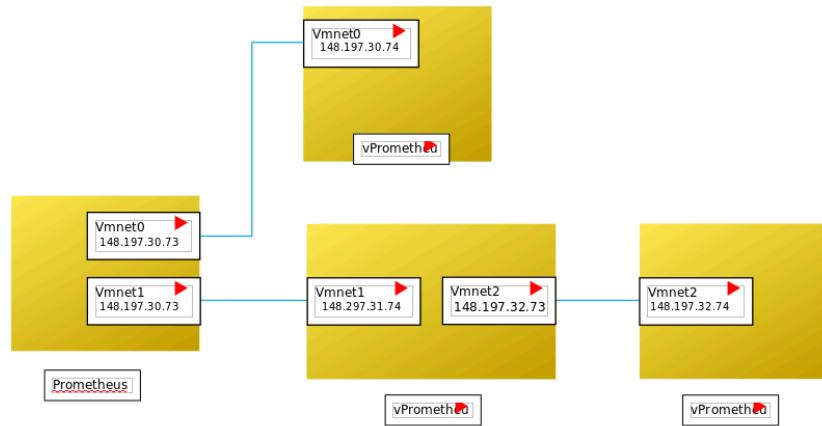


## ELog book (system administration and internet working)

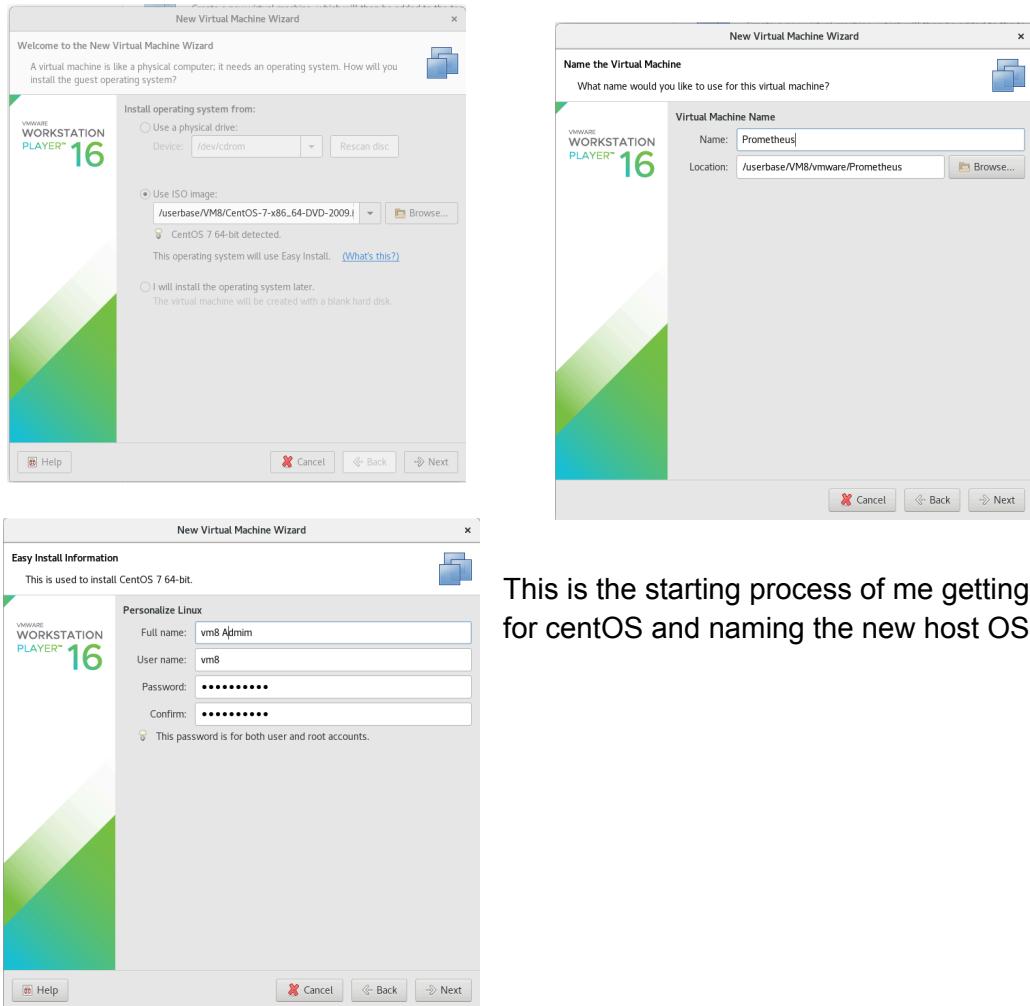
```
eno1: flags=4163<UP,BROADCAST,RUNNING,MULTICAST> mtu 1500
    inet 148.197.28.108 netmask 255.255.255.0 broadcast 148.197.28.255
    inet6 fe80::e41a:2e67:d539:cecc prefixlen 64 scopeid 0x20<link>
        ether 00:68:eb:b5:5b:81 txqueuelen 1000 (Ethernet)
        RX packets 3610856 bytes 4254703013 (3.9 GiB)
        RX errors 0 dropped 0 overruns 0 frame 0
        TX packets 1913545 bytes 182521377 (174.0 MiB)
        TX errors 0 dropped 0 overruns 0 carrier 0 collisions 0
        device interrupt 16 memory 0xe2500000-e2520000
```

### **For Future Reference**

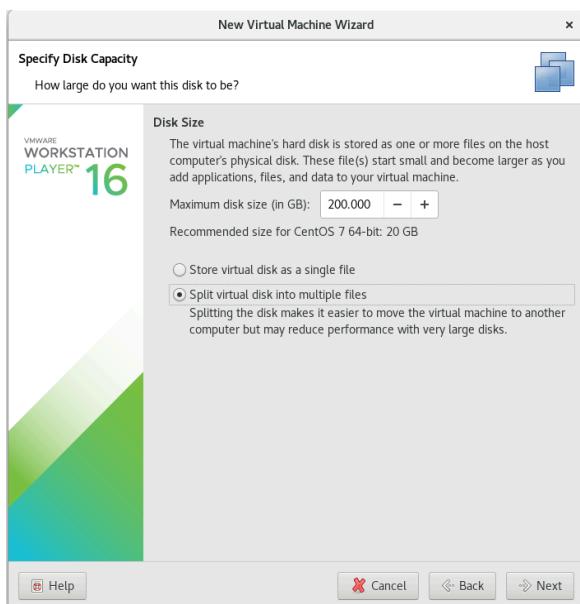
## ***Network Diagram Template***



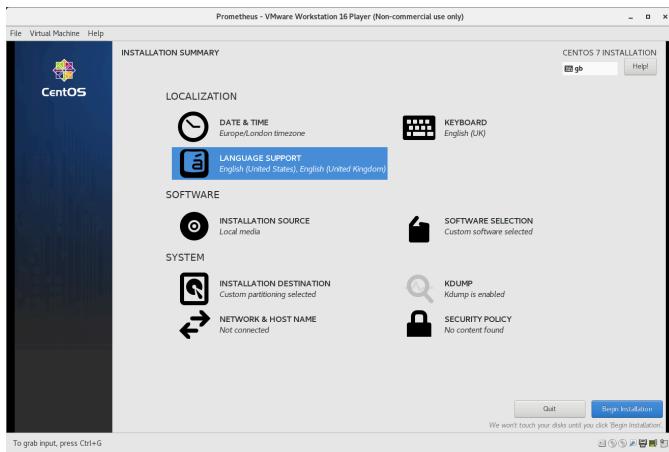
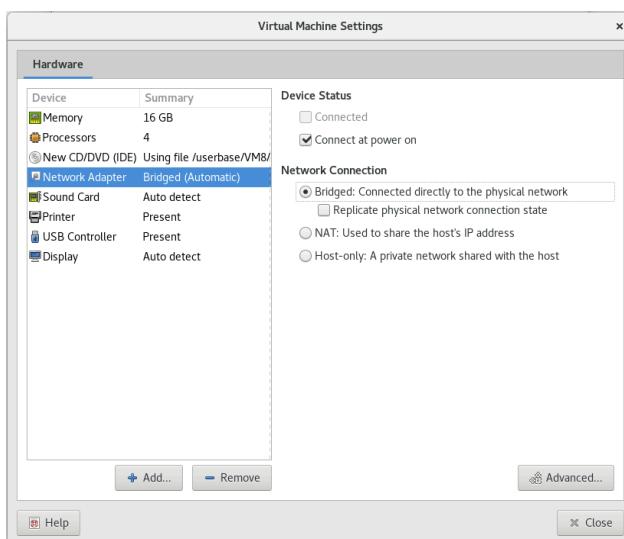
## The set up of the host OS



This is the starting process of me getting the IOS file for centOS and naming the new host OS Prometheus.



This is me allocating the right amount of storage for the new host VM to a max of 200gb.



- Additional Development**  
Additional development headers and libraries for building open-source applications.
- Backup Client**  
Client tools for connecting to a backup server and doing backups.
- Compatibility Libraries**  
Compatibility libraries for applications built on previous versions of CentOS Linux.
- DNS Name Server**  
This package group allows you to run a DNS name server (BIND) on the system.
- Development Tools**  
A basic development environment.
- E-mail Server**  
Allows the system to act as a SMTP and/or IMAP e-mail server.
- Emacs**  
The GNU Emacs extensible, customizable, text editor.
- FTP Server**  
Allows the system to act as an FTP server.
- File and Storage Server**  
CIFS, SMB, NFS, iSCSI, iSER, and iSNS network storage server.
- Graphics Creation Tools**  
Software for creation and manipulation of still images.
- Hardware Monitoring Utilities**  
A set of tools to monitor server hardware.
- Identity Management Server**  
Centralized management of users, servers and authentication policies.
- Infiniband Support**  
Software designed for supporting clustering and grid connectivity using RDMA-based InfiniBand and iWARP fabrics.
- KDE**  
The KDE Plasma Workspaces, a highly-configurable graphical user interface which includes a panel, desktop, system icons and desktop widgets, and many powerful KDE applications.
- Large Systems Performance**  
Performance support tools for large systems

- Mainframe Access**  
Tools for accessing mainframe computing resources.
  - MariaDB Database Server**  
The MariaDB SQL database server, and associated packages.
  - Network File System Client**  
Enables the system to attach to network storage.
  - Office Suite and Productivity**  
A full-purpose office suite, and other productivity tools.
  - PHP Support**  
PHP web application framework.
  - Perl for Web**  
Basic Perl web application support.
  - Platform Development**  
Recommended development headers and libraries for developing applications to run on CentOS Linux.
  - PostgreSQL Database Server**  
The PostgreSQL SQL database server, and associated packages.
  - Python**  
Basic Python web application support.
  - Technical Writing**  
Tools for writing technical documentation.
  - Virtualization Hypervisor**  
Smallest possible virtualization host installation.
  - Web Servlet Engine**  
Allows the system to host Java servlets.
- 
- Security Tools**  
Security tools for integrity and trust verification.
  - Smart Card Support**  
Support for using smart card authentication.
  - System Administration Tools**  
Utilities useful in system administration.

## Base Environment

- Minimal Install**  
Basic functionality.
- Compute Node**  
Installation for performing computation and processing.
- Infrastructure Server**  
Server for operating network infrastructure services.
- File and Print Server**  
File, print, and storage server for enterprises.
- Basic Web Server**  
Server for serving static and dynamic internet content.
- Virtualization Host**  
Minimal virtualization host.
- Server with GUI**  
Server for operating network infrastructure services, with a GUI.
- GNOME Desktop**  
GNOME is a highly intuitive and user friendly desktop environment.
- KDE Plasma Workspaces**  
The KDE Plasma Workspaces, a highly-configurable graphical user interface which includes a panel, desktop, system icons and desktop widgets, and many powerful KDE applications.
- Development and Creative Workstation**  
Workstation for software, hardware, graphics, or content development.

File Virtual Machine Help

## INSTALLATION DESTINATION

Done

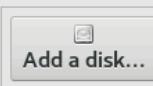
### Device Selection

Select the device(s) you'd like to install to. They will be left untouched until you click on the main menu's "Begin Installation".

#### Local Standard Disks



#### Specialized & Network Disks



### Other Storage Options

#### Partitioning

- Automatically configure partitioning.  I will configure partitioning.  
 I would like to make additional space available.

#### Encryption

- Encrypt my data. You'll set a passphrase next.

[Full disk summary and boot loader...](#)

