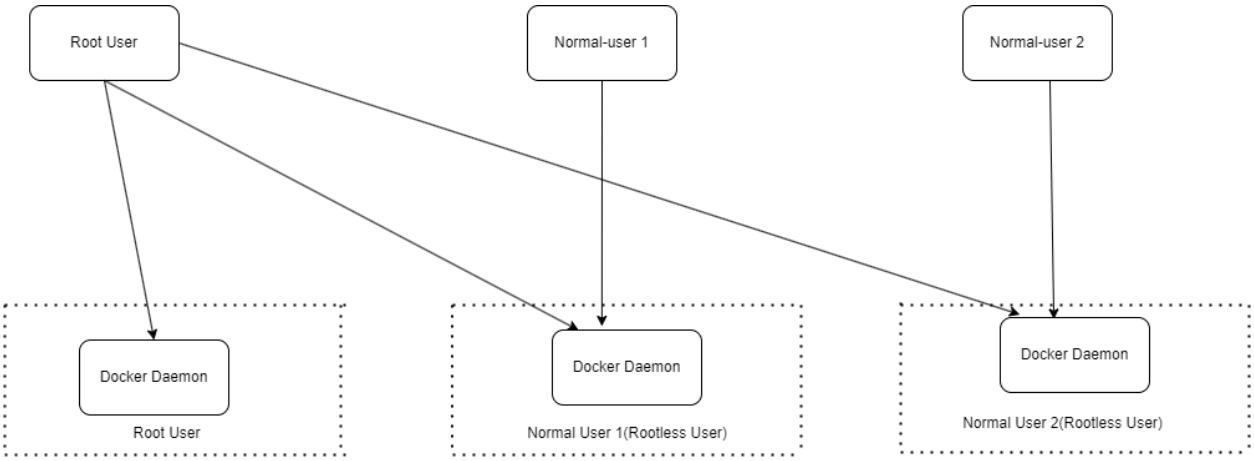
Running Rootless Container's using Docker



Rootless Docker is a security feature that allows you to run Docker containers without root privileges.

1. **Definition:** Rootless Docker enables running the Docker daemon and containers as a non-root user, reducing the potential security risks associated with running containers with root privileges.

2. **Key benefits:**
   - Enhanced security: Limits the impact of potential container breakouts
   - Improved isolation: Each user can have their own Docker daemon
   - Reduced attack surface: Minimizes the risk of privilege escalation attacks

3. **How it works:**
   - Uses user namespaces to map the root user inside the container to a non-root user on the host
   - Utilizes a separate daemon process for each non-root user

4. **Use cases:**
    - Multi-tenant environments
    - Development workstations
    - CI/CD pipelines where root access is restricted

5. **Limitations:**
    - Some features may not be available or may require additional setup
    - Performance overhead due to additional mapping layers
    - Networking setup can be more complex

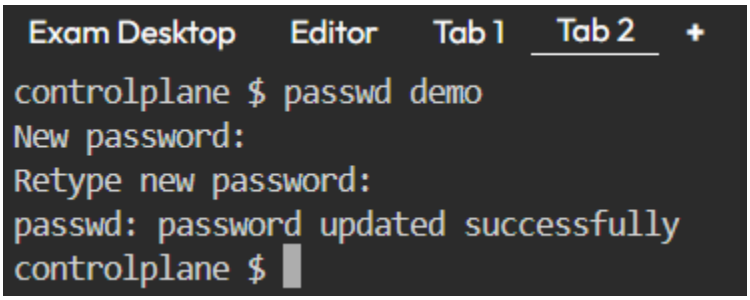
Step 1 – Install this 2 Package's

```
5  apt install dbus-user-session -y
6  apt install fuse-overlayfs
```

Step 2 – Disable Docker Service Socket

```
Exam Desktop   Editor   Tab 1   Tab 2   +
controlplane $ systemctl disable --now docker.service docker.socket
Removed /etc/systemd/system/sockets.target.wants/docker.socket.
Removed /etc/systemd/system/multi-user.target.wants/docker.service.
controlplane $
```

