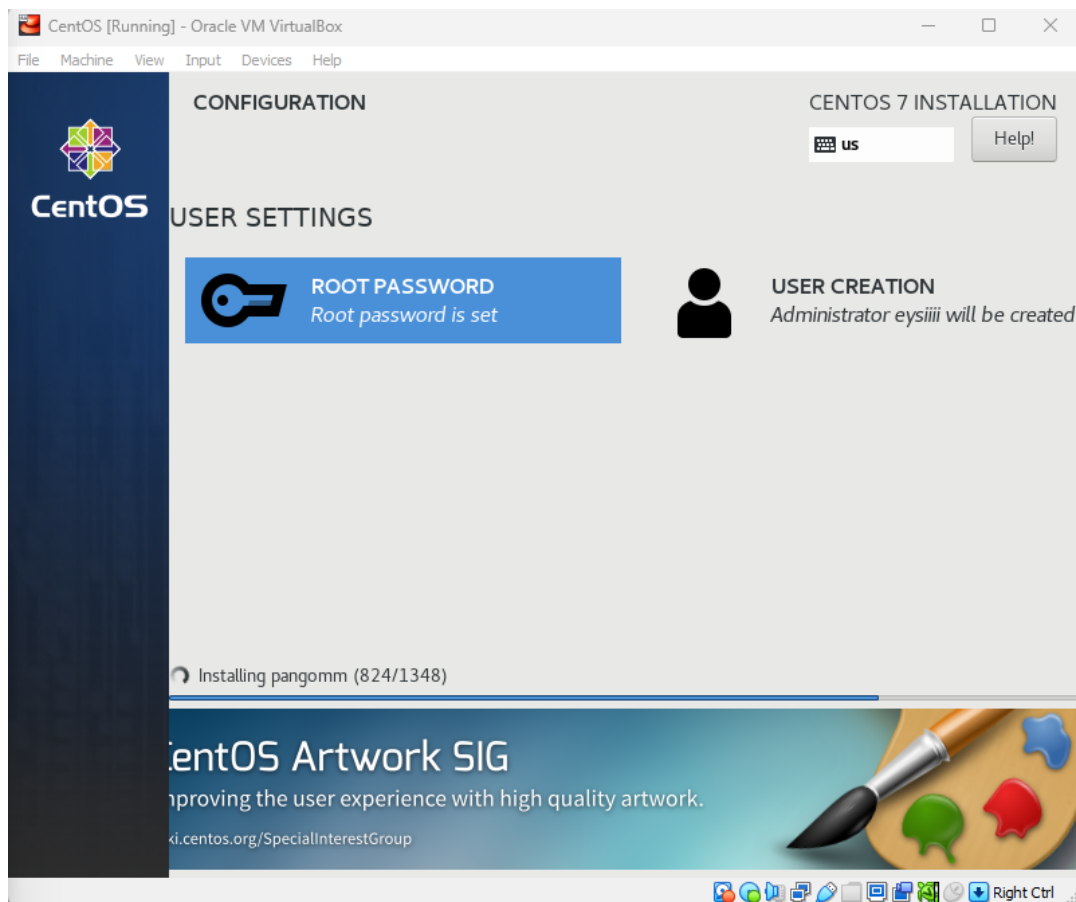


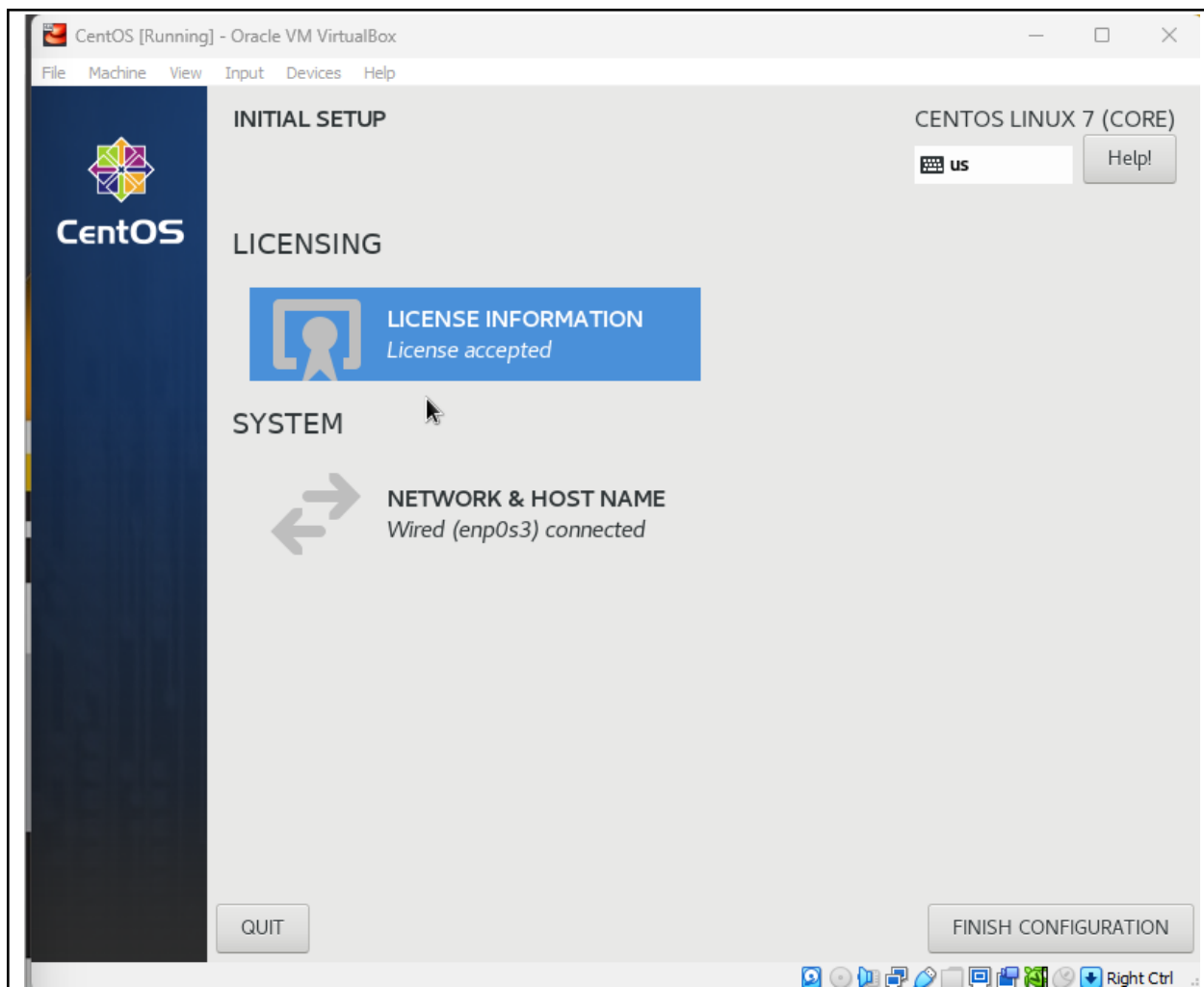
Name: Olivera,Angelo Carl S.	Date Performed: 09/05/2023
Course/Section: CPE232 CPE31S4	Date Submitted: 09/05/2023
Instructor: Jonathan V. Tylar	Semester and SY: 1st sem 2023
Activity 3: Install SSH server on CentOS or RHEL 8	
1. Objectives: 1.1 Install Community Enterprise OS or Red Hat Linux OS 1.2 Configure remote SSH connection from remote computer to CentOS/RHEL-8	
2. Discussion: CentOS vs. Debian: Overview CentOS and Debian are Linux distributions that spawn from opposite ends of the candle. CentOS is a free downstream rebuild of the commercial Red Hat Enterprise Linux distribution where, in contrast, Debian is the free upstream distribution that is the base for other distributions, including the Ubuntu Linux distribution. As with many Linux distributions, CentOS and Debian are generally more alike than different; it isn't until we dig a little deeper that we find where they branch. CentOS vs. Debian: Architecture The available supported architectures can be the determining factor as to whether a distro is a viable option or not. Debian and CentOS are both very popular for x86_64/AMD64, but what other archs are supported by each? Both Debian and CentOS support AArch64/ARM64, armhf/armhfp , i386 , ppc64el/ppc64le. (Note: armhf/armhfp and i386 are supported in CentOS 7 only.) CentOS 7 additionally supports POWER9 while Debian and CentOS 8 do not. CentOS 7 focuses on the x86_64/AMD64 architecture with the other archs released through the AltArch SIG (Alternate Architecture Special Interest Group) with CentOS 8 supporting x86_64/AMD64, AArch64 and ppc64le equally. Debian supports MIPSel, MIPS64el and s390x while CentOS does not. Much like CentOS 8, Debian does not favor one arch over another —all supported architectures are supported equally. CentOS vs. Debian: Package Management Most Linux distributions have some form of package manager nowadays, with some more complex and feature-rich than others. CentOS uses the RPM package format and YUM/DNF as the package manager. Debian uses the DEB package format and dpkg/APT as the package manager.	