To grab input, press Ctrl+G

File Virtual Machine Help

## MANUAL PARTITIONING

Done

### ▼ New CentOS 7 Installation

#### SYSTEM

/boot

sda1

300 MiB ➔

/

sda3

191.83 GiB

swap

sda2

8065 MiB

+

-

↶

AVAILABLE SPACE

992.5 KiB

TOTAL SPACE

200 GiB

1 storage device selected

To grab input, press Ctrl+G

sda1

Mount

/boot

Desired

300 MiB

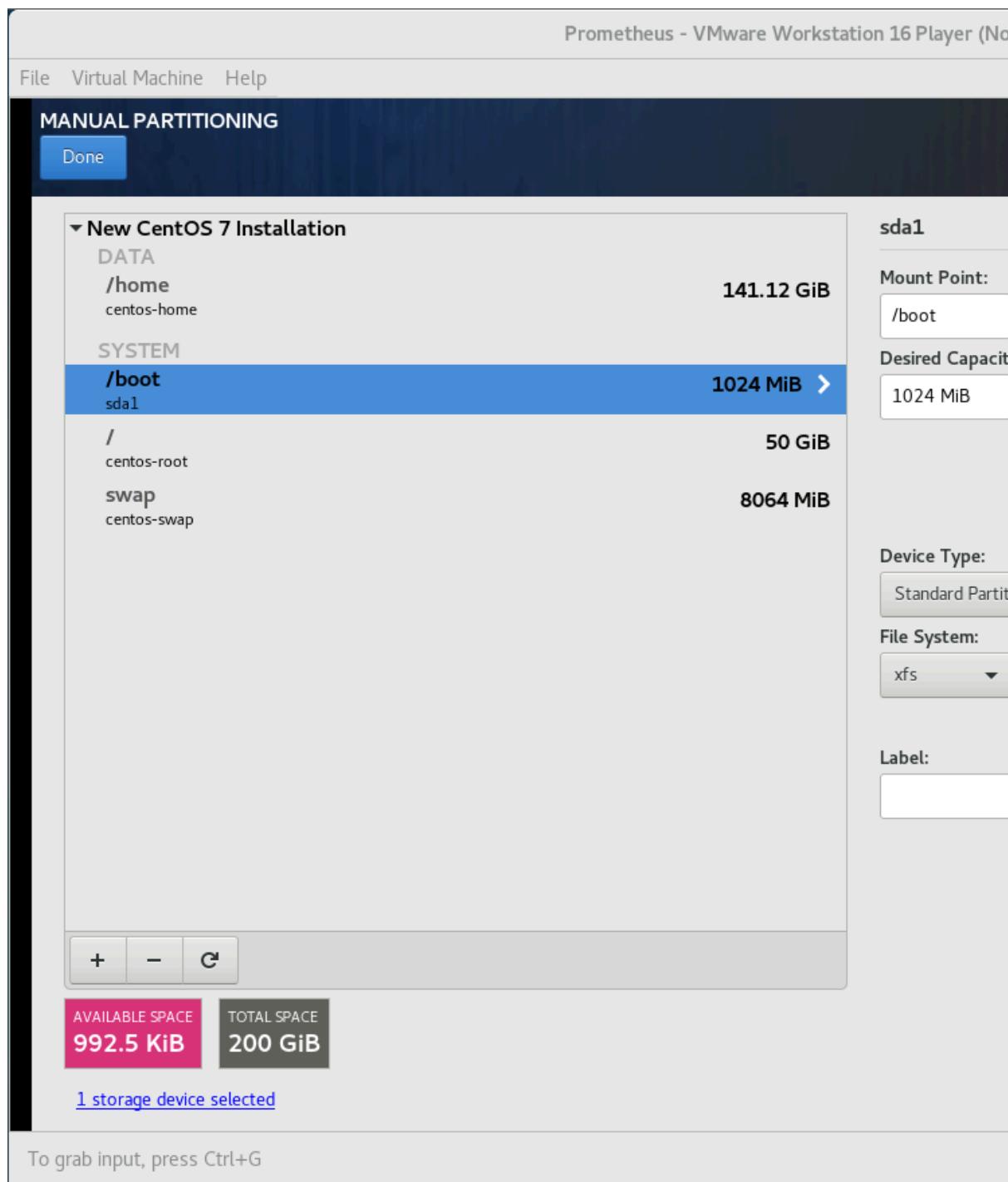
Device

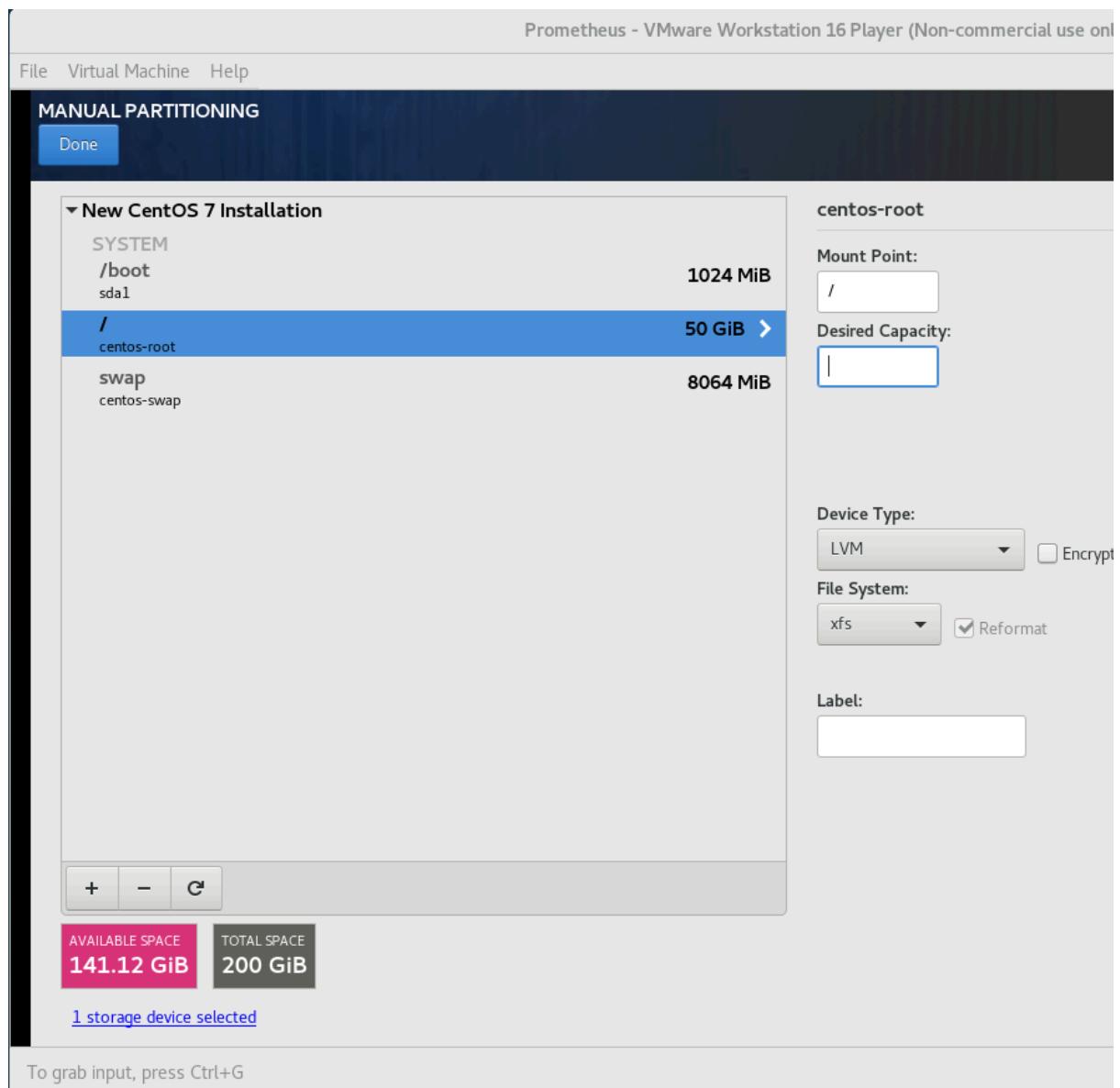
Stand

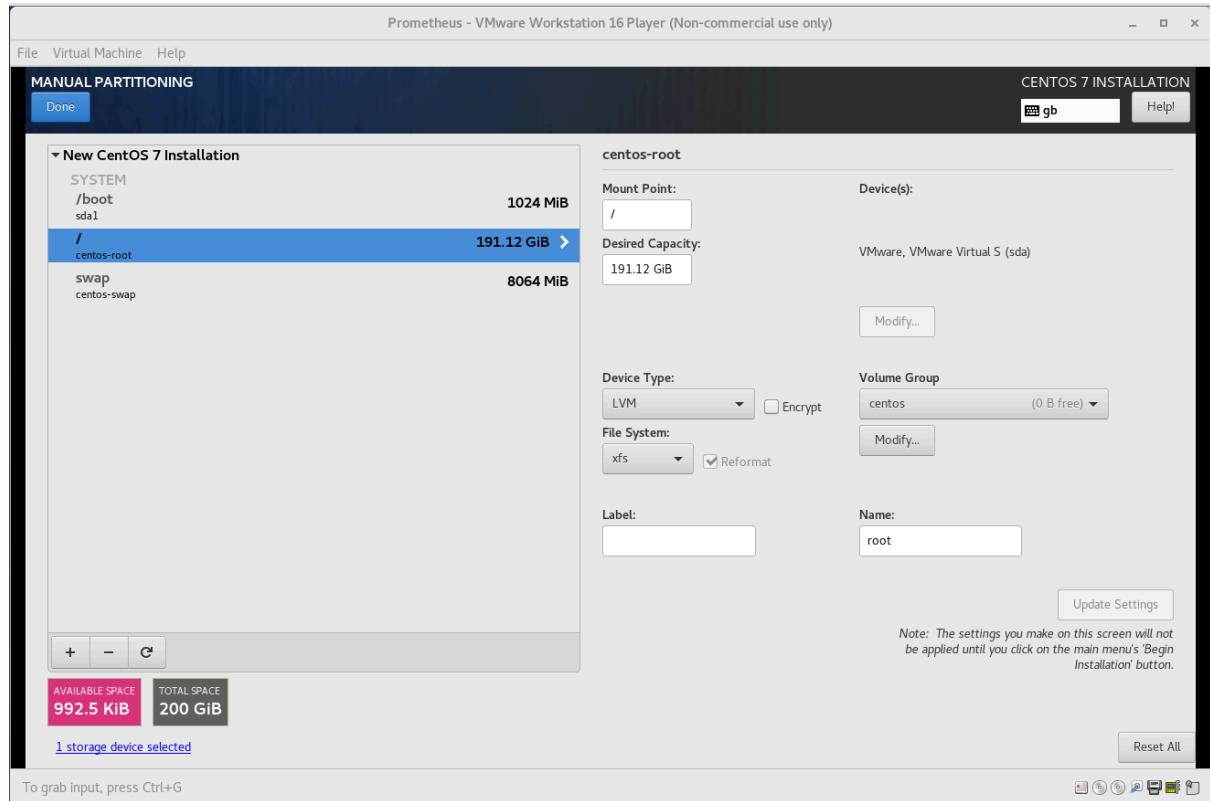
File Sy

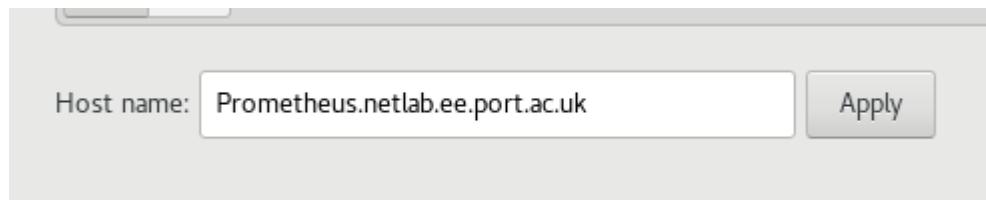
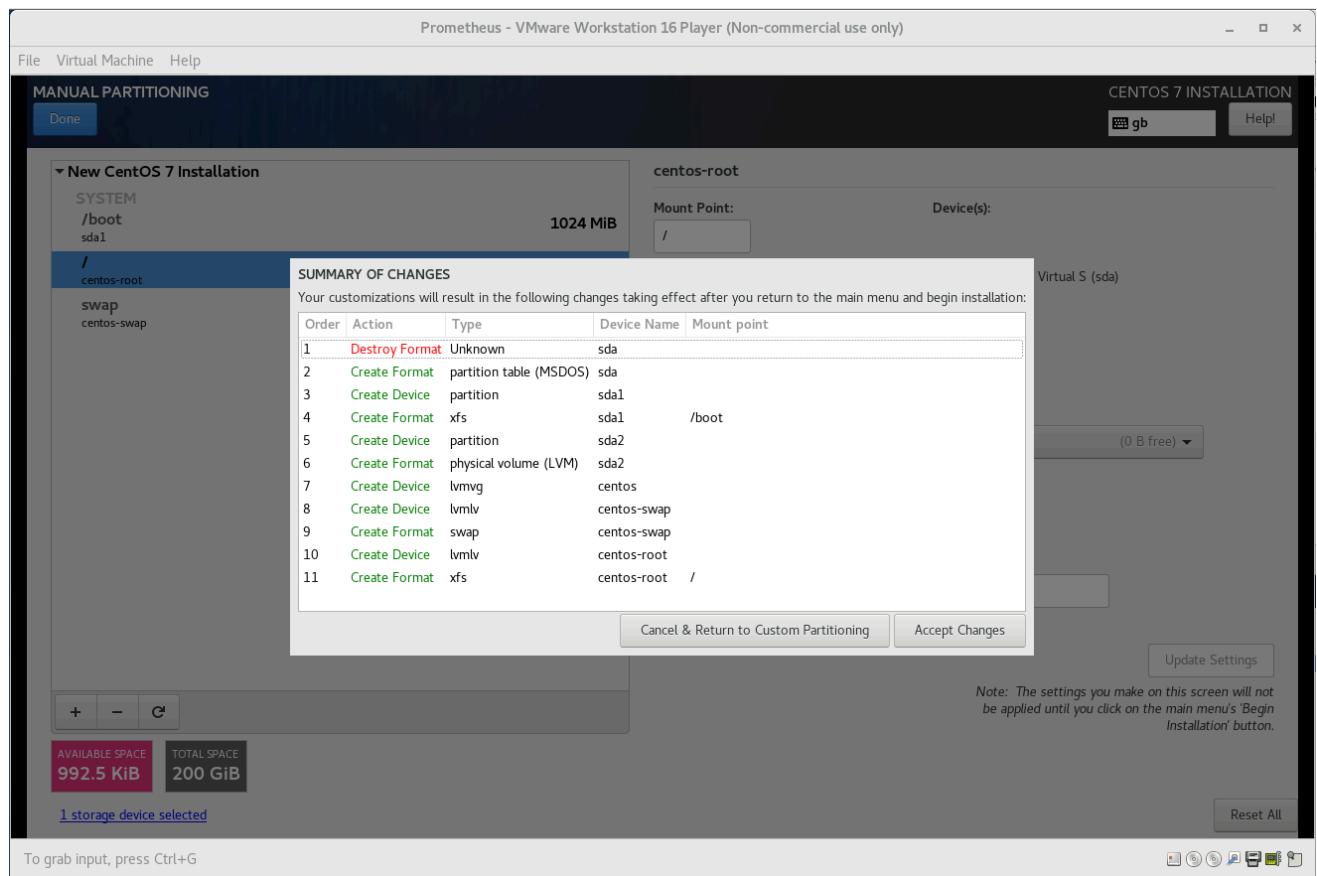
xfs

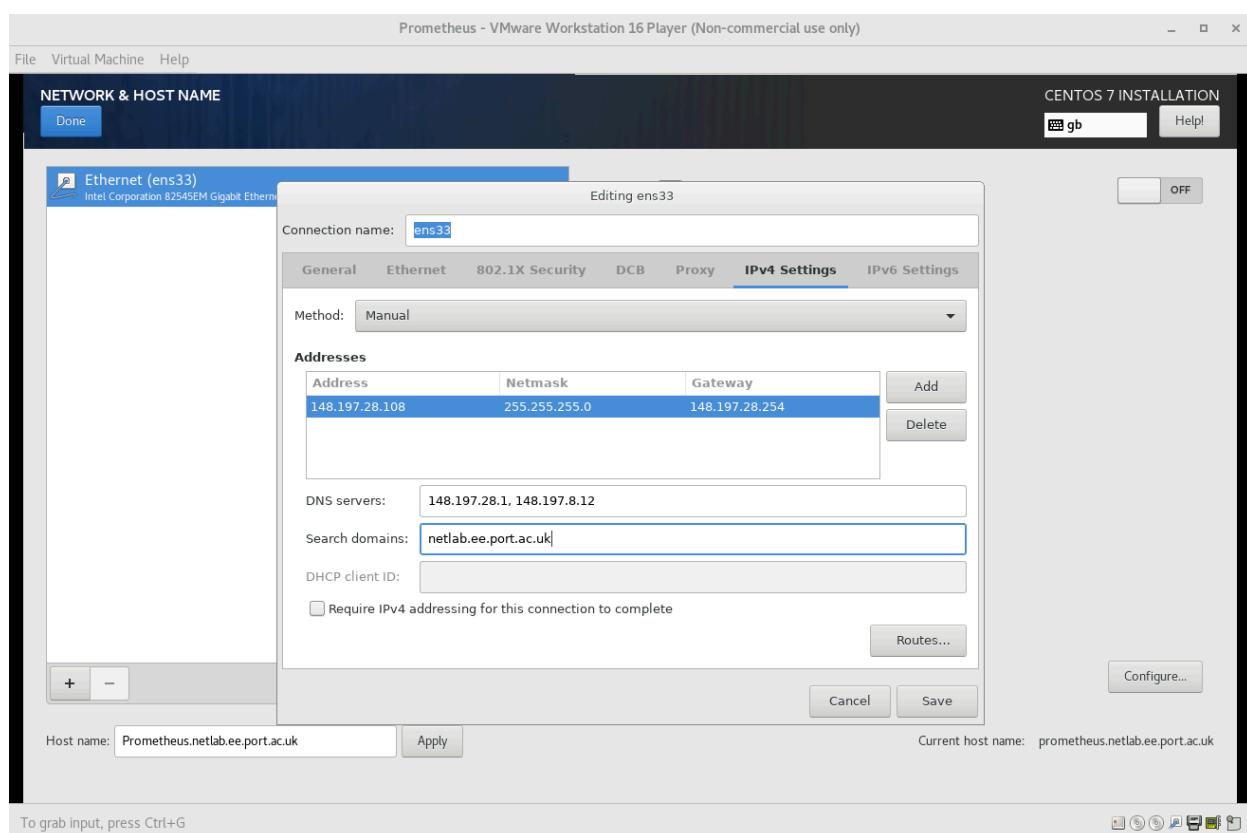
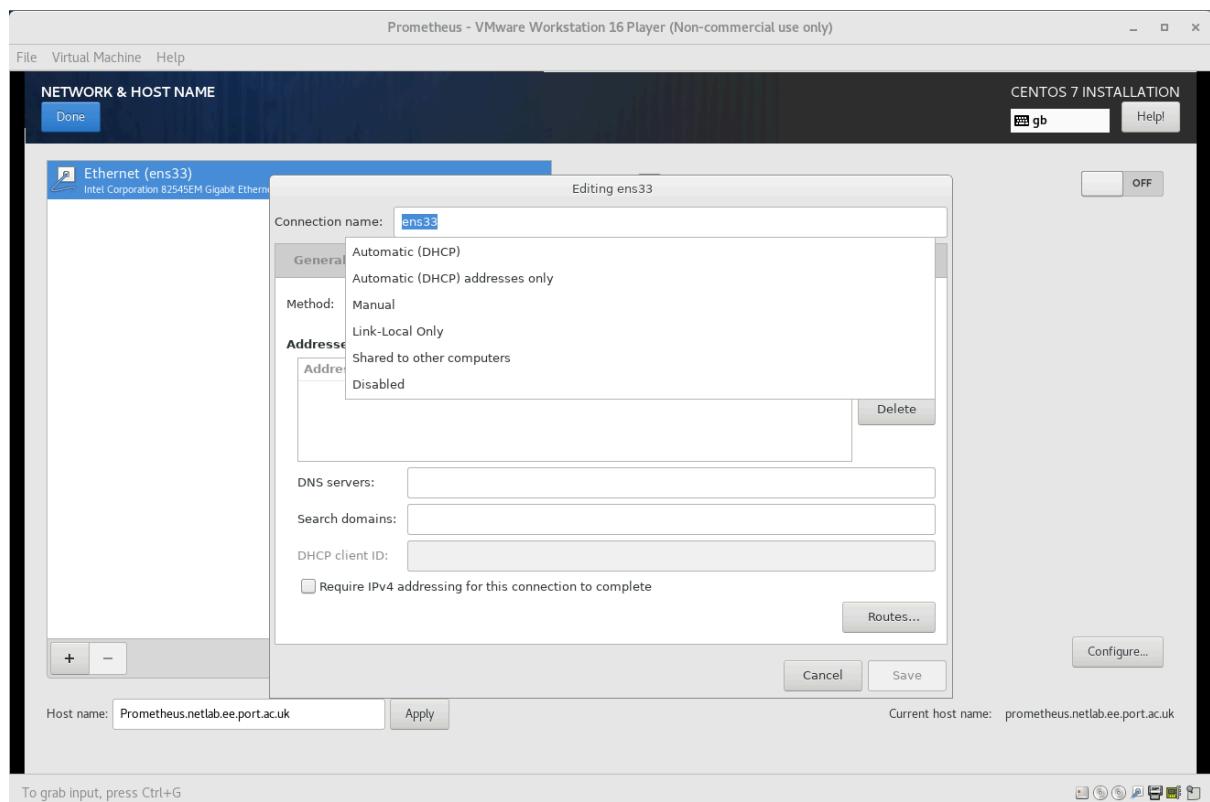
Label:

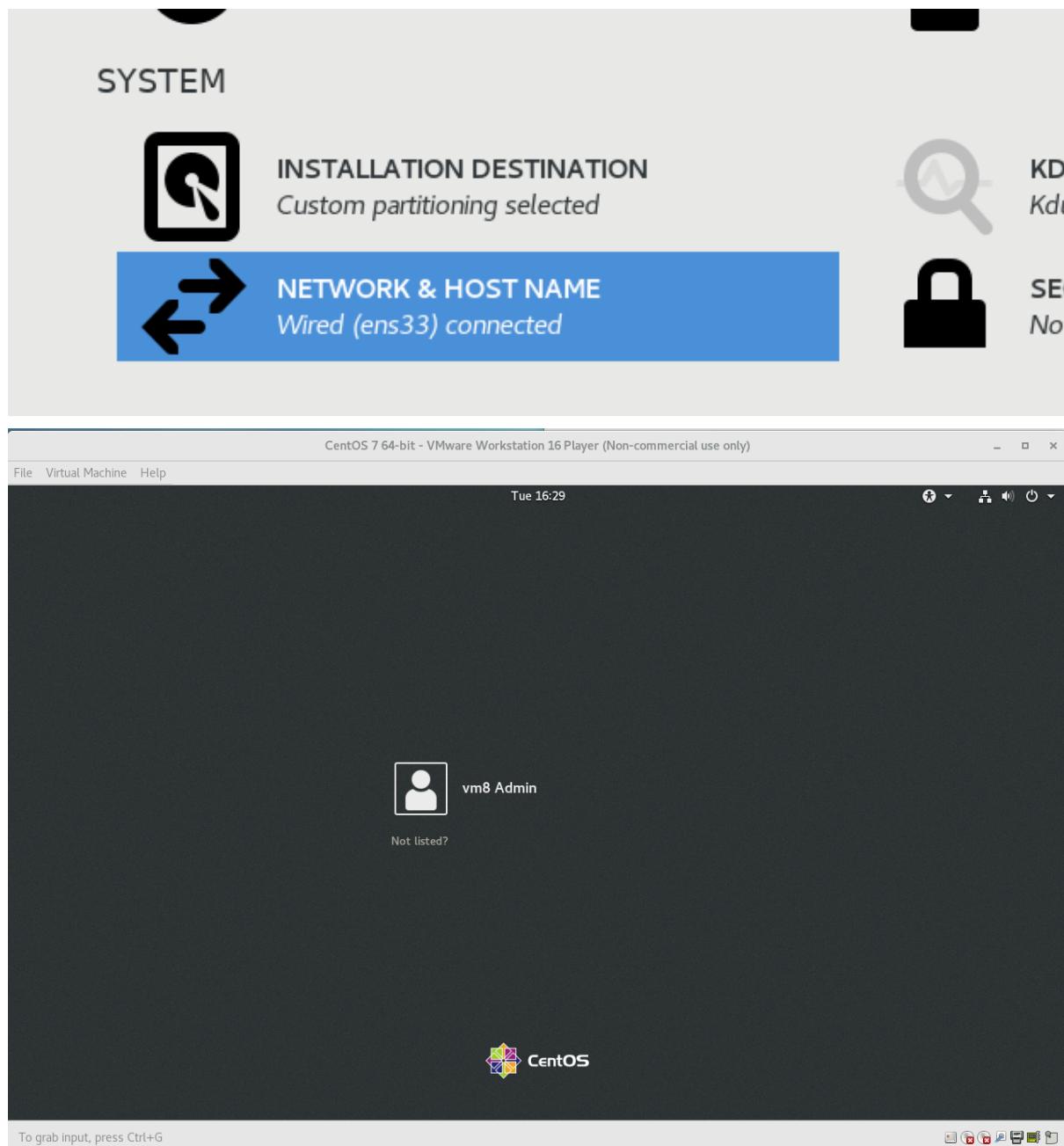


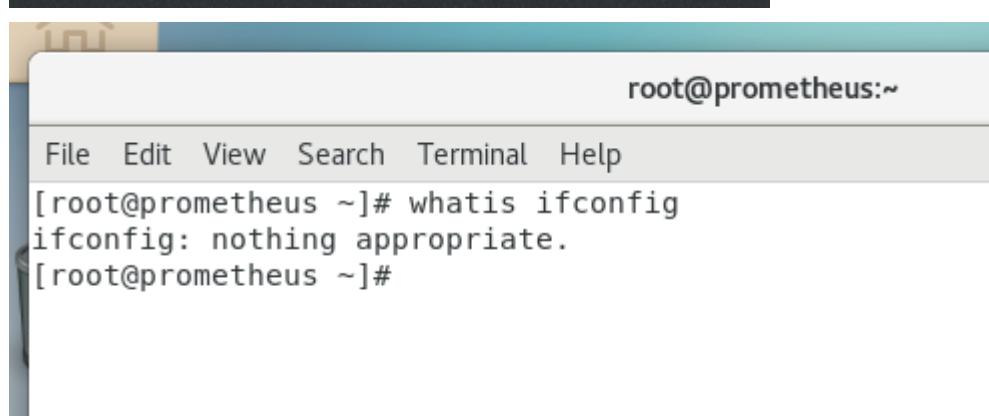
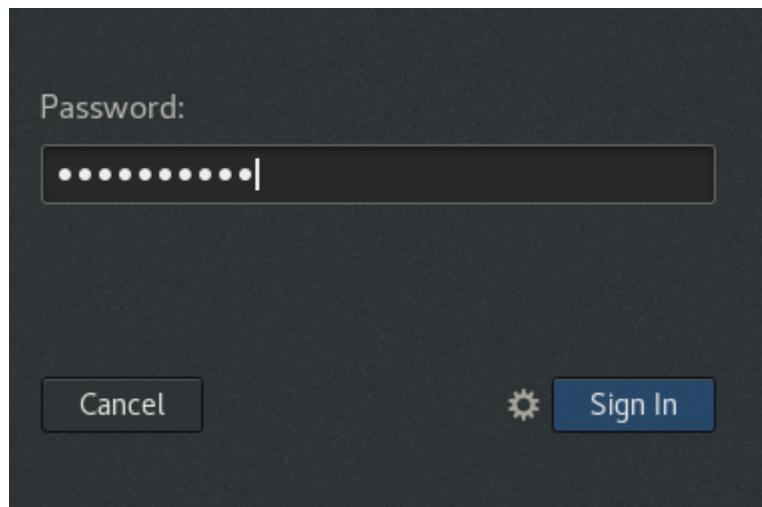
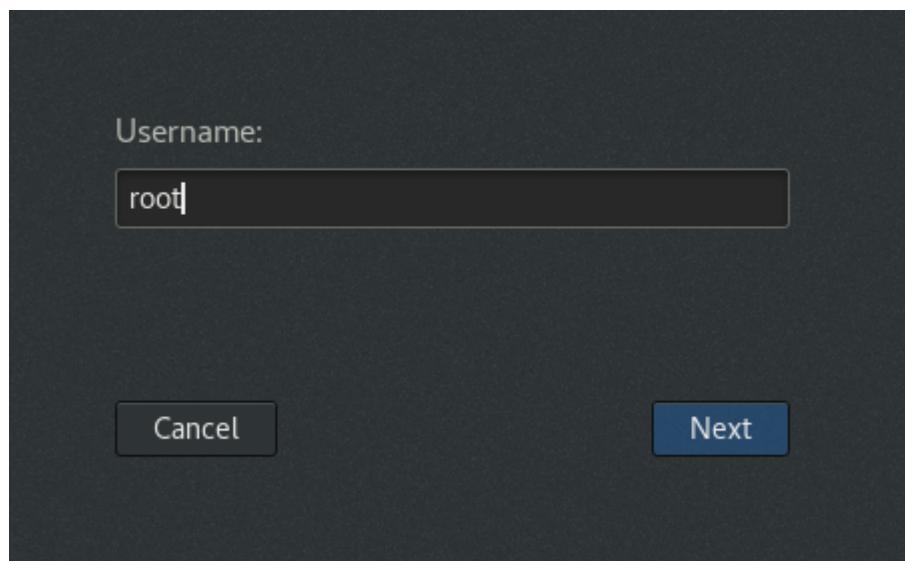












```
[root@prometheus ~]# cd
[root@prometheus ~]# uname
Linux
[root@prometheus ~]# who
root      :0          2021-11-16 16:30 (:0)
root      pts/0        2021-11-16 16:31 (:0)
[root@prometheus ~]# time cmd
```

```
[root@prometheus ~]# ps
  PID TTY          TIME CMD
 9773 pts/0    00:00:00 bash
10593 pts/0    00:00:00 ps

[root@prometheus ~]# runlevel
N 5

[root@prometheus ~]# du
4      ./cache/imsettings
0      ./cache/libgweather
0      ./cache/evolution/addressbook/trash
0      ./cache/evolution/addressbook
0      ./cache/evolution/calendar/trash
0      ./cache/evolution/calendar
0      ./cache/evolution/mail/trash
0      ./cache/evolution/mail
0      ./cache/evolution/memos/trash
0      ./cache/evolution/memos
0      ./cache/evolution/sources/trash
0      ./cache/evolution/sources
0      ./cache/evolution/tasks/trash
0      ./cache/evolution/tasks
0      ./cache/evolution
0      ./cache/gnome-shell
3368   ./cache/tracker
4      ./cache/abrt
0      ./cache/media-art
492    ./cache/gstreamer-1.0
0      ./cache/yelp/WebKitCache/Version 16/Blobs
4      ./cache/yelp/WebKitCache/Version 16
4      ./cache/yelp/WebKitCache
4      ./cache/yelp
0      ./cache/gnome-software/shell-extensions
0      ./cache/gnome-software/odrs
0      ./cache/gnome-software
3884   ./cache
4      ./dbus/session-bus
4      ./dbus
0      ./config/imsettings
0      ./confia/anome-session/saved-session

[root@prometheus ~]# df
Filesystem      1K-blocks      Used Available Use% Mounted on
devtmpfs        8108068         0  8108068  0% /dev
tmpfs           8123800         0  8123800  0% /dev/shm
tmpfs           8123800     12812  8110988  1% /run
tmpfs           8123800         0  8123800  0% /sys/fs/cgroup
/dev/sda3      201050200  6722592 194327608  4% /
/dev/sdal       303780   168056   135724 56% /boot
tmpfs           1624760        52  1624708  1% /run/user/0

[root@prometheus ~]# less
Missing filename ("less --help" for help)
```

```
[root@prometheus ~]# find
.
./.bash_logout
./.bash_profile
./.bashrc
./.cshrc
./.tcshrc
./original-ks.cfg
./anaconda-ks.cfg
./.cache
./.cache/imsettings
./.cache/imsettings/log
./.cache/libgweather
./.cache/evolution
./.cache/evolution/addressbook
./.cache/evolution/addressbook/trash
./.cache/evolution/calendar
./.cache/evolution/calendar/trash
./.cache/evolution/mail
./.cache/evolution/mail/trash
./.cache/evolution/memos
./.cache/evolution/memos/trash
./.cache/evolution/sources
./.cache/evolution/sources/trash
./.cache/evolution/tasks
./.cache/evolution/tasks/trash
./.cache/gnome-shell
./.cache/gnome-shell/update-check-3.28
./.cache/event-sound-cache.tdb.4917827563324986948aa4f98f25fd73.x86_64-redhat-linux-gnu
./.cache/tracker
./.cache/tracker/db-version.txt
./.cache/tracker/meta.db
/.cache/tracker/db-locale.txt
```

```
[root@prometheus ~]# cat
^C
[root@prometheus ~]# head / tail
==> / <==
head: error reading '/': Is a directory
head: cannot open 'tail' for reading: No such file or directory
[root@prometheus ~]# >
bash: syntax error near unexpected token `newline'
[root@prometheus ~]# |
bash: syntax error near unexpected token `|'
```

```
[root@prometheus ~]# top
```

```
top - 16:49:30 up 20 min, 2 users, load average: 0.00, 0.03, 0.05
Tasks: 220 total, 1 running, 219 sleeping, 0 stopped, 0 zombie
%Cpu(s): 0.3 us, 0.0 sy, 0.0 ni, 99.7 id, 0.0 wa, 0.0 hi, 0.0 si, 0.0 st
KiB Mem : 16247600 total, 13082560 free, 1314984 used, 1850056 buff/cache
KiB Swap: 8258556 total, 8258556 free, 0 used. 14587564 avail Mem
```

