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Course/Section: CPE31S23	Date Submitted: September 01, 2022
Instructor: Engr. 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.

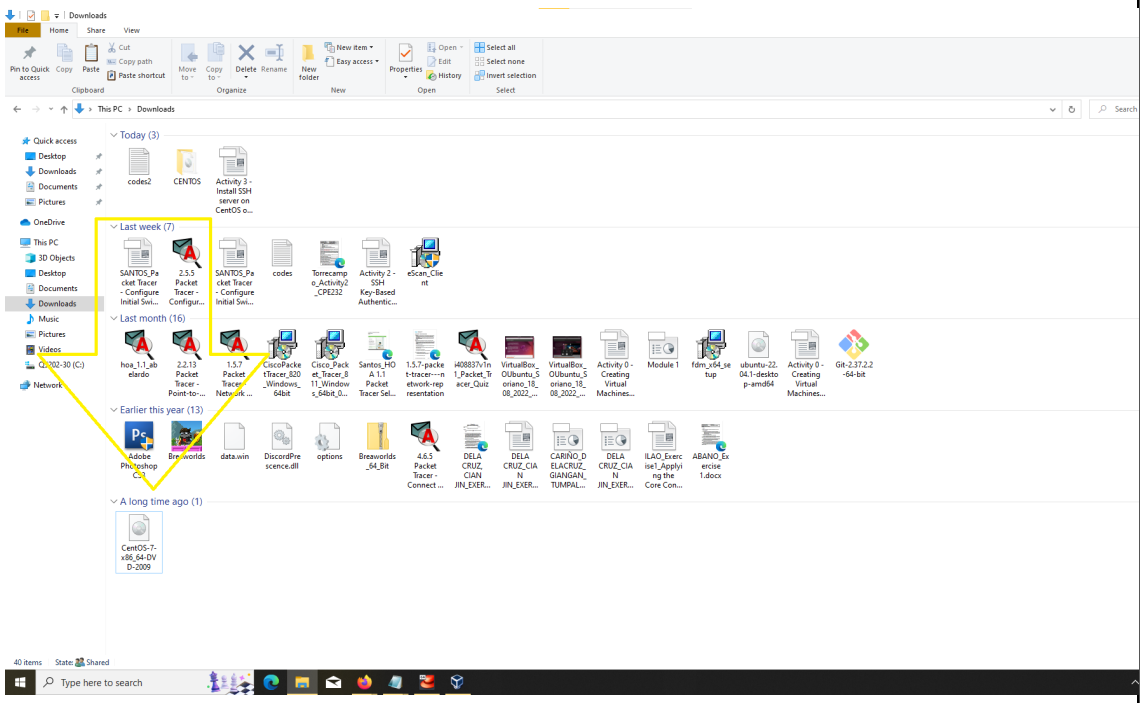
Debian uses the DEB package format and dpkg/APT as the package manager.

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)

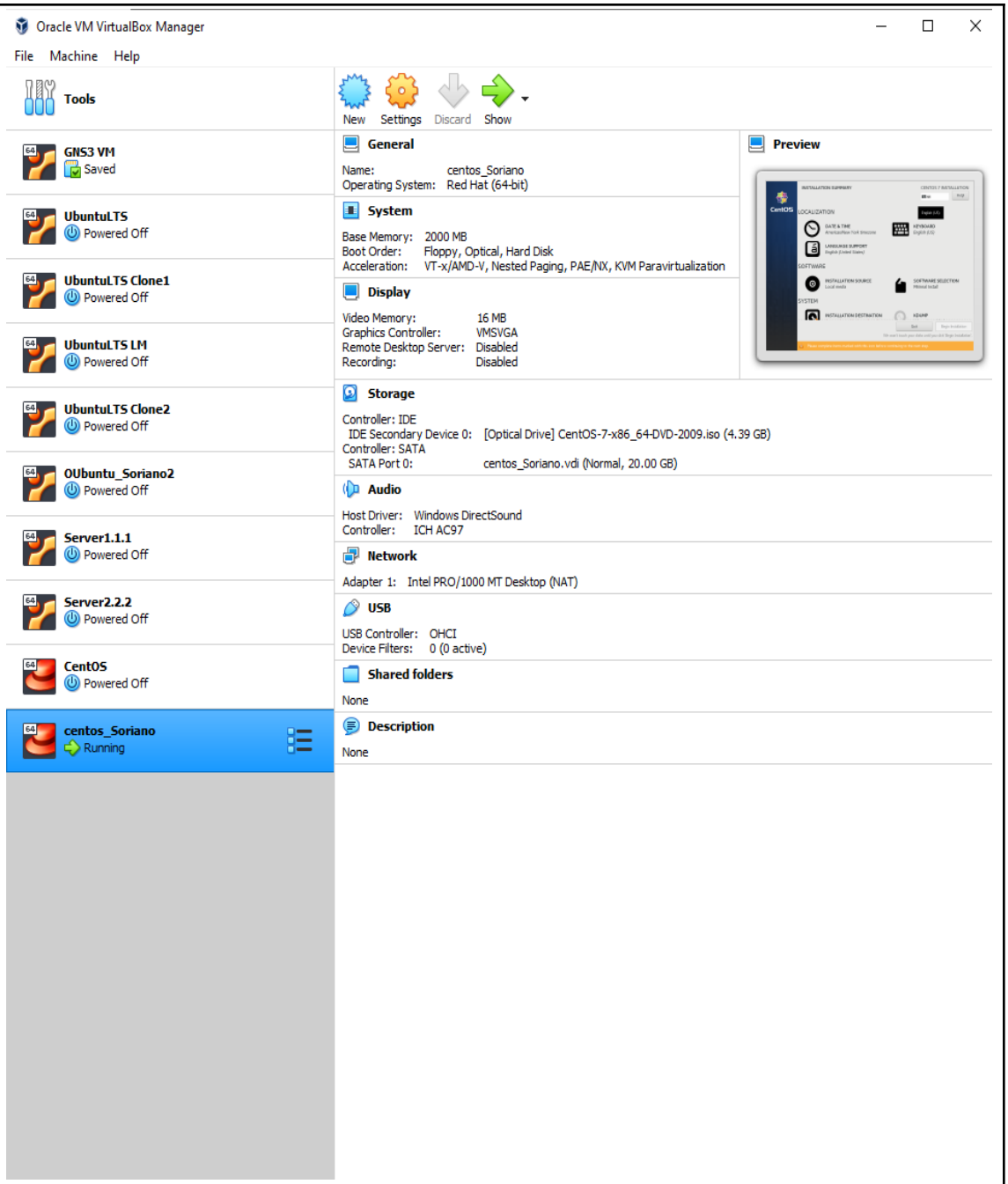
1. Download the image of the CentOS here: http://mirror.rise.ph/centos/7.9.2009/isos/x86_64/