Both offer full-feature package management with network-based repository support, dependency checking and resolution, etc.. If you're familiar with one but not the other, you may have a little trouble switching over, but they're not overwhelmingly different. They both have similar features, just available through a different interface.

Task 1: Download the CentOS or RHEL-8 image (Create screenshots of the following)

1. Download the image of the CentOS here:
http://mirror.rise.ph/centos/7.9.2009/isos/x86_64/
2. Create a VM machine with 2 Gb RAM and 20 Gb HD.
3. Install the downloaded image.
4. Show evidence that the OS was installed already.

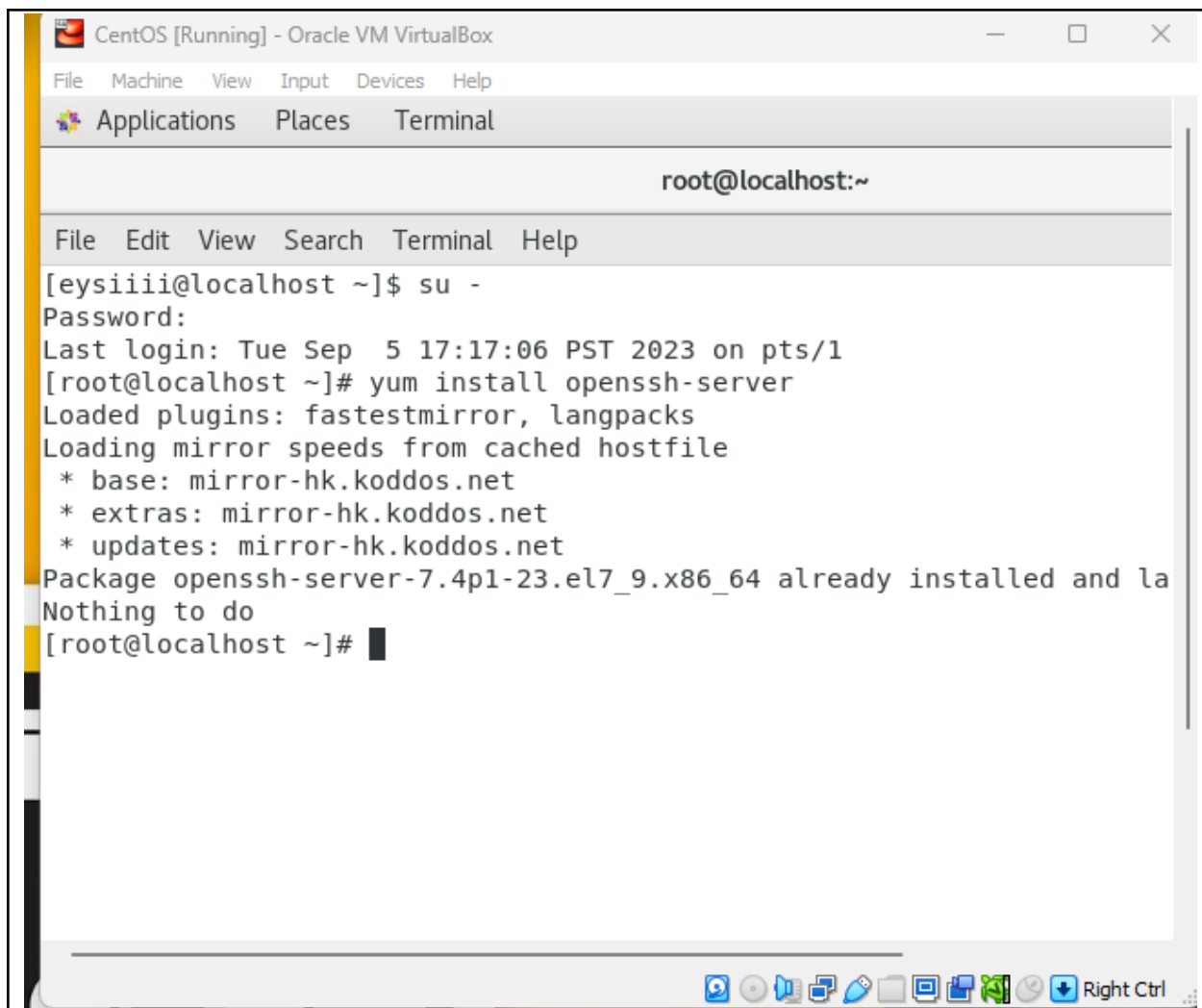




Task 2: Install the SSH server package *openssh*

1. Install the ssh server package *openssh* by using the *dnf* command:

\$ dnf install openssh-server



```
CentOS [Running] - Oracle VM VirtualBox
File Machine View Input Devices Help
Applications Places Terminal

root@localhost:~

File Edit View Search Terminal Help
[neysiii@localhost ~]$ su -
Password:
Last login: Tue Sep  5 17:17:06 PST 2023 on pts/1
[root@localhost ~]# yum install openssh-server
Loaded plugins: fastestmirror, langpacks
Loading mirror speeds from cached hostfile
* base: mirror-hk.koddos.net
* extras: mirror-hk.koddos.net
* updates: mirror-hk.koddos.net
Package openssh-server-7.4p1-23.el7_9.x86_64 already installed and la
Nothing to do
[root@localhost ~]#
```

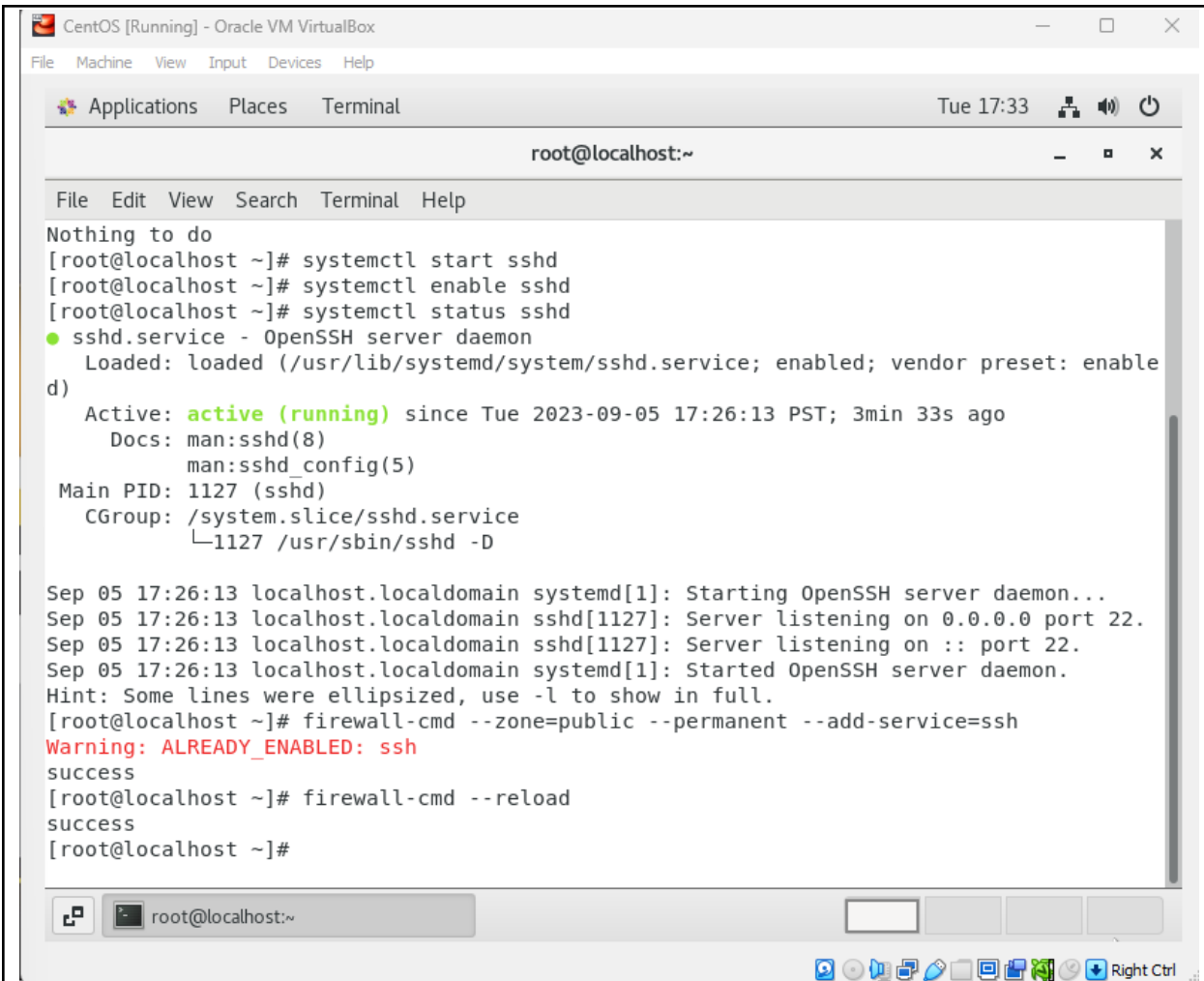
