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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.

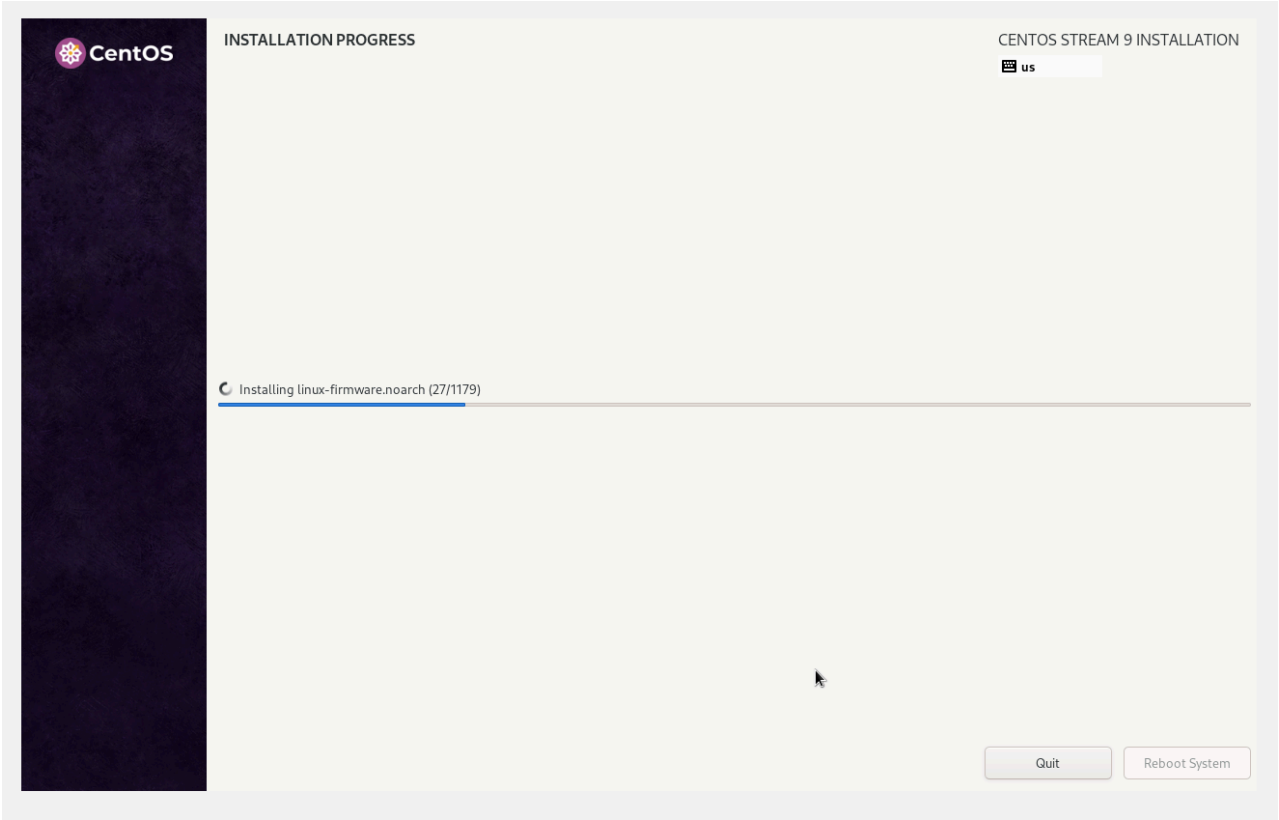
Debian uses the DEB package format and dpkg/APT as the package manager.

