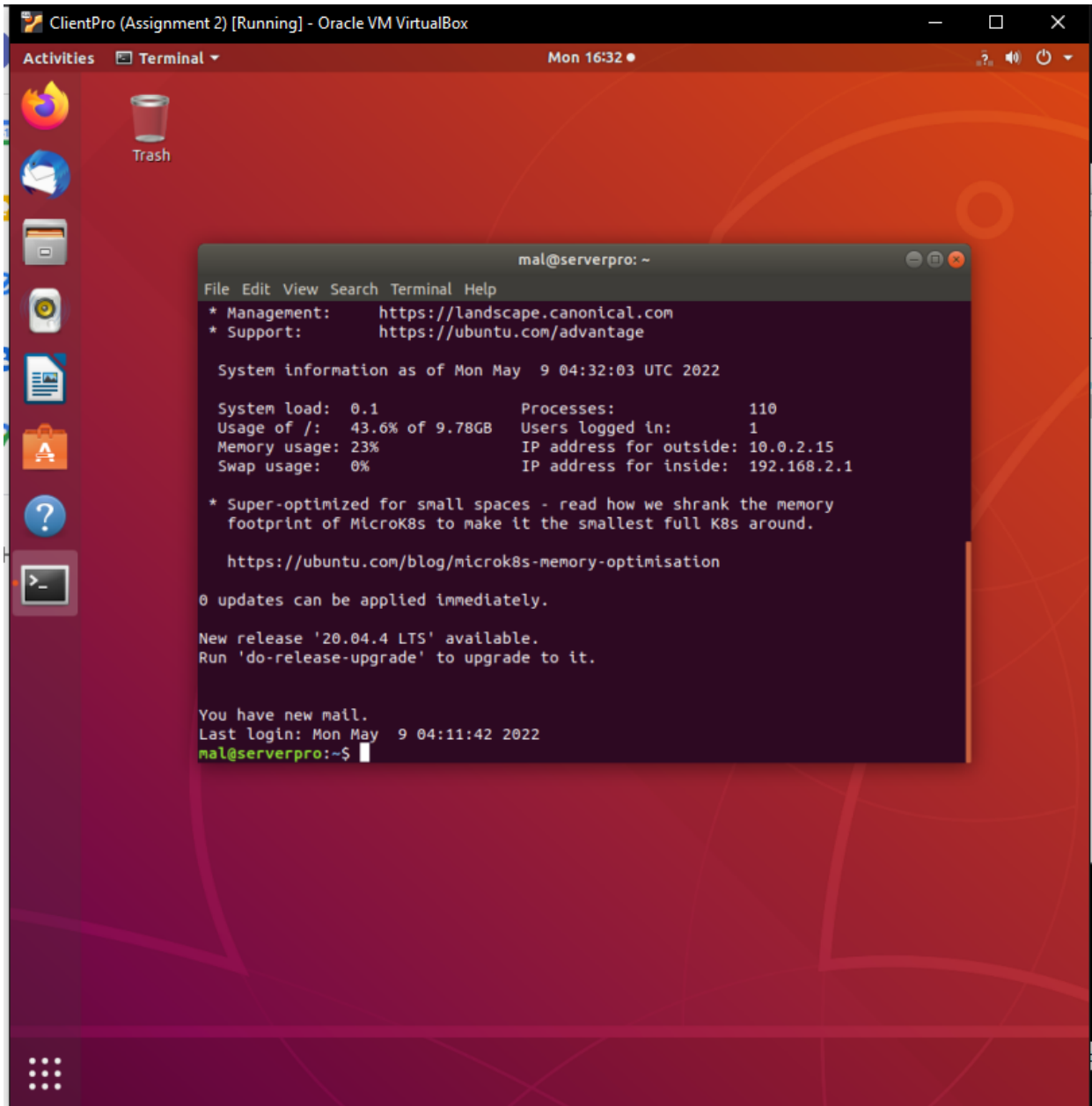
Ubuntu Software
# enable programmable completion features (you don't need to enable
# this, if it's already enabled in /etc/bash.bashrc and /etc/profile
# sources /etc/bash.bashrc).
if ! shopt -oq posix; then
    if [ -f /usr/share/bash-completion/bash_completion ]; then
        . /usr/share/bash-completion/bash_completion
    elif [ -f /etc/bash_completion ]; then
        . /etc/bash_completion
    fi
fi

trap '/usr/bin/ssh-agent -k' EXIT

[ Wrote 119 lines ]
^G Get Help  ^O Write Out  ^W Where Is   ^K Cut Text   ^J Justify    ^C Cur Pos    M-U Undo
^X Exit      ^R Read File  ^\ Replace    ^U Uncut Text ^T To Spell   ^_ Go To Line  M-E Redo
```

This allows a passwordless login after reboot

ClientPro passwordless entry



Mail

Add MX record with priority 0 and alias in /etc/bind/db.localdomain

```
ServerPro [Running] - Oracle VM VirtualBox
File Machine View Input Devices Help
GNU nano 2.9.3 /etc/bind/db.localdomain

$TTL 3D
@ IN SOA ns1.localdomain. hostmaster.localdomain. (
    2020030601      ; serial
    8H             ; refresh
    2H             ; retry
    4W             ; expire
    1D             ; minimum
)

NS ns1.localdomain.
MX 0 smtp.localdomain.
A 192.168.2.1
AAAA fd6b:4104:35ce::1
smtp A 192.168.2.1
AAAA fd6b:4104:35ce::1
pop3 A 192.168.2.1
AAAA fd6b:4104:35ce::1
; MX 0 mailhub1.localdomain.
; MX 5 mailhub2.localdomain.
; A 192.168.2.3