2. Start the *sshd* daemon and set to start after reboot:
\$ systemctl start sshd
\$ systemctl enable sshd
3. Confirm that the sshd daemon is up and running:
\$ systemctl status sshd

```
CentOS [Running] - Oracle VM VirtualBox
File Machine View Input Devices Help
Applications Places Terminal Tue 17:32
root@localhost:~
File Edit View Search Terminal Help
Loading mirror speeds from cached hostfile
* base: mirror-hk.koddos.net
* extras: mirror-hk.koddos.net
* updates: mirror-hk.koddos.net
Package openssh-server-7.4p1-23.el7_9.x86_64 already installed and latest version
Nothing to do
[root@localhost ~]# systemctl start sshd
[root@localhost ~]# systemctl enable sshd
[root@localhost ~]# systemctl status sshd
● sshd.service - OpenSSH server daemon
   Loaded: loaded (/usr/lib/systemd/system/sshd.service; enabled; vendor preset: enable
d)
   Active: active (running) since Tue 2023-09-05 17:26:13 PST; 3min 33s ago
     Docs: man:sshd(8)
           man:sshd_config(5)
   Main PID: 1127 (sshd)
    CGroup: /system.slice/sshd.service
            └─1127 /usr/sbin/sshd -D

Sep 05 17:26:13 localhost.localdomain systemd[1]: Starting OpenSSH server daemon...
Sep 05 17:26:13 localhost.localdomain sshd[1127]: Server listening on 0.0.0.0 port 22.
Sep 05 17:26:13 localhost.localdomain sshd[1127]: Server listening on :: port 22.
Sep 05 17:26:13 localhost.localdomain systemd[1]: Started OpenSSH server daemon.
Hint: Some lines were ellipsized, use -l to show in full.
[root@localhost ~]#
```