PID	USER	PR	NI	VIRT	RES	SHR	S	%CPU	%MEM	TIME+	COMMAND
9021	root	20	0	3477536	195776	68124	S	1.0	1.2	0:20.74	gnome-shell
63	root	20	0	0	0	0	S	0.3	0.0	0:01.13	kworker/0:2
1658	root	20	0	574288	19524	6128	S	0.3	0.1	0:00.30	tuned
3124	root	20	0	381652	74408	48764	S	0.3	0.5	0:08.71	X
1	root	20	0	194212	7388	4184	S	0.0	0.0	0:01.64	systemd
2	root	20	0	0	0	0	S	0.0	0.0	0:00.00	kthreadd
4	root	0	-20	0	0	0	S	0.0	0.0	0:00.00	kworker/0:0H
6	root	20	0	0	0	0	S	0.0	0.0	0:00.01	ksoftirqd/0
7	root	rt	0	0	0	0	S	0.0	0.0	0:00.02	migration/0
8	root	20	0	0	0	0	S	0.0	0.0	0:00.00	rcu_bh
9	root	20	0	0	0	0	S	0.0	0.0	0:00.53	rcu_sched
10	root	0	-20	0	0	0	S	0.0	0.0	0:00.00	lru-add-drain
11	root	rt	0	0	0	0	S	0.0	0.0	0:00.00	watchdog/0
12	root	rt	0	0	0	0	S	0.0	0.0	0:00.00	watchdog/1
13	root	rt	0	0	0	0	S	0.0	0.0	0:00.04	migration/1
14	root	20	0	0	0	0	S	0.0	0.0	0:01.78	ksoftirqd/1
15	root	20	0	0	0	0	S	0.0	0.0	0:00.03	kworker/1:0
16	root	0	-20	0	0	0	S	0.0	0.0	0:00.00	kworker/1:0H
17	root	rt	0	0	0	0	S	0.0	0.0	0:00.00	watchdog/2
18	root	rt	0	0	0	0	S	0.0	0.0	0:00.05	migration/2
19	root	20	0	0	0	0	S	0.0	0.0	0:00.01	ksoftirqd/2
21	root	0	-20	0	0	0	S	0.0	0.0	0:00.00	kworker/2:0H
22	root	rt	0	0	0	0	S	0.0	0.0	0:00.00	watchdog/3
23	root	rt	0	0	0	0	S	0.0	0.0	0:00.03	migration/3
24	root	20	0	0	0	0	S	0.0	0.0	0:00.01	ksoftirqd/3

```
[root@prometheus ~]# echo
```

Firefox Privacy Notice — [VMware Workstation Play](#)

https://customerconnect.vmware.com/en/downloads/details?... [View My Download History](#) [Product Info](#) [Documentation](#) [Knowledge Base](#) [Community](#) [Self-Help Support](#) [Support Policies](#) [Workstation Player Upgrade](#)

vmware CUSTOMER CONNECT

## Download Product

Select Version: 16.0.0-16894299

Documentation: Release Notes

Release Date: 2020-07-09

Type: Product

Product Downloads: Drives

File Information

**VMware Workstation 16.0.0 Player for Windows 64-bit Operating Systems**

File size: 212.63 MB  
File type: exe

[Read More](#) [DOWNLOAD NOW](#)

**VMware Workstation 16.0.0 Player for Linux 64-bit**

File size: 160.60 MB  
File type: bundle

[DOWNLOAD NOW](#)

To grab input, press Ctrl+G

VMware Workstation Player - VMwa... [Settings]

Completed — 213 MB

[Show All Downloads](#)

[View My Download History](#)

Opening VMware-player-16.0.0-16894299.exe

You have chosen to open:  
**VMware-player-16.0.0-16894299.exe**  
which is: DOS/Windows executable (213 MB)  
from: https://download3.vmware.com

What should Firefox do with this file?  
 Open with Archive Manager (default)  Save File  
 Do this automatically for files like this from now on.

Cancel OK

Prometheus - VMware Workstation 16 Player (Non-commercial use only)

File Virtual Machine Help

Applications Places Text Editor

Tue 15:09

\*VMware-Player-16.0.0-16894299.x86\_64.bundle  
~/Downloads

Save Cancel

```
#!/usr/bin/env bash
#
# VMware Installer Launcher
#
# This is the executable stub to check if the VMware Installer Service
# is installed and if so, launch it. If it is not installed, the
# attached payload is extracted, the VMIS is installed, and the VMIS
# is launched to install the bundle as normal.

# Architecture this bundle was built for (x86 or x64)
ARCH=x64

if [ -z "$BASH" ]; then
    # $- expands to the current options so things like -x get passed through
    if [ ! -z "$-" ]; then
        opts="-$-"
    fi

    # dash flips out of $opts is quoted, so don't.
    exec /usr/bin/env bash $opts "$0" "$@"
    echo "Unable to restart with bash shell"
    exit 1
fi

set -e

ETCDIR=/etc/vmware-installer
OLDETCDIR="/etc/vmware"

### Offsets ###
# These are offsets that are later used relative to EOF.
FOOTER_SIZE=52

# This won't work with non-GNU stat.
FILE_SIZE=`stat --format "%s" "$0"`
offset=$((FILE_SIZE - 4))

MAGIC_OFFSET=$offset
offset=$((offset - 4))

[VMware Workstation Player...]
[Downloads]
*VMware-Player-16.0.0-16894299.x86_64.bundle
Plain Text Tab Width: 8 Ln 3826, Col 96 INS
```

To grab input, press Ctrl+G

[root@prometheus Downloads]# chmod 777 VMware-Player-16.0.0-16894299.x86\_64.bundle

## Downloading the centos on a vm inside of a vm :

```
[root@prometheus Downloads]# scp vm8@148.197.28.108:CentOS-7-x86_64-DVD-2009.iso /home
vm8@148.197.28.108's password: CentOS-7-x86_64-DVD-2009.iso 4% 212MB 11.2MB/s 06:23 ETA
```

```
[root@prometheus Downloads]# scp vm8@148.197.28.108:CentOS-7-x86_64-DVD-2009.iso /home
vm8@148.197.28.108's password:
 CentOS-7-x86_64-DVD-2009.iso          33% 1505MB 11.1MB/s 04
 :2CentOS-7-x86_64-DVD-2009.iso       33% 1517MB 11.1MB/s 04:27
 CentOS-7-x86_64-DVD-2009.iso         58% 2642MB 11.2MB/s 02:46CentOS
 S-7-x86_64-DVD-2009.iso

 CentOS-7-x86_64-DVD-2009.iso      59% 2687MB 11.2MB/s 02:4CentOS
 CentOS-7-x86_64-DVD-2009.iso      63% 2831MB 11.1MB/s 02:29 ETA
```

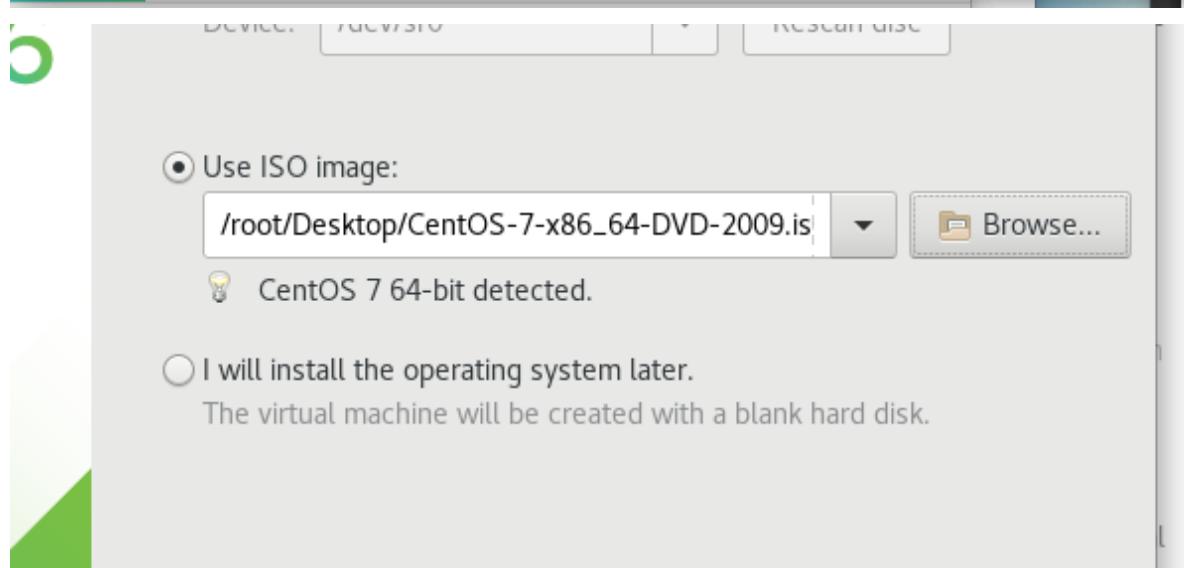
  

```
[root@prometheus Downloads]# scp vm8@148.197.28.108:/CentOS-7-x86_64-DVD-2009.iso /home
vm8@148.197.28.108's password:
scp: /CentOS-7-x86_64-DVD-2009.iso: No such file or directory
[root@prometheus Downloads]# scp vm8@148.197.28.108:CentOS-7-x86_64-DVD-2009.iso /home
vm8@148.197.28.108's password:
 CentOS-7-x86_64-DVD-2009.iso          33% 1505MB 11.1MB/s 04:
 2CentOS-7-x86_64-DVD-2009.iso        33% 1517MB 11.1MB/s 04:27 Ce
 ntOS-7-x86_64-DVD-2009.iso          58% 2642MB 11.2MB/s 02:46CentOS-7
 -x86_64-DVD-2009.iso

 CentOS-7-x86_64-DVD-2009.iso      59% 2687MB 11.2MB/s 02:4CentOSCentOS
 -7-x86_64-DVD-2009CentOS-7-x86_64-DVD-2009.iso          79% 3578MB
 11.2MB/s CentOS-7-x86_6CentOS-7-x86_64-DVD-2009.iso
   CentOS-7-x86_64-DVD-2009.iso          81% 3645MB 11.2MB
 /s 01CentOS-7-x86_64-DVD-2009.iso          81% 3656MB 11.C
 entOS-7-x86_64-DVD-2009.iso          81% 3667MB 11.1MB/s 01:
 CentOS-7-x86_64-DVD-2009.iso        100% 4494MB 11.1MB/s 06:43
 [root@prometheus Downloads]#
```

Issues with it not being in the Home folder but having to move it to desktop on the main area

```
[root@prometheus Downloads]# cd ..
[root@prometheus ~]# cd..
bash: cd..: command not found...
[root@prometheus ~]# ls
anaconda-ks.cfg  Documents  Music          Pictures  Templates  Videos
Desktop          Downloads  original-ks.cfg  Public    text.tar
[root@prometheus ~]# cd ..
[root@prometheus /]#
[root@prometheus /]# ls
bin   dev  home  lib64  mnt  proc  run  srv  tmp  var
boot  etc  lib   media  opt  root  sbin  sys  usr
[root@prometheus /]# cd home/
[root@prometheus home]# ls
CentOS-7-x86_64-DVD-2009.iso  vm8
[root@prometheus home]# mv CentOS-7-x86_64-DVD-2009.iso /
[root@prometheus home]# ls /home/vm8/
[root@prometheus home]# cd /home
[root@prometheus home]# ls
vm8
[root@prometheus home]# cd ~
[root@prometheus ~]# ls
anaconda-ks.cfg  Documents  Music          Pictures  Templates  Videos
Desktop          Downloads  original-ks.cfg  Public    text.tar
[root@prometheus ~]# cd /
[root@prometheus /]# ls
bin   CentOS-7-x86_64-DVD-2009.iso  etc   lib   media  opt  root  sbin  sys  usr
boot  dev                           home  lib64  mnt  proc  run  srv  tmp  var
[root@prometheus /]# mv CentOS-7-x86_64-DVD-2009.iso /root/Desktop/
[root@prometheus /]#
```



New Virtual Machine Wizard X

Select a Guest Operating System

Which operating system will be installed on this virtual machine?

VMWARE WORKSTATION PLAYER™ 16

**Guest Operating System**

1. Microsoft Windows  
 2. Linux  
 3. Other

Version: CentOS 7 64-bit ▼

Help Cancel Back Next

Name the Virtual Machine

What name would you like to use for this virtual machine?

VMWARE WORKSTATION PLAYER™ 16

**Virtual Machine Name**

Name:

Location:  Browse...

## New Virtual Machine Wizard

X

### Specify Disk Capacity

How large do you want this disk to be?



VMWARE  
WORKSTATION  
PLAYER™ 16

#### Disk Size

The virtual machine's hard disk is stored as one or more files on the host computer's physical disk. These file(s) start small and become larger as you add applications, files, and data to your virtual machine.

Maximum disk size (in GB):  - +

Recommended size for CentOS 7 64-bit: 20 GB

Store virtual disk as a single file

Split virtual disk into multiple files

Splitting the disk makes it easier to move the virtual machine to another computer but may reduce performance with very large disks.

The virtual machine will be created with the following settings:

Name:	vPrometheus0
Location:	/root/vmware/vPrometheus0
Version:	Workstation 16.x
Operating System:	CentOS 7 64-bit

Hard Disk: 10 GB

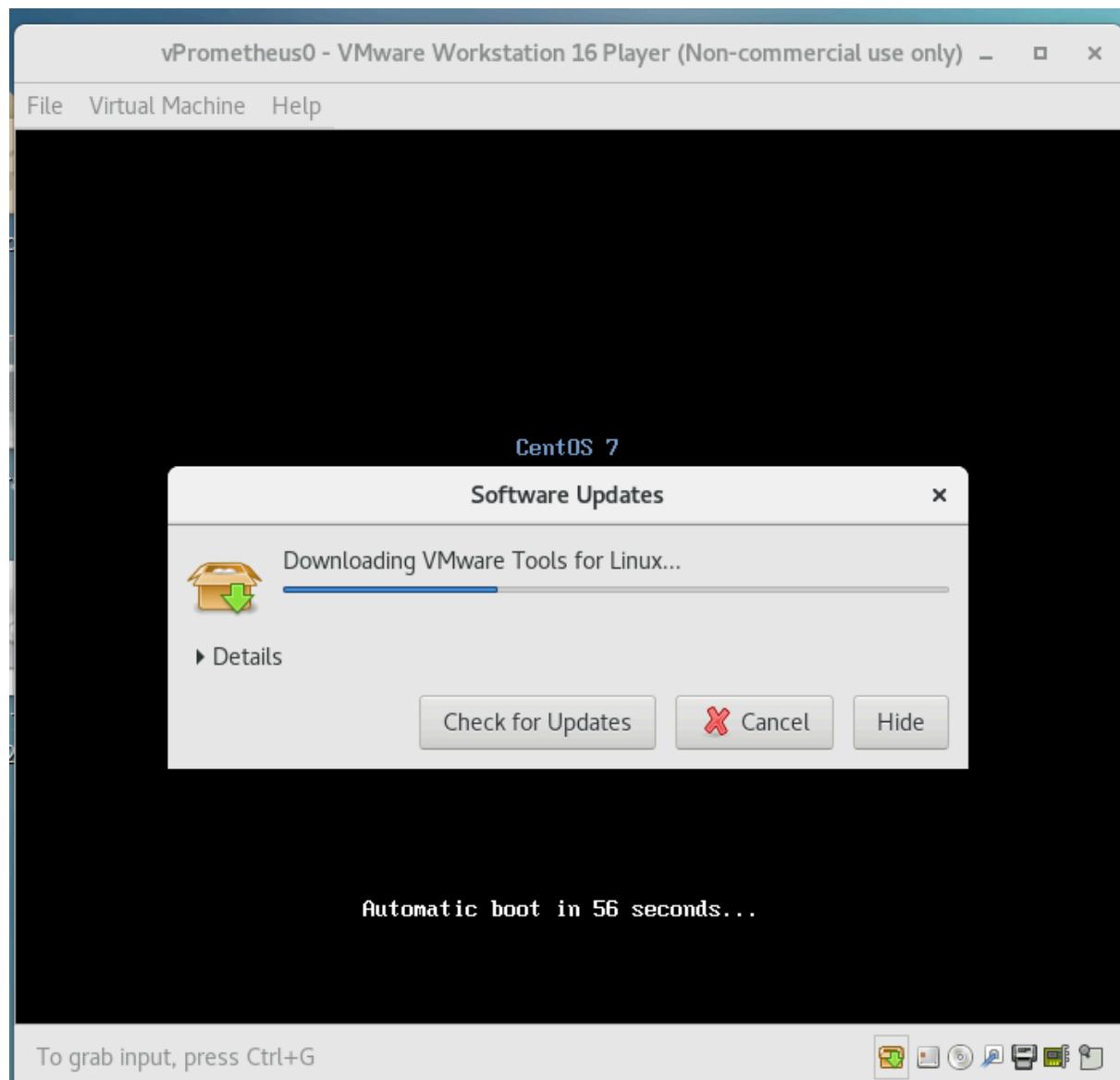
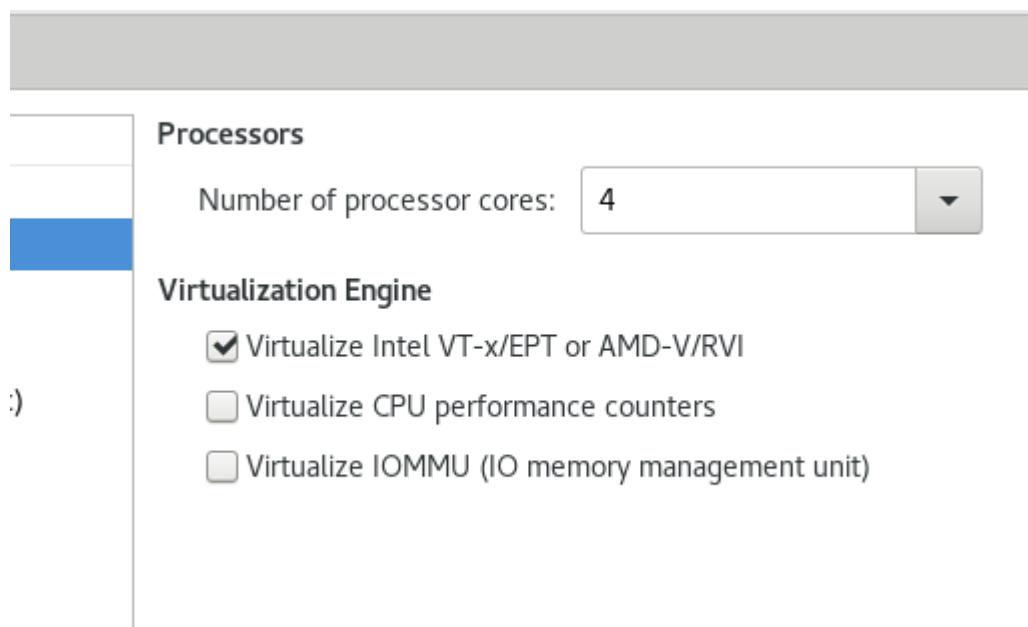
Memory: 2048 MB

Network Adapter: NAT

Other Devices: CD/DVD, USB Controller, Printer, Sound Card

Customize Hardware...