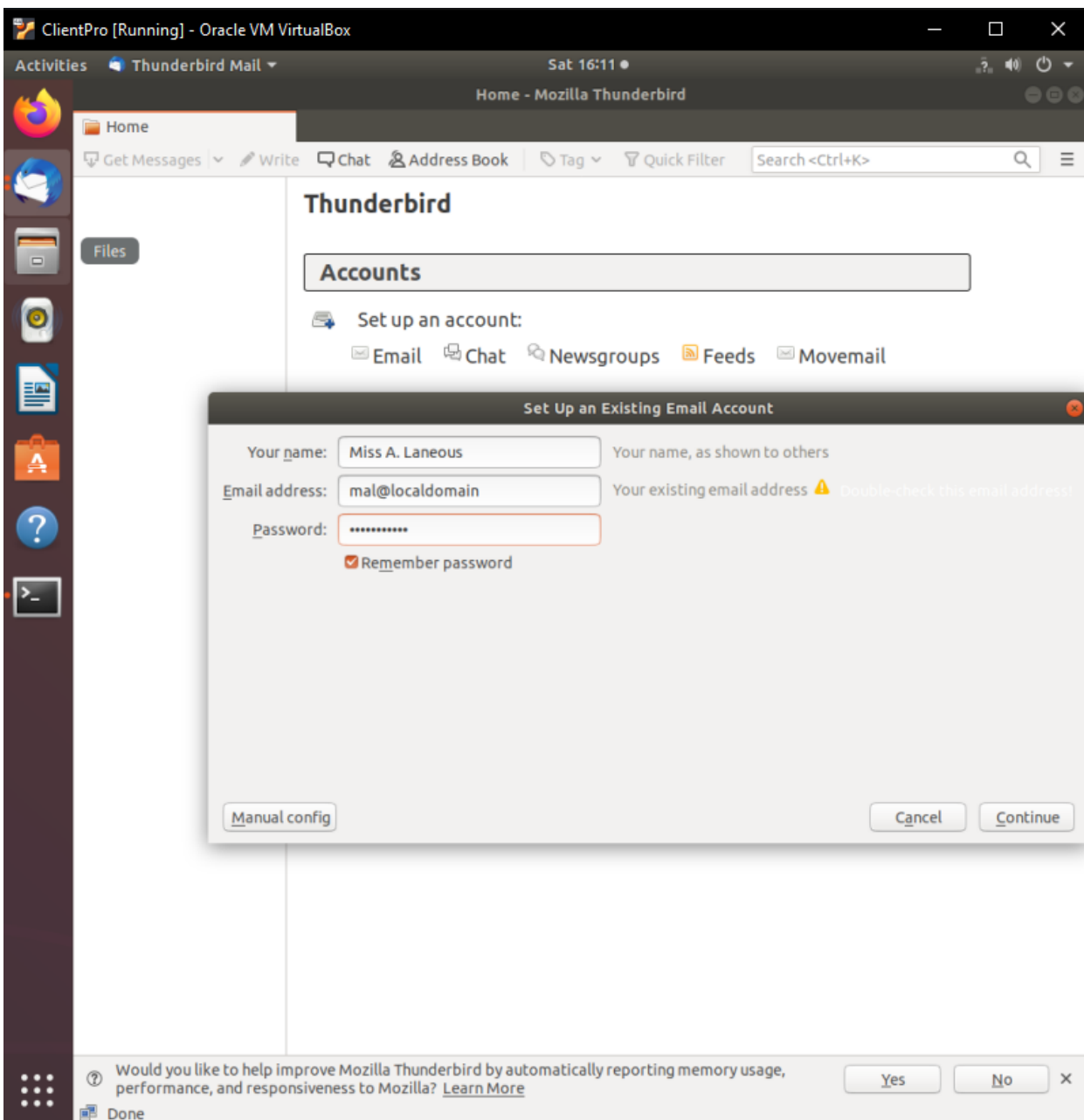
localhost A 127.0.0.1
AAAA ::1

serverpro A 192.168.2.1
AAAA fd6b:4104:35ce::1
serverpro.ipv4 A 192.168.2.1
serverpro.ipv6 AAAA fd6b:4104:35ce::1
ns1 A 192.168.2.1
AAAA fd6b:4104:35ce::1