4. Open the SSH port 22 to allow incoming traffic:

```
$ firewall-cmd --zone=public --permanent --add-service=ssh
$ firewall-cmd --reload
```



```
CentOS [Running] - Oracle VM VirtualBox
File Machine View Input Devices Help
Applications Places Terminal Tue 17:33
root@localhost:~
File Edit View Search Terminal Help
Nothing to do
[root@localhost ~]# systemctl start sshd
[root@localhost ~]# systemctl enable sshd
[root@localhost ~]# systemctl status sshd
● sshd.service - OpenSSH server daemon
   Loaded: loaded (/usr/lib/systemd/system/sshd.service; enabled; vendor preset: enable
d)
   Active: active (running) since Tue 2023-09-05 17:26:13 PST; 3min 33s ago
     Docs: man:sshd(8)
           man:sshd_config(5)
  Main PID: 1127 (sshd)
    CGroup: /system.slice/sshd.service
            └─1127 /usr/sbin/sshd -D

Sep 05 17:26:13 localhost.localdomain systemd[1]: Starting OpenSSH server daemon...
Sep 05 17:26:13 localhost.localdomain sshd[1127]: Server listening on 0.0.0.0 port 22.
Sep 05 17:26:13 localhost.localdomain sshd[1127]: Server listening on :: port 22.
Sep 05 17:26:13 localhost.localdomain systemd[1]: Started OpenSSH server daemon.
Hint: Some lines were ellipsized, use -l to show in full.
[root@localhost ~]# firewall-cmd --zone=public --permanent --add-service=ssh
Warning: ALREADY_ENABLED: ssh
success
[root@localhost ~]# firewall-cmd --reload
success
[root@localhost ~]#
```

5. Locate the ssh server man config file */etc/ssh/sshd_config* and perform custom configuration. Every time you make any change to the */etc/ssh/sshd-config* configuration file reload the *sshd* service to apply changes:
\$ systemctl reload sshd

