Name: Emmanuel G. Pascua	Date Performed: August 30, 2022
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Instructor: Dr. Jonathan Taylar	Semester and SY: 1st Sem 2022-2023

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.

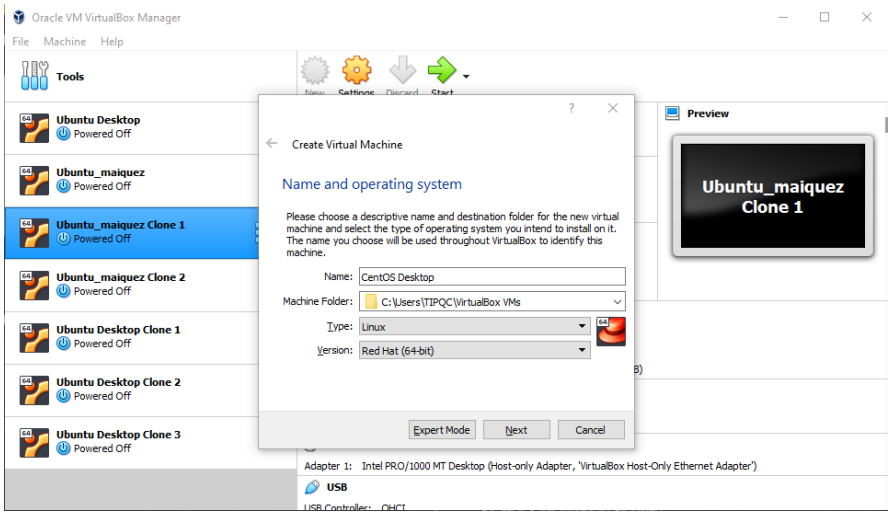
Task 1: Download the CentOS or RHEL-8 image (Create screenshots of the following)

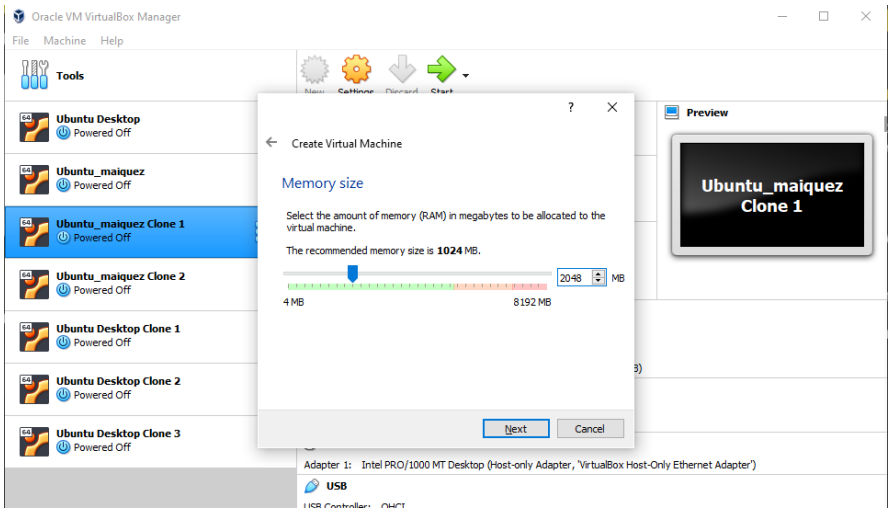
1. Download the image of the CentOS here: http://mirror.rise.ph/centos/7.9.2009/isos/x86_64/

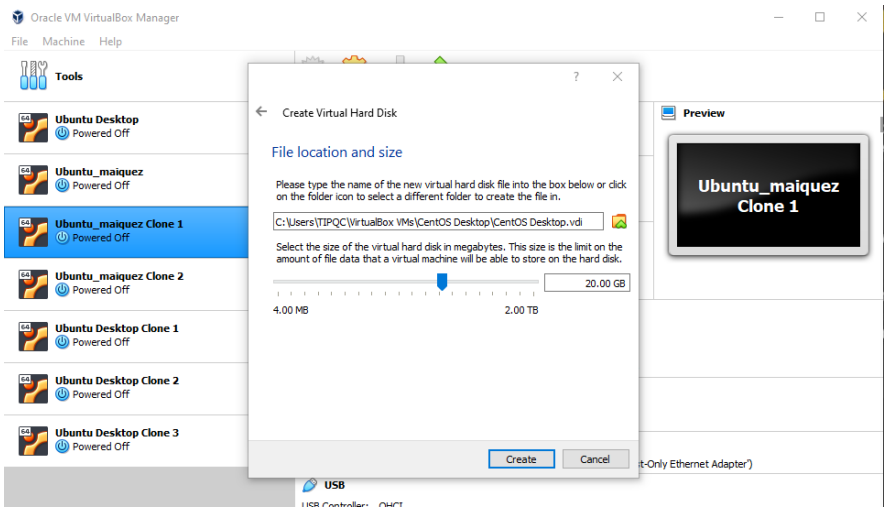
The following mirrors in your region should have the ISO images available:

