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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.

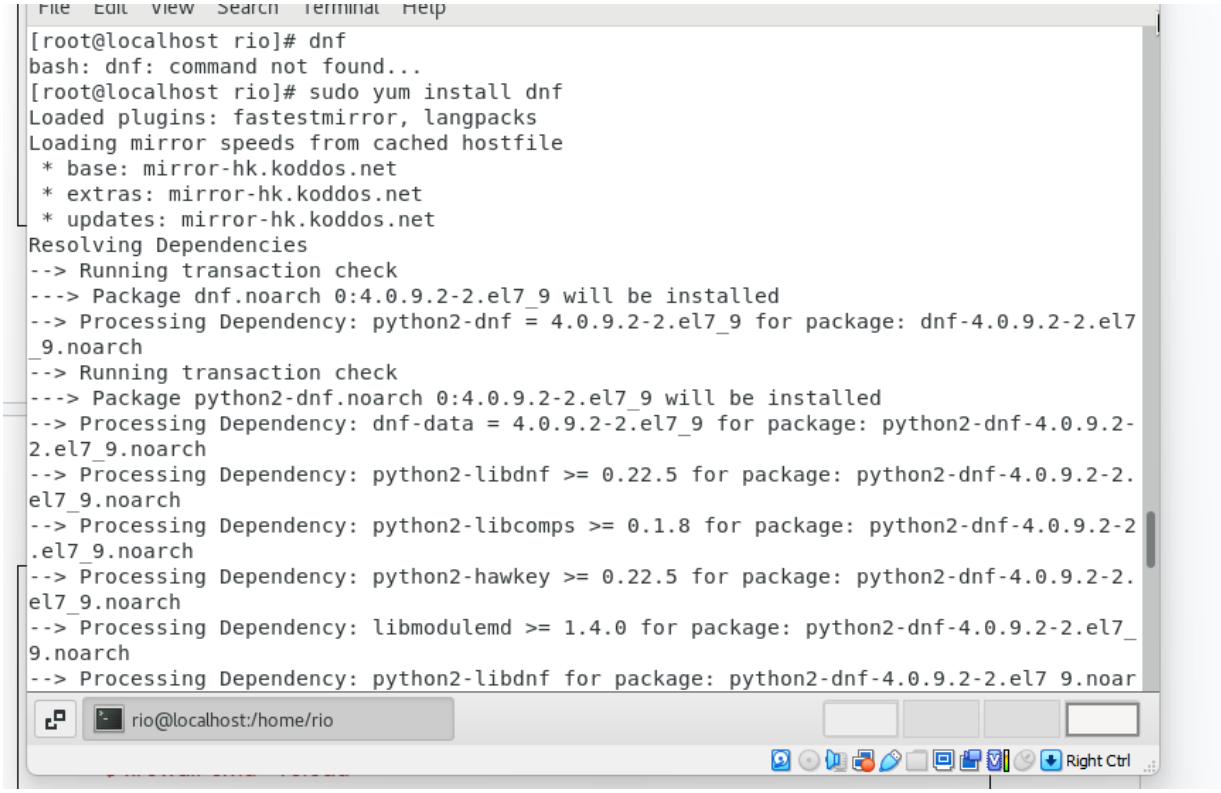
Both offer full-feature package management with network-based repository support, dependency checking and resolution, etc.. If you're familiar with one but not the other, you may have a little trouble switching over, but they're not overwhelmingly different. They both have similar features, just available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

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

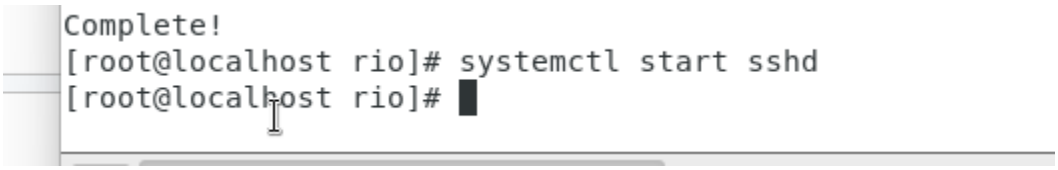
1. Download the image of the CentOS here: http://mirror.rise.ph/centos/7.9.2009/isos/x86_64/
2. Create a VM machine with 2 Gb RAM and 20 Gb HD.
3. Install the downloaded image.
4. Show evidence that the OS was installed already.