[ Wrote 67 lines ]
^G Get Help ^O Write Out ^W Where Is ^K Cut Text ^J Justify ^C Cur Pos M-U Undo
^X Exit ^R Read File ^\ Replace ^U Uncut Text ^T To Spell ^_ Go To Line M-E Redo
```

Restart bind

Use **sudo adduser bob** to add new user bob



ClientPro [Running] - Oracle VM VirtualBox

ActivitiesThunderbird Mail

Sat 16:21

Inbox - Mozilla Thunderbird

Inbox

Get MessagesWriteChatAddress BookTagQuick FilterSearch <Ctrl+K>

mal@localdomain

Inbox (1)

Sent

Trash

Local Folders

Trash

Outbox

Filter these messages <Ctrl+Shift+K>

Subject	Correspondents	Date
serverpro 2022-05-07 04:02 +...	logcheck system account	4:02 pm
Test	bob	4:19 pm

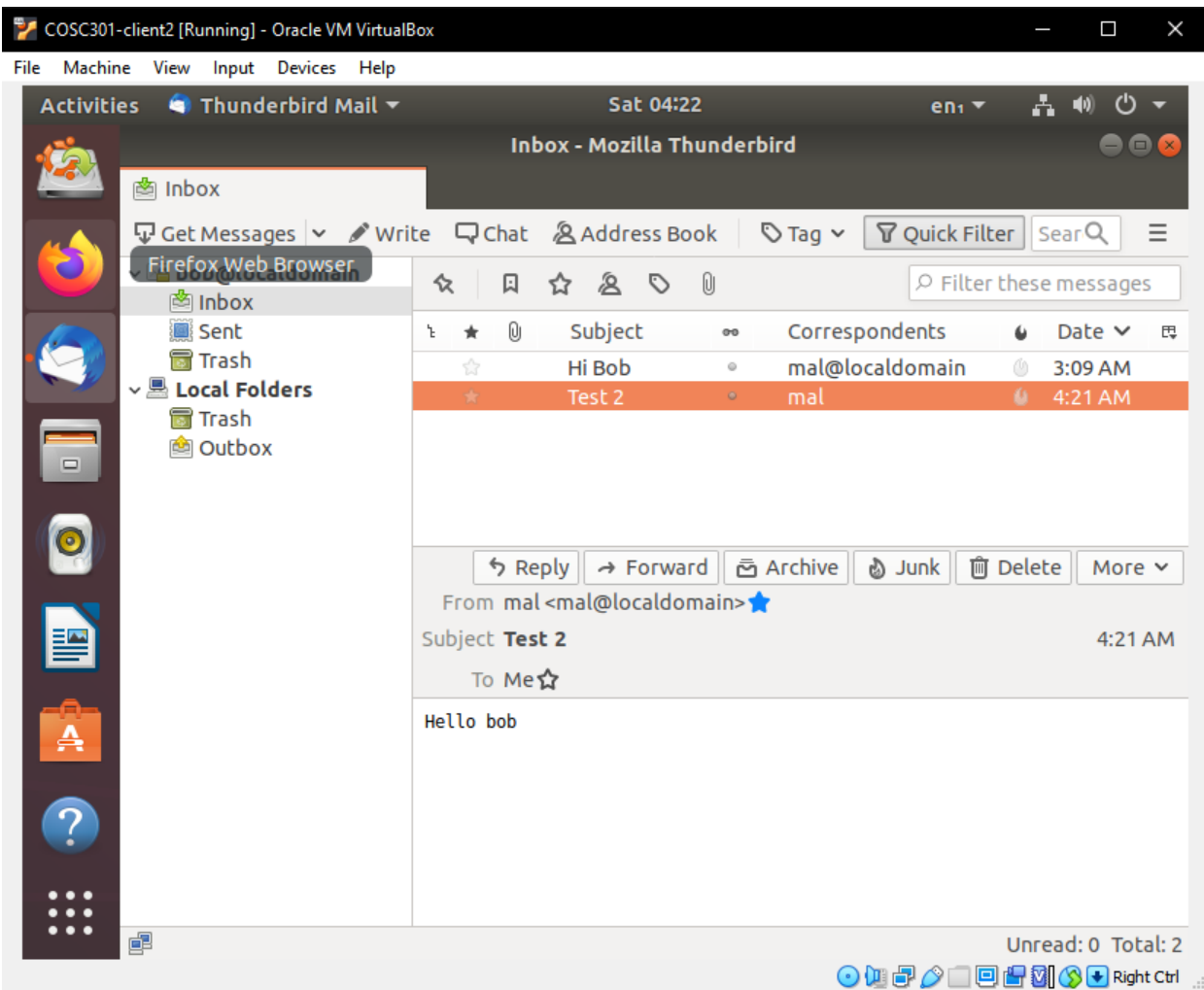
From bob <bob@localdomain>★
Subject Test
To Me★

4:19 pm

Hello mal

Unread: 1 Total: 2

ReplyForwardArchiveJunkDeleteMore

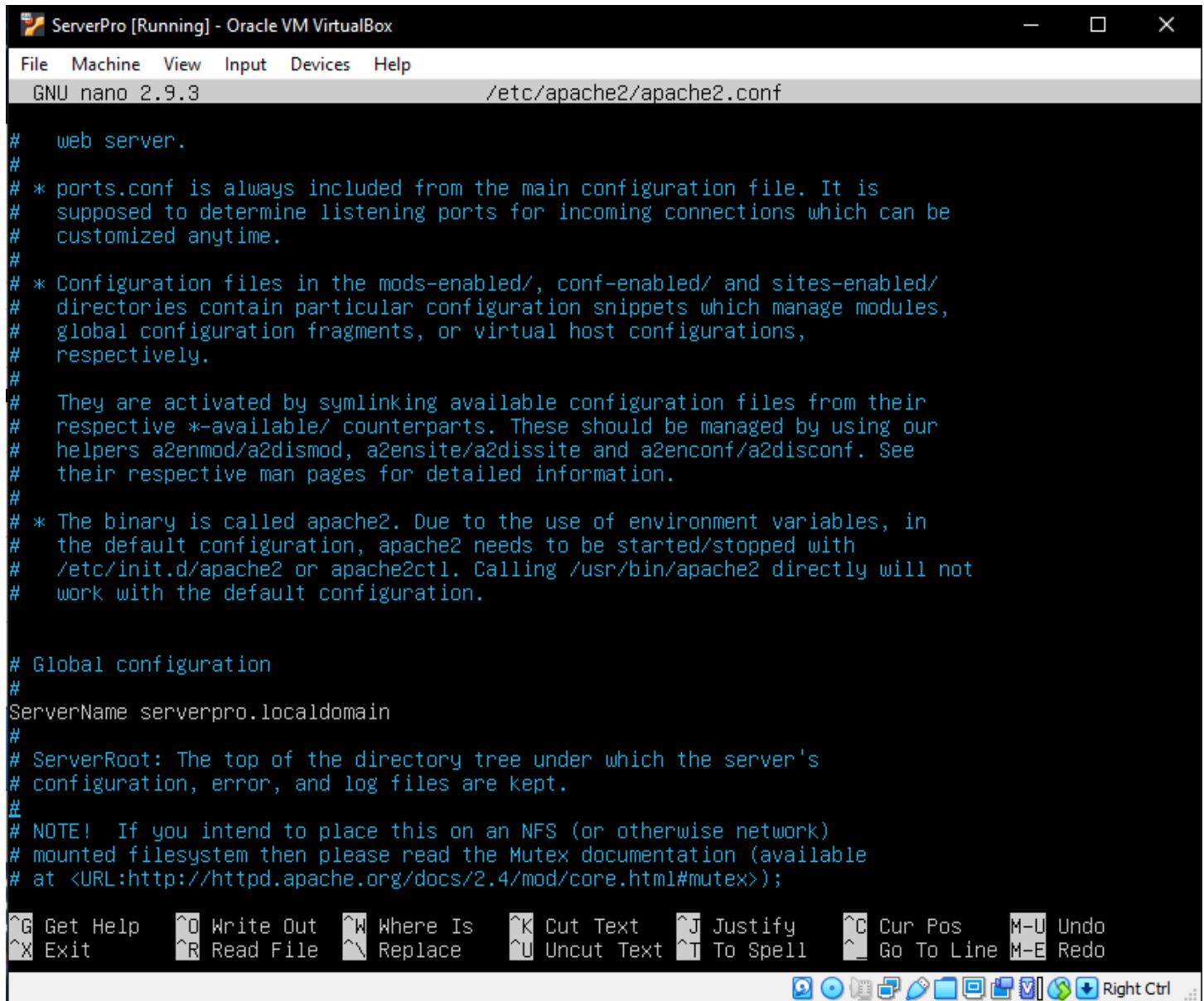


WWW

Edit the bind file /etc/bind/db.localdomain and add the new domains and reload the server

Install the apache2 packages

Edit /etc/apache2/apache2.conf and add the ServerName