http://mirror.rise.ph/centos/7.9.2009/isos/x86_64/

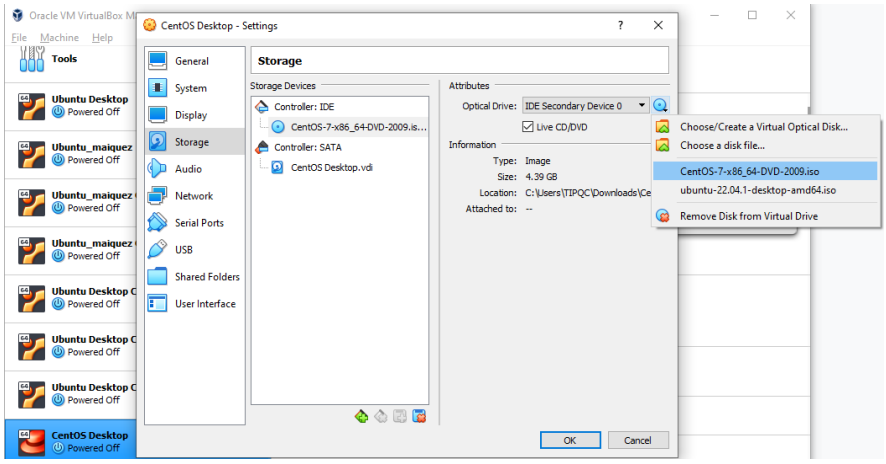
2. Create a VM machine with 2 Gb RAM and 20 Gb HD.