Automatically power on this virtual machine after creation.



CentOS 7

Install CentOS 7  
Test this media & install CentOS 7

Troubleshooting

>

Press Tab for full configuration options on menu items.

Automatic boot in 29 seconds...

vPrometheus0 - VMWare Workstation 16 Player (Non-commercial use only) - □ ×

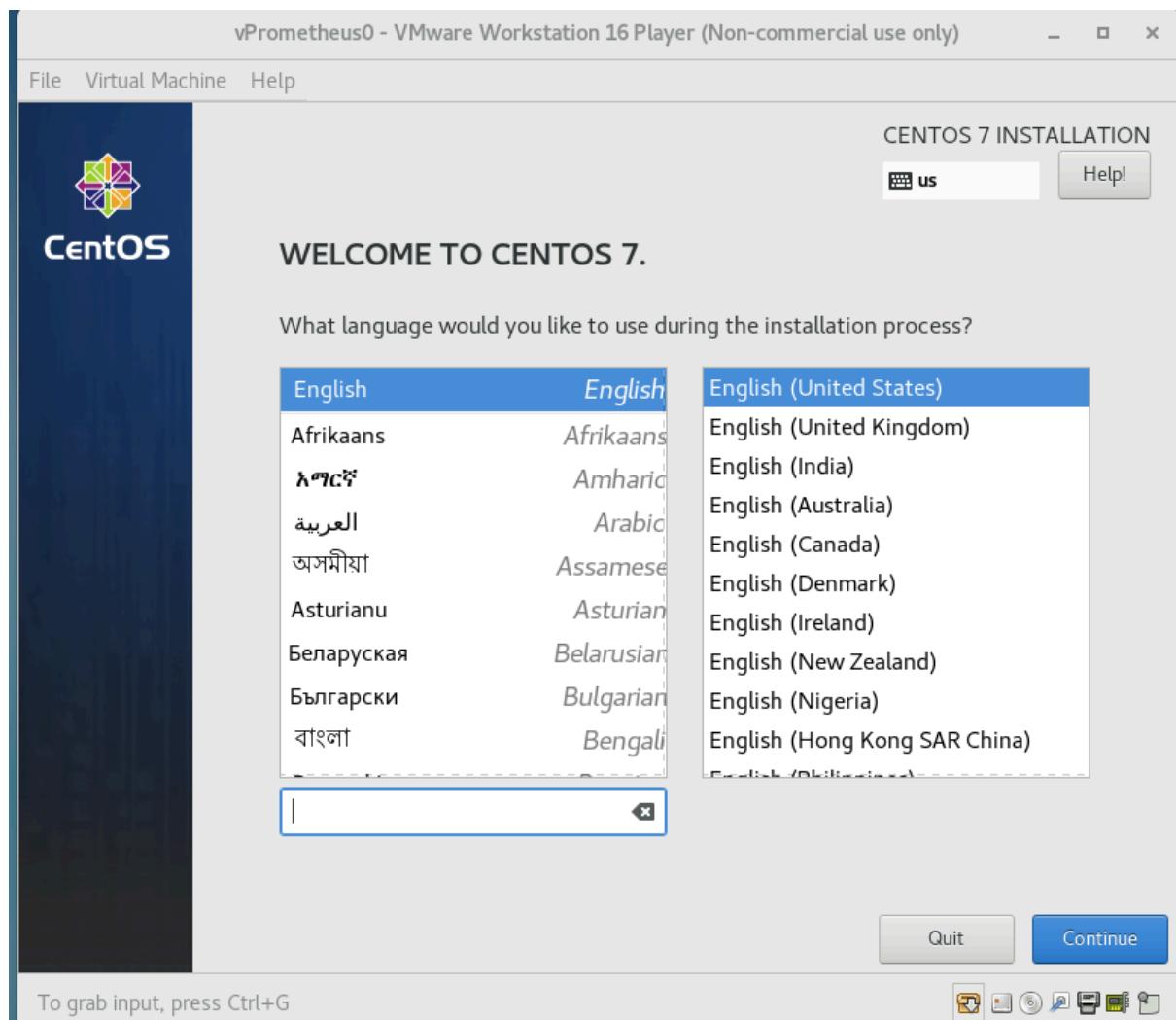
File Virtual Machine Help

```
- Press the <ENTER> key to begin the installation process.

0.000000] Detected CPU family 6 model 165 stepping 3
0.000000] Warning: Intel Processor - this hardware has not undergone upstream testing. Please consult http://wiki.centos.org/FAQ for more information
9.800756] dracut-pre-udev[328]: modprobe: ERROR: could not insert 'floppy': No such device
OK  ] Started Show Plymouth Boot Screen.
OK  ] Reached target Paths.
OK  ] Started Forward Password Requests to Plymouth Directory Watch.
OK  ] Reached target Basic System.
OK  ] Started Device-Mapper Multipath Device Controller.
      Starting Open-iSCSI...
OK  ] Started Open-iSCSI.
      Starting dracut initqueue hook...
13.039372] sd 0:0:0:0: [sda] Assuming drive cache: write through
13.367686] dracut-initqueue[706]: mount: /dev/sr0 is write-protected, mounting read-only
OK  ] Started Show Plymouth Boot Screen.
OK  ] Reached target Paths.
OK  ] Started Forward Password Requests to Plymouth Directory Watch.
OK  ] Reached target Basic System.
OK  ] Started Device-Mapper Multipath Device Controller.
      Starting Open-iSCSI...
OK  ] Started Open-iSCSI.
      Starting dracut initqueue hook...
13.367686] dracut-initqueue[706]: mount: /dev/sr0 is write-protected, mounting read-only
OK  ] Created slice system-checkisomd5.slice.
      Starting Media check on /dev/sr0...
/dev/sr0: 10dc6ce3d0098cb5c67356cca02b785d
Fragment sums: 81cf91b42222bd851b8b4bf68cda818796ae4e9c332b739175158d555f85
Fragment count: 20
Press [Esc] to abort check.
Checking: 008.1%
```

To grab input, press Ctrl+G





**SOFTWARE SELECTION**

**CENTOS 7 INSTALLATION**

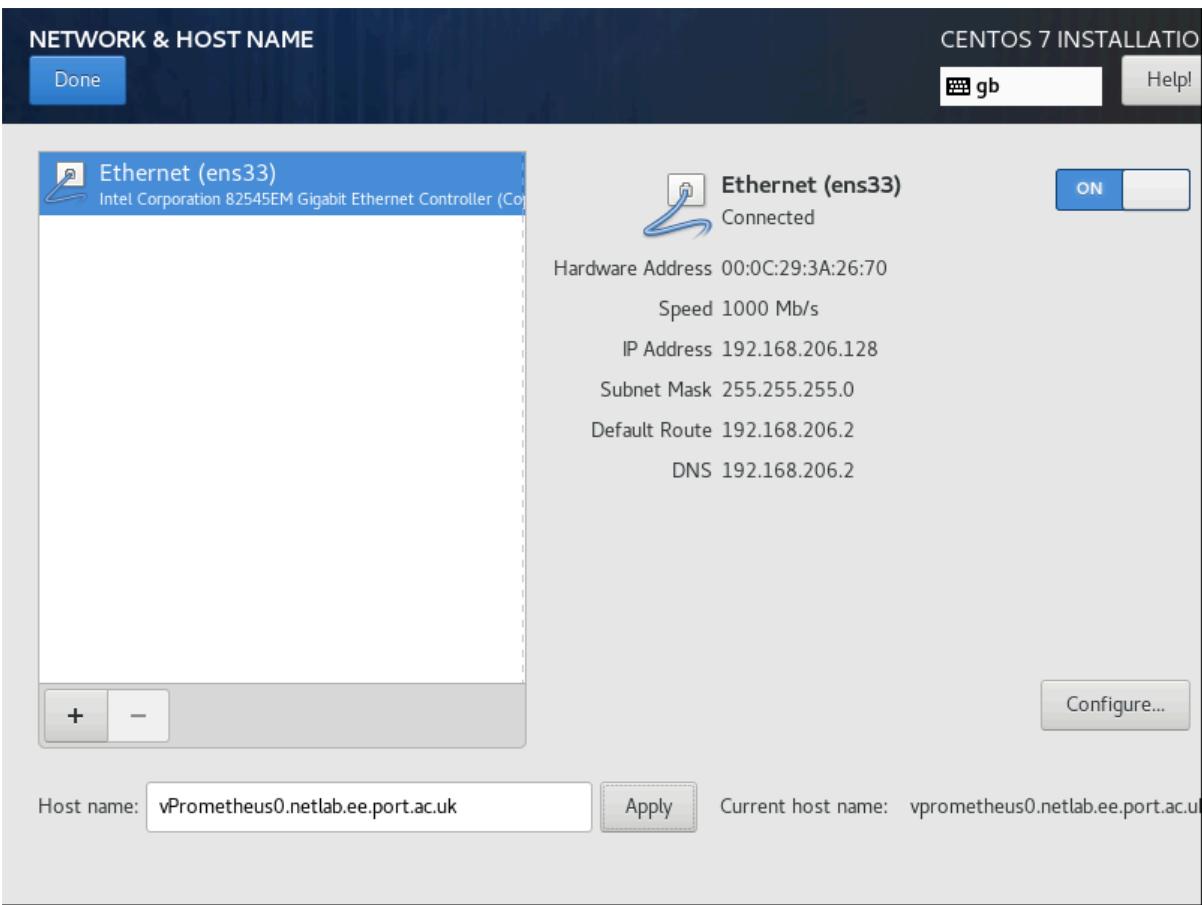
Done **gb** Help!

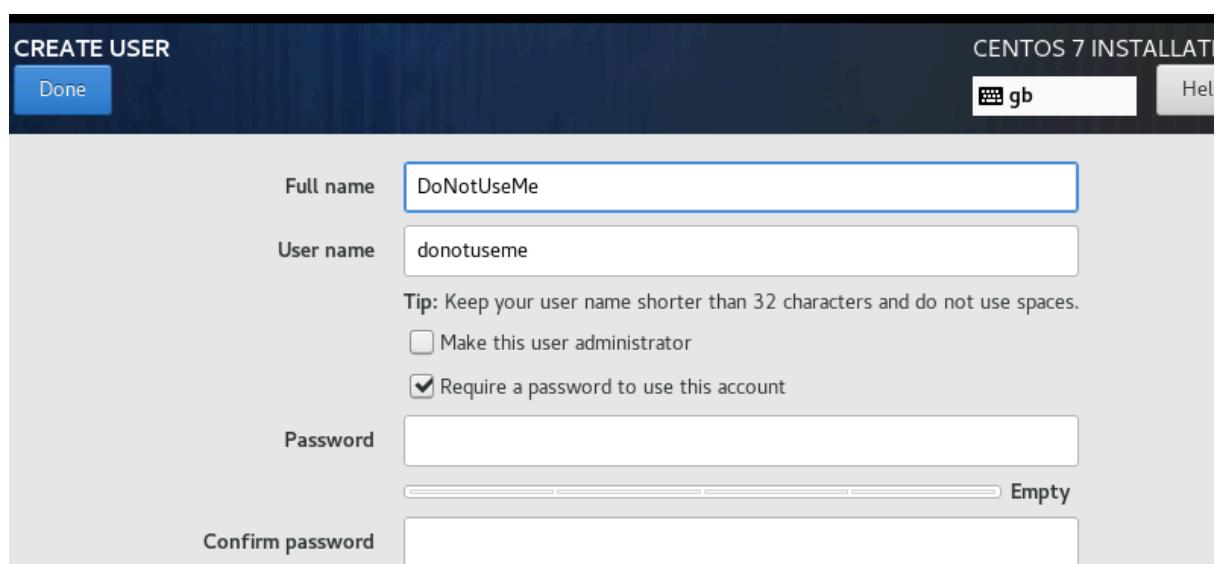
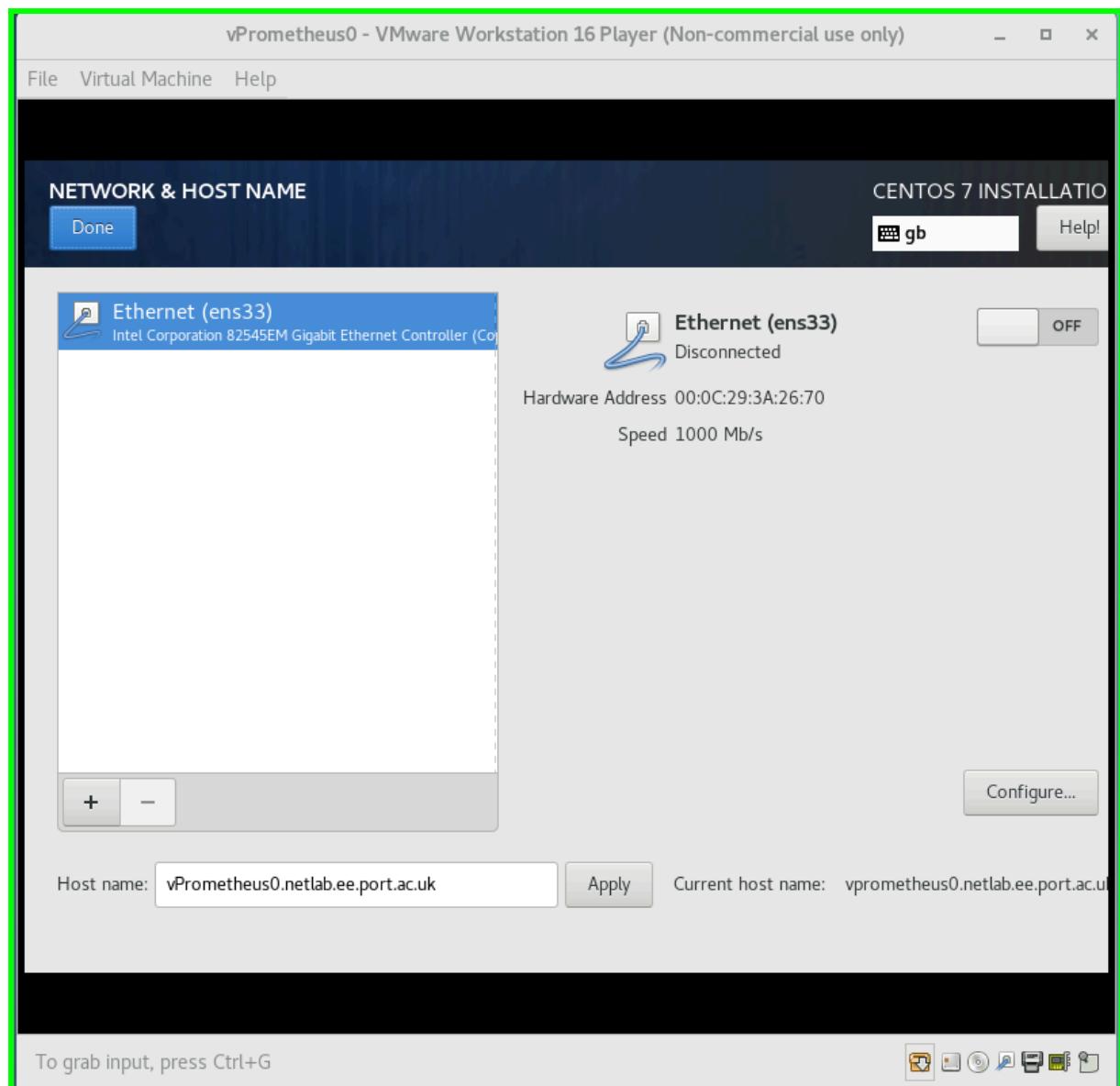
**Base Environment**

- Minimal Install**  
Basic functionality.
- Compute Node**  
Installation for performing computation and processing.
- Infrastructure Server**  
Server for operating network infrastructure services.
- File and Print Server**  
File, print, and storage server for enterprises.
- Basic Web Server**  
Server for serving static and dynamic internet content.
- Virtualization Host**  
Minimal virtualization host.
- Server with GUI**  
Server for operating network infrastructure services, with a GUI.
- GNOME Desktop**  
GNOME is a highly intuitive and user friendly desktop environment.
- KDE Plasma Workspaces**  
The KDE Plasma Workspaces, a highly-configurable graphical user interface which includes a panel, desktop, system icons and desktop widgets, and many powerful KDE applications.

**Add-Ons for Selected Environment**

- Backup Client**  
Client tools for connecting to a backup server and doing backups.
- GNOME Applications**  
A set of commonly used GNOME Applications.
- Internet Applications**  
Email, chat, and video conferencing software.
- Legacy X Window System Compatibility**  
Compatibility programs for migration from or working with legacy X Window System environments.
- Office Suite and Productivity**  
A full-purpose office suite, and other productivity tools.
- Smart Card Support**  
Support for using smart card authentication.
- Compatibility Libraries**  
Compatibility libraries for applications built on previous versions of CentOS Linux.
- Development Tools**  
A basic development environment.
- Security Tools**  
Security tools for integrity and trust verification.
- System Administration Tools**  
Utilities useful in system administration





## ROOT PASSWORD

CENTOS

Done

gb

The root account is used for administering the system. Enter a password for the root user.