```
ServerPro [Running] - Oracle VM VirtualBox
File Machine View Input Devices Help
GNU nano 2.9.3 /etc/apache2/apache2.conf

# web server.
#
# * ports.conf is always included from the main configuration file. It is
# supposed to determine listening ports for incoming connections which can be
# customized anytime.
#
# * Configuration files in the mods-enabled/, conf-enabled/ and sites-enabled/
# directories contain particular configuration snippets which manage modules,
# global configuration fragments, or virtual host configurations,
# respectively.
#
# They are activated by symlinking available configuration files from their
# respective *-available/ counterparts. These should be managed by using our
# helpers a2enmod/a2dismod, a2ensite/a2dissite and a2enconf/a2disconf. See
# their respective man pages for detailed information.
#
# * The binary is called apache2. Due to the use of environment variables, in
# the default configuration, apache2 needs to be started/stopped with
# /etc/init.d/apache2 or apache2ctl. Calling /usr/bin/apache2 directly will not
# work with the default configuration.

# Global configuration
#
ServerName serverpro.localdomain
#
# ServerRoot: The top of the directory tree under which the server's
# configuration, error, and log files are kept.
#
# NOTE! If you intend to place this on an NFS (or otherwise network)
# mounted filesystem then please read the Mutex documentation (available
# at <URL:http://httpd.apache.org/docs/2.4/mod/core.html#mutex>);

^G Get Help ^O Write Out ^W Where Is ^K Cut Text ^J Justify ^C Cur Pos M-U Undo
^X Exit ^R Read File ^\ Replace ^U Uncut Text ^T To Spell _ Go To Line M-E Redo
Right Ctrl
```

sudo apache2ctl configtest

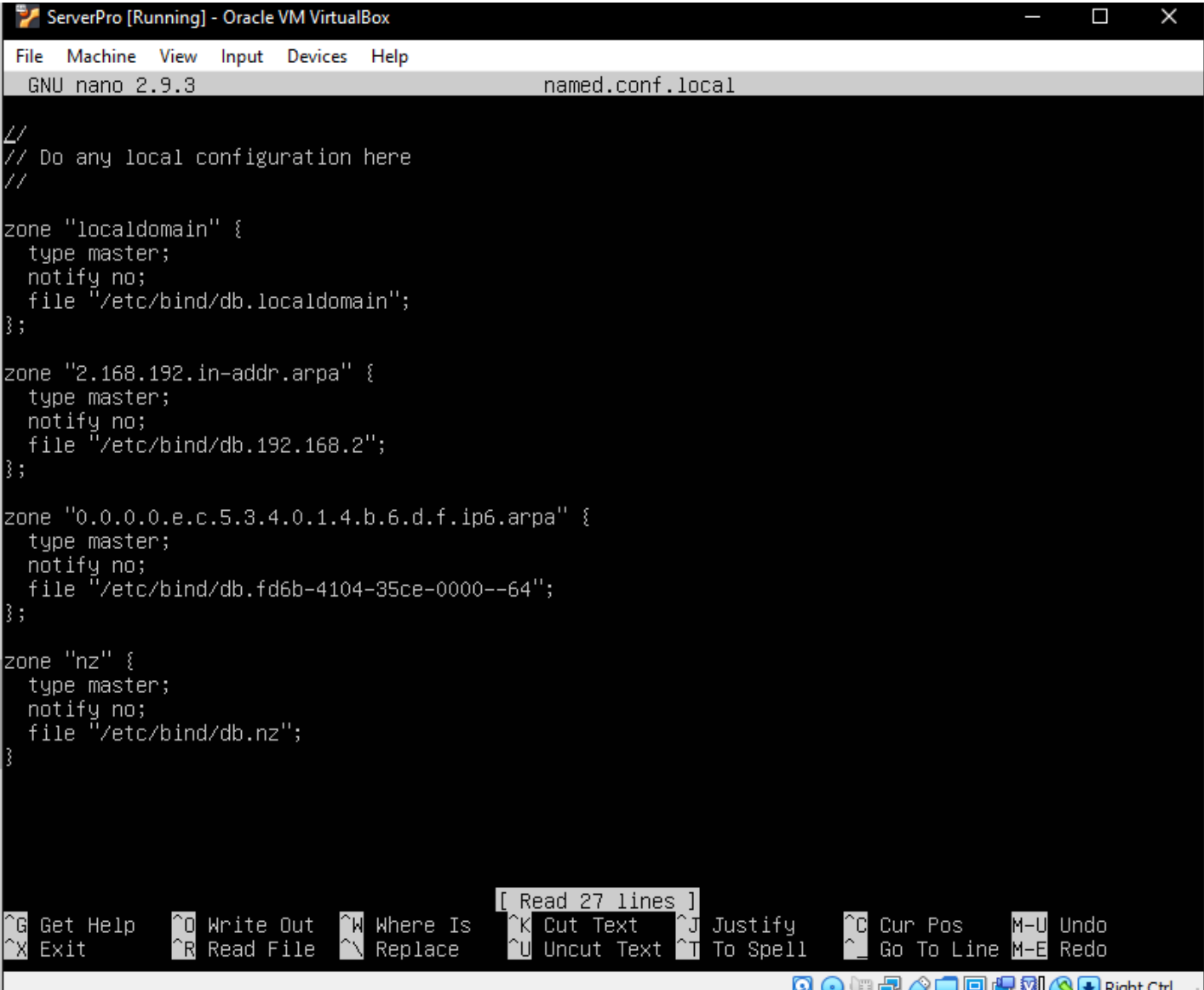
sudo apache2ctl graceful

To make sure it is set up correctly

Edit /var/www/html/index.php and add html tags for the web page

Virtual Host

To add new zone nz /etc/bind/named.conf.local