   SCREENSHOT:



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

   SCREENSHOT:



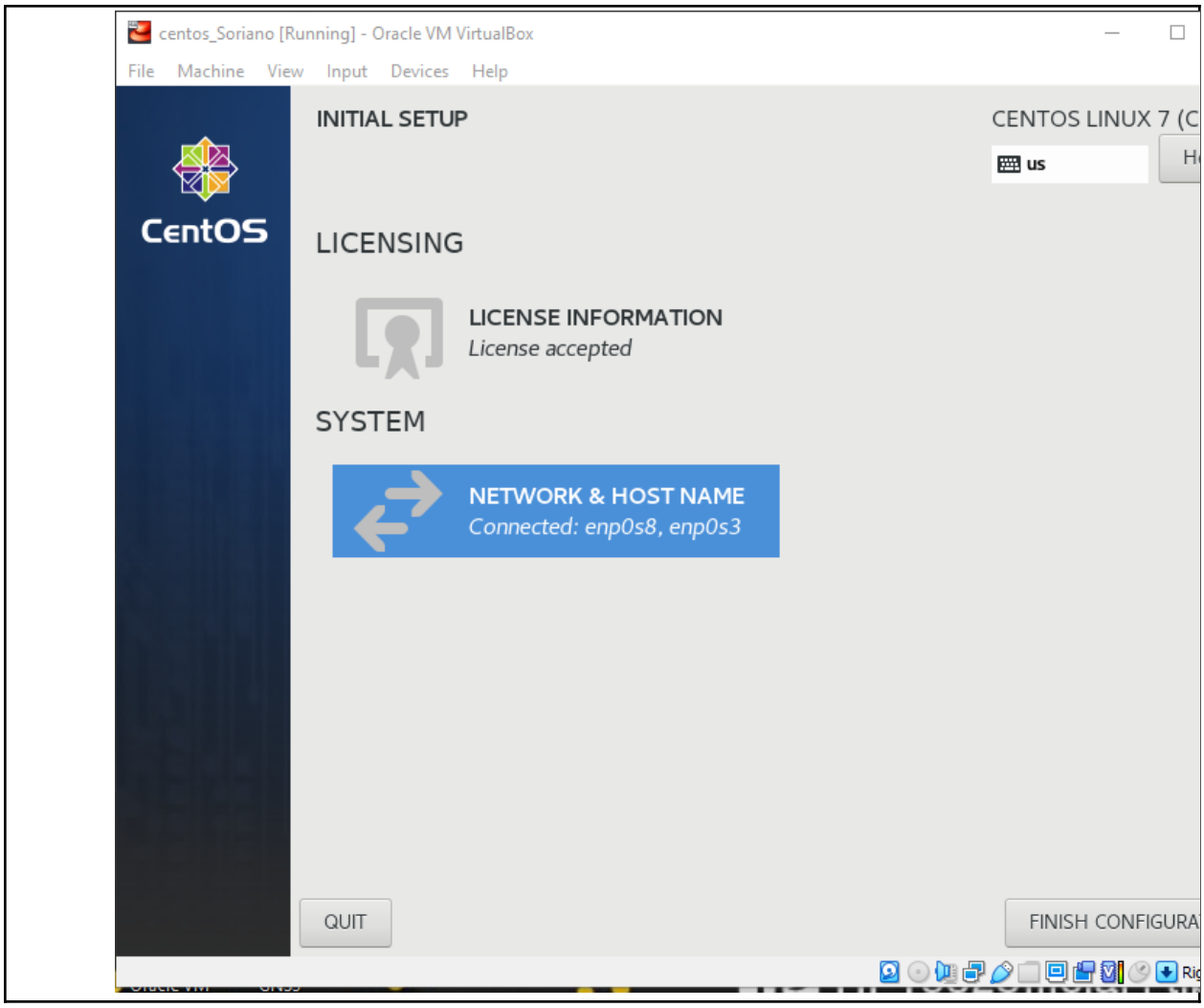
3. Install the downloaded image.