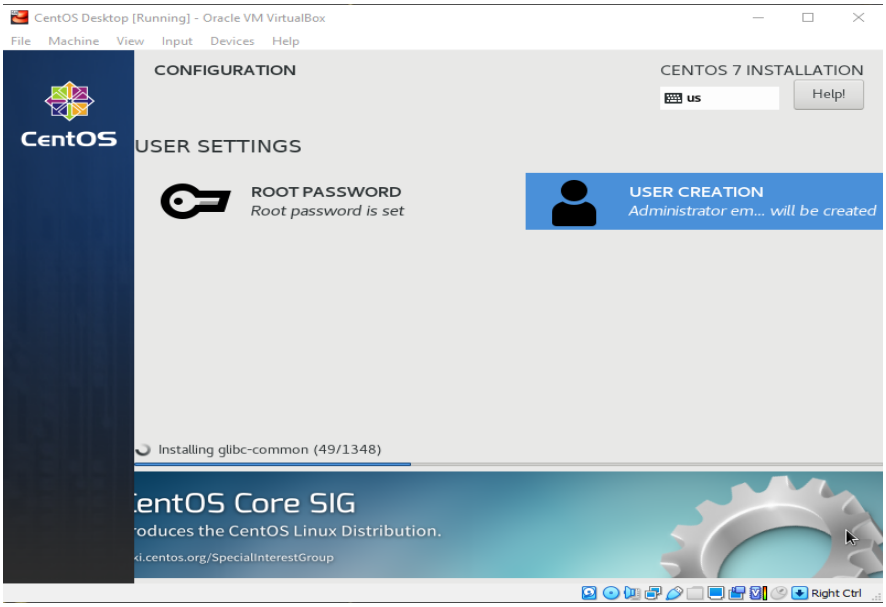




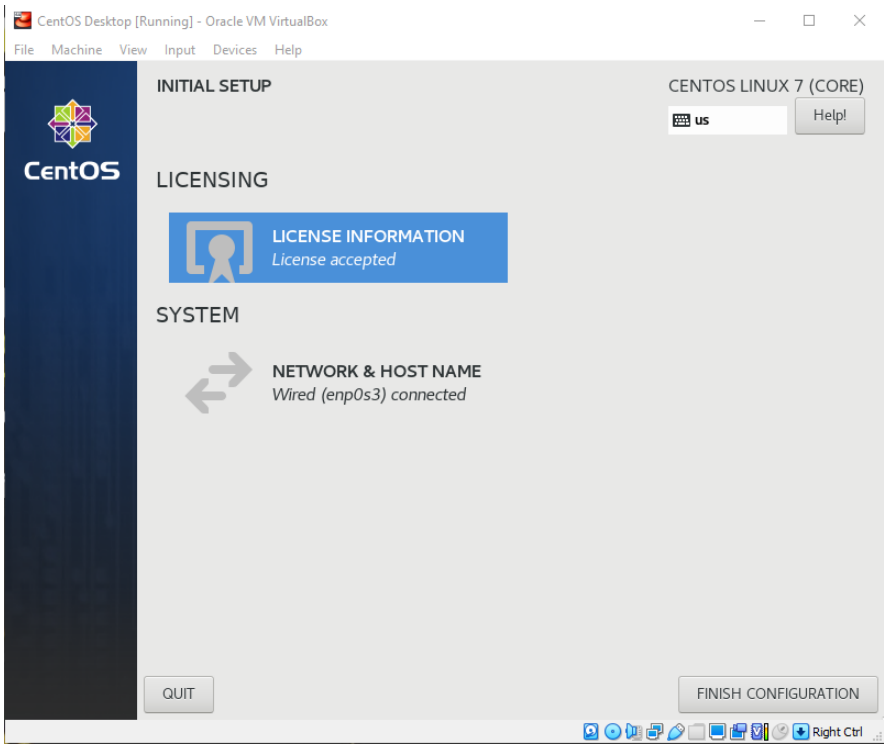


3. Install the downloaded image.



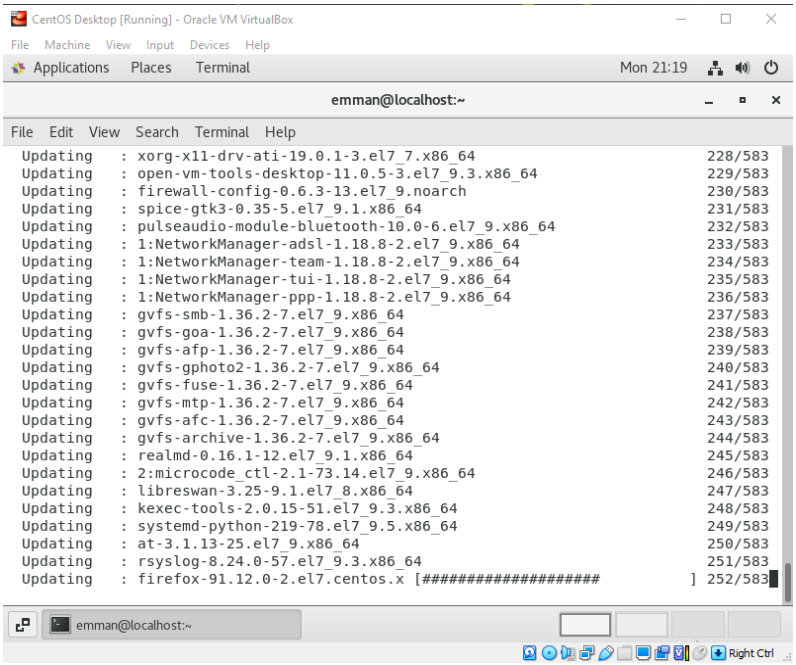