Root Password:

••••••••

 Weak

Confirm:

••••••••

 Installing gnome-packagekit-common (1094/1407)

File Virtual Machine Help

## LICENSE INFORMATION

Done

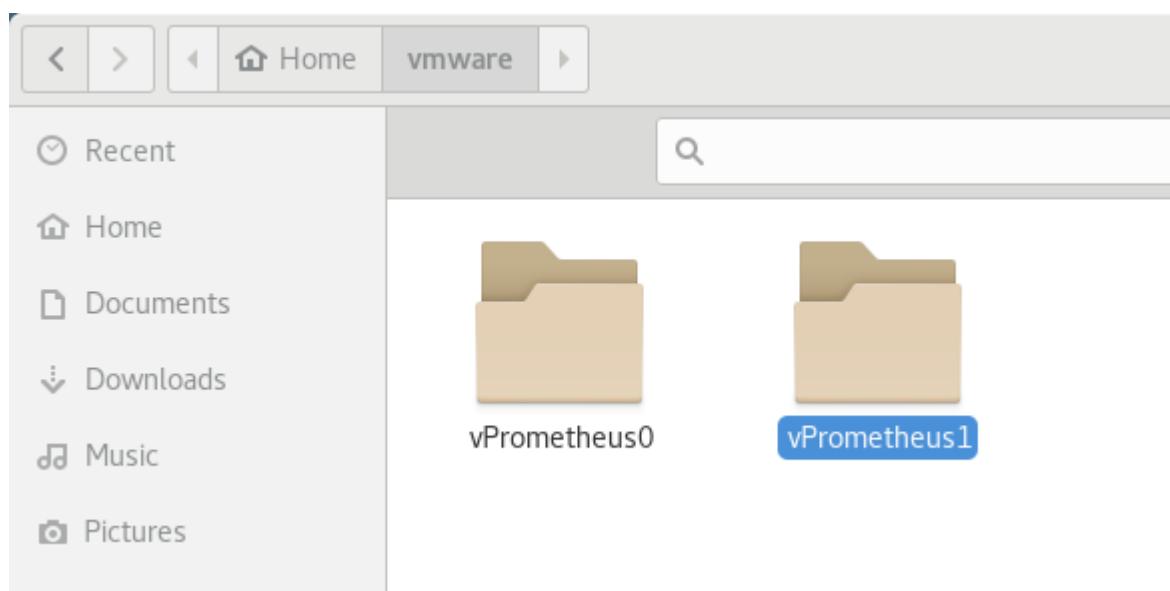
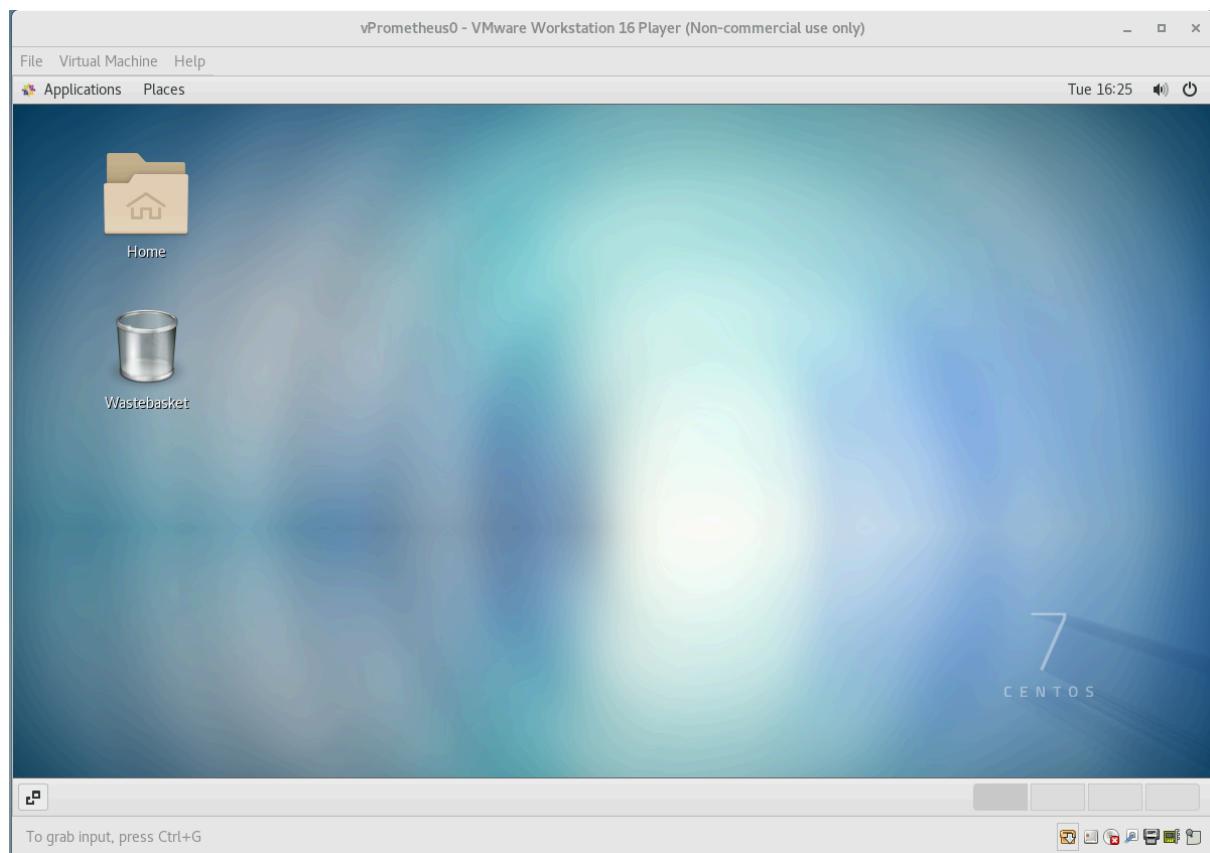
Licence Agreement:

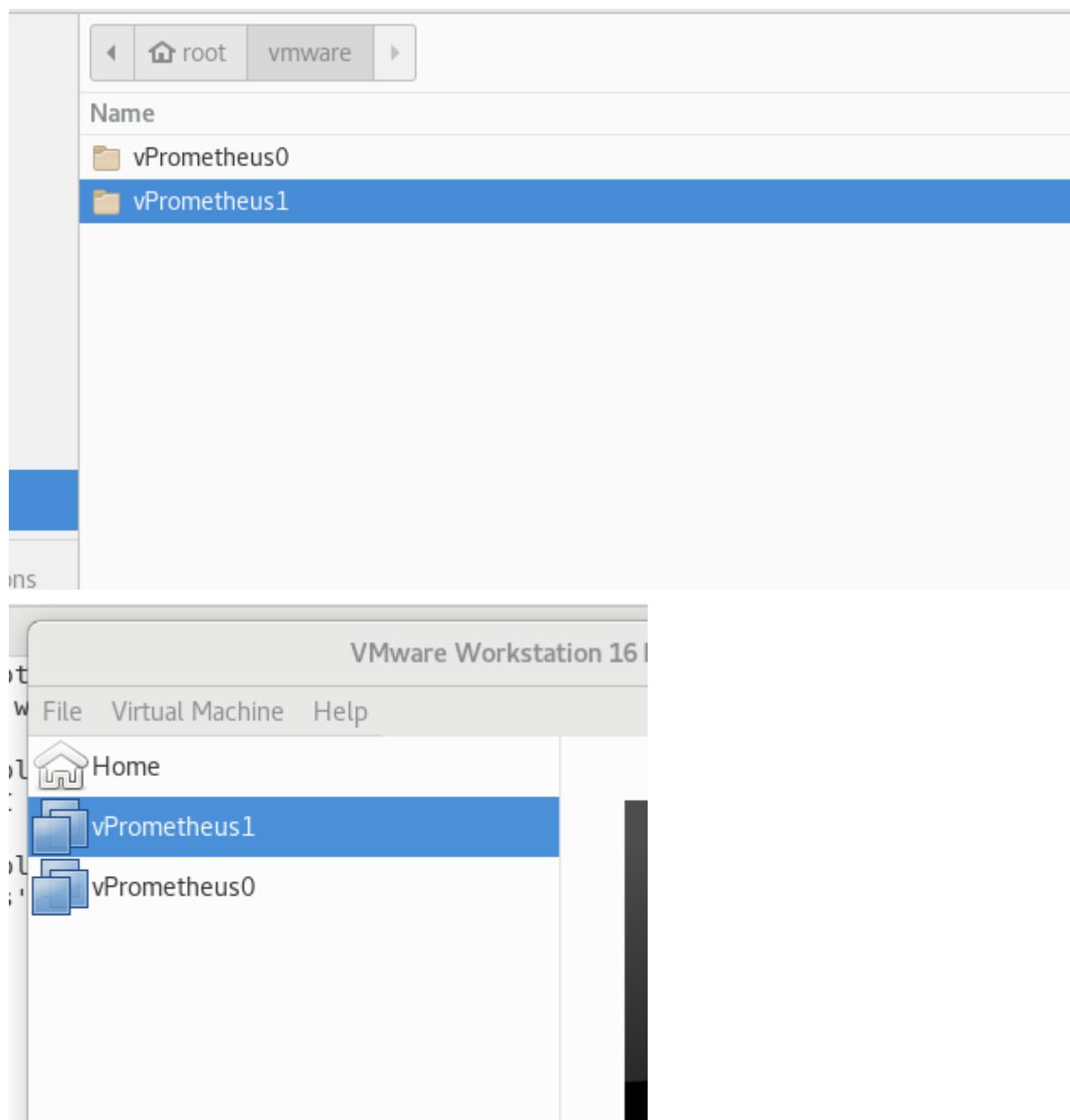
CentOS 7 Linux EULA

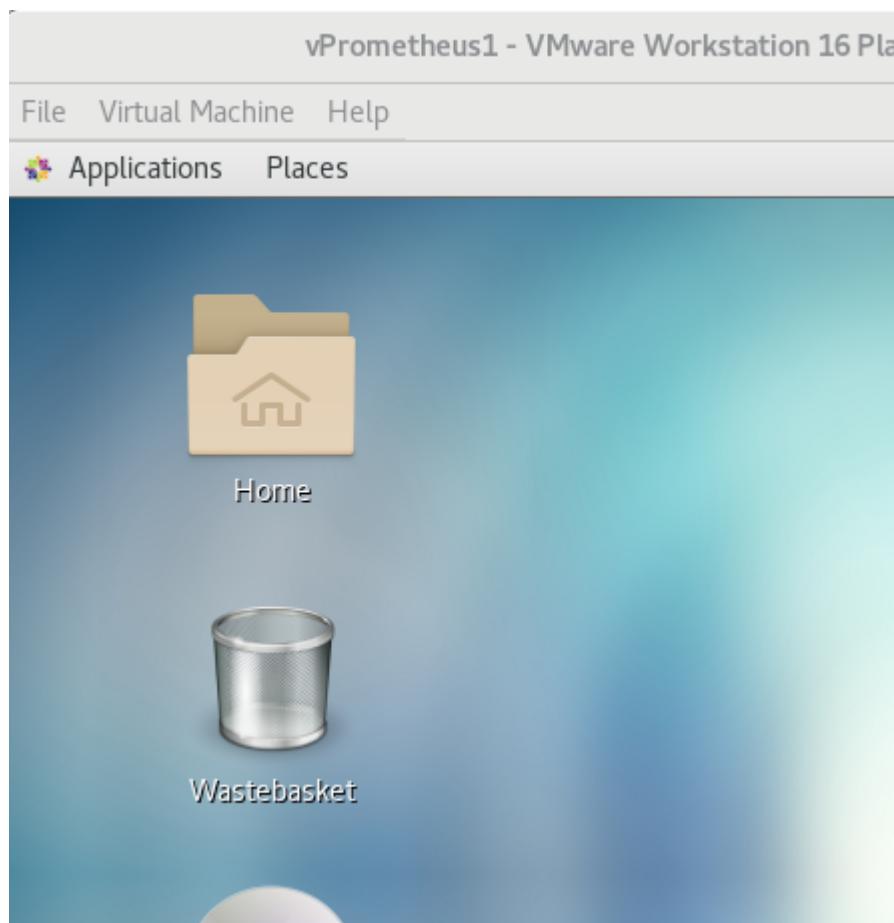
CentOS 7 Linux comes with no guarantees or warranties of any sorts, either written or implied.

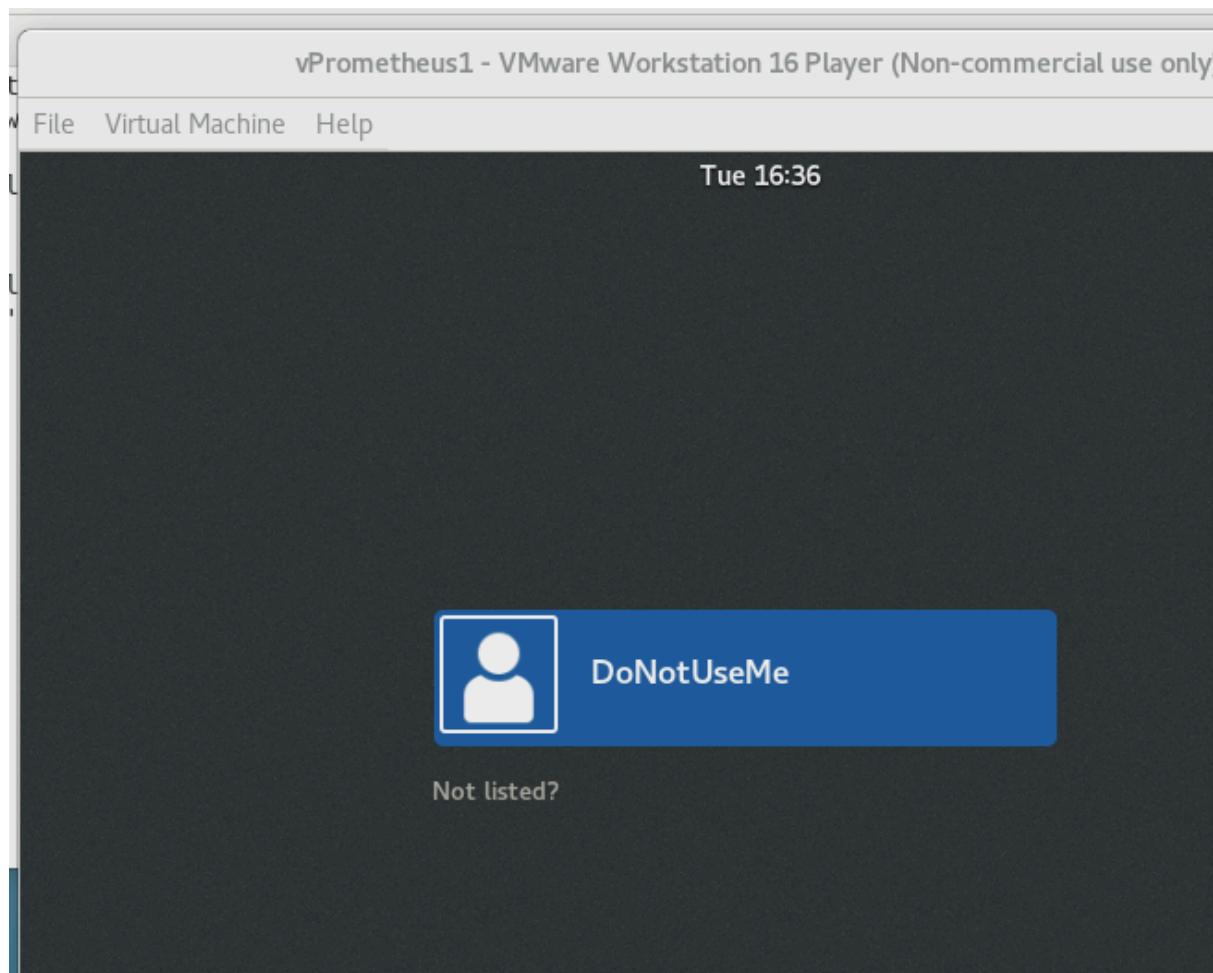
The Distribution is released as GPLv2. Individual packages in the distribution come with their own lic

I accept the licence agreement.

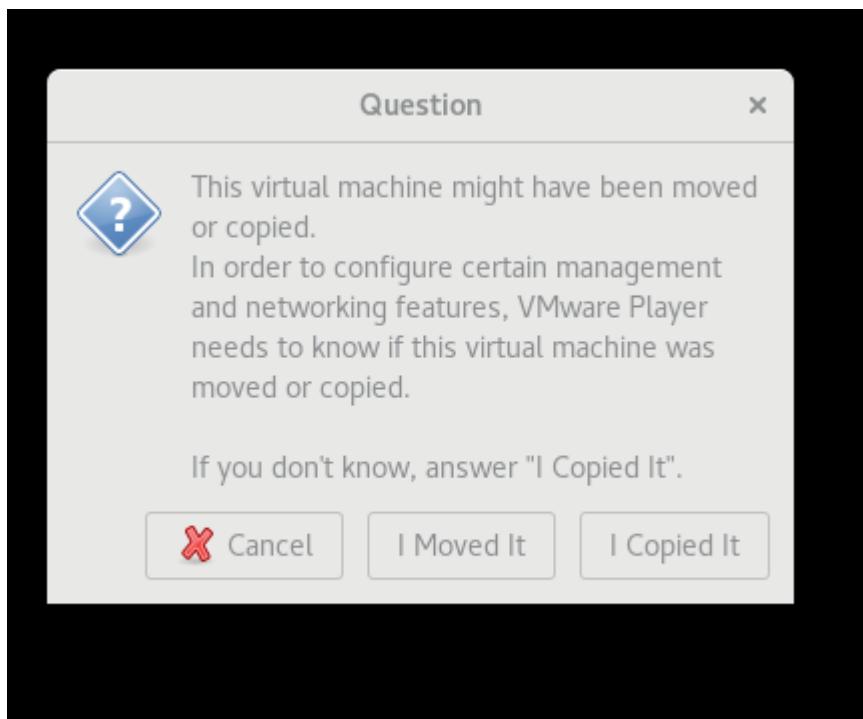








```
File Virtual Machine Help
Applications Places Terminal
root@vPrometheus0:~#
File Edit View Search Terminal Help
[root@vPrometheus0 ~]# hostname
vPrometheus0.netlab.ee.port.ac.uk
[root@vPrometheus0 ~]# vPrometheus1.netlab.ee.port.ac.uk
bash: vPrometheus1.netlab.ee.port.ac.uk: command not found...
[root@vPrometheus0 ~]# hostname vPrometheus1.netlab.ee.port.ac.uk
[root@vPrometheus0 ~]# hostname
vPrometheus1.netlab.ee.port.ac.uk
[root@vPrometheus0 ~]#
```



```
[root@vprometheus1 ~]# hostnamectl set-hostname vPrometheus1.netlab.ee.port.ac.uk
[root@vprometheus1 ~]# hostname
vprometheus1.netlab.ee.port.ac.uk
[root@vprometheus1 ~]#
```

## Renaming the red hat computer

```
root@vPrometheus0:~
```

```
[root@vprometheus1 ~]# hostnamectl set-hostname vPrometheus1.netlab.ee.port.ac.uk
[root@vprometheus1 ~]# hostname
vprometheus1.netlab.ee.port.ac.uk
[root@vprometheus1 ~]#
```

```
root@vPrometheus0:~
```

```
root@vprometheus2:~ -  
File Edit View Search Terminal Help  
[root@vprometheus2 ~]# hostname  
vprometheus2  
[root@vprometheus2 ~]# hostnamectl set-hostname vPrometheus2.netlab.ee.port.ac.uk  
[root@vprometheus2 ~]# hostname  
vprometheus2.netlab.ee.port.ac.uk  
[root@vprometheus2 ~]# █
```

## **the virtual network**

```
#!/bin/bash
#
# Virtual Machine Setup and configuration script.
# Date:31.10.13.CSA
#
# Date:15.11.13.CSA. Fix vmnet1 dhcpd clash
# Date:06.10.14.CSA. Update
# Date:14.10.15.CSA. Update
# Date:03.11.15.CSA. Update take out the JA check for interface

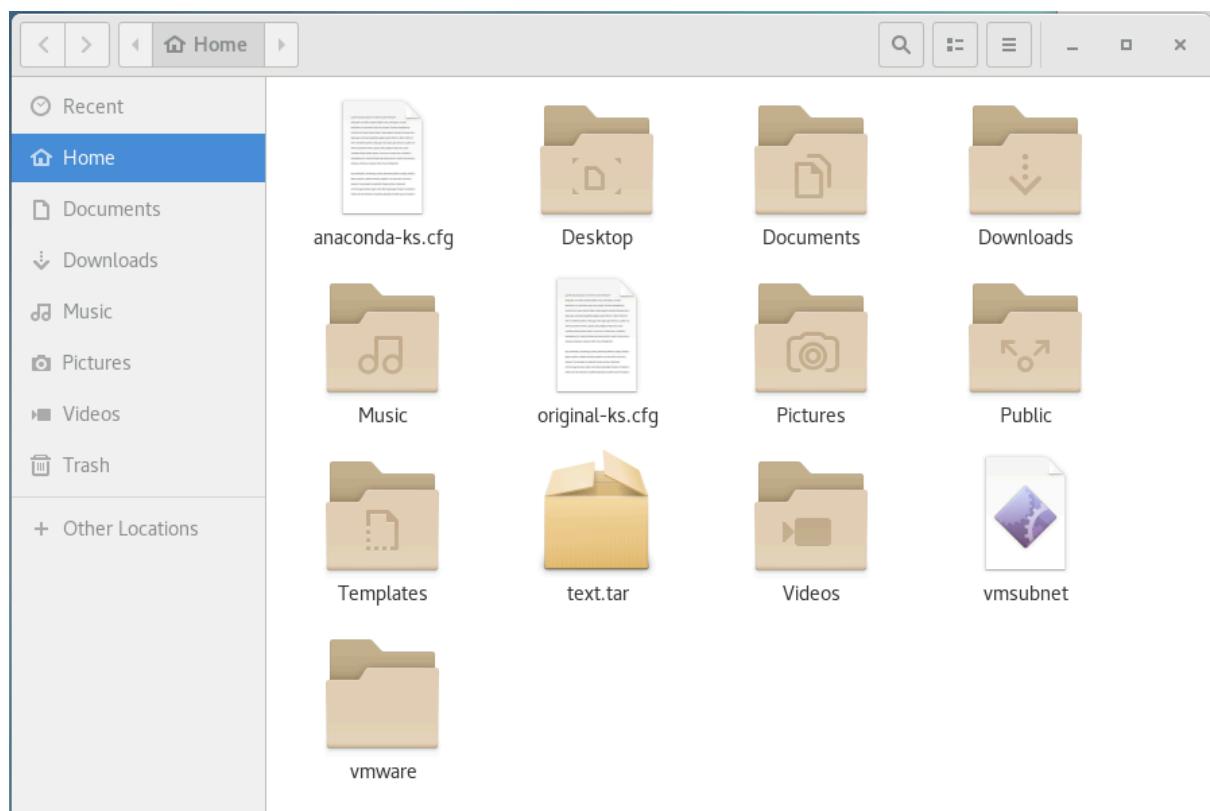
# Make sure the device drivers are loaded into kernel with correct version
dev=vmnet
drive=vmmon
hostn=`hostname`

#set -x
echo ''
echo '[OK] Setting up and Configuring VMplayer devices..'
echo ''
if lsmod | egrep ^vmmon > /dev/null; then echo vmmon already insmod;
else /sbin/insmod vmmon; fi

if lsmod | egrep ^vmnet > /dev/null; then echo vmnet already insmod;
else /sbin/insmod vmnet; fi

# Make sure there are NO VMPLAYER VMs running
# Simple check ps list exit
VM=`ps -ef | grep -m1 vmplay | awk '{print $8}'| cut -d/ -f6`
echo ''

if [ "$VM" = "vmplayer" ] ; then
echo ''
echo "[OK] Found vmplayer image running...on...[$hostn]...[$VM]"
echo ''
```



```

done

#####
VMNET=0                      #Device driver and interface number - /dev/vmnet0 and vmnet0
say
VMNET_IP=148.197.30.73        #Ip address of the virtual interface on the HOST - vmnet0 say
NETMASK=255.255.255.248       #Subnet mask
NETWORK=148.197.30.72         #Address of subnet - Must match NETMASK above
BROADCAST=148.197.30.75       #Broadcast address - last ip address in subnet - Must match NETMASK

#Start process that associates a device driver /dev/vmnet0 say with a network interface
vmnet0 (vmswitch)
if ps -efl | egrep vmnet-netifup.*vmnet${VMNET}$ > /dev/null; then echo vmnet${VMNET} already
running;
else vmnet-netifup -d /var/run/vmnet-netifup-vmnet${VMNET}.pid /dev/vmnet${VMNET} vmnet$${VMNET}; fi

#Bring up the interface vmnet0 say (VMNIC0)
#if ifconfig | egrep ^vmnet${VMNET} > /dev/null; then echo vmnet${VMNET} already up;
#else ifconfig vmnet${VMNET} ${VMNET_IP} netmask $NETMASK broadcast $BROADCAST up; fi
ifconfig vmnet${VMNET} ${VMNET_IP} netmask $NETMASK broadcast $BROADCAST up;

sleep 1

#####
VMNET=1                      #Device driver and interface number - /dev/vmnet1 and vmnet1
say
VMNET_IP=148.197.31.73        #Ip address of the virtual interface on the HOST - vmnet1 say
NETMASK=255.255.255.248       #Subnet mask
NETWORK=148.197.31.72         #Address of subnet - Must match NETMASK above
BROADCAST=148.197.31.75       #Broadcast address - last ip address in subnet - Must match NETMASK