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

```
Complete!
[root@localhost rio]# systemctl start sshd
[root@localhost rio]# systemctl enable sshd
[root@localhost rio]#
```

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

```
[root@localhost rio]# system status sshd
bash: system: command not found...
[root@localhost rio]# systemctl status sshd
● sshd.service - OpenSSH server daemon
   Loaded: loaded (/usr/lib/systemd/system/sshd.service; enabled; vendor p
d)
   Active: active (running) since Thu 2023-09-07 06:03:44 EDT; 11min ago
     Docs: man:sshd(8)
           man:sshd_config(5)
 Main PID: 1149 (sshd)
   CGroup: /system.slice/sshd.service
           └─1149 /usr/sbin/sshd -D

Sep 07 06:03:44 localhost.localdomain systemd[1]: Starting OpenSSH server
Sep 07 06:03:44 localhost.localdomain sshd[1149]: Server listening on 0.0.
Sep 07 06:03:44 localhost.localdomain sshd[1149]: Server listening on :: p
Sep 07 06:03:44 localhost.localdomain systemd[1]: Started OpenSSH server d
Hint: Some lines were ellipsized, use -l to show in full.
[root@localhost rio]#
```

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

```
[root@localhost rio]# firewall-cmd --zone=public --permanent --add-service
Warning: ALREADY_ENABLED: ssh
success
[root@localhost rio]# firewall-cmd --reload
success
[root@localhost rio]#
```

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 rio]# systemctl reload sshd
[root@localhost rio]#
```

Task 3: Copy the Public Key to CentOS

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

```
File  Edit  View  Search  Terminal  Help
rio@Workstation:~$ ssh-copy-id rio@192.168.56.104
The authenticity of host '192.168.56.104 (192.168.56.104)' can't be established
.
ECDSA key fingerprint is SHA256:YsIcQALpo3JB2oEPEoFtcoCsOrsvdk9ygzBnPuWi+sc.
Are you sure you want to continue connecting (yes/no)? yes
```

```
rio@192.168.56.104's password:

Number of key(s) added: 1

Now try logging into the machine, with:   "ssh 'rio@192.168.56.104'"
and check to make sure that only the key(s) you wanted were added.

rio@Workstation:~$
```

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

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

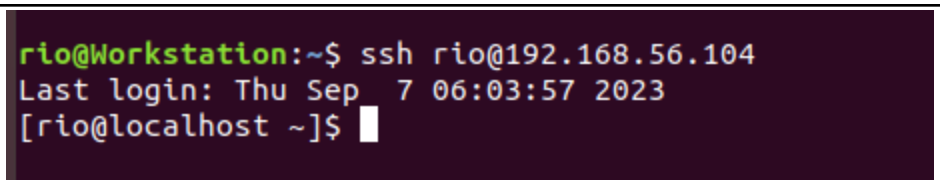
```
exit
[rio@localhost ~]$ cat ~/.ssh/authorized_keys
ssh-rsa AAAAB3NzaC1yc2EAAAADAQABAAACAQDMrD0vUGXDSVS4mVfqUREsEaAr0vC7elSbu1
7mJJi5xmwqu2c7L8lKppxKsz1/nlJS/wAP/1JsrepGxeXa+Qm68wvq7jOTMCjsxG0OnHjz6iBY
O1LIwRJ9PIgPDSr4vh9q3dQFqSjYYKVw9ey25HrVG8qdnQHttbqgEq9KUItywsCNNhtU31ZfCf
iEQy06aLHIc3+9C9h3elORc9egCg04xgkTxHlxIY206nms+lFLK6DsBM/QE1uZghJIiT8VWLO2
EDvrsY8pVkXpjUS2W7Txgy4poKyWbmdedAFT/9mrIy8PMXurxN/IxyGSH5L2kPYHFm50pJ+mcg
oNgezY9H0oANaajYjnYQR1Gf/T+yzwg1uydp/l1R8I3/YS7FaYypAmRq77lpM6YZKEDK0dIKIH
u7N0vAtaliFnc1l/2K5p/NGct2TG8mgkcoDTU231WAZWwrmjuSO6pt4WDNhW6hMmCux8Cpb85u
cDr0u90qIfYHzrXn7g2RDGyazdWGO19559zsO5oW0kZ6YhnNvnnguiVLxtmQuaHtl6g4uO/W/o
sVGfeZu6wL6BcAgnRzCJ5OzbuQ== rio@Workstation
[rio@localhost ~]$
```

Task 4: Verify ssh remote connection

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

```
rio@Workstation:~$ ssh rio@192.168.56.104
Last login: Thu Sep  7 06:03:57 2023
[rio@localhost ~]$
```

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?

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

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