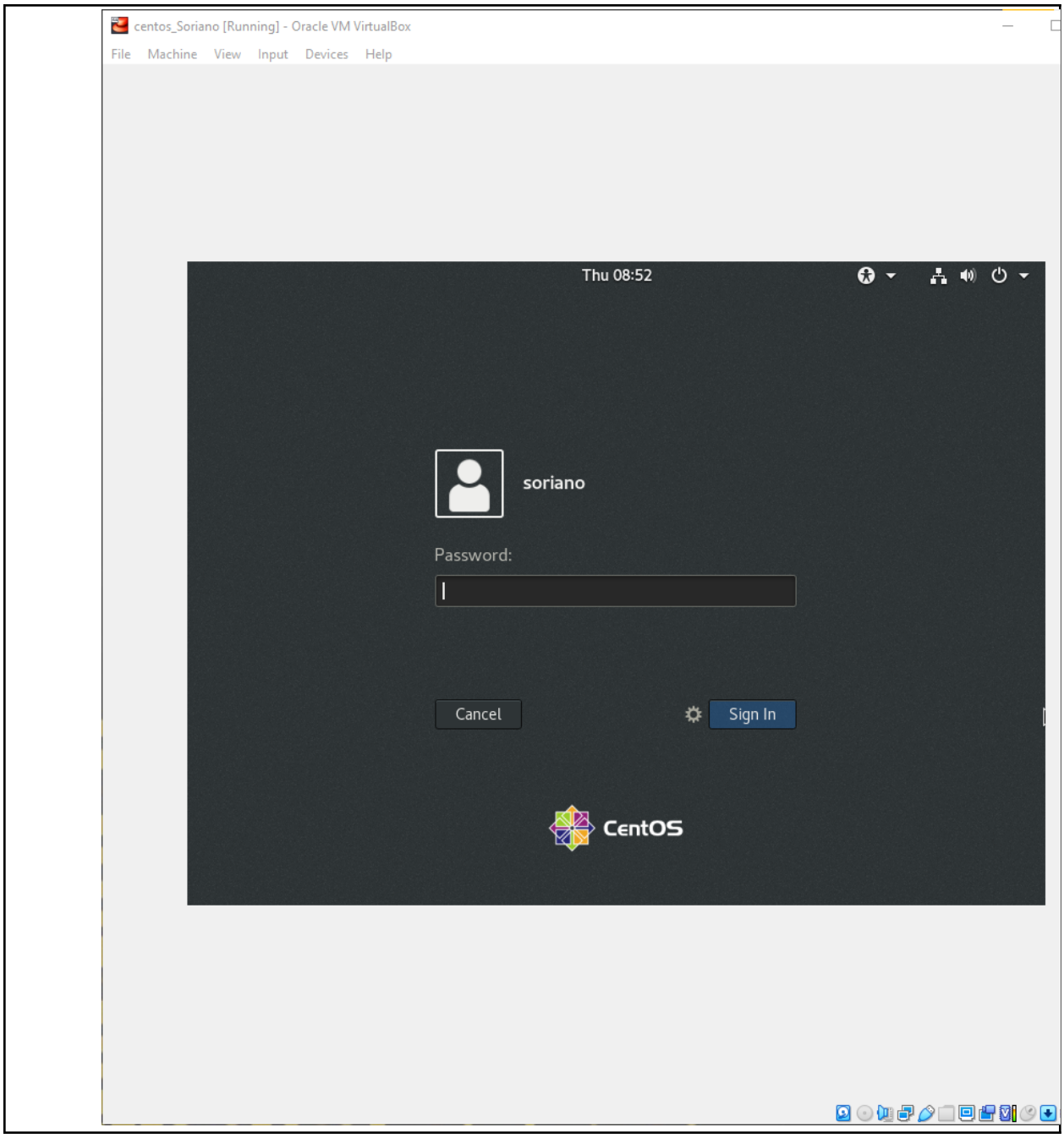
SCREENSHOT:

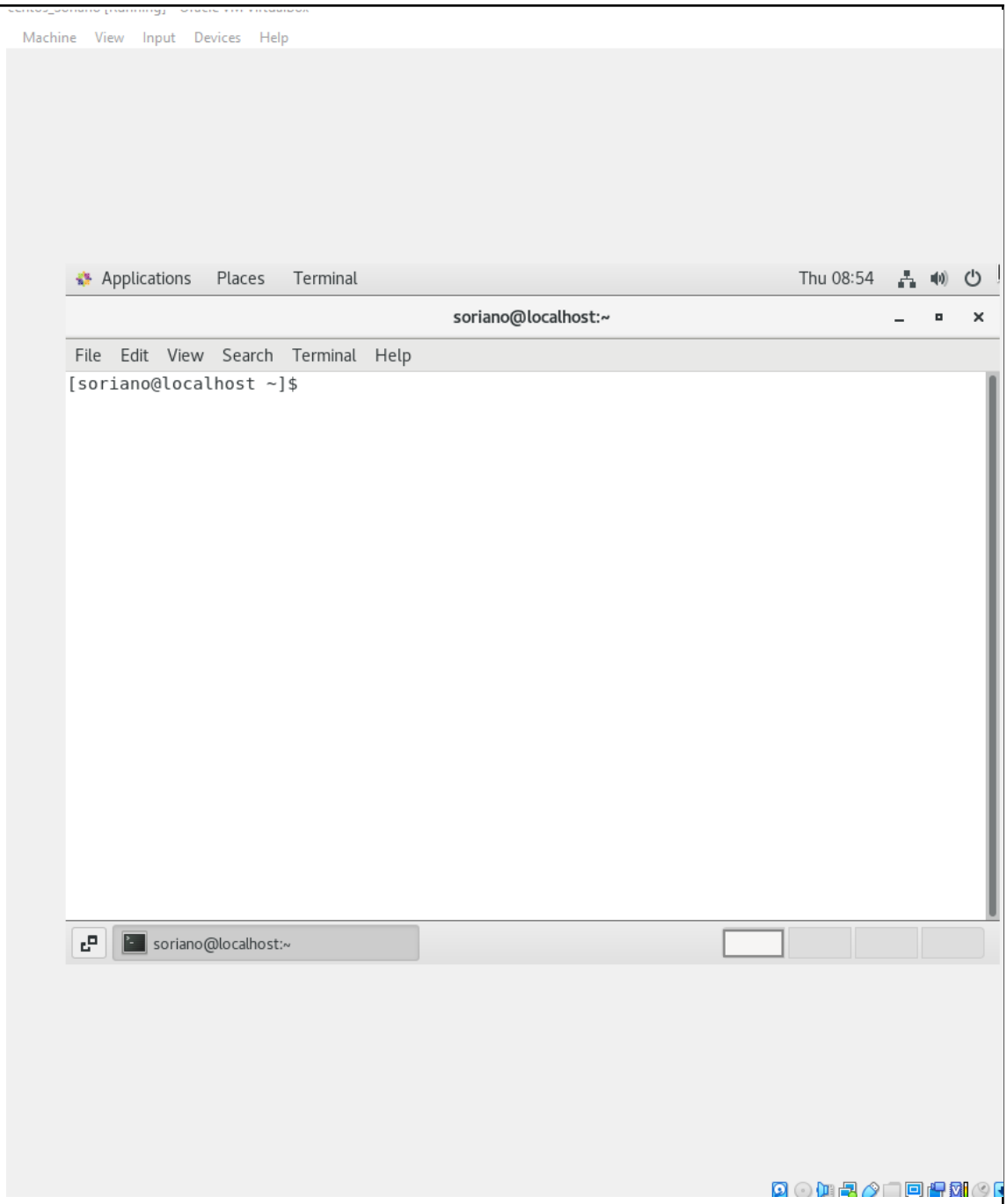
4. Show evidence that the OS was installed already.

