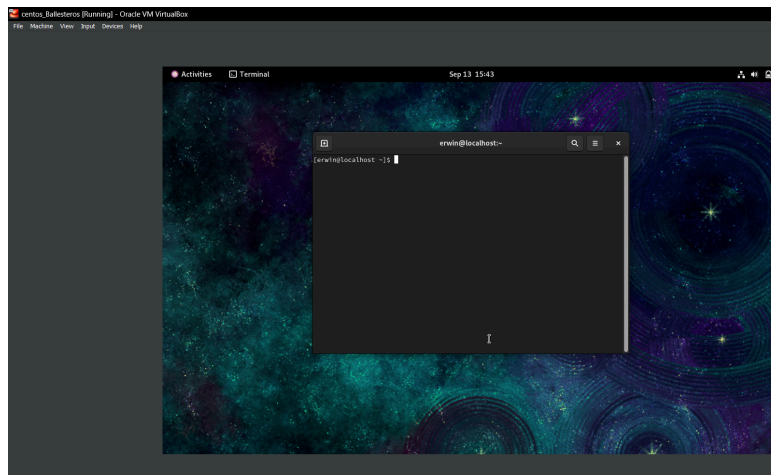


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Activity 3: Install SSH server on CentOS or RHEL 8	
1. Objectives: 1.1 Install Community Enterprise OS or Red Hat Linux OS 1.2 Configure remote SSH connection from remote computer to CentOS/RHEL-8	
2. Discussion: CentOS vs. Debian: Overview CentOS 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
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
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

```
[root@localhost ~]# dnf install openssh-server
Updating Subscription Management repositories.
Unable to read consumer identity

This system is not registered with an entitlement server. You can use "rhc" or "subscription-manager" to register.

Last metadata expiration check: 0:06:38 ago on Fri 13 Sep 2024 04:00:21 PM PST
Package openssh-server-8.7p1-43.el9.x86_64 is already installed.
Dependencies resolved.
Nothing to do.
Complete!
[root@localhost ~]#
```

```
[erwin@localhost ~]$ systemctl start sshd
[erwin@localhost ~]$ systemctl enable sshd
[erwin@localhost ~]$ systemctl status sshd
● sshd.service - OpenSSH server daemon
   Loaded: loaded (/usr/lib/systemd/system/sshd.service; enabled; preset: enabled)
   Active: active (running) since Fri 2024-09-13 16:06:04 PST; 2min 33s ago
     Docs: man:sshd(8)
           man:sshd_config(5)
    Main PID: 859 (sshd)
      Tasks: 1 (limit: 10949)
     Memory: 2.7M
        CPU: 18ms
    CGroup: /system.slice/sshd.service
            └─859 "sshd: /usr/sbin/sshd -D [listener] 0 of 10-100 startups"
```

```
[erwin@localhost ~]$ firewall-cmd --zone=public --permanent --add-service=ssh
Warning: ALREADY_ENABLED: ssh
success
[erwin@localhost ~]$ firewall-cmd --reload
bash: firewall-cmd: command not found...
[erwin@localhost ~]$ firewall-cmd --reload
success
[erwin@localhost ~]$
```

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**.

```
erwin@workstation:~$ ssh-copy-id -i ~/.ssh/id_rsa erwin@centos
/usr/bin/ssh-copy-id: INFO: Source of key(s) to be installed: "/home/erwin/.ssh/id_rsa.pub"
The authenticity of host 'centos (192.168.100.128)' can't be established.
ED25519 key fingerprint is SHA256:NRiLApSJs+vhVWi3Wx46fWnIPpXYHbTbe4w1xQprgWg.
This host key is known by the following other names/addresses:
  ~/.ssh/known_hosts:17: [hashed name]
Are you sure you want to continue connecting (yes/no/[fingerprint])? yes
/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
erwin@centos's password:

Number of key(s) added: 1

Now try logging into the machine, with:  "ssh 'erwin@centos'"
and check to make sure that only the key(s) you wanted were added.
```

```
[erwin@localhost ~]$ cd ~/.ssh
[erwin@localhost .ssh]$ ls
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.

```
erwin@workstation:~$ ssh 'erwin@centos'
Last login: Fri Sep 13 16:28:11 2024 from 192.168.100.119
[erwin@centos ~]$ echo "Hello"
Hello
[erwin@centos ~]$
```

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?

When considering between the two is that Debian's developments are made by the community with a large library of documentations, they also offer a more different environment depending on the preferences. Meanwhile Red Hat is a commercially available entity, unlike Debian that is community driven, they offer professional support services, subscriptions, and as well enterprise grade maintenance. It also offers more enterprise-oriented features which gives support, security updates and tools that can be used. When choosing between the two we should consider which of the two fits the bill for our project. For smaller-scale business operations Debian might be more useful. Meanwhile Red Hat can be used for larger corporations.

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

The difference between the two is that debian is a community-made project, meanwhile red hat is a commercial entity that sells product. Debian also has a longer support life that gives user stability over the system. Meanwhile Red Hats release more often.