```
ServerPro [Running] - Oracle VM VirtualBox
File Machine View Input Devices Help
GNU nano 2.9.3 named.conf.local

//
// Do any local configuration here
//

zone "localdomain" {
    type master;
    notify no;
    file "/etc/bind/db.localdomain";
};

zone "2.168.192.in-addr.arpa" {
    type master;
    notify no;
    file "/etc/bind/db.192.168.2";
};

zone "0.0.0.0.e.c.5.3.4.0.1.4.b.6.d.f.ip6.arpa" {
    type master;
    notify no;
    file "/etc/bind/db.fd6b-4104-35ce-0000--64";
};

zone "nz" {
    type master;
    notify no;
    file "/etc/bind/db.nz";
};

[ Read 27 lines ]
^G Get Help      ^O Write Out    ^W Where Is    ^K Cut Text    ^J Justify     ^C Cur Pos     M-U Undo
^X Exit          ^R Read File    ^_ Replace     ^U Uncut Text  ^T To Spell    ^_ Go To Line  M-E Redo
Right Ctrl
```

Set up /etc/bind/db.nz file

```
ServerPro [Running] - Oracle VM VirtualBox
File Machine View Input Devices Help
GNU nano 2.9.3 db.nz

$TTL 3D
@ IN SOA ns1.nz hostmaster.nz. (
    2020030601
    8H
    2H
    4W
    1D
    )

    NS ns1.nz.

localhost      A      127.0.0.1
                AAAA   ::1

ns1             A      192.168.2.1
                AAAA   fd6b:4104:35ce::1
cosc301.otago   A      192.168.2.1
                AAAA   fd6b:4104:35ce::1
www.cosc301.otago A    192.168.2.1
                AAAA   fd6b:4104:35ce::1
```

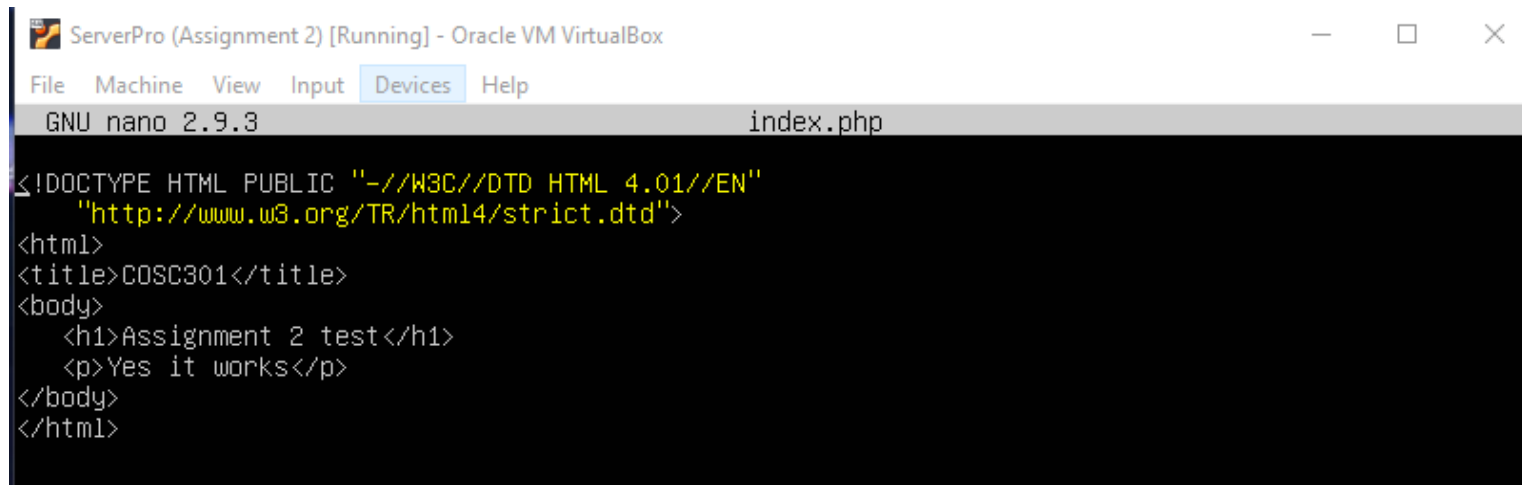
Too add virtual host create /etc/apache2/sites-available/nz.conf