4. Show evidence that the OS was installed already.

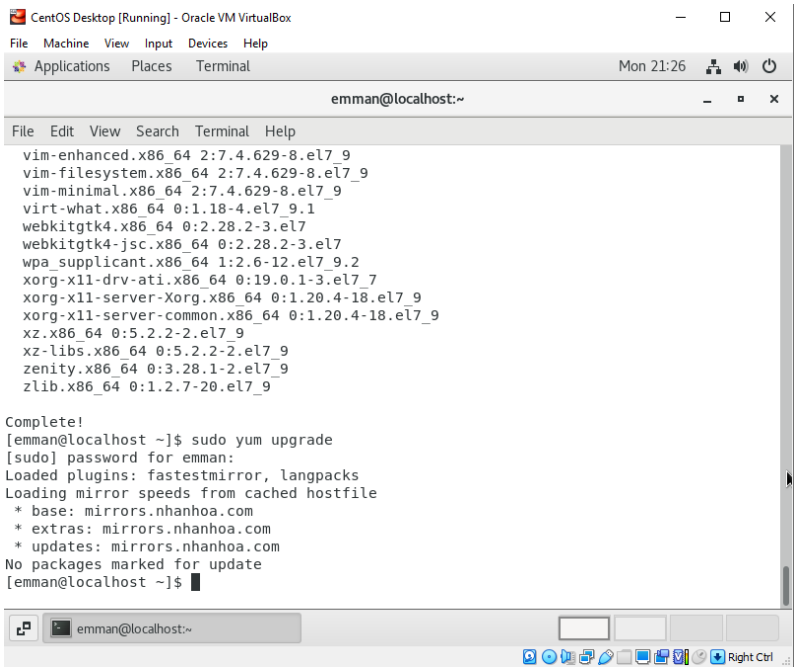


Task 2: Install the SSH server package *openssh*

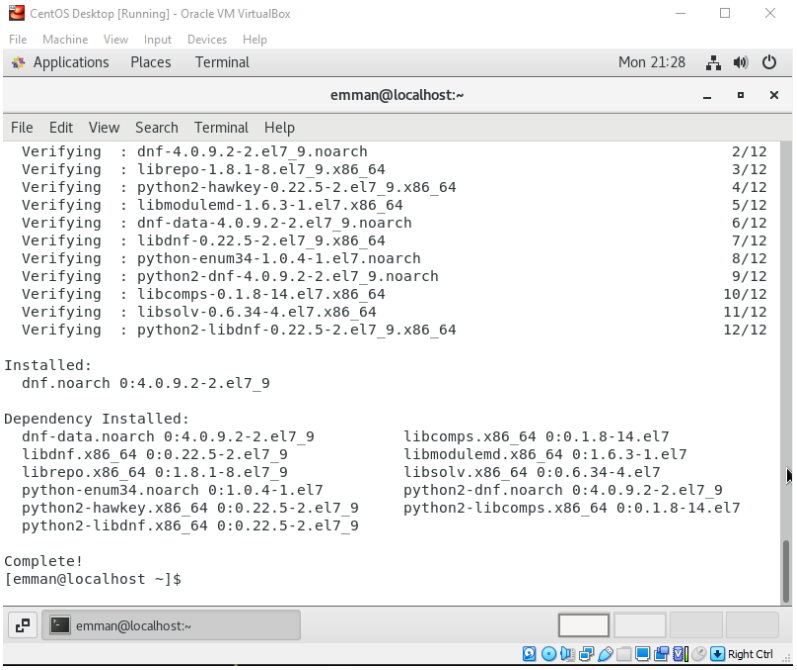
sudo yum update:



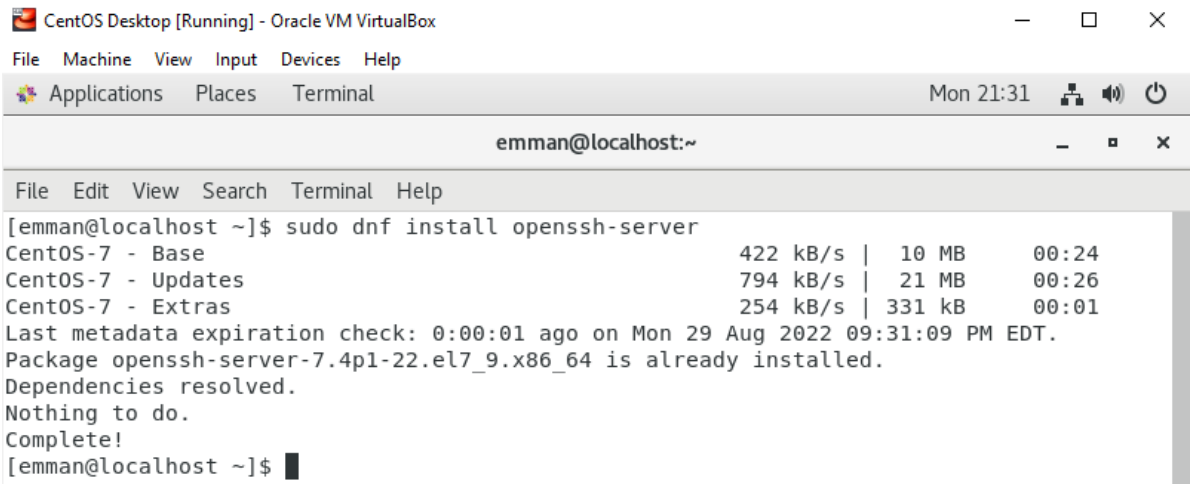
sudo yum upgrade



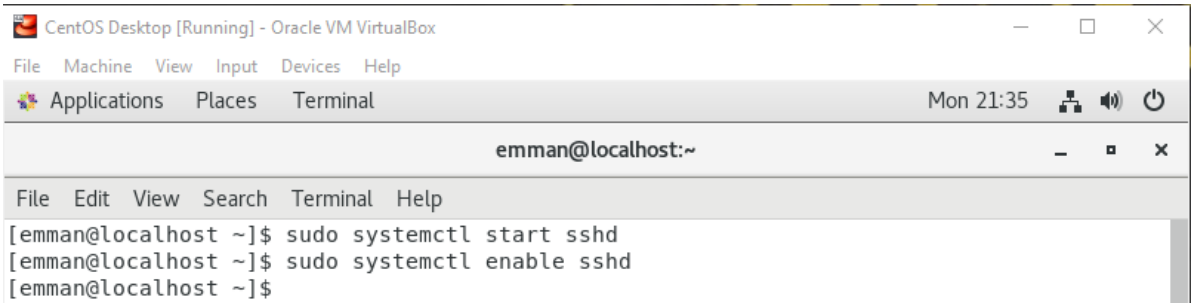
sudo yum install dnf



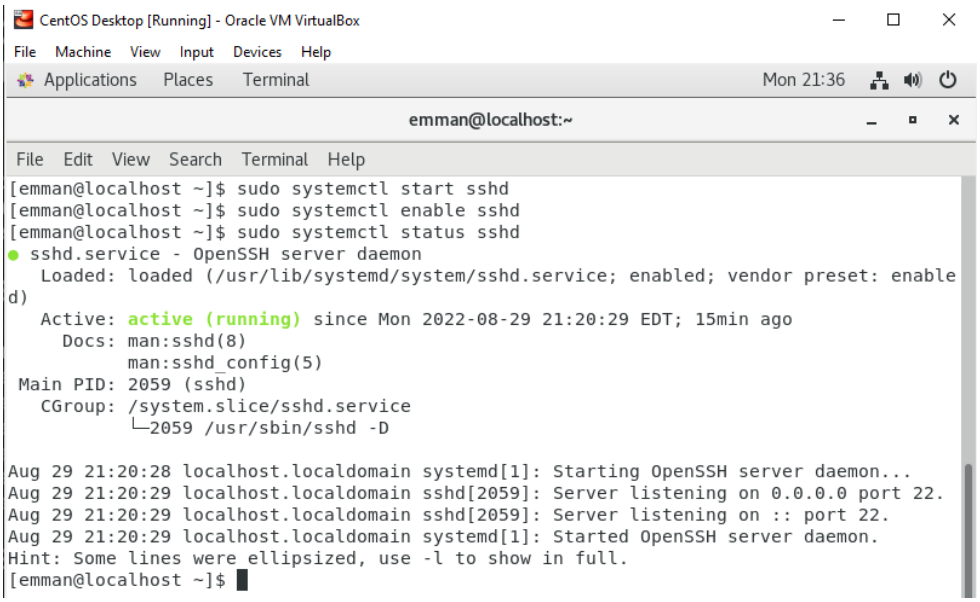
1. Install the ssh server package *openssh* by using the *dnf* command:
   $ dnf install openssh-server