Task 3: Copy the Public Key to CentOS

1. Make sure that *ssh* is installed on the local machine.
2. Using the command *ssh-copy-id*, connect your local machine to CentOS.
3. On CentOS, verify that you have the *authorized_keys*.

```
CentOS [Running] - Oracle VM VirtualBox
File Machine View Input Devices Help
Applications Places Terminal Tue 17:43
eysiinii@localhost:~
File Edit View Search Terminal Help
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 52:54:00:9b:92:d1 txqueuelen 1000 (Ethernet)
RX packets 0 bytes 0 (0.0 B)
RX errors 0 dropped 0 overruns 0 frame 0
TX packets 0 bytes 0 (0.0 B)
TX errors 0 dropped 0 overruns 0 carrier 0 collisions 0

[root@localhost ~]# cat ~/.ssh/authorized_keys
cat: /root/.ssh/authorized_keys: No such file or directory
[root@localhost ~]# exit
logout
[eysiinii@localhost ~]$ cat ~/.ssh/authorized_keys
ssh-rsa AAAAB3NzaC1yc2EAAAADAQABAAQCTTqC0SI8TTTrqvFc475vzXEE+oyX4b0ylPy+UprN51m6jffp
s3ZlWqGgA2idrjRNqDweX3uUKLgz5MdZNGP86mRqs13DdVXhiTsvgS0bG0HefuXmy2cJnpPHR4Zr0Mw0i8Lgj9M
zgA4+uyFevCmsH/LSjVoFZuA0SwR8bNgZc0FIQ7lUG30qt6TgdGJZ+RXIyl2K6Vfr85rvt5+q5UJzWP/mDXgkQW
ZbfX4x6Nh2gVkrkdoq+n92iwrQa5YQ2XryrxX1JRY3s5RUj3SJFbD1nfPZnk0gf7ahKCVz/yNQtd4n1c8LBwrc
LwhVM8w1106zdtFuP20IkPN3w4y4ayASEdnVYP9kPdClFynBIgbU4+iCbdF6Idz600o5GR0lNPiZS9AoArJI2/E
YCV5Aifs43WYfz/Y+vvhhulGPvGdmW8SedcyW/bn8F1MHnbgIw24MCRQubff8vuZp0uunBRyDca2M0NA6/7I0RT
zFtARaWnCKcgw//cfVZGuWXmaNIvC6IYt+zoKmIQ8n4vpnmV/Lw0f9mC2BcJ2hUj8G46/dIf8z5SVdgoUsfGS
HroW9158lQ27EApUkYHF9oZfhd8cmjU5imvxPfEjoq+yS+R0CZK2NigGhuKt10lu7hJqVVIaVoGig2HSfzKr2b
W9PQppG09cXvBkBYpAEVA0DBww== /home/eysiinii/.ssh/id_rsa
[eysiinii@localhost ~]$
```

Task 4: Verify ssh remote connection

1. Using your local machine, connect to CentOS using ssh.
2. Show evidence that you are connected.

```
eysiiii@localhost:~  
File Edit View Search Terminal Help  
/usr/bin/ssh-copy-id: INFO: attempting to log in with the  
new key(s), to filter out any that are already installed  
/usr/bin/ssh-copy-id: INFO: 1 key(s) remain to be installed -- if you are prompted now it is to install the new keys  
eysiiii@192.168.56.111's password:  
  
Number of key(s) added: 1  
  
Now try logging into the machine, with: "ssh 'eysiiii@192.168.56.111'"  
and check to make sure that only the key(s) you wanted were added.  
  
eysiiii@ManageNode:~$ ssh eysiii@localhost  
The authenticity of host 'localhost (192.168.56.111)' can't be established.  
ECDSA key fingerprint is SHA256:X7qB0QT3R7/REg5WI/ml31zxLCkstEmFMixsFM5HTnA.  
Are you sure you want to continue connecting (yes/no)? yes  
Warning: Permanently added 'localhost' (ECDSA) to the list of known hosts.  
Last login: Tue Sep  5 17:26:29 2023  
[eysiiii@localhost ~]$
```

Reflections:

Answer the following:

1. What do you think we should look for in choosing the best distribution between -when choosing between Debian and Red Hat Linux distributions, there are many to consider. But for me I choose the package manager, because Red Hat uses .rpm packages and a package manager called dnf, along with its ecosystem of tools, while Debian uses .deb packages and a package manager called apt
2. What are the main difference between Debian and Red Hat Linux distributions?

Debian:

- Debian is a community-driven project dedicated to the principles of free software
- Debian can be difficult to set up on vanilla Debian.
- Debian has old versions of software.

Red Hat:

- Red Hat Enterprise Linux (RHEL) is a secure operating system and platform for enterprise hybrid clouds.
- Red Hat uses .rpm packages and a package manager called dnf, along with its ecosystem of tools.
- Red Hat has a learning curve.
- Red Hat is costly.