Step 3 – Create a new Normal user and set the Password



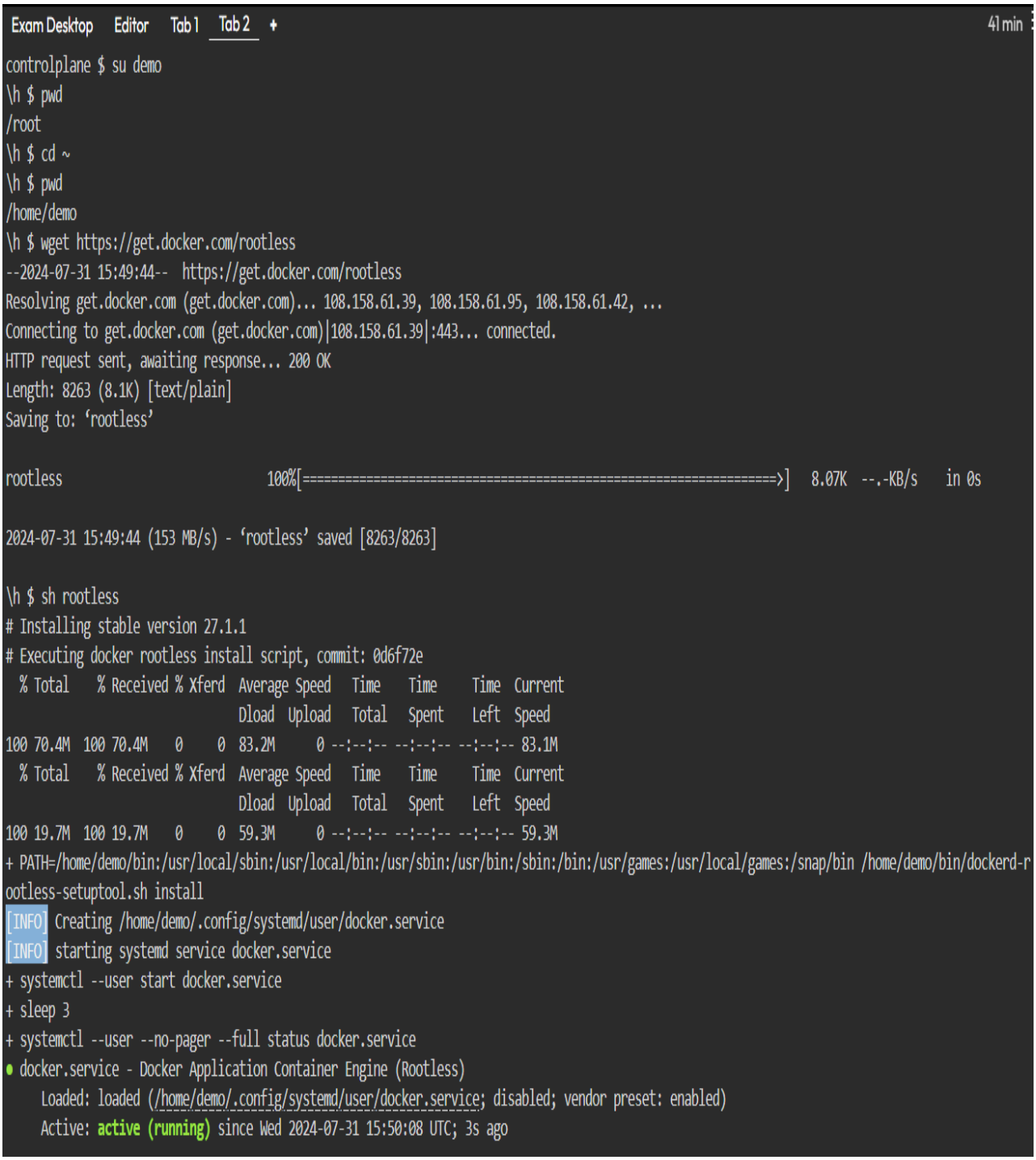
Step 4 – Switch to Normal User and move to Home Directory of the User

and Download the following package and perform this step's-

wget https://get.docker.com/rootless

sh rootless

exit


Exam Desktop
Editor
Tab 1
Tab 2
+
41 min
controlplane $ su demo
\h $ pwd
/root
\h $ cd ~
\h $ pwd
/home/demo
\h $ wget https://get.docker.com/rootless
--2024-07-31 15:49:44-- https://get.docker.com/rootless
Resolving get.docker.com (get.docker.com)... 108.158.61.39, 108.158.61.95, 108.158.61.42, ...
Connecting to get.docker.com (get.docker.com)|108.158.61.39|:443... connected.
HTTP request sent, awaiting response... 200 OK
Length: 8263 (8.1K) [text/plain]
Saving to: 'rootless'
rootless 100%[==========>] 8.07K --.-KB/s in 0s
2024-07-31 15:49:44 (153 MB/s) - 'rootless' saved [8263/8263]
\h $ sh rootless
Installing stable version 27.1.1
Executing docker rootless install script, commit: 0d6f72e
% Total % Received % Xferd Average Speed Time Time Time Current
Dload Upload Total Spent Left Speed
100 70.4M 100 70.4M 0 0 83.2M 0 --:--:-- --:--:-- --:--:-- 83.1M
% Total % Received % Xferd Average Speed Time Time Time Current
Dload Upload Total Spent Left Speed
100 19.7M 100 19.7M 0 0 59.3M 0 --:--:-- --:--:-- --:--:-- 59.3M
+ PATH=/home/demo/bin:/usr/local/sbin:/usr/local/bin:/usr/sbin:/usr/bin:/sbin:/bin:/usr/games:/usr/local/games:/snap/bin /home/demo/bin/dockerd-rootless-setuptool.sh install
[INFO] Creating /home/demo/.config/systemd/user/docker.service
[INFO] starting systemd service docker.service
+ systemctl --user start docker.service
+ sleep 3
+ systemctl --user --no-pager --full status docker.service
● docker.service - Docker Application Container Engine (Rootless)
Loaded: loaded (/home/demo/.config/systemd/user/docker.service; disabled; vendor preset: enabled)
Active: active (running) since Wed 2024-07-31 15:50:08 UTC; 3s ago