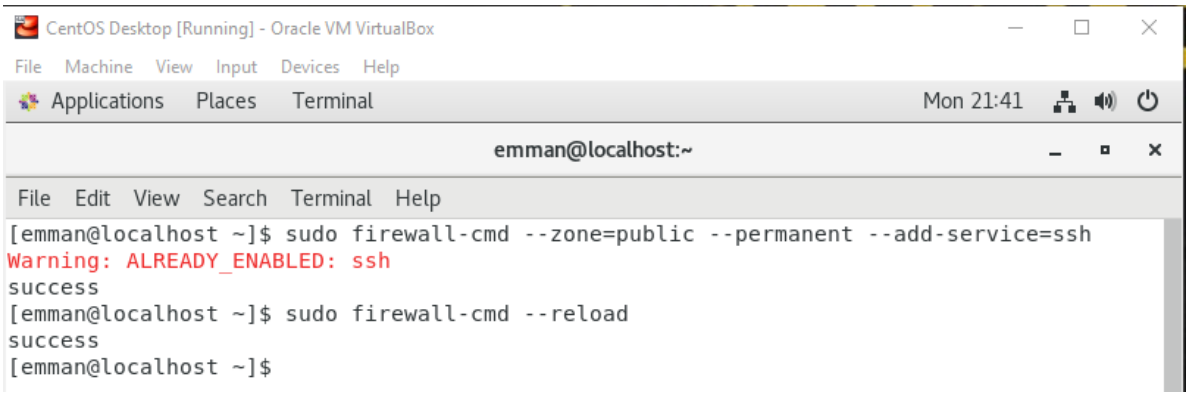
2. Start the *sshd* daemon and set to start after reboot:
   $ systemctl start sshd



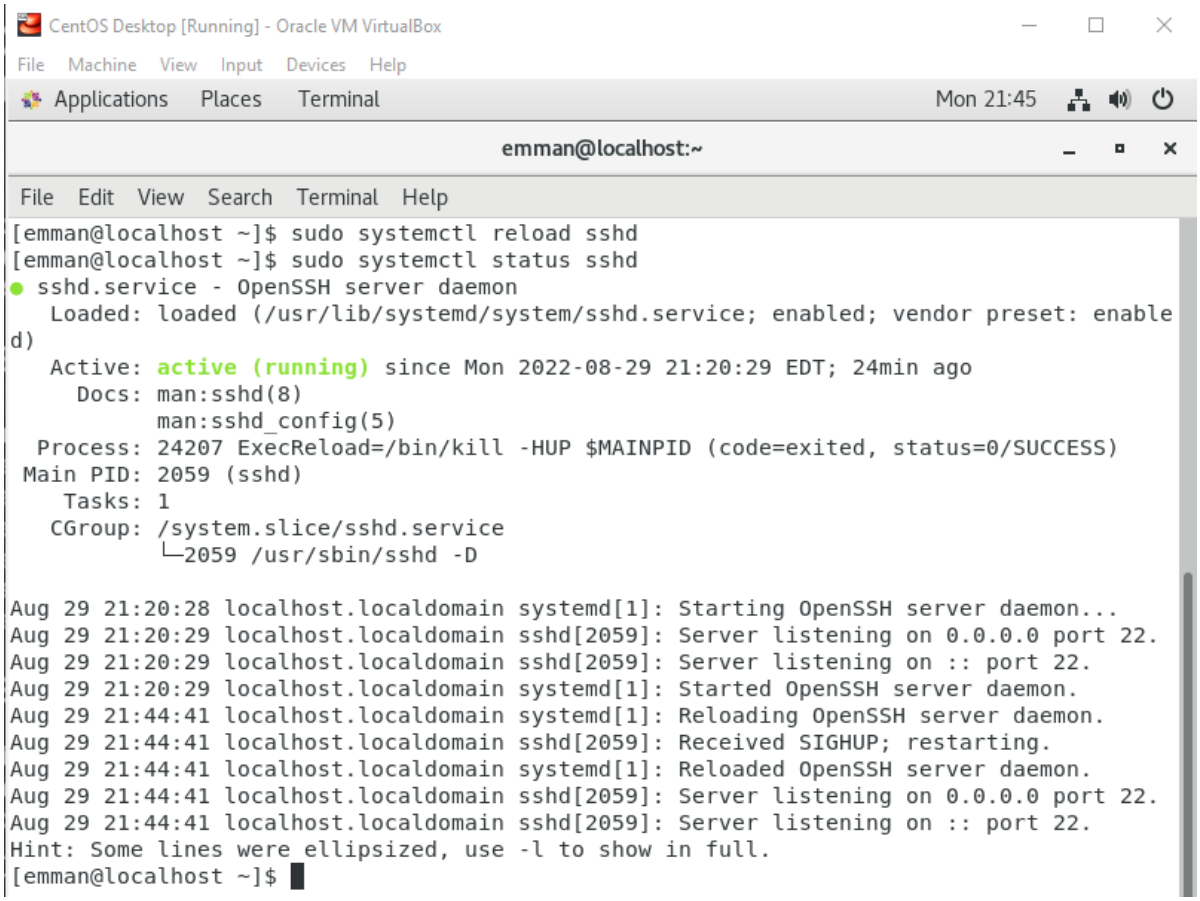
3. Confirm that the sshd daemon is up and running:
   $ systemctl status sshd