```
ServerPro (Assignment 2) [Running] - Oracle VM VirtualBox
File Machine View Input Devices Help
GNU nano 2.9.3 nz.conf

<VirtualHost *:80>
    ServerName cosc301.otago.nz
    ServerAlias www.cosc301.otago.nz
    ServerAdmin webmaster@cosc301.otago.nz
    DocumentRoot /var/www/nz
    ErrorLog /var/log/apache2/nz-error.log
    CustomLog /var/log/apache2/nz-access.log combined
</VirtualHost>
```

Create root directory for nz then create index.php

sudo mkdir /var/www/nz



The screenshot shows a terminal window titled "ServerPro (Assignment 2) [Running] - Oracle VM VirtualBox". The terminal is running the GNU nano 2.9.3 text editor, editing a file named index.php. The code in the editor is an HTML document with the following content:

```
<!DOCTYPE HTML PUBLIC "-//W3C//DTD HTML 4.01//EN"
"http://www.w3.org/TR/html4/strict.dtd">
<html>
<title>COSC301</title>
<body>
  <h1>Assignment 2 test</h1>
  <p>Yes it works</p>
</body>
</html>
```

Enable apache configuration

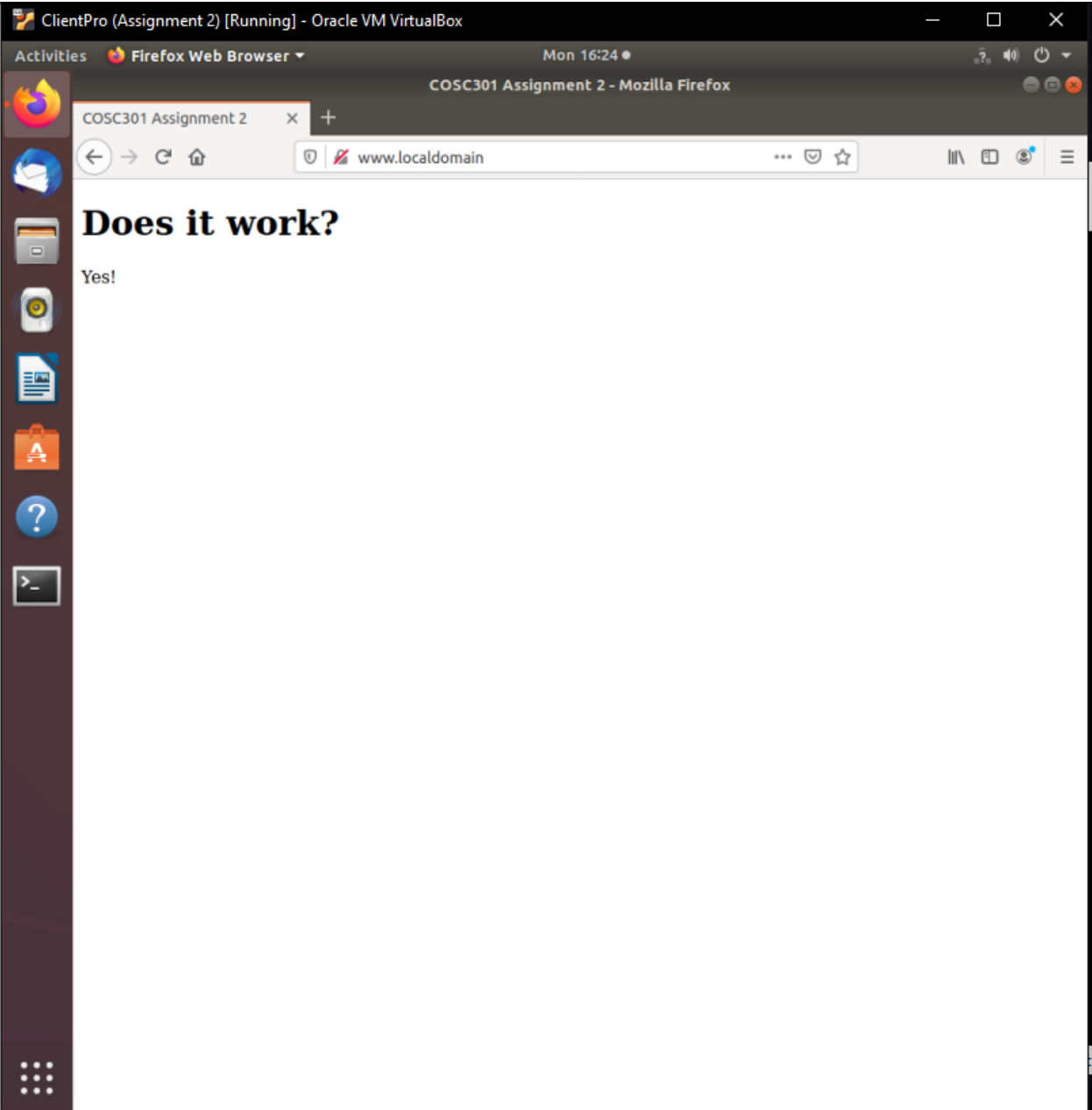
sudo a2ensite nz

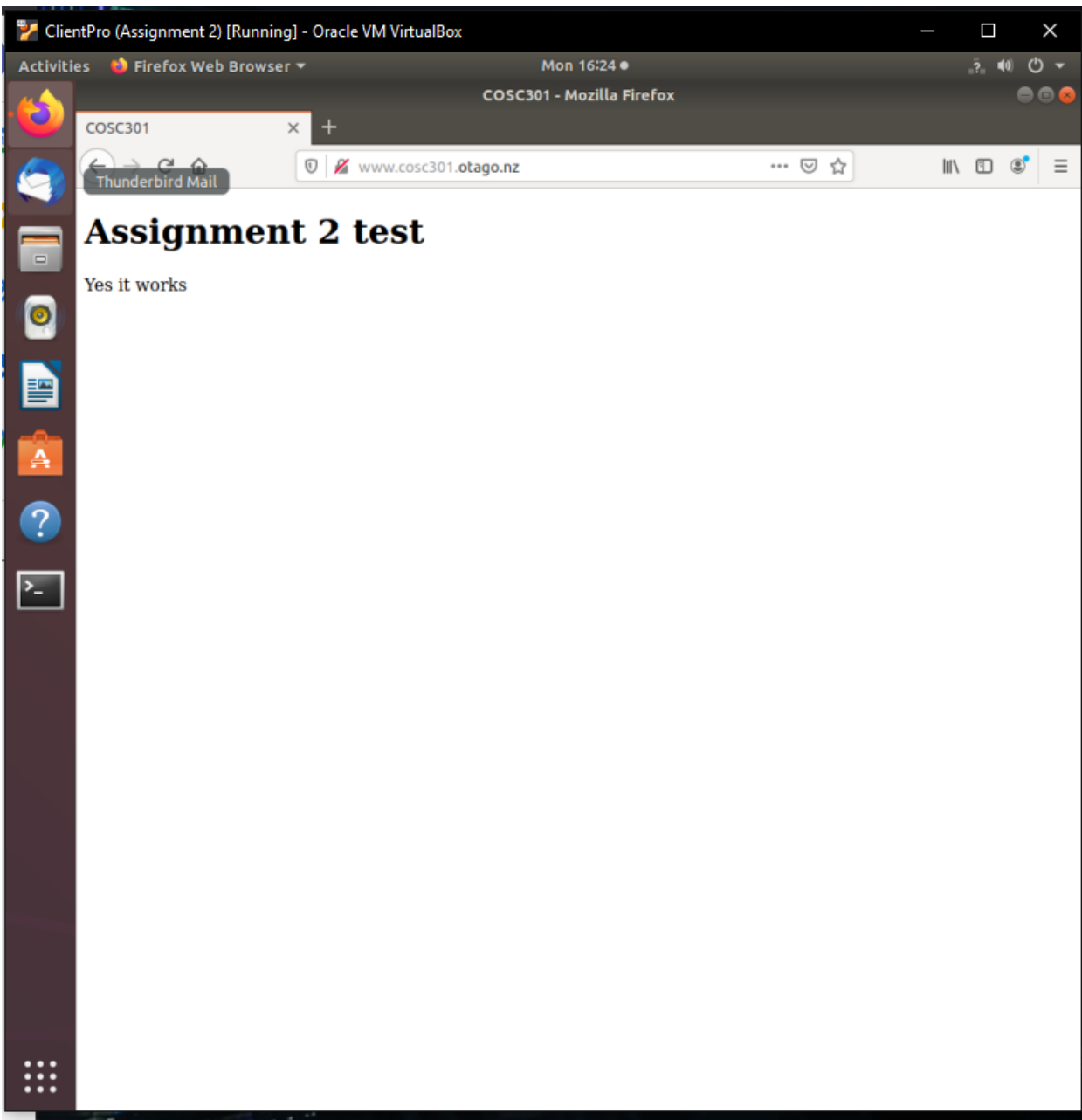