   SCREENSHOT:


centos_Soriano [Running] - Oracle VM VirtualBox
File Machine View Input Devices Help
CONFIGURATION
CENTOS 7 INSTALLATION
us
Help!
CentOS
USER SETTINGS
ROOT PASSWORD
Root password is set
USER CREATION
Administrator so...o will be created
Performing post-installation setup tasks
entOS Artwork SIG
proving the user experience with high quality artwork.
i.centos.org/SpecialInterestGroup
Right Ctrl


centos_Soriano [Running] - Oracle VM VirtualBox
File Machine View Input Devices Help
CentOS
INITIAL SETUP
CENTOS LINUX 7 (C
us
LICENSING
LICENSE INFORMATION
License accepted
SYSTEM
NETWORK & HOST NAME
Connected: enp0s8, enp0s3
QUIT
FINISH CONFIGURA

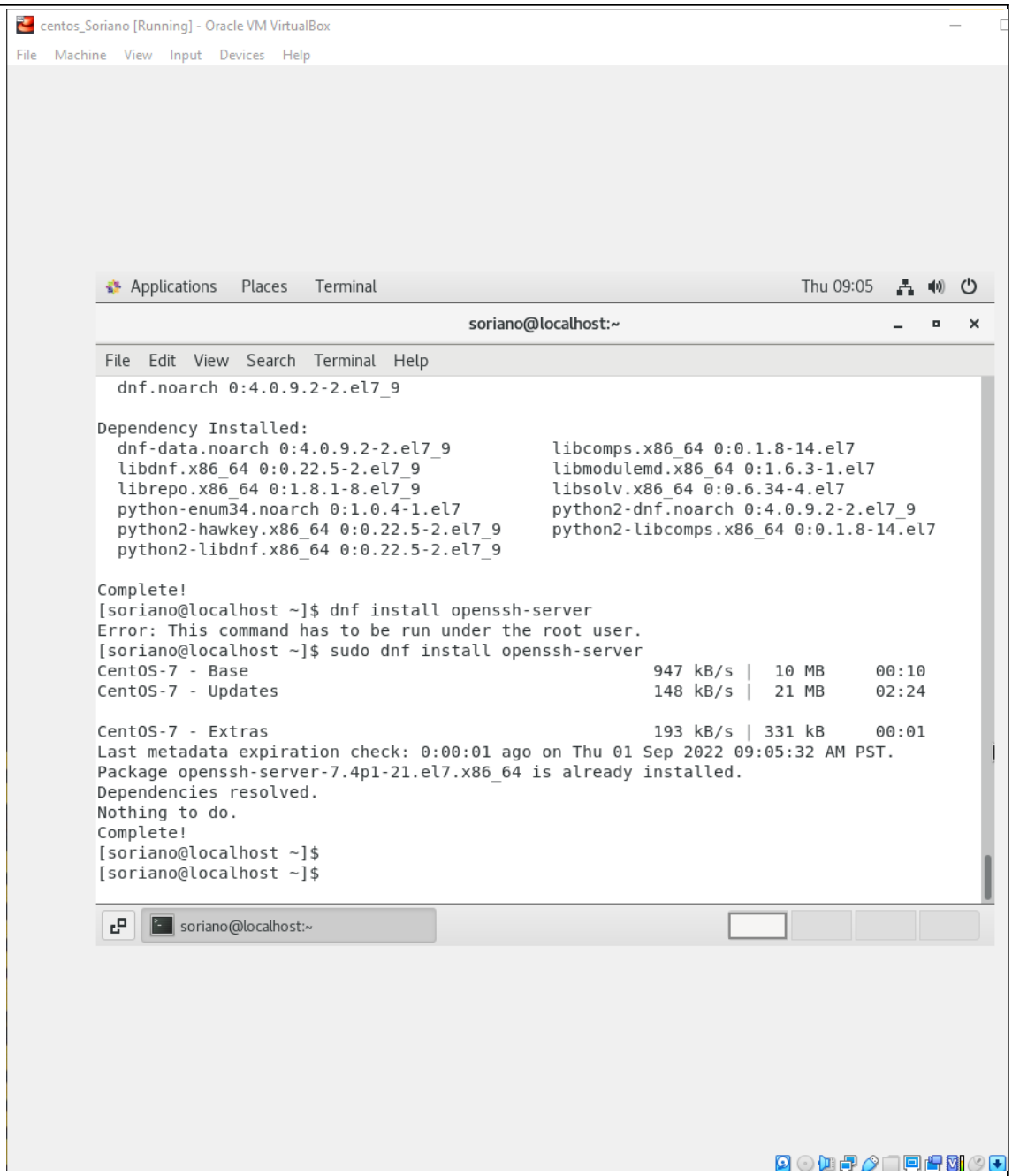

centos_Soriano [Running] - Oracle VM VirtualBox
File Machine View Input Devices Help
Thu 08:52
soriano
Password:
Cancel
Sign In
CentOS