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

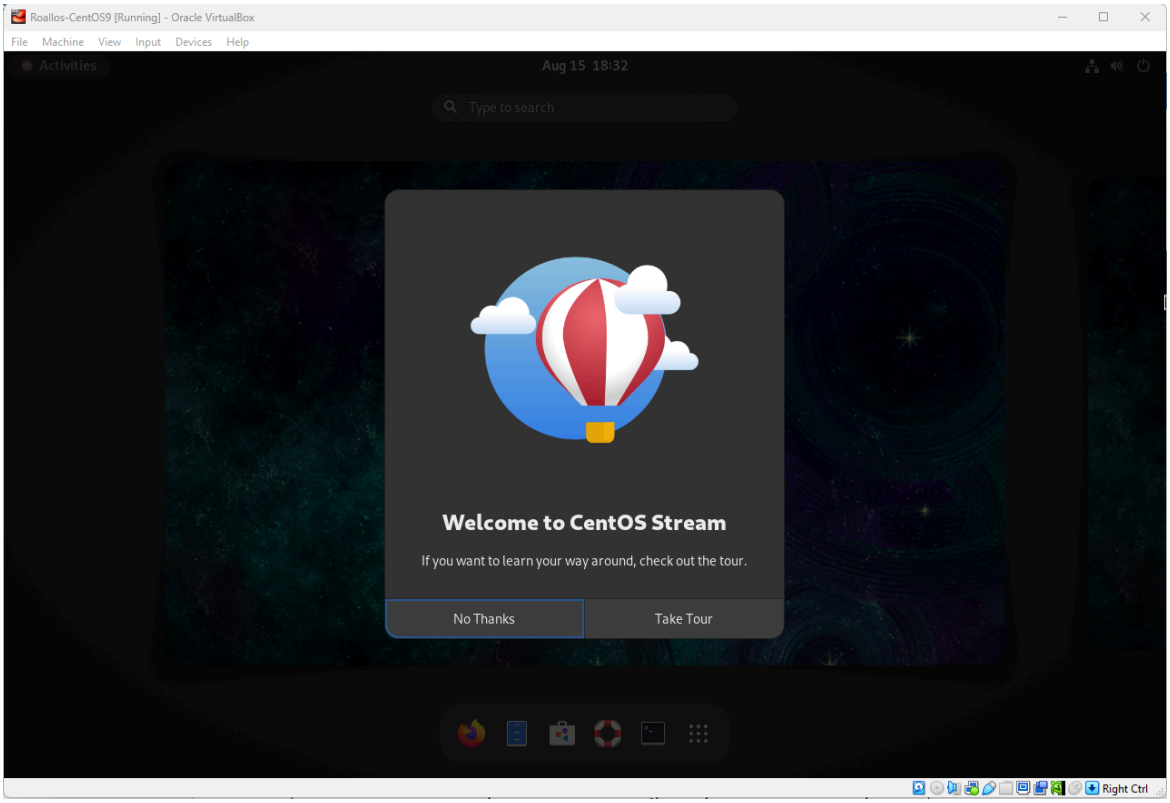
may have a little trouble switching over, but they're not overwhelmingly different. They both have similar features, just available through a different interface.

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.

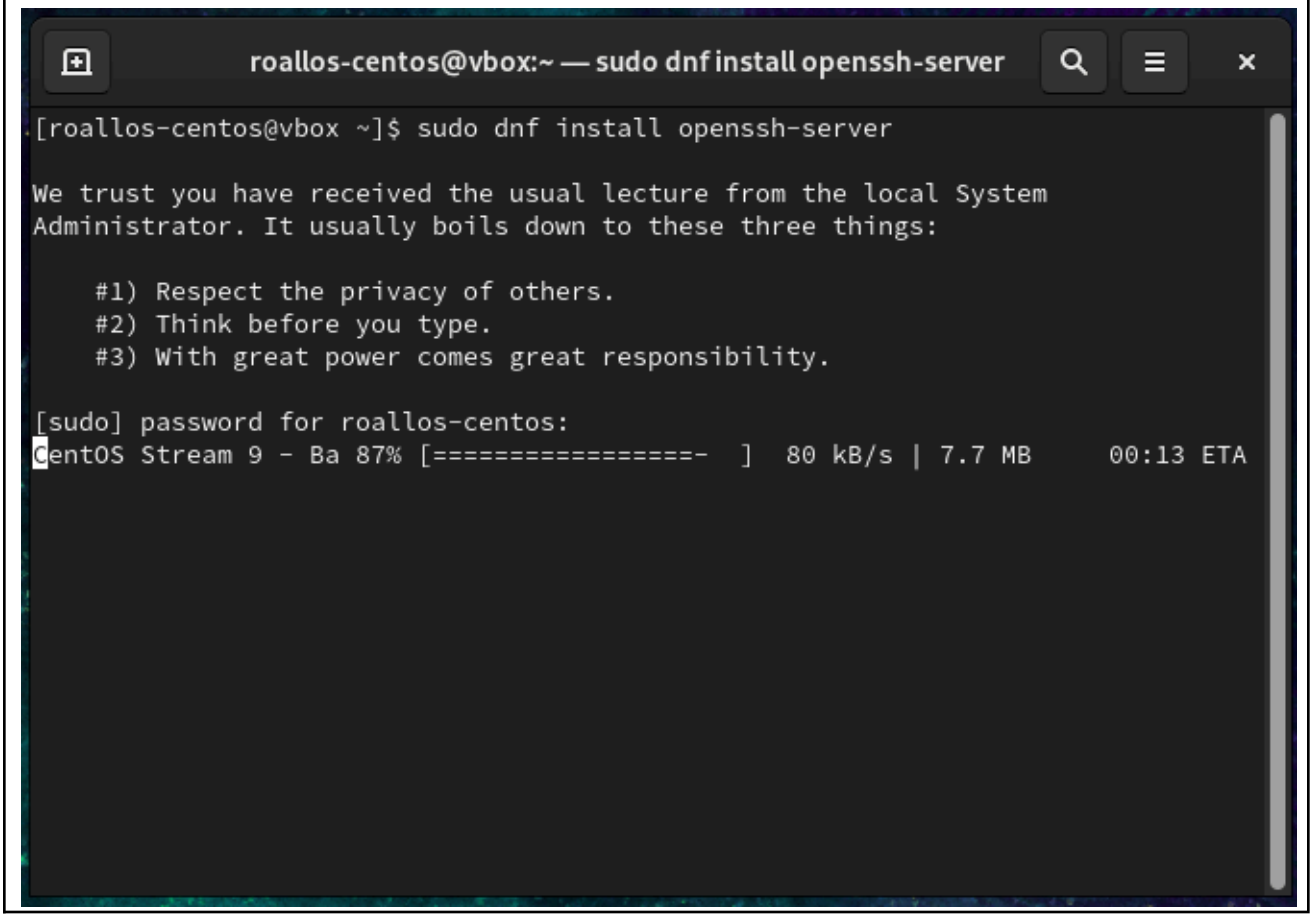


```
[  OK  ] Started Show Plymouth Reboot Screen.
Failed to subscribe to NameOwnerChanged signal for 'org.a11y.Bus': Transport endpoint is not connected
at-spi-dbus-bus.service: Cannot watch bus name org.a11y.Bus: Transport endpoint is not connected
Activating special unit Exit the Session...
[  OK  ] Stopped Disk Manager.
[  OK  ] Stopped Restore /run/initramfs on shutdown.
         Starting Tell Plymouth To Jump To initramfs...
[  OK  ] Finished Tell Plymouth To Jump To initramfs.
```