Then use the following commands to make sure it is set up correctly

sudo apache2ctl configtest

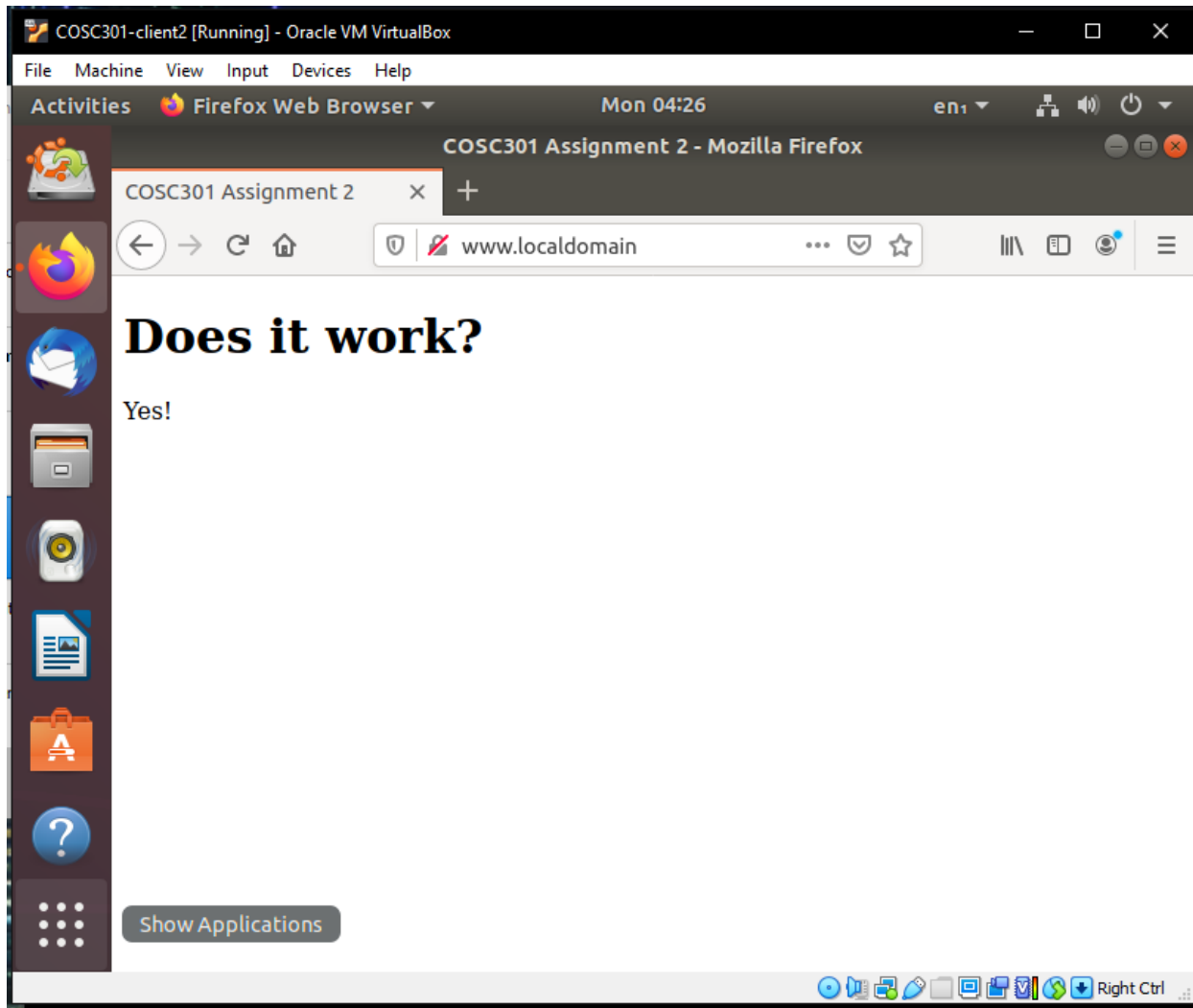
sudo apache2ctl graceful

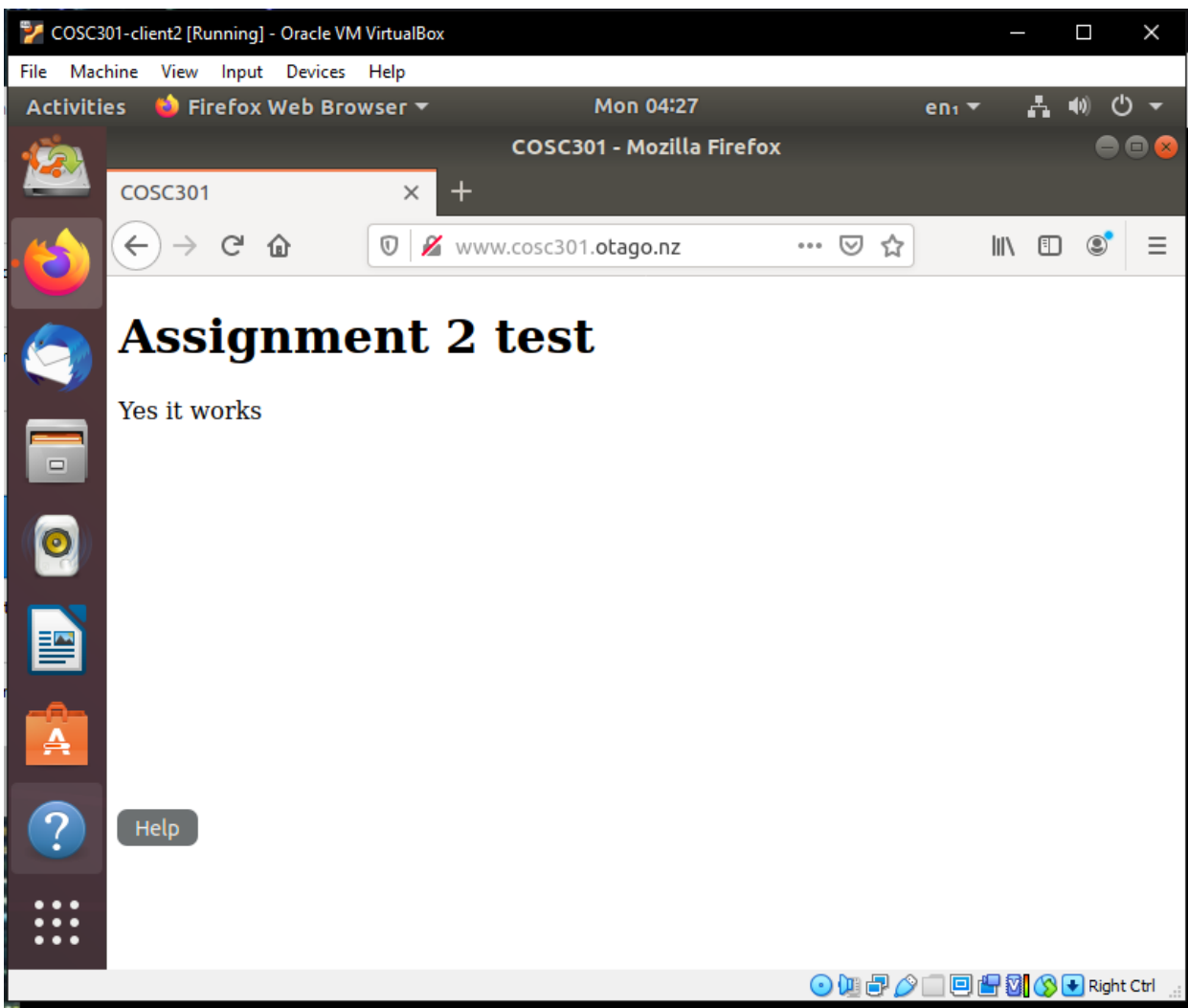
ClientPro





Client 2





Error log

There are only two types of errors I ran into, typos and forgetting to install packages.

Both were easy to fix because if files were missing I knew I forgot to install a package

And if the server was broken I double checked the files I just added because it had to be a problem with them