Task 2: Install the SSH server package *openssh*

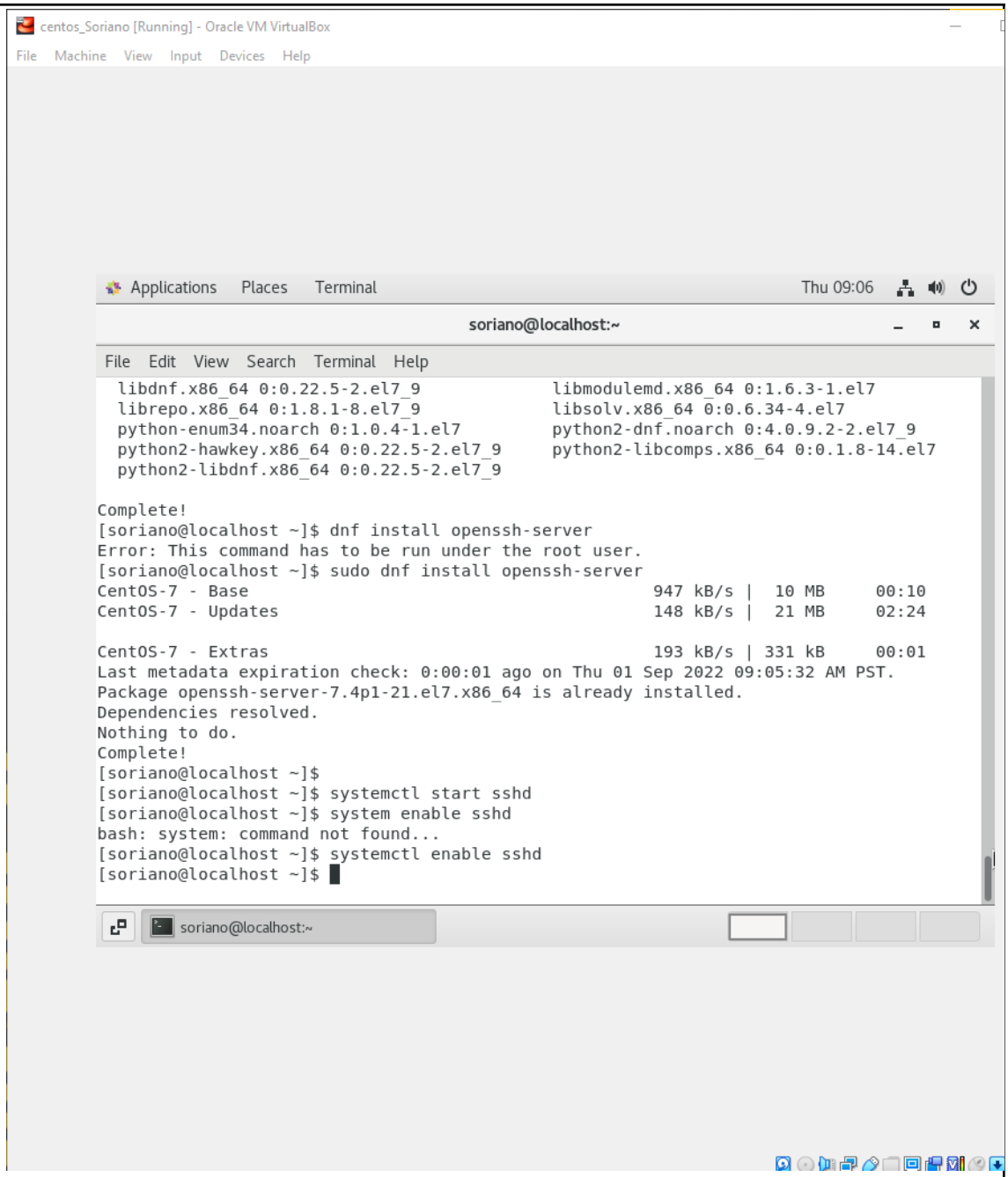
1. Install the ssh server package *openssh* by using the *dnf* command:
   $ dnf install openssh-server

   SCREENSHOT:



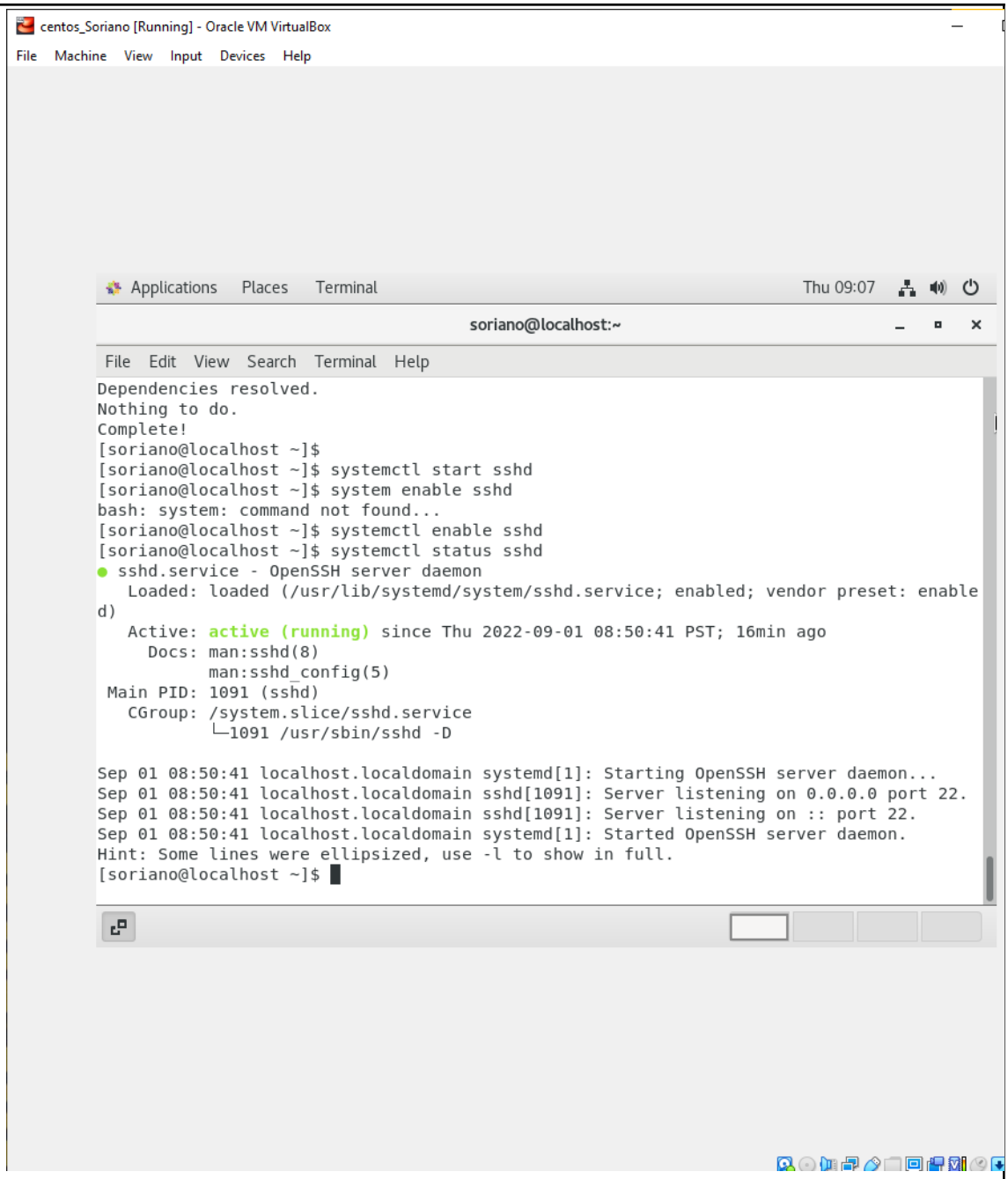
2. Start the *sshd* daemon and set to start after reboot:
   $ systemctl start sshd
   $ systemctl enable sshd

   SCREENSHOT:



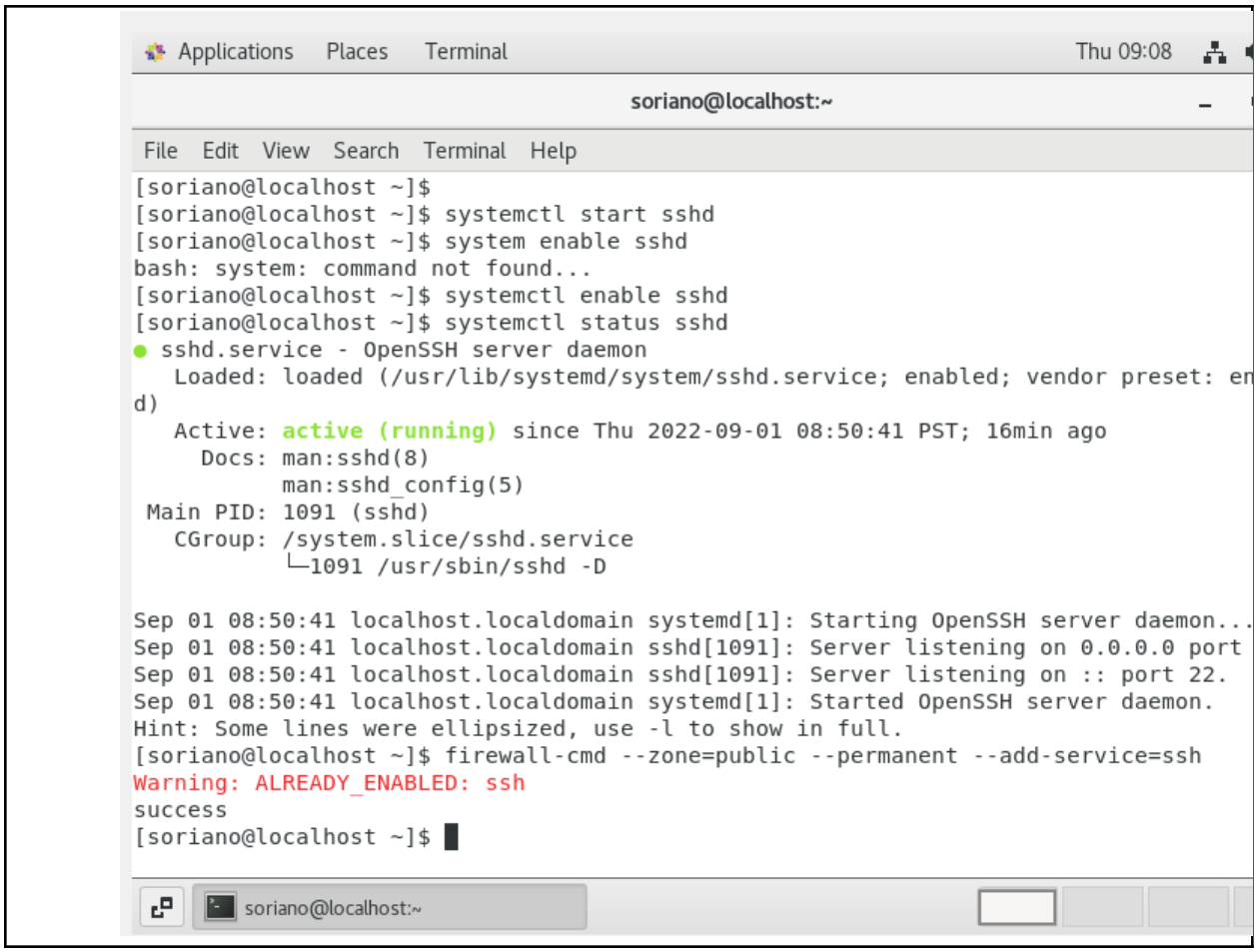
3. Confirm that the sshd daemon is up and running:
   $ systemctl status sshd

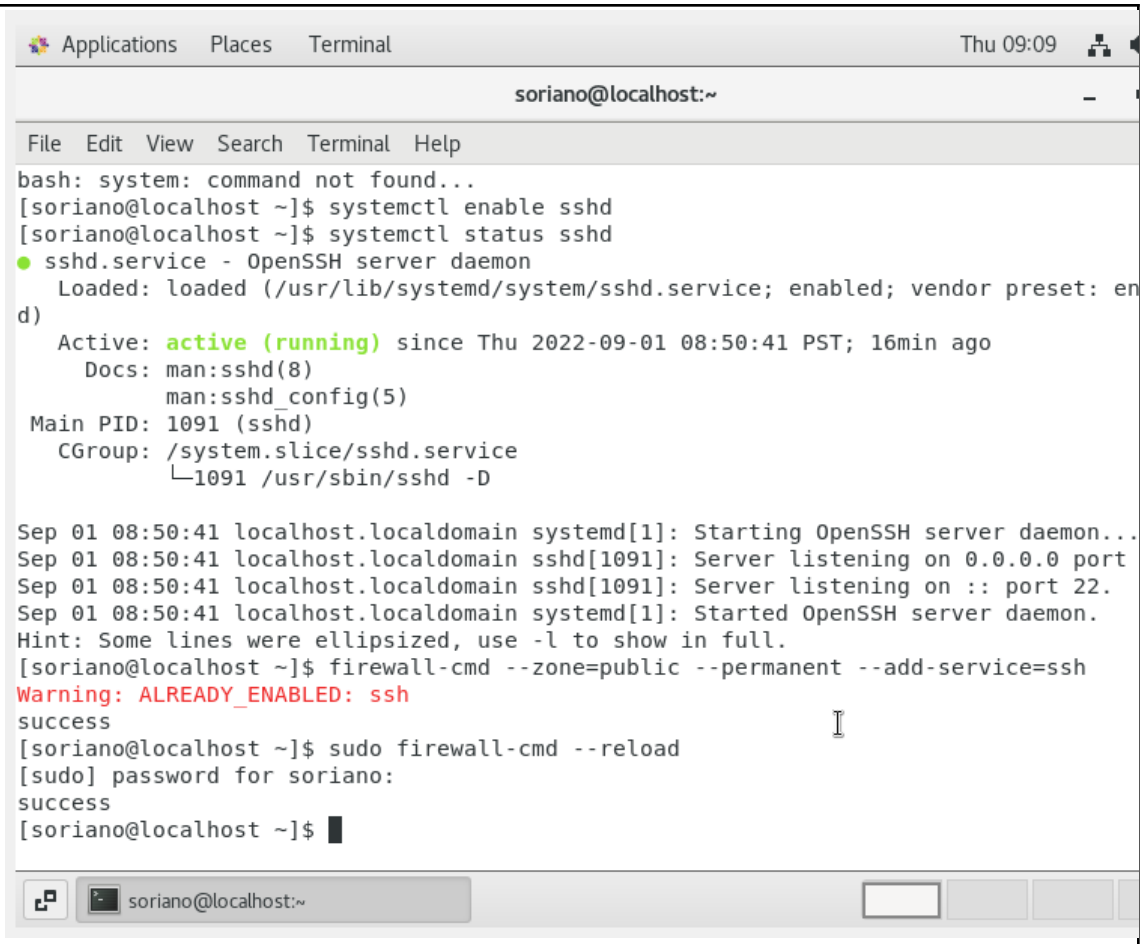
   SCREENSHOT:



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

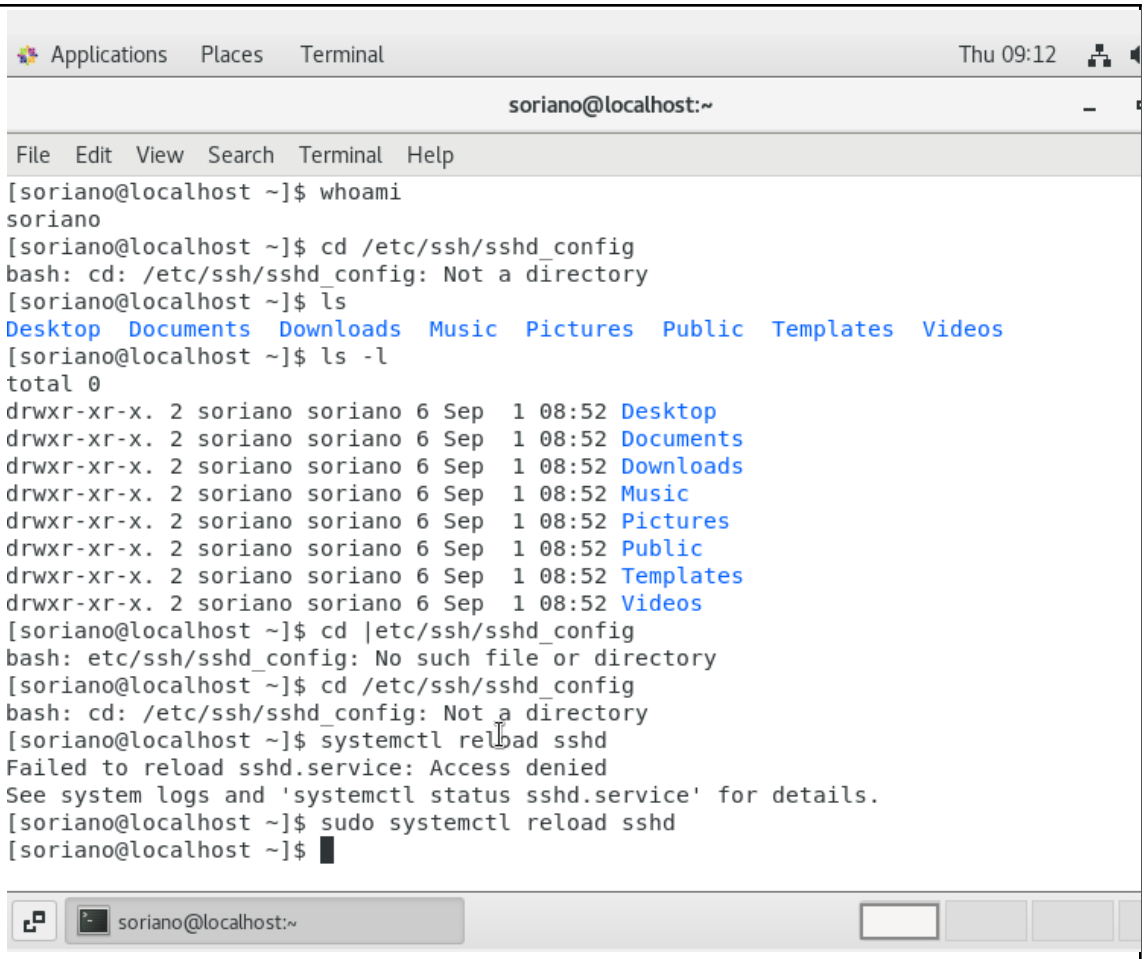
   SCREENSHOT:


Applications
Places
Terminal
Thu 09:08
soriano@localhost:~
File Edit View Search Terminal Help
[soriano@localhost ~]$
[soriano@localhost ~]$ systemctl start sshd
[soriano@localhost ~]$ system enable sshd
bash: system: command not found...
[soriano@localhost ~]$ systemctl enable sshd
[soriano@localhost ~]$ systemctl status sshd
● sshd.service - OpenSSH server daemon
Loaded: loaded (/usr/lib/systemd/system/sshd.service; enabled; vendor preset: en
d)
Active: active (running) since Thu 2022-09-01 08:50:41 PST; 16min ago
Docs: man:sshd(8)
man:sshd_config(5)
Main PID: 1091 (sshd)
CGroup: /system.slice/sshd.service
└─1091 /usr/sbin/sshd -D
Sep 01 08:50:41 localhost.localdomain systemd[1]: Starting OpenSSH server daemon...
Sep 01 08:50:41 localhost.localdomain sshd[1091]: Server listening on 0.0.0.0 port
Sep 01 08:50:41 localhost.localdomain sshd[1091]: Server listening on :: port 22.
Sep 01 08:50:41 localhost.localdomain systemd[1]: Started OpenSSH server daemon.
Hint: Some lines were ellipsized, use -l to show in full.
[soriano@localhost ~]$ firewall-cmd --zone=public --permanent --add-service=ssh
Warning: ALREADY_ENABLED: ssh
success
[soriano@localhost ~]$
soriano@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