```

sh ▼ Tab Width: 8 ▼ Ln 113, Col 24 ▼ INS

[root@prometheus ~]# chmod 777 vm\_subnet

```

root@prometheus:~#
[root@prometheus ~]# ps -ef | grep vmnet
root      1838      1  0 15:02 ?          00:00:00 /usr/bin/vmnet-bridge -s 6 -d
/var/run/vmnet-bridge-0.pid -n 0
root      2301      1  0 15:02 ?          00:00:00 /usr/bin/vmnet-netifup -s 6 -d
/var/run/vmnet-netifup-vmnet1.pid /dev/vmnet1 vmnet1
root      2307      1  0 15:02 ?          00:00:00 /usr/bin/vmnet-dhcpd -s 6 -cf
/etc/vmware/vmnet1/dhcpd/dhcpd.conf -lf /etc/vmware/vmnet1/dhcpd/dhcpd.leases -p
f /var/run/vmnet-dhcpd-vmnet1.pid vmnet1
root      2310      1  0 15:02 ?          00:00:00 /usr/bin/vmnet-natd -s 6 -m /e
tc/vmware/vmnet8/nat.mac -c /etc/vmware/vmnet8/nat/nat.conf
root      2312      1  0 15:02 ?          00:00:00 /usr/bin/vmnet-netifup -s 6 -d
/var/run/vmnet-netifup-vmnet8.pid /dev/vmnet8 vmnet8
root      2318      1  0 15:02 ?          00:00:00 /usr/bin/vmnet-dhcpd -s 6 -cf
/etc/vmware/vmnet8/dhcpd/dhcpd.conf -lf /etc/vmware/vmnet8/dhcpd/dhcpd.leases -p
f /var/run/vmnet-dhcpd-vmnet8.pid vmnet8
root      5323    5163  0 15:35 pts/0    00:00:00 grep --color=auto vmnet
[root@prometheus ~]# 

```

```

root      5625  0 15:39 pts/0    00:00
[root@prometheus ~]# vmnet-bridge-0.pid

[root@prometheus ~]# ./vm_subnet

[OK] Setting up and Configuring VMplayer devices..

vmmon already insmod
vmnet already insmod

Stopping vmware (via systemctl): [ OK ]
Starting vmware (via systemctl): [ OK ]

vmnet0: ERROR while getting interface flags: No such device
vmnet1: ERROR while getting interface flags: No such device
vmnet2: ERROR while getting interface flags: No such device
vmnet3: ERROR while getting interface flags: No such device
vmnet4: ERROR while getting interface flags: No such device

[OK] Virtual Switch running are..

root      5726  1  0 15:39 ?      00:00:00 vmnet-netifup -d /var/run/vmnet-netifup-vmnet0
et0 vmnet0
root      5739  1  0 15:39 ?      00:00:00 vmnet-netifup -d /var/run/vmnet-netifup-vmnet1
et1 vmnet1
root      5749  1  0 15:39 ?      00:00:00 vmnet-netifup -d /var/run/vmnet-netifup-vmnet2
et2 vmnet2

vmnet0: flags=4163<UP,BROADCAST,RUNNING,MULTICAST> mtu 1500
        inet 148.197.30.73 netmask 255.255.255.252 broadcast 148.197.30.75
        inet6 fe80::250:56ff:fe0:0 prefixlen 64 scopeid 0x20<link>
          ether 00:50:56:c0:00:00 txqueuelen 1000 (Ethernet)
            RX packets 46 bytes 0 (0.0 B)
            RX errors 0 dropped 1 overruns 0 frame 0
            TX packets 25 bytes 0 (0.0 B)
            TX errors 0 dropped 0 overruns 0 carrier 0 collisions 0

vmnet1: flags=4163<UP,BROADCAST,RUNNING,MULTICAST> mtu 1500
        inet 148.197.31.73 netmask 255.255.255.252 broadcast 148.197.31.75
        inet6 fe80::250:56ff:fe0:1 prefixlen 64 scopeid 0x20<link>
          ether 00:50:56:c0:00:01 txqueuelen 1000 (Ethernet)
            RX packets 0 bytes 0 (0.0 B)
            RX errors 0 dropped 0 overruns 0 frame 0
            TX packets 29 bytes 0 (0.0 B)
            TX errors 0 dropped 0 overruns 0 carrier 0 collisions 0

[root@prometheus ~]# ps -ef | grep vmnet
root      5605  1  0 15:39 ?      00:00:00 /usr/bin/vmnet-bridge -s 6 -d /var/run/vmnet-bridge-0.pid -n 0
root      5726  1  0 15:39 ?      00:00:00 vmnet-netifup -d /var/run/vmnet-netifup-vmnet0.pid /dev/vmnet0 vmnet0
root      5739  1  0 15:39 ?      00:00:00 vmnet-netifup -d /var/run/vmnet-netifup-vmnet1.pid /dev/vmnet1 vmnet1
root      5749  1  0 15:39 ?      00:00:00 vmnet-netifup -d /var/run/vmnet-netifup-vmnet2.pid /dev/vmnet2 vmnet2
root      5757  1  0 15:39 ?      00:00:00 vmnet-netifup -d /var/run/vmnet-netifup-vmnet3.pid /dev/vmnet3 vmnet3
root     5821  5163  0 15:42 pts/0   00:00:00 grep --color=auto vmnet
[root@prometheus ~]# kill -9 5605
[root@prometheus ~]# ps -ef | grep vmnet
root      5726  1  0 15:39 ?      00:00:00 vmnet-netifup -d /var/run/vmnet-netifup-vmnet0.pid /dev/vmnet0 vmnet0
root      5739  1  0 15:39 ?      00:00:00 vmnet-netifup -d /var/run/vmnet-netifup-vmnet1.pid /dev/vmnet1 vmnet1
root      5749  1  0 15:39 ?      00:00:00 vmnet-netifup -d /var/run/vmnet-netifup-vmnet2.pid /dev/vmnet2 vmnet2
root      5757  1  0 15:39 ?      00:00:00 vmnet-netifup -d /var/run/vmnet-netifup-vmnet3.pid /dev/vmnet3 vmnet3
root     5843  5163  0 15:43 pts/0   00:00:00 grep --color=auto vmnet
[root@prometheus ~]#

```

Documents	Music	Public	Videos
[root@prometheus ~]# cd vmware/vPrometheus0			
[root@prometheus vPrometheus0]# cd			
[root@prometheus ~]# cd vmware/vPrometheus0			
[root@prometheus vPrometheus0]# ls			
fix-vmnet-dev	vPrometheus0-s001.vmdk	vPrometheus0.vmsd	
vmware-0.log	vPrometheus0-s002.vmdk	<b>vPrometheus0.vmx</b>	
vmware.log	vPrometheus0-s003.vmdk	vPrometheus0.vmxsf	
vPrometheus0.nvram	vPrometheus0.vmdk		
[root@prometheus vPrometheus0]# ./fix-vmnet-dev			
bash: ./fix-vmnet-dev: Permission denied			
[root@prometheus vPrometheus0]# ls -al			
total 4760388			
drwxr-xr-x. 2 root root 280 Nov 30 15:46 .			
drwxr-xr-x. 5 root root 66 Nov 23 16:40 ..			
-rw-r--r--. 1 root root 2507 Nov 30 15:45 fix-vmnet-dev			
-rw-r--r--. 1 root root 35518 Nov 23 15:56 vmware-0.log			
-rw-r--r--. 1 root root 196644 Nov 23 16:26 vmware.log			
-rw-----. 1 root root 8684 Nov 23 16:26 vPrometheus0.nvram			
-rw-----. 1 root root 1808072704 Nov 23 16:26 vPrometheus0-s001.vmdk			
-rw-----. 1 root root 2064449536 Nov 23 16:26 vPrometheus0-s002.vmdk			
-rw-----. 1 root root 1002438656 Nov 23 16:26 vPrometheus0-s003.vmdk			
-rw-----. 1 root root 609 Nov 23 16:22 vPrometheus0.vmdk			
-rw-r--r--. 1 root root 0 Nov 23 15:56 vPrometheus0.vmsd			
-rwxr-xr-x. 1 root root 2731 Nov 23 16:26 <b>vPrometheus0.vmx</b>			
-rw-r--r--. 1 root root 267 Nov 23 15:56 vPrometheus0.vmxsf			
[root@prometheus vPrometheus0]# chmod 777 fix-vmnet-dev			
[root@prometheus vPrometheus0]# ls -al			
total 4760388			
drwxr-xr-x. 2 root root 280 Nov 30 15:46 .			
drwxr-xr-x. 5 root root 66 Nov 23 16:40 ..			
-rwxrwxrwx. 1 root root 2507 Nov 30 15:45 <b>fix-vmnet-dev</b>			
-rw-r--r--. 1 root root 35518 Nov 23 15:56 vmware-0.log			
-rw-r--r--. 1 root root 196644 Nov 23 16:26 vmware.log			
-rw-----. 1 root root 8684 Nov 23 16:26 vPrometheus0.nvram			
-rw-----. 1 root root 1808072704 Nov 23 16:26 vPrometheus0-s001.vmdk			
-rw-----. 1 root root 2064449536 Nov 23 16:26 vPrometheus0-s002.vmdk			
-rw-----. 1 root root 1002438656 Nov 23 16:26 vPrometheus0-s003.vmdk			
-rw-----. 1 root root 609 Nov 23 16:22 vPrometheus0.vmdk			
-rw-r--r--. 1 root root 0 Nov 23 15:56 vPrometheus0.vmsd			
-rwxr-xr-x. 1 root root 2731 Nov 23 16:26 <b>vPrometheus0.vmx</b>			
-rw-r--r--. 1 root root 267 Nov 23 15:56 vPrometheus0.vmxsf			
[root@prometheus vPrometheus0]# █			

```
[root@prometheus vPrometheus0]# ./fix-vmnet-dev

[OK] Fix missing custom Ethernet devices for VMplayer...

Your VMware filename path is.../fix-vmnet-dev [vPrometheus0.vmx]

..Your vmx file [vPrometheus0.vmx] contains the following ethernet devices..

ethernet0.connectionType = "nat"
ethernet0.addressType = "generated"
ethernet0.virtualDev = "e1000"
ethernet0.present = "TRUE"
ethernet0.pciSlotNumber = "33"
ethernet0.generatedAddress = "00:0c:29:3a:26:70"
ethernet0.generatedAddressOffset = "0"

ethernet0.connectionType = "nat"
ethernet0.addressType = "generated"
ethernet0.virtualDev = "e1000"
ethernet0.present = "TRUE"
ethernet0.pciSlotNumber = "33"
ethernet0.generatedAddress = "00:0c:29:3a:26:70"
ethernet0.generatedAddressOffset = "0"

.encoding = "UTF-8"
config.version = "8"
virtualHW.version = "18"
pciBridge0.present = "TRUE"
pciBridge4.present = "TRUE"
pciBridge4.virtualDev = "pcieRootPort"
pciBridge4.functions = "8"
pciBridge5.present = "TRUE"
pciBridge5.virtualDev = "pcieRootPort"
pciBridge5.functions = "8"
```

```
[root@prometheus vPrometheus1]# ./fix-vmnet-dev

[OK] Fix missing custom Ethernet devices for VMplayer...

Your VMware filename path is.../fix-vmnet-dev [vPrometheus0.vmx]

..Your vmx file [vPrometheus0.vmx] contains the following ethernet devices..

ethernet0.connectionType = "nat"
ethernet0.addressType = "generated"
ethernet0.virtualDev = "e1000"
ethernet0.present = "TRUE"
ethernet0.pciSlotNumber = "33"
ethernet0.generatedAddress = "00:0c:29:3f:38:b7"
ethernet0.generatedAddressOffset = "0"

ethernet0.connectionType = "nat"
ethernet0.addressType = "generated"
ethernet0.virtualDev = "e1000"
ethernet0.present = "TRUE"
ethernet0.pciSlotNumber = "33"
ethernet0.generatedAddress = "00:0c:29:3f:38:b7"
ethernet0.generatedAddressOffset = "0"

.encoding = "UTF-8"
config.version = "8"
virtualHW.version = "18"
pciBridge0.present = "TRUE"
pciBridge4.present = "TRUE"
pciBridge4.virtualDev = "pcieRootPort"
pciBridge4.functions = "8"
pciBridge5.present = "TRUE"
```

```
[root@prometheus vPrometheus2]# ./fix-vmnet-dev

[OK] Fix missing custom Ethernet devices for VMplayer...

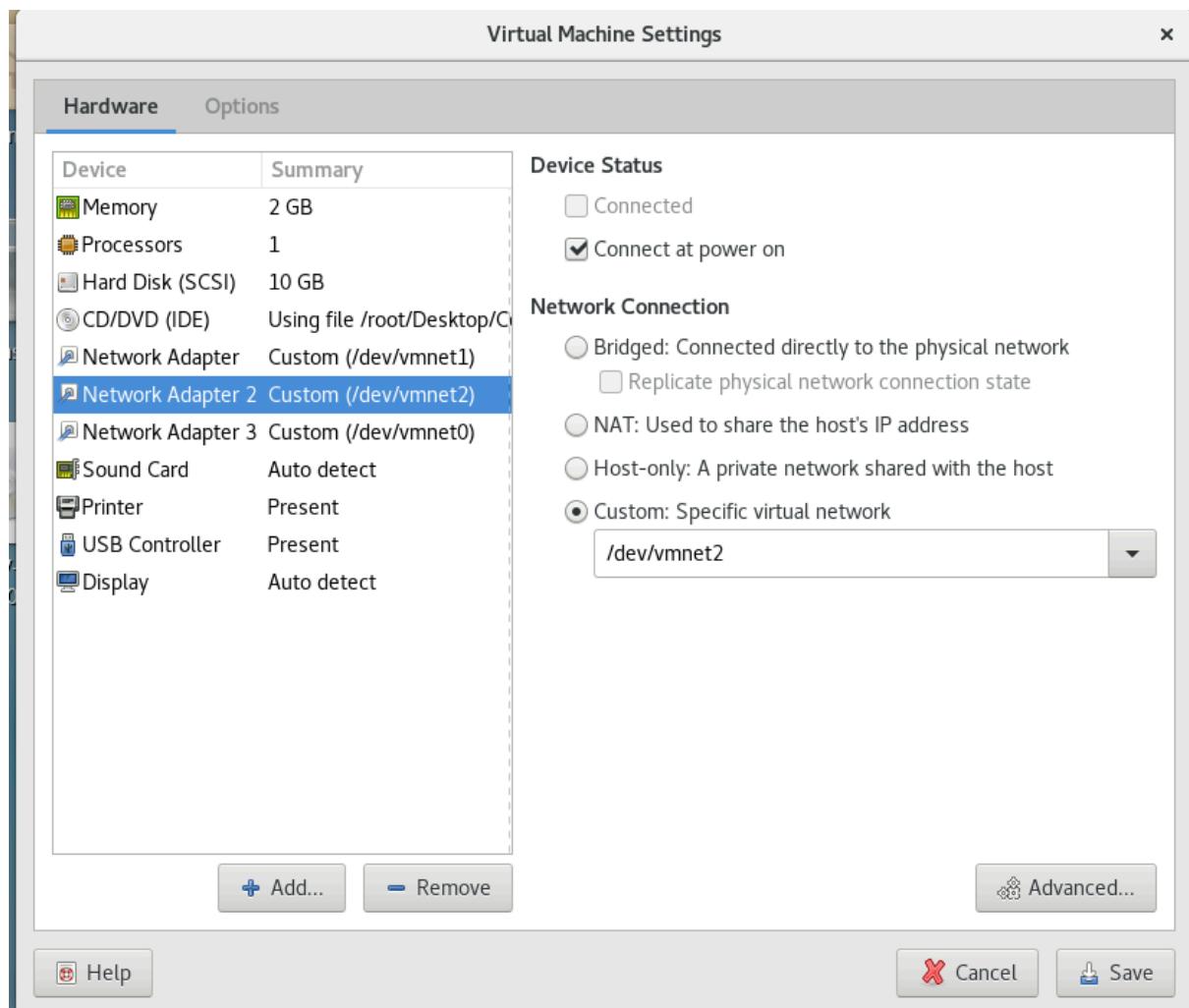
Your VMware filename path is.../fix-vmnet-dev [vPrometheus0.vmx]
..Your vmx file [vPrometheus0.vmx] contains the following ethernet devices..

ethernet0.connectionType = "nat"
ethernet0.addressType = "generated"
ethernet0.virtualDev = "e1000"
ethernet0.present = "TRUE"
ethernet0.pciSlotNumber = "33"
ethernet0.generatedAddress = "00:0c:29:ed:74:24"
ethernet0.generatedAddressOffset = "0"

ethernet0.connectionType = "nat"
ethernet0.addressType = "generated"
ethernet0.virtualDev = "e1000"
ethernet0.present = "TRUE"
ethernet0.pciSlotNumber = "33"
ethernet0.generatedAddress = "00:0c:29:ed:74:24"
ethernet0.generatedAddressOffset = "0"

.encoding = "UTF-8"
config.version = "8"
virtualHW.version = "18"
pciBridge0.present = "TRUE"
pciBridge4.present = "TRUE"
pciBridge4.virtualDev = "pcieRootPort"
pciBridge4.functions = "8"
pciBridge5.present = "TRUE"
pciBridge5.virtualDev = "pcieRootPort"
pciBridge5.functions = "8"
pciBridge6.present = "TRUE"
pciBridge6.virtualDev = "pcieRootPort"
pciBridge6.functions = "8"
pciBridge7.present = "TRUE"
```

---



Protheus 1

**Wired**

**IPv4**

**IPv4 Method**

- Automatic (DHCP)
- Manual
- Link-Local Only
- Disable

**Addresses**

Address	Netmask	Gateway	X
148.197.31.74	255.255.255.252	148.197.31.73	X
			X

**DNS**

Automatic

Separate IP addresses with commas

**Routes**

Automatic

Address	Netmask	Gateway	Metric	X
				X

**Apply**

**Virtual Machine Settings**

**Hardware**   **Options**

Device	Summary
Memory	2 GB
Processors	1
Hard Disk (SCSI)	10 GB
CD/DVD (IDE)	Using file /root/Desktop/C
Network Adapter	Custom (/dev/vmnet2)
Network Adapter 2	Custom (/dev/vmnet0)
Network Adapter 3	Custom (/dev/vmnet0)
Sound Card	Auto detect
Printer	Present
USB Controller	Present
Display	Auto detect

**Device Status**

Connected  
 Connect at power on

**Network Connection**

Bridged: Connected directly to the physical network  
 Replicate physical network connection state