4. Open the SSH port 22 to allow incoming traffic:
   $ firewall-cmd --zone=public --permanent --add-service=ssh
   $ firewall-cmd --reload

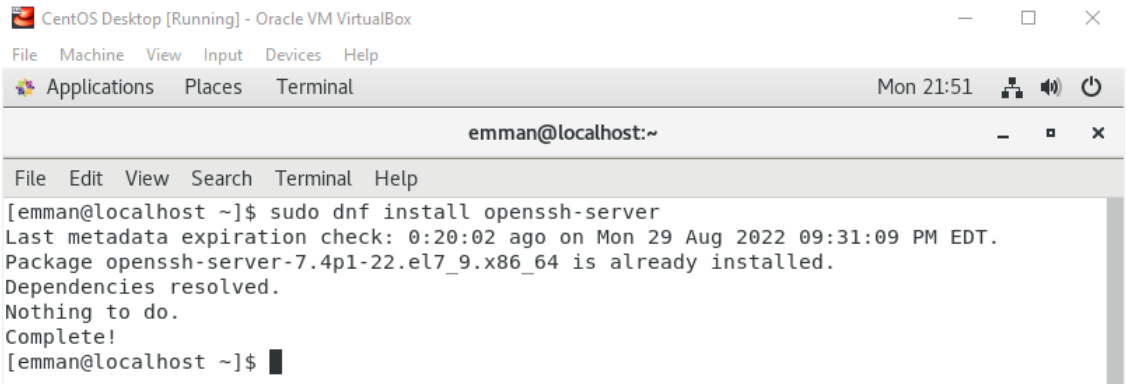


5. Locate the ssh server man config file /*etc/ssh/sshd_config* and perform custom configuration. Every time you make any change to the /*etc/ssh/sshd-config* configuration file reload the *sshd* service to apply changes:
   $ systemctl reload sshd