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



```
[roallos-centos@vbox ~]$ systemctl start sshd
[roallos-centos@vbox ~]$ systemctl enable sshd
[roallos-centos@vbox ~]$ systemctl status sshd
● sshd.service - OpenSSH server daemon
     Loaded: loaded (/usr/lib/systemd/system/sshd.service; enabled; preset: ena>
     Active: active (running) since Fri 2025-08-15 18:32:00 PST; 5min ago
       Docs: man:sshd(8)
             man:sshd_config(5)
   Main PID: 990 (sshd)
      Tasks: 1 (limit: 22970)
     Memory: 2.8M
        CPU: 21ms
     CGroup: /system.slice/sshd.service
             └─990 "sshd: /usr/sbin/sshd -D [listener] 0 of 10-100 startups"

Aug 15 18:32:00 localhost.localdomain systemd[1]: Starting OpenSSH server daemo>
Aug 15 18:32:00 localhost.localdomain sshd[990]: Server listening on 0.0.0.0 po>
Aug 15 18:32:00 localhost.localdomain sshd[990]: Server listening on :: port 22.
Aug 15 18:32:00 localhost.localdomain systemd[1]: Started OpenSSH server daemon.
lines 1-16/16 (END)
```

```
[roallos-centos@vbox ~]$ firewall-cmd --zone=public --permanent --add-service=ssh
Warning: ALREADY_ENABLED: ssh
success
[roallos-centos@vbox ~]$ firewall-cmd --reload
success
[roallos-centos@vbox ~]$
```

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*.

```
roallos-ubuntu@workstation:~$ ping 192.168.56.107
PING 192.168.56.107 (192.168.56.107) 56(84) bytes of data.
64 bytes from 192.168.56.107: icmp_seq=1 ttl=64 time=1.28 ms
64 bytes from 192.168.56.107: icmp_seq=2 ttl=64 time=0.445 ms
64 bytes from 192.168.56.107: icmp_seq=3 ttl=64 time=0.428 ms
^C
--- 192.168.56.107 ping statistics ---
3 packets transmitted, 3 received, 0% packet loss, time 2014ms
rtt min/avg/max/mdev = 0.428/0.719/1.285/0.400 ms
```

```
roallos-ubuntu@workstation:~$ ssh-copy-id -i ~/.ssh/id_rsa roallos-centos@192.1
68.56.107
/usr/bin/ssh-copy-id: INFO: Source of key(s) to be installed: "/home/roallos-ub
untu/.ssh/id_rsa.pub"
The authenticity of host '192.168.56.107 (192.168.56.107)' can't be established
.
ECDSA key fingerprint is SHA256:0r4zIp+P985nLPcar4IWQgx7lFRPOi4UySmJiYhD7Sk.
Are you sure you want to continue connecting (yes/no)? 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 promp
ted now it is to install the new keys
roallos-centos@192.168.56.107's password:

Number of key(s) added: 1

Now try logging into the machine, with:   "ssh 'roallos-centos@192.168.56.107'"
and check to make sure that only the key(s) you wanted were added.

roallos-ubuntu@workstation:~$ ssh roallos-centos@192.168.56.107
Activate the web console with: systemctl enable --now cockpit.socket

Last login: Fri Aug 15 18:32:21 2025
[roallos-centos@vbox ~]$ mkdir testdir
[roallos-centos@vbox ~]$ ls
Desktop    Downloads  Pictures  Templates  Videos
Documents  Music      Public    testdir
[roallos-centos@vbox ~]$
```

Task 4: Verify ssh remote connection

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

```
[roallos-centos@vbox ~]$ ls
Desktop  Documents  Downloads  Music  Pictures  Public  Templates  testdir  Videos
[roallos-centos@vbox ~]$
```

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?

Debian distributions are commonly chosen for stability and

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

The main difference would be the package manager to be used for CentOS. On Debian-based systems such as Ubuntu, Advanced Package Tool or apt for managing files or updates. RedHat, specifically CentOS Stream, uses Dandified YUM or dnf.