NAT: Used to share the host's IP address

Host-only: A private network shared with the host

Custom: Specific virtual network

**Add...**   **Remove**   **Advanced...**

**Help**   **Cancel**   **Save**

Cancel **Wired** Apply

Details Identity **IPv4** IPv6 Security

**IPv4 Method**

Automatic (DHCP)  Link-Local Only  
 Manual  Disable

**Addresses**

Address	Netmask	Gateway	X
148.197.30.74	255.255.255.252	148.197.30.73	X
			X

**DNS** Automatic **ON**

Separate IP addresses with commas

**Routes** Automatic **ON**

Address	Netmask	Gateway	Metric	X
				X

Cancel **Wired** Apply

Details Identity **IPv4** IPv6 Security

**IPv4 Method**

Automatic (DHCP)  Link-Local Only  
 Manual  Disable

**Addresses**

Address	Netmask	Gateway	X
148.197.32.73	255.255.255.252	148.197.32.74	X
			X

**DNS** Automatic **ON**

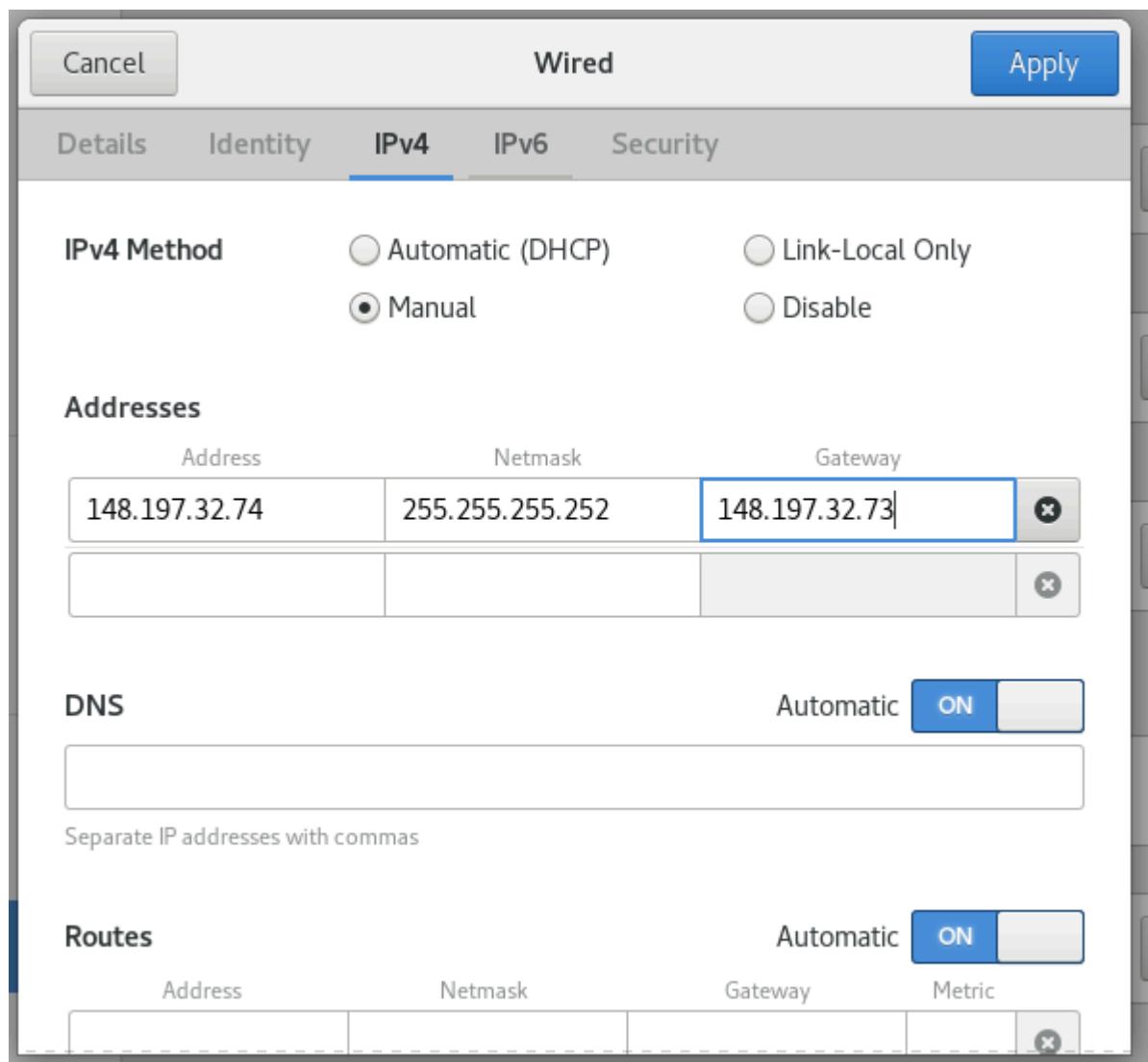
Separate IP addresses with commas

**Routes** Automatic **ON**

Address	Netmask	Gateway	Metric	X
				X

this and the one above are for each other

**prometheus 2**



## Pings -

```
vPrometheus0 - VMware Workstation 16 Player (Non-commercial use)

File Virtual Machine Help
Applications Places Terminal
root@vPrometheus0:~

File Edit View Search Terminal Help
[root@vPrometheus0 ~]# ping 148.197.28.208
PING 148.197.28.208 (148.197.28.208) 56(84) bytes of data.
64 bytes from 148.197.28.208: icmp_seq=1 ttl=64 time=0.455 ms
64 bytes from 148.197.28.208: icmp_seq=2 ttl=64 time=1.12 ms
64 bytes from 148.197.28.208: icmp_seq=3 ttl=64 time=0.370 ms
64 bytes from 148.197.28.208: icmp_seq=4 ttl=64 time=1.01 ms
64 bytes from 148.197.28.208: icmp_seq=5 ttl=64 time=1.44 ms
```

Vm0 to prometheus

## Vm1 to prometheus

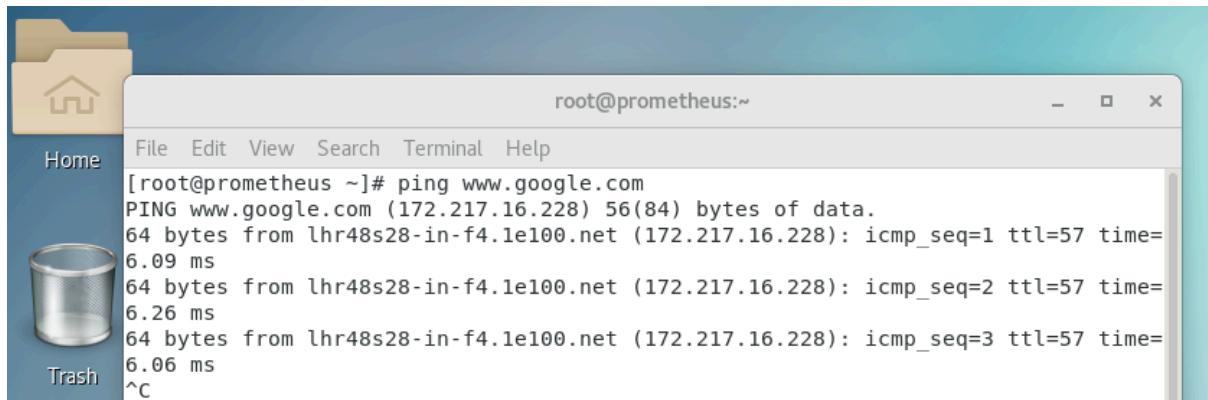
```
File Edit View Search Terminal Help
root@vPrometheus0 ~]# ping 148.197.31.73
PING 148.197.31.73 (148.197.31.73) 56(84) bytes of data.
4 bytes from 148.197.31.73: icmp_seq=1 ttl=64 time=0.237 ms
4 bytes from 148.197.31.73: icmp_seq=2 ttl=64 time=0.239 ms
4 bytes from 148.197.31.73: icmp_seq=3 ttl=64 time=0.246 ms
4 bytes from 148.197.31.73: icmp_seq=4 ttl=64 time=0.243 ms
4 bytes from 148.197.31.73: icmp_seq=5 ttl=64 time=0.321 ms
4 bytes from 148.197.31.73: icmp_seq=6 ttl=64 time=0.890 ms
4 bytes from 148.197.31.73: icmp_seq=7 ttl=64 time=0.334 ms
4 bytes from 148.197.31.73: icmp_seq=8 ttl=64 time=0.252 ms
4 bytes from 148.197.31.73: icmp_seq=9 ttl=64 time=0.319 ms
4 bytes from 148.197.31.73: icmp_seq=10 ttl=64 time=0.207 ms
4 bytes from 148.197.31.73: icmp_seq=11 ttl=64 time=0.272 ms
```

## Vm1 to vm2 -

```
vPrometheus1 - VMware Workstation 16 Player (Non-commercial use only)
File Virtual Machine Help
Applications Places Terminal
root@vprometheus1:~

File Edit View Search Terminal Help
[root@vprometheus1 ~]# ping 148.197.32.74
PING 148.197.32.74 (148.197.32.74) 56(84) bytes of data.
64 bytes from 148.197.32.74: icmp_seq=1 ttl=64 time=5.63 ms
64 bytes from 148.197.32.74: icmp_seq=2 ttl=64 time=2.14 ms
64 bytes from 148.197.32.74: icmp_seq=3 ttl=64 time=2.24 ms
64 bytes from 148.197.32.74: icmp_seq=4 ttl=64 time=2.27 ms
64 bytes from 148.197.32.74: icmp_seq=5 ttl=64 time=1.87 ms
64 bytes from 148.197.32.74: icmp_seq=6 ttl=64 time=2.93 ms
64 bytes from 148.197.32.74: icmp_seq=7 ttl=64 time=1.99 ms
64 bytes from 148.197.32.74: icmp_seq=8 ttl=64 time=2.44 ms
64 bytes from 148.197.32.74: icmp_seq=9 ttl=64 time=0.539 ms
64 bytes from 148.197.32.74: icmp_seq=10 ttl=64 time=0.632 ms
64 bytes from 148.197.32.74: icmp_seq=11 ttl=64 time=2.61 ms
64 bytes from 148.197.32.74: icmp_seq=12 ttl=64 time=2.01 ms
64 bytes from 148.197.32.74: icmp_seq=13 ttl=64 time=1.83 ms
64 bytes from 148.197.32.74: icmp_seq=14 ttl=64 time=1.27 ms
```

## Routing -



```
root@prometheus:~# ping www.google.com
PING www.google.com (172.217.16.228) 56(84) bytes of data.
64 bytes from lhr48s28-in-f4.1e100.net (172.217.16.228): icmp_seq=1 ttl=57 time=6.09 ms
64 bytes from lhr48s28-in-f4.1e100.net (172.217.16.228): icmp_seq=2 ttl=57 time=6.26 ms
64 bytes from lhr48s28-in-f4.1e100.net (172.217.16.228): icmp_seq=3 ttl=57 time=6.06 ms
^C
```

## Installing quagga

```
downloading packages.
warning: /var/cache/yum/x86_64/7/updates/packages/net-snmp-agent-libs-5.7.2-49.el7_9.1.x86_64.rpm: Header V3 RSA/SHA256 Signature, key ID f4a80eb5: NOKEY
Public key for net-snmp-agent-libs-5.7.2-49.el7_9.1.x86_64.rpm is not installed
(1/3): net-snmp-agent-libs-5.7.2-49.el7_9.1.x86_64.rpm | 707 kB 00:00
(2/3): net-snmp-5.7.2-49.el7_9.1.x86_64.rpm | 325 kB 00:00
Public key for quagga-0.99.22.4-5.el7_4.x86_64.rpm is not installed --::-- ETA
(3/3): quagga-0.99.22.4-5.el7_4.x86_64.rpm | 1.2 MB 00:00
-----
Total 5.1 MB/s | 2.2 MB 00:00
Retrieving key from file:///etc/pki/rpm-gpg/RPM-GPG-KEY-CentOS-7
Importing GPG key 0xF4A80EB5:
  Userid : "CentOS-7 Key (CentOS 7 Official Signing Key) <security@centos.org>"
  Fingerprint: 6341 ab27 53d7 8a78 a7c2 7bb1 24c6 a8a7 f4a8 0eb5
  Package : centos-release-7-9.2009.0.el7.centos.x86_64 (@anaconda)
  From    : /etc/pki/rpm-gpg/RPM-GPG-KEY-CentOS-7
Is this ok [y/N]: y
Running transaction check
Running transaction test
Transaction test succeeded
Running transaction
  Updating  : 1:net-snmp-libs-5.7.2-49.el7_9.1.x86_64 1/5
  Installing : 1:net-snmp-agent-libs-5.7.2-49.el7_9.1.x86_64 2/5
  Installing : 1:net-snmp-5.7.2-49.el7_9.1.x86_64 3/5
```

```

Installing : 1:net-snmp-agent-libs-5.7.2-49.el7_9.1.x86_64 2/5
Installing : 1:net-snmp-5.7.2-49.el7_9.1.x86_64 3/5
Installing : quagga-0.99.22.4-5.el7_4.x86_64 4/5
Cleanup   : 1:net-snmp-libs-5.7.2-49.el7.x86_64 5/5
Verifying  : quagga-0.99.22.4-5.el7_4.x86_64 1/5
Verifying  : 1:net-snmp-agent-libs-5.7.2-49.el7_9.1.x86_64 2/5
Verifying  : 1:net-snmp-libs-5.7.2-49.el7_9.1.x86_64 3/5
Verifying  : 1:net-snmp-5.7.2-49.el7_9.1.x86_64 4/5
Verifying  : 1:net-snmp-libs-5.7.2-49.el7.x86_64 5/5

Installed:
quagga.x86_64 0:0.99.22.4-5.el7_4

Dependency Installed:
net-snmp.x86_64 1:5.7.2-49.el7_9.1
net-snmp-agent-libs.x86_64 1:5.7.2-49.el7_9.1

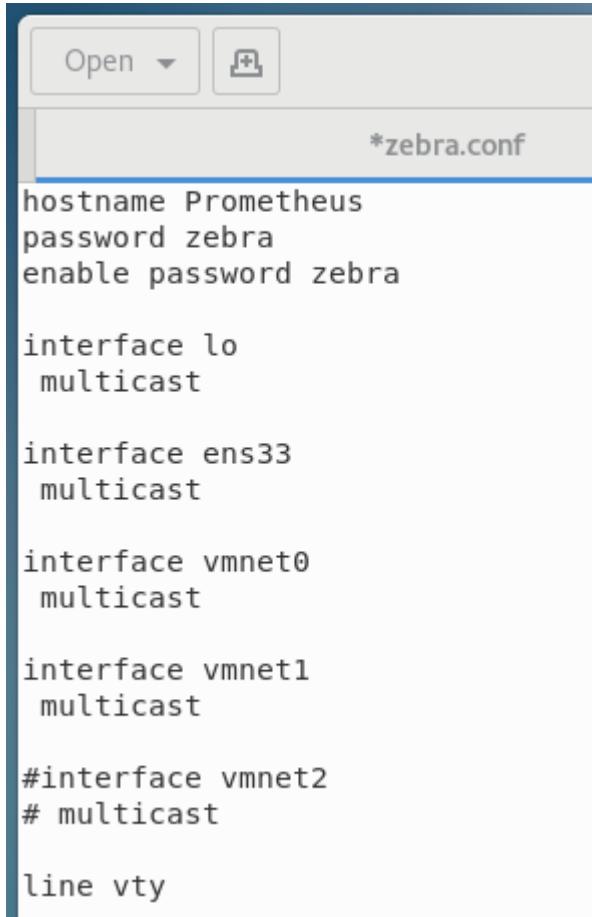
Dependency Updated:
net-snmp-libs.x86_64 1:5.7.2-49.el7_9.1

Complete!
[root@prometheus ~]# y

```

## Zebra and ospfd -

Zebra - There was no changes made to zebra



```

*zebra.conf

hostname Prometheus
password zebra
enable password zebra

interface lo
multicast

interface ens33
multicast

interface vmnet0
multicast

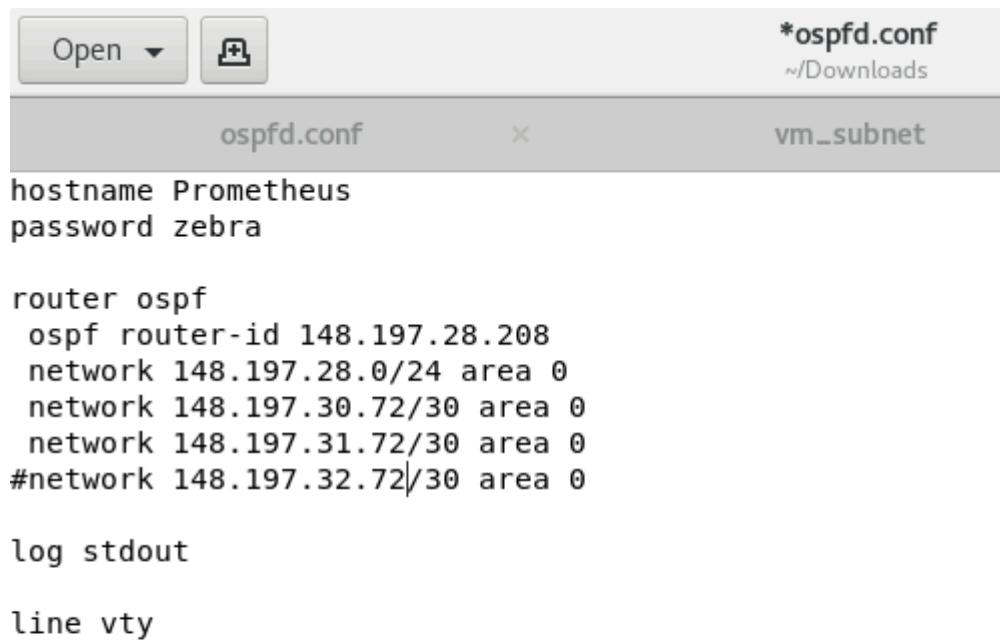
interface vmnet1
multicast

#interface vmnet2
# multicast

line vty

```

## Ospfd



The screenshot shows a text editor window with the title bar "\*ospfd.conf" and the path "/Downloads". The file contains the following OSPF configuration:

```
hostname Prometheus
password zebra

router ospf
  ospf router-id 148.197.28.208
  network 148.197.28.0/24 area 0
  network 148.197.30.72/30 area 0
  network 148.197.31.72/30 area 0
#network 148.197.32.72/30 area 0

log stdout

line vty
```

## Moving the zebra file into quagga folder

```
[root@prometheus Desktop]# mv zebra.conf /etc/quagga
mv: overwrite '/etc/quagga/zebra.conf'? y
[root@prometheus Desktop]#
```

## Moving the ospfd file to the quagga folder

```
[root@prometheus Desktop]# mv ospfd.conf /etc/quagga
[root@prometheus Desktop]#
```

## Identifying the bridge

```
[root@prometheus Desktop]# ps -ef | grep vmnet
error: garbage option

Usage:
ps [options]

Try 'ps --help <simple|list|output|threads|misc|all>'
or 'ps --help <s|l|o|t|m|a>'
for additional help text.

For more details see ps(1).
[root@prometheus Desktop]# ps -ef | grep vmnet
root      6319      1  0 15:19 ?          00:00:00 /usr/bin/vmnet-bridge -s 6 -d
/var/run/vmnet-bridge-0.pid -n 0
root      6444      1  0 15:19 ?          00:00:00 vmnet-netifup -d /var/run/vmne
t-netifup-vmnet0.pid /dev/vmnet0 vmnet0
root      6454      1  0 15:19 ?          00:00:00 vmnet-netifup -d /var/run/vmne
t-netifup-vmnet1.pid /dev/vmnet1 vmnet1
root      6464      1  0 15:19 ?          00:00:00 vmnet-netifup -d /var/run/vmne
t-netifup-vmnet2.pid /dev/vmnet2 vmnet2
root      6472      1  0 15:19 ?          00:00:00 vmnet-netifup -d /var/run/vmne
t-netifup-vmnet3.pid /dev/vmnet3 vmnet3
root     9328    9073  0 16:02 pts/1    00:00:00 grep --color=auto vmnet
[root@prometheus Desktop]#
```

## Killing the bridge

```
[root@prometheus Desktop]# kill -9 6319
[root@prometheus Desktop]# ps -ef | grep vmnet
root      6444      1  0 15:19 ?          00:00:00 vmnet-netifup -d /var/run/vmne
t-netifup-vmnet0.pid /dev/vmnet0 vmnet0
root      6454      1  0 15:19 ?          00:00:00 vmnet-netifup -d /var/run/vmne
t-netifup-vmnet1.pid /dev/vmnet1 vmnet1
root      6464      1  0 15:19 ?          00:00:00 vmnet-netifup -d /var/run/vmne
t-netifup-vmnet2.pid /dev/vmnet2 vmnet2
root      6472      1  0 15:19 ?          00:00:00 vmnet-netifup -d /var/run/vmne
t-netifup-vmnet3.pid /dev/vmnet3 vmnet3
root     9353    9073  0 16:04 pts/1    00:00:00 grep --color=auto vmnet
[root@prometheus Desktop]#
```

## Disabling fire wall

```
[root@prometheus Desktop]# iptables -F
[root@prometheus Desktop]#
```

## Enabling packet forwarding

```
[root@prometheus Desktop]# /sbin/sysctl -w net.ipv4.ip_forward=1
net.ipv4.ip_forward = 1
```

## Running 4 terminal commands

## Routing testing -

The screenshot displays a VMware Workstation interface with two terminal windows running on a CentOS 7 x86\_64 virtual machine.

**Left Terminal:**

- Shows the output of a ping command to 148.197.28.208, receiving 64 bytes of data from 148.197.28.208.
- Shows the output of a ping command to 148.197.31.74, receiving 56(84) bytes of data from 148.197.31.74.

**Right Terminal:**

- Shows the output of the route -n command, displaying the IP routing table.
- Shows OSPF link state updates:
  - Link State Update: Neighbor[148.197.28.225] state 2-Way is less than Exchange
  - Link State Acknowledgment: Neighbor[148.197.28.225] state 2-Way is less than Exchange
  - Link State Update: Neighbor[148.197.28.225] state 2-Way is less than Exchange

## Entering a temporary dns to google access -

Cancel **Wired** Apply

Details Identity **IPv4** IPv6 Security

**IPv4 Method**

Automatic (DHCP)  Link-Local Only  
 Manual  Disable

**Addresses**

Address	Netmask	Gateway	
148.197.31.74	255.255.255.252	148.197.31.73	

**DNS**

Automatic **ON**

148.197.28.1

Separate IP addresses with commas

**Routes**

Automatic **ON**

Address	Netmask	Gateway	Metric	

Changing ospfd to fit my system -

The screenshot shows a text editor window with the following details:

- Title Bar:** ospfd.conf (~/Desktop)
- Buttons:** Open, Save, Minimize, Maximize, Close
- Text Content:**

```
hostname Prometheus
password zebra

router ospf
ospf router-id 148.197.31.74
#network 148.197.28.0/24 area 0
#network 148.197.30.252/30 area 0
network 148.197.31.72/30 area 0
network 148.197.32.72/30 area 0

log stdout

line vty
```
- Status Bar:** Plain Text ▾ Tab Width: 8 ▾ Ln 7, Col 25 ▾ INS

## Changing zebra to fit my system -

The screenshot shows a text editor window titled 'zebra.conf' located at '~/Desktop'. The file contains the following configuration:

```
hostname Prometheus
password zebra
enable password zebra

interface lo
  multicast

#interface ens33
#multicast

#interface vmnet0|
#multicast

interface vmnet1
  multicast

interface vmnet2
  multicast

line vty
```

Below the code, there are status indicators: 'Plain Text ▾', 'Tab Width: 8 ▾', 'Ln 11, Col 18 ▾', and 'INS'.

