Exercise 15: Booting, Initializing, and Virtualizing Linux

I. Prepare the environment

1. Login to the CentOS with user student and install tigervnc-server package

   $ sudo yum install tigervnc-server

II. Remote X11

1. Login to the Ubuntu server with user student, show the ip address of the server with the following command
   $ ip a

2. Login to the CentOS server with user student
3. Connect to the Ubuntu server using ssh with X11 forwarding enabled as follows
   $ ssh -X <ubuntu's IP>

4. Run some graphical applications like xeyes, xcalc,… on ubuntu and display the GUI to CentOS Desktop.

III. Remote desktop with VNC (optional)

5. Start the vncserver on the CentOS server and set the session's password.
6. Download a vnc viewer software and install to your desktop (you can try this link https://www.realvnc.com/en/connect/download/viewer/), connect to the CentOS server via vnc viewer

IV. Localization

7. Show the current localization settings of your system
8. Show the detailed information of time setting.
9. Change all the localization settings to fr_FR.UTF-8. Show all settings to verify.
10. Change the Monetary setting to en_US.UTF-8. Show all settings to verify.
11. Change all settings back to en_US.UTF-8. Show all settings to verify.
12. Display your timezone.
13. Change your timezone to US/Pacific.
14. Change back to Asia/Ho_Chi_Minh.
15. Show your hwclock time
16. Show your system time
17. Show the system time with format: "DD/MM/YYYY hh:mm:ss"
18. Change the date and time of your system to JUN 6th, 2020 20:00:00
19. Set your system time to the current time using timedatectl

Exercise Instructions

I. Prepare the environment

V. Remote X11

1. Login to the Ubuntu server with user student (password lpic1@123), show the ip address of the server with the following command
   $ ip a

```
student@ubuntu:/etc$ ip a
1: lo: <LOOPBACK,UP,LOWER_UP> mtu 65536 qdisc noqueue state UNKNOWN group defau
lt qlen 1000
    link/loopback 00:00:00:00:00:00 brd 00:00:00:00:00:00
    inet 127.0.0.1/8 scope host lo
       valid_lft forever preferred_lft forever
    inet6 ::1/128 scope host
       valid_lft forever preferred_lft forever
2: enp0s3: <BROADCAST,MULTICAST,UP,LOWER_UP> mtu 1500 qdisc fq_codel state UP g
roup default qlen 1000
    link/ether 08:00:27:ff:80:f1 brd ff:ff:ff:ff:ff:ff
    inet 192.168.1.63/24 brd 192.168.1.255 scope global dynamic enp0s3
       valid_lft 86390sec preferred_lft 86390sec
    inet6 2405:4800:1096:b056:a00:27ff:feff:80f1/64 scope global dynamic mngtmp
addr noprefixroute
       valid_lft 17990sec preferred_lft 17990sec
    inet6 fe80::a00:27ff:feff:80f1/64 scope link
       valid_lft forever preferred_lft forever
```

   Note the ip address above for the next step

2. Login to the CentOS server with user student (password: lpic1@123)
3. Connect to the Ubuntu server using ssh with X11 forwarding enabled as follows
   On the CentOS desktop, right click your mouse and select Open terminal. In the Terminal window, run the following command
   $ ssh -X <ubuntu's IP>

4. Run some graphical applications like xeyes, xcalc,… on ubuntu and display the GUI to CentOS Desktop.
   In the ssh session opened above, run the folowing command and view the result
   $ xeyes
   Try the graphical app and press ctrl+c to exit the application

   $xcalc
   Try the graphical app and press ctrl+c to exit the application

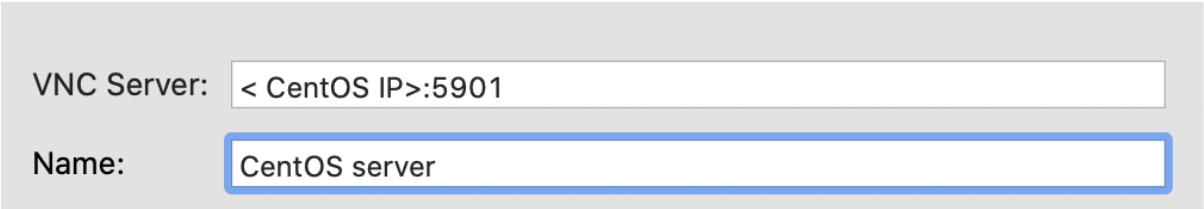
VI. Remote desktop with VNC (optional)

5. Start the vncserver on the CentOS server and set the session's password.
   $ vncserver

```
[student@centos7 ~]$ vncserver

You will require a password to access your desktops.

Password:
Verify:
Would you like to enter a view-only password (y/n)? n
A view-only password is not used

New 'centos7:1 (student)' desktop is centos7:1

Starting applications specified in /home/student/.vnc/xstartup
Log file is /home/student/.vnc/centos7:1.log
```

6. Download a vnc viewer software and install to your desktop (you can try this link https://www.realvnc.com/en/connect/download/viewer/), connect to the CentOS server via vnc viewer
   Show the IP address of the CentOS server:
   $ ip a

   Create the new connection to CentOS server in VNC viewer



   Leave all other information as default.

   Then connect to the CentOS server with vnc viewer

VII. Localization

7. Show the current localization settings of your system
   $ locale

8. Show the detailed information of time setting.
   $ locale -ck LC_TIME

9. Change all the localization settings to fr_FR.UTF-8. Show all settings to verify.
   $ export LANG=fr_FR.UTF-8
   Or
   $ sudo localctl set-locale LANG=fr_FR.utf8

10. Change the Monetary setting to en_US.UTF-8. Show all settings to verify.
    $ export LC_MONETARY=en_US.UTF-8
    Or
    $ sudo localctl set-locale LANG=fr_FR.utf8 LC_MONETARY=en_US.utf8

11. Change all settings back to en_US.UTF-8. Show all settings to verify.

$ export LANG=en_US.UTF-8
Or
$ sudo localctl set-locale LANG=en_US.utf8

12. Display your timezone.
    $ date

13. Change your timezone to US/Pacific.
    $ sudo mv /etc/localtime /etc/localtime.bk
    $ sudo ln -s /usr/share/zoneinfo/US/Pacific /etc/localtime

14. Change back to Asia/Ho_Chi_Minh.
    $ sudo rm /etc/localtime
    $ sudo mv /etc/localtime.bk /etc/localtime

15. Show your hwclock time
    $ sudo hwclock

16. Show your system time
    $ date

17. Show the system time with format: “DD/MM/YYYY hh:mm:ss”
    $ date +”%d/%m/$Y %H:%M:%S”

18. Change the date and time of your system to JUN 11, 2020 20:00:00
    $ date 0611200020.00

19. Set your system time to the current time using timedatectl
    Using the date command like step 18 but use the current time instead