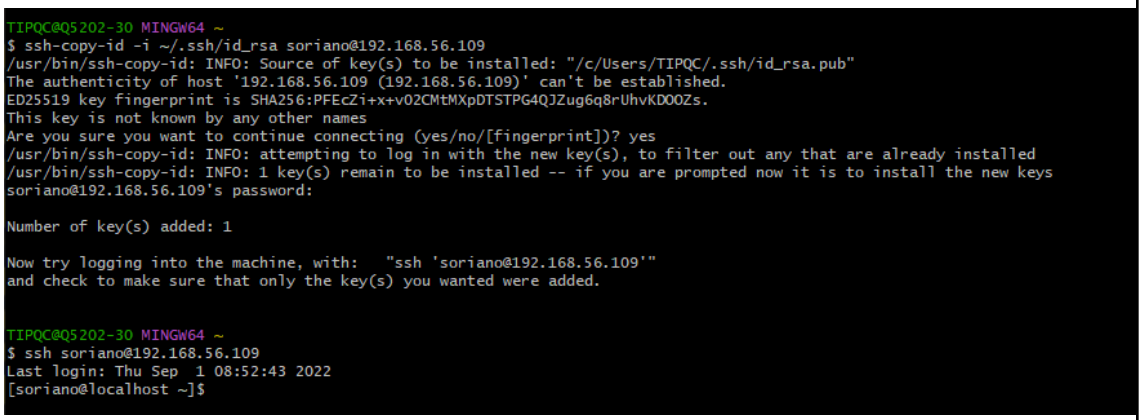
   SCREENSHOT:



Task 3: Copy the Public Key to CentOS

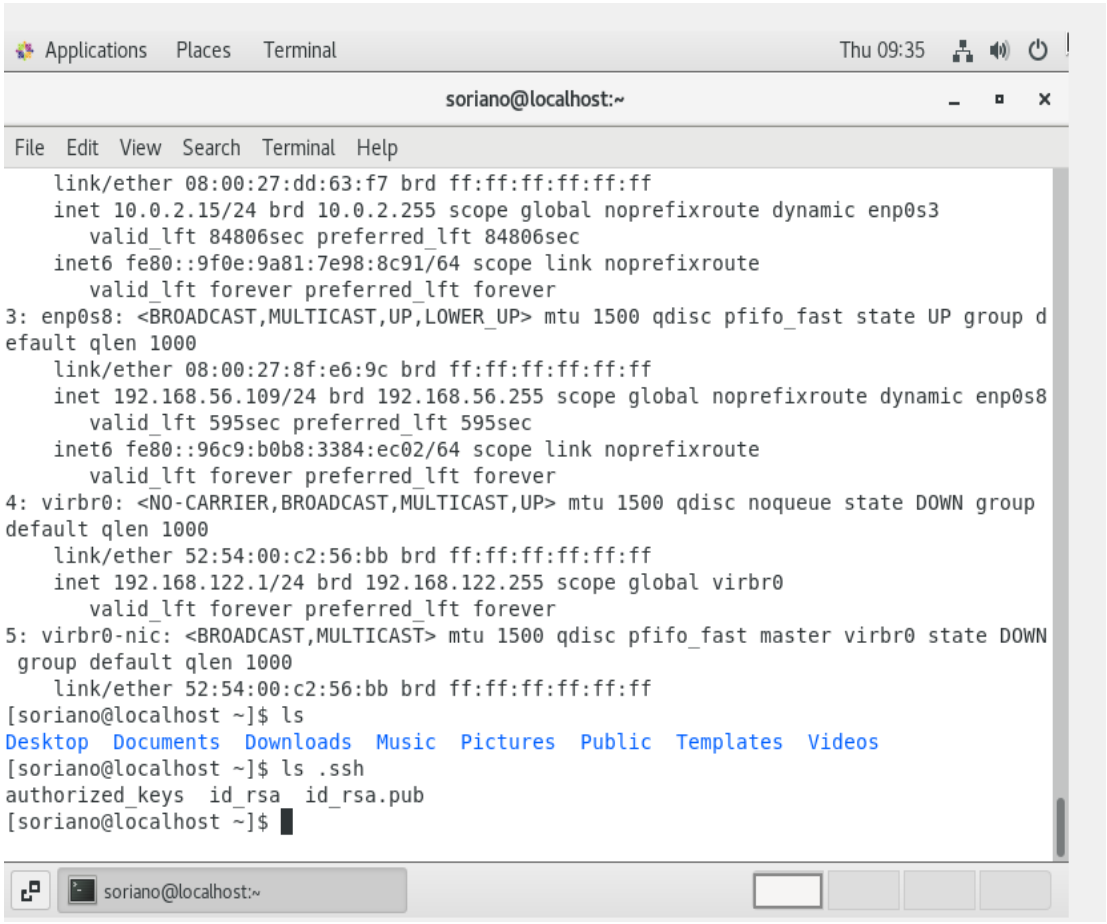
1. Make sure that *ssh* is installed on the local machine.
2. Using the command *ssh-copy-id*, connect your local machine to CentOS.

SCREENSHOT:



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

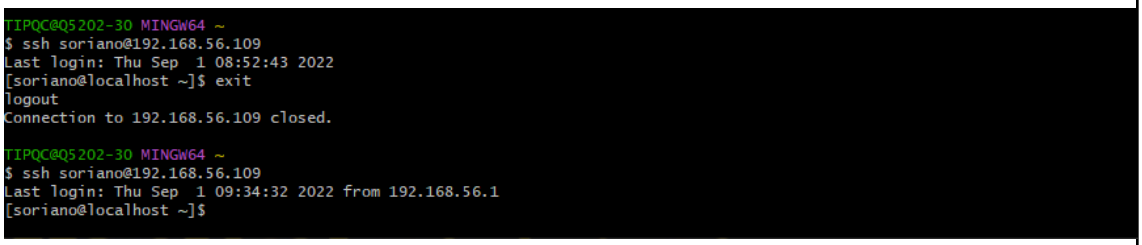
SCREENSHOT:



Task 4: Verify ssh remote connection

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

SCREENSHOT:



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?
   - **Based on some research, I found out that Debian does have more available sources/packages that it distributes to its users, compared to RedHat distribution.**

2. What are the main differences between Debian and Red Hat Linux distributions?
   - **RedHat offers open source products for purchase and use, which can be licensed for free up to a certain limit. For further features, one can always pay and purchase licenses for additional features. The Debian Project of Debian provides free software products that allow anyone to access licensed applications without any limitation on the accessible functionality. While RedHat releases products like Linux as commercial distributions, Debian releases non-commercial products.**