The screenshot shows two terminal windows running on a CentOS 7 desktop. The desktop environment includes a desktop icon for 'CentOS 7 x86\_64'.

The top terminal window (root shell) shows the directory structure in '/etc/quagga':

```
root@vprometheus1:~/etc/quagga
File Edit View Search Terminal Help
[root@vprometheus1 ~]# cd /etc/quagga
[root@vprometheus1 quagga]# ls
ospfd.conf  vtysh.conf  zebra.conf
[root@vprometheus1 quagga]#
```

The bottom terminal window (root shell) shows the user moving files from the Desktop to /etc/quagga:

```
root@vprometheus1:~/Desktop
File Edit View Search Terminal Help
[root@vprometheus1 ~]# cd Desktop
[root@vprometheus1 Desktop]# ls
ospfd.conf  zebra.conf
[root@vprometheus1 Desktop]# mv zebra /etc/quagga
mv: cannot stat 'zebra': No such file or directory
[root@vprometheus1 Desktop]# mv zebra.conf /etc/quagga
mv: overwrite '/etc/quagga/zebra.conf'? y
[root@vprometheus1 Desktop]# mv ospfd.conf
mv: missing destination file operand after 'ospfd.conf'
Try 'mv --help' for more information.
[root@vprometheus1 Desktop]# mv ospfd.conf /etc/quagga
[root@vprometheus1 Desktop]#
```

## Checking for bridge

```
root@vprometheus1:~/Desktop
File Edit View Search Terminal Help
[root@vprometheus1 ~]# cd Desktop
[root@vprometheus1 Desktop]# ls
ospf.conf zebra.conf
[root@vprometheus1 Desktop]# mv zebra /etc/quagga
mv: cannot stat 'zebra': No such file or directory
[root@vprometheus1 Desktop]# mv zebra.conf /etc/quagga
mv: overwrite '/etc/quagga/zebra.conf'? y
[root@vprometheus1 Desktop]# mv ospfd.conf
mv: missing destination file operand after 'ospfd.conf'
Try 'mv --help' for more information.
[root@vprometheus1 Desktop]# mv ospfd.conf /etc/quagga
[root@vprometheus1 Desktop]# ps -ef | grep vmnet
root      53560  3974  0 17:07 pts/0    00:00:00 grep --color=auto vmnet
[root@vprometheus1 Desktop]#
```

## Disabling fire wall -

```
[root@vprometheus1 Desktop]# iptables -F
[root@vprometheus1 Desktop]#
```

## Enabling packet forwarding -

```
[root@vprometheus1 Desktop]# iptables -F
[root@vprometheus1 Desktop]# /sbin/sysctl -w net.ipv4.ip_forward=1
net.ipv4.ip_forward = 1
[root@vprometheus1 Desktop]#
```

## Disabling firewall for PM2

```
root@vprometheus2:~/Desktop
File Edit View Search Terminal Help
[root@vprometheus2 ~]# iptables -F
[root@vprometheus2 ~]#
```

## Pinging from PM1 to all -

vPrometheus1 - VMware Workstation 16 Player (Non-commercial use only)

File Virtual Machine Help

Applications Places

Tue 17:26

```
[root@vPrometheus1:~]# ping 148.197.28.208
PING 148.197.28.208 (148.197.28.208) 56(84) bytes of data.
64 bytes from 148.197.28.208: icmp_seq=1 ttl=64 time=0.843 ms
64 bytes from 148.197.28.208: icmp_seq=2 ttl=64 time=0.172 ms
64 bytes from 148.197.28.208: icmp_seq=3 ttl=64 time=0.694 ms
64 bytes from 148.197.28.208: icmp_seq=4 ttl=64 time=0.222 ms
64 bytes from 148.197.28.208: icmp_seq=5 ttl=64 time=0.151 ms
64 bytes from 148.197.28.208: icmp_seq=6 ttl=64 time=0.169 ms
64 bytes from 148.197.28.208: icmp_seq=7 ttl=64 time=0.143 ms
64 bytes from 148.197.28.208: icmp_seq=8 ttl=64 time=0.188 ms
```

```
[root@vPrometheus1 ~]# 148.197.30.74
bash: 148.197.30.74: command not found...
[root@vPrometheus1 ~]# ping 148.197.30.74
PING 148.197.30.74 (148.197.30.74) 56(84) bytes of data.
64 bytes from 148.197.30.74: icmp_seq=1 ttl=63 time=4.28 ms
64 bytes from 148.197.30.74: icmp_seq=2 ttl=63 time=0.557 ms
64 bytes from 148.197.30.74: icmp_seq=3 ttl=63 time=0.854 ms
64 bytes from 148.197.30.74: icmp_seq=4 ttl=63 time=1.04 ms
64 bytes from 148.197.30.74: icmp_seq=5 ttl=63 time=0.507 ms
64 bytes from 148.197.30.74: icmp_seq=6 ttl=63 time=2.10 ms
```

```
[root@vPrometheus1:~]# ping 148.197.32.74
PING 148.197.32.74 (148.197.32.74) 56(84) bytes of data.
64 bytes from 148.197.32.74: icmp_seq=1 ttl=64 time=0.740 ms
64 bytes from 148.197.32.74: icmp_seq=2 ttl=64 time=1.90 ms
64 bytes from 148.197.32.74: icmp_seq=3 ttl=64 time=1.44 ms
64 bytes from 148.197.32.74: icmp_seq=4 ttl=64 time=1.65 ms
64 bytes from 148.197.32.74: icmp_seq=5 ttl=64 time=2.39 ms
```

To grab input, press Ctrl+G

File Edit View Search Terminal Help

File Virtual Machine Help

Applications Places

Tue 15:28

```
[root@vPrometheus1 ~]# ifconfig
ens33: flags=4163 mtu 1500
inet 148.197.31.74 brd 255.255.255.252 broadcast 148.197.31.75
inet6 fe80::6e65:9852:dc97:9f8a brd fe80::ff:fe65:9852:dc97:9f8a prefixlen 64 scopeid 0x20<link>
ether 00:0c:29:3f:38:b1 txqueuelen 1000 (Ethernet)
RX packets 29168 bytes 1595862 (15.3 MB)
RX errors 0 dropped 0 overruns 0 frame 0
TX packets 22516 bytes 2187639 (2.0 MB)
TX errors 0 dropped 0 overruns 0 carrier 0 collisions 0

ens36: flags=413 mtu 1500
inet 148.197.32.73 brd 255.255.255.252 broadcast 148.197.32.75
inet6 fe80::d53d:63c3:9255:c349 brd fe80::ff:fd3d:63c3:9255:c349 prefixlen 64 scopeid 0x20<link>
ether 00:0c:29:3f:38:c1 txqueuelen 1000 (Ethernet)
RX packets 81 bytes 9007 (9.3 KB)
RX errors 0 dropped 0 overruns 0 frame 0
TX packets 81 bytes 10049 (9.8 KB)
TX errors 0 dropped 0 overruns 0 carrier 0 collisions 0

lo: flags=73 mtu 65536
inet 127.0.0.1 brd 127.0.0.1 netmask 255.0.0.0
inet6 :: brd :: prefixlen 128 scopeid 0x10<host>
loop txqueuelen 1000 (Local Loopback)
```

To grab input, press Ctrl+G

File Edit View Search Terminal Tabs Help

File Virtual Machine Help

Applications Places Terminal

Tue 15:28

```
[root@vPrometheus0:~]# ping 148.197.31.74
PING 148.197.31.74 (148.197.31.74) 56(84) bytes of data.
64 bytes from 148.197.31.74: icmp_seq=1 ttl=63 time=1.71 ms
64 bytes from 148.197.31.74: icmp_seq=2 ttl=63 time=0.391 ms
64 bytes from 148.197.31.74: icmp_seq=3 ttl=63 time=1.63 ms
64 bytes from 148.197.31.74: icmp_seq=4 ttl=63 time=1.99 ms
64 bytes from 148.197.31.74: icmp_seq=5 ttl=63 time=0.38 ms
64 bytes from 148.197.31.74: icmp_seq=6 ttl=63 time=3.28 ms
64 bytes from 148.197.31.74: icmp_seq=7 ttl=63 time=2.41 ms
64 bytes from 148.197.31.74: icmp_seq=8 ttl=63 time=3.00 ms
64 bytes from 148.197.31.74: icmp_seq=9 ttl=63 time=1.95 ms
64 bytes from 148.197.31.74: icmp_seq=10 ttl=63 time=2.05 ms
64 bytes from 148.197.31.74: icmp_seq=11 ttl=63 time=2.28 ms
64 bytes from 148.197.31.74: icmp_seq=12 ttl=63 time=0.451 ms
64 bytes from 148.197.31.74: icmp_seq=13 ttl=63 time=0.846 ms
64 bytes from 148.197.31.74: icmp_seq=14 ttl=63 time=0.83 ms
64 bytes from 148.197.31.74: icmp_seq=15 ttl=63 time=0.92 ms
64 bytes from 148.197.31.74: icmp_seq=16 ttl=63 time=1.97 ms
64 bytes from 148.197.31.74: icmp_seq=17 ttl=63 time=2.35 ms
64 bytes from 148.197.31.74: icmp_seq=18 ttl=63 time=2.88 ms
64 bytes from 148.197.31.74: icmp_seq=19 ttl=63 time=2.66 ms
64 bytes from 148.197.31.74: icmp_seq=20 ttl=63 time=2.66 ms
64 bytes from 148.197.31.74: icmp_seq=21 ttl=63 time=1.65 ms
```

Vm1 to host prometheus

## Vm2 to vm0

The screenshot displays four terminal windows from a Linux distribution running on VMware Workstation 16 Player. The hosts are labeled Prometheus1, Prometheus0, Prometheus2, and Prometheus3.

- Prometheus1 (purple window):** Shows a ping command from root@vprometheus1 to 148.197.30.74. The output includes statistics for 5 packets transmitted, 0 received, and 100% packet loss.
- Prometheus0 (pink window):** Shows a ping command from root@vprometheus0 to 148.197.30.74. The output shows 64 bytes transmitted, 64 received, and 0% packet loss.
- Prometheus2 (orange window):** Shows a ping command from root@vprometheus2 to 148.197.30.74. The output shows 56(84) bytes transmitted, 56(84) received, and 0% packet loss.
- Prometheus3 (yellow window):** Shows a ping command from root@vprometheus3 to 148.197.30.74. The output shows 56(84) bytes transmitted, 56(84) received, and 0% packet loss.

Each terminal window also shows the current date and time (Tue Jan 11 15:42:11 2022 or Tue 15:42) and a file menu with options like File, Edit, View, Search, Terminal, Tabs, Help.

## Vm2 to host

The image shows two terminal windows side-by-side. The left window is titled 'root@prometheus:' and displays the output of the 'ifconfig' command. It lists several interfaces: ens33, lo, and virbr0. The right window is titled 'vPrometheus2 - VMware Workstation 16 Player (Non-commercial use only)' and shows the output of a 'ping' command from 'root@vpmetheus2'. The ping statistics indicate a round-trip time of 5.06 ms.

```

root@prometheus:~# ifconfig
ens33: flags=4163<UP,BROADCAST,RUNNING,MULTICAST> mtu 1500
    inet 148.197.28.208 netmask 255.255.255.0 broadcast 148.197.28.255
        ether fe80::8cfd:276b%3d47  txqueuelen 1000  (Ethernet)
        RX packets 89131 bytes 75012917 (71.5 MiB)
        RX errors 0 dropped 0 overruns 0 frame 0
        TX packets 60500 bytes 13262830 (12.6 MiB)
        TX errors 0 dropped 0 overruns 0 carrier 0 collisions 0

lo: flags=4169<UP,LOOPBACK,RUNNING,MULTICAST> mtu 65536
    inet 127.0.0.1 netmask 255.0.0.0
        ether 00:0c:29:4f:89:3e  txqueuelen 1000  (Local Loopback)
        RX packets 48 bytes 4080 (3.9 KiB)
        RX errors 0 dropped 0 overruns 0 frame 0
        TX packets 48 bytes 4080 (3.9 KiB)
        TX errors 0 dropped 0 overruns 0 carrier 0 collisions 0

virbr0: flags=4099<UP,BROADCAST,MULTICAST> mtu 1500
    inet 192.168.122.1 netmask 255.255.255.0 broadcast 192.168.122.255
        ether 52:54:00:ae:5d:9f  txqueuelen 1000  (Ethernet)
        RX packets 0 bytes 0 (0.0 B)
        RX errors 0 dropped 0 overruns 0 frame 0
        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
        ether 00:0c:29:4f:89:3e  txqueuelen 1000  (Local Loopback)

root@vpmetheus2:~# ping 148.197.28.208
PING 148.197.28.208 (148.197.28.208) 56(84) bytes of data.
64 bytes from 148.197.28.208: icmp_seq=1 ttl=62 time=5.06 ms
^C
--- 148.197.28.208 ping statistics ---
25 packets transmitted, 25 received, 0% packet loss, time 24045ms
rtt min/avg/max/mdev = 0.867/4.009/6.323/1.157 ms

```

## Final testing

Making changes in system config to allow for the automation codes to work, from enforcing to disabled

The screenshot shows a dual-pane terminal window. The left pane displays the contents of the file `/etc/selinux/config`, which contains configuration for SELinux, including settings for SELinux type (targeted) and enforcement level (enforcing). The right pane shows the root terminal session with several commands run:

```
[root@prometheus ~]# systemctl restart zebra.service
Job for zebra.service failed because the control process exited with error code.
See "systemctl status zebra.service" and "journalctl -xe" for details.
[root@prometheus ~]# systemctl restart zebra.service
Job for zebra.service failed because the control process exited with error code.
See "systemctl status zebra.service" and "journalctl -xe" for details.
[root@prometheus ~]# gedit /etc/selinux/config
```

Starting routing on Vprometheus1 -

Installing quagga

```
root@vprometheus1:~ - x
File Edit View Search Terminal Help
[root@vprometheus1 ~]# yum install quagga
Loaded plugins: fastestmirror, langpacks
Loading mirror speeds from cached hostfile
 * base: uk.mirror.nsec.pt
 * extras: mirror.freethought-internet.co.uk
 * updates: uk.mirrors.clouvider.net
base                                         | 3.6 kB    00:00
extras                                        | 2.9 kB    00:00
updates                                       | 2.9 kB    00:00
(1/4): extras/7/x86_64/primary_db          | 243 kB    00:00
(2/4): base/7/x86_64/group_gz             | 153 kB    00:00
(3/4): base/7/x86_64/primary_db          | 6.1 MB    00:00
(4/4): updates/7/x86_64/primary_db        | 13 MB     00:01

Installing : perl-Data-Dumper-2.145-3.el7.x86_64                                3/6
Installing : 1:net-snmp-5.7.2-49.el7_9.1.x86_64                               4/6
Installing : quagga-0.99.22.4-5.el7_4.x86_64                                5/6
Cleanup   : 1:net-snmp-libs-5.7.2-49.el7.x86_64                            6/6
Verifying  : perl-Data-Dumper-2.145-3.el7.x86_64                                1/6
Verifying  : quagga-0.99.22.4-5.el7_4.x86_64                                2/6
Verifying  : 1:net-snmp-agent-libs-5.7.2-49.el7_9.1.x86_64                  3/6
Verifying  : 1:net-snmp-libs-5.7.2-49.el7_9.1.x86_64                            4/6
Verifying  : 1:net-snmp-5.7.2-49.el7_9.1.x86_64                            5/6
Verifying  : 1:net-snmp-libs-5.7.2-49.el7.x86_64                            6/6

Installed:
 quagga.x86_64 0:0.99.22.4-5.el7_4

Dependency Installed:
 net-snmp.x86_64 1:5.7.2-49.el7_9.1
 net-snmp-agent-libs.x86_64 1:5.7.2-49.el7_9.1
 perl-Data-Dumper.x86_64 0:2.145-3.el7

Dependency Updated:
 net-snmp-libs.x86_64 1:5.7.2-49.el7_9.1

Complete!
[root@vprometheus1 ~]#
```

## Entering automation codes

```
root@prometheus:~# systemctl restart zebra.service
[root@prometheus ~]# systemctl restart ospfd.service
[root@prometheus ~]# chkconfig zebra on
Note: Forwarding request to 'systemctl enable zebra.service'.
Created symlink from /etc/systemd/system/multi-user.target.wants/zebra.service to /usr/lib/systemd/system/zebra.service.
[root@prometheus ~]# chkconfig ospfd on
Note: Forwarding request to 'systemctl enable ospfd.service'.
Created symlink from /etc/systemd/system/multi-user.target.wants/ospfd.service to /usr/lib/systemd/system/ospfd.service.
[root@prometheus ~]#
```

Ask sir

vPrometheus0 - VMware Workstation 16 Player

File Virtual Machine Help

Applications Places

Home

Wastebasket

CentOS 7 x86\_64

[root@prometheus ~]# zebra -f /etc/quagga/zebra.conf

[root@prometheus ~]#

File Edit View Search Terminal Help

Every 2.0s: route -n

Tue Dec 7 17:47:28 2021

Kernel IP routing table	Destination	Gw	Genmask	Flags	Metric	Ref	Use	Iface
0.0.0.0	148.197.28.254	0.0.0.0	U	100	0	0	0	ens33
148.197.28.0	0.0.0.0	255.255.255.0	U	100	0	0	0	ens33
192.168.122.0	0.0.0.0	255.255.255.0	U	0	0	0	0	virbr0

[root@prometheus ~]# ospfd -f /etc/quagga/ospfd.conf

2021/12/07 17:46:51 OSPF: Could not lock pid\_file /var/run/quagga/ospfd.pid, exiting

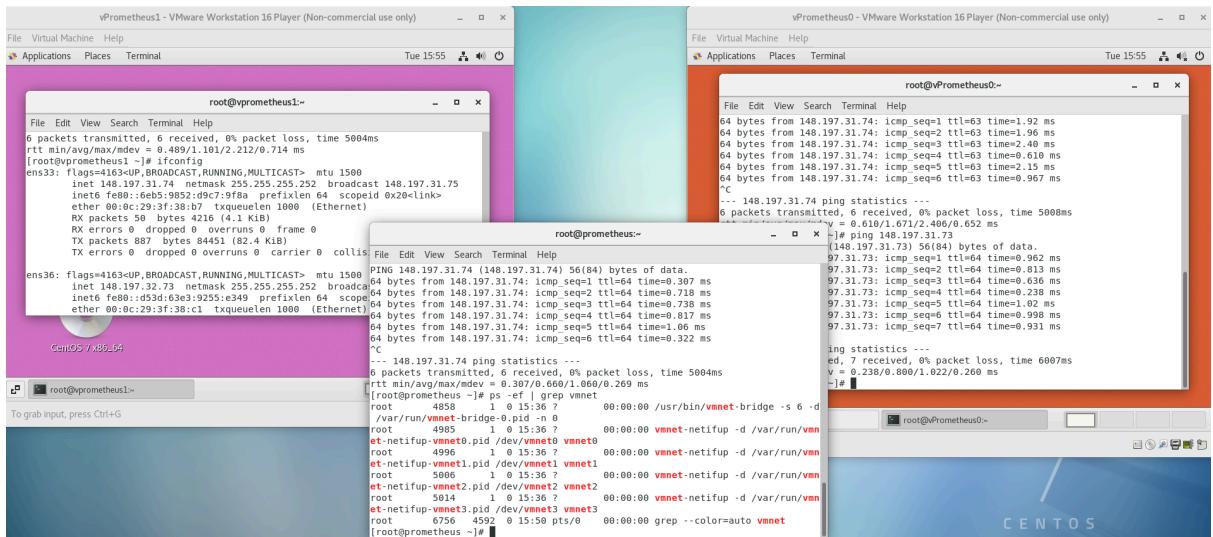
[root@prometheus ~]#

File Edit View Search Terminal Help

CentOS 7.285.64

To grab input, press Ctrl+G

CENTOS



```
[root@prometheus ~]# ps -ef | grep vmnet
root      5266      1  0 15:08 ?
/var/run/vmnet-bridge-0.pid -n 0
root      5390      1  0 15:08 ?
t-netifup-vmnet0.pid /dev/vmnet0 vmnet0
root      5401      1  0 15:08 ?
t-netifup-vmnet1.pid /dev/vmnet1 vmnet1
root      5411      1  0 15:08 ?
t-netifup-vmnet2.pid /dev/vmnet2 vmnet2
root      5419      1  0 15:08 ?
t-netifup-vmnet3.pid /dev/vmnet3 vmnet3
root      6613    5434  0 15:16 pts/2
[root@prometheus ~]# kill -9 5266
[root@prometheus ~]# ps -ef | grep vmnet
root      5390      1  0 15:08 ?
t-netifup-vmnet0.pid /dev/vmnet0 vmnet0
root      5401      1  0 15:08 ?
t-netifup-vmnet1.pid /dev/vmnet1 vmnet1
root      5411      1  0 15:08 ?
t-netifup-vmnet2.pid /dev/vmnet2 vmnet2
root      5419      1  0 15:08 ?
t-netifup-vmnet3.pid /dev/vmnet3 vmnet3
root      6638    5434  0 15:17 pts/2
[root@prometheus ~]# █
```