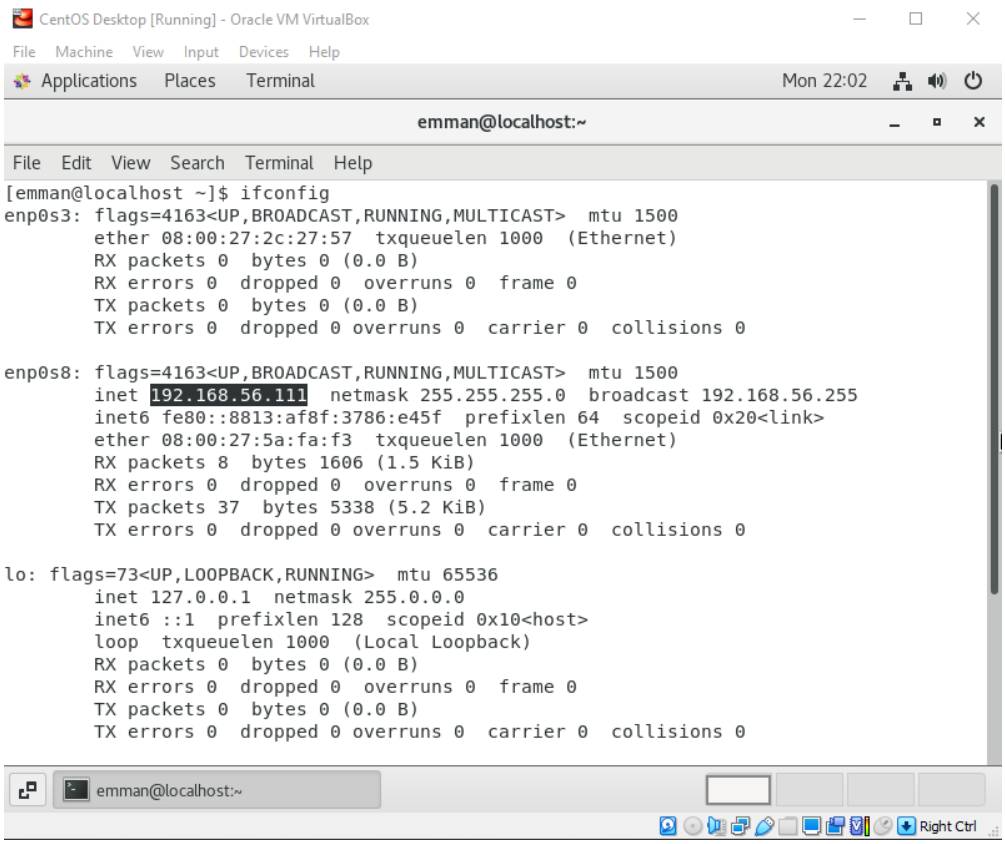
Task 3: Copy the Public Key to CentOS

1. Make sure that *ssh* is installed on the local machine.

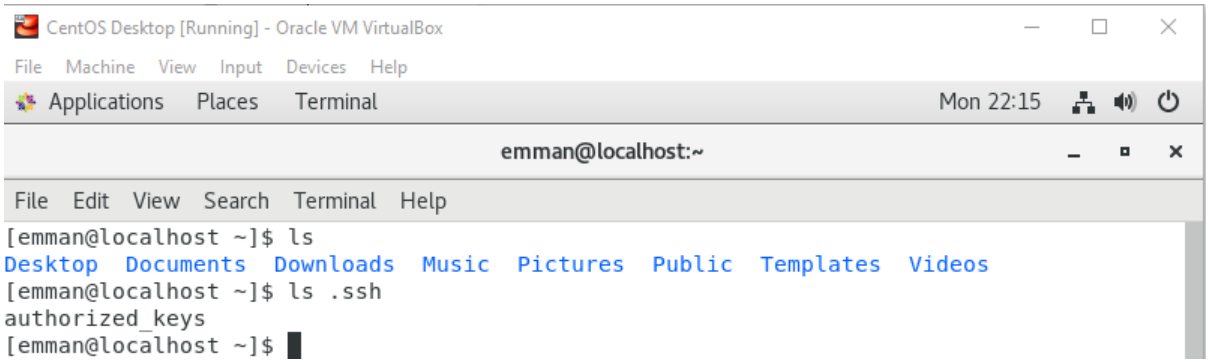


2. Using the command *ssh-copy-id*, connect your local machine to CentOS.

```
[emman@localhost ~]$ sudo dnf install net-tools
Last metadata expiration check: 0:21:52 ago on Mon 29 Aug 2022 09:31:09 PM EDT.
Package net-tools-2.0-0.25.20131004git.el7.x86_64 is already installed.
Dependencies resolved.
Nothing to do.
Complete!
[emman@localhost ~]$
```

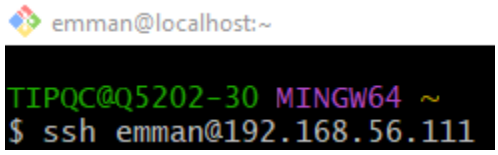


3. On CentOS, verify that you have the *authorized_keys*.

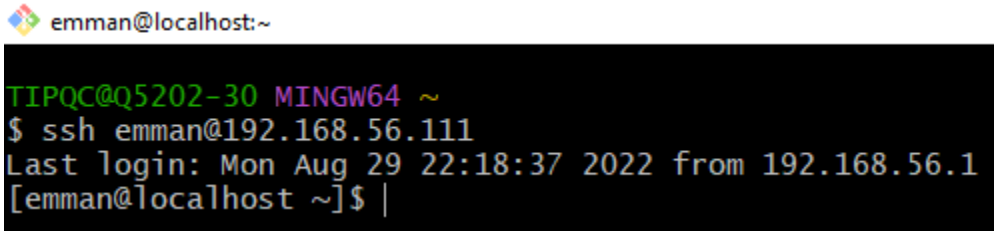


Task 4: Verify ssh remote connection

1. Using your local machine, connect to CentOS using ssh.



2. Show evidence that you are connected.



Reflections:

Answer the following:

1. What do you think we should look for in choosing the best distribution between Debian and Red Hat Linux distributions?

I would advise using one of the four primary Linux distributions, namely Red Hat, CentOS, Debian, or Ubuntu. The maintainability, continuity, stability, and security of this proposition are its pillars. Large communities or businesses support each of the aforementioned distributions. To conclude, for me, I chose Red Hat because of better support for long-term apps. With an enterprise distro, you get patches, updates, upgrades, expert technical support, and access to training and tutorials.

2. What are the main differences between Debian and Red Hat Linux distributions?

Red Hat is an MNC company whose intention is to profit based on every package sold. The other one, Debian, is founded and developed by SPI(Software in the Public Interest), which is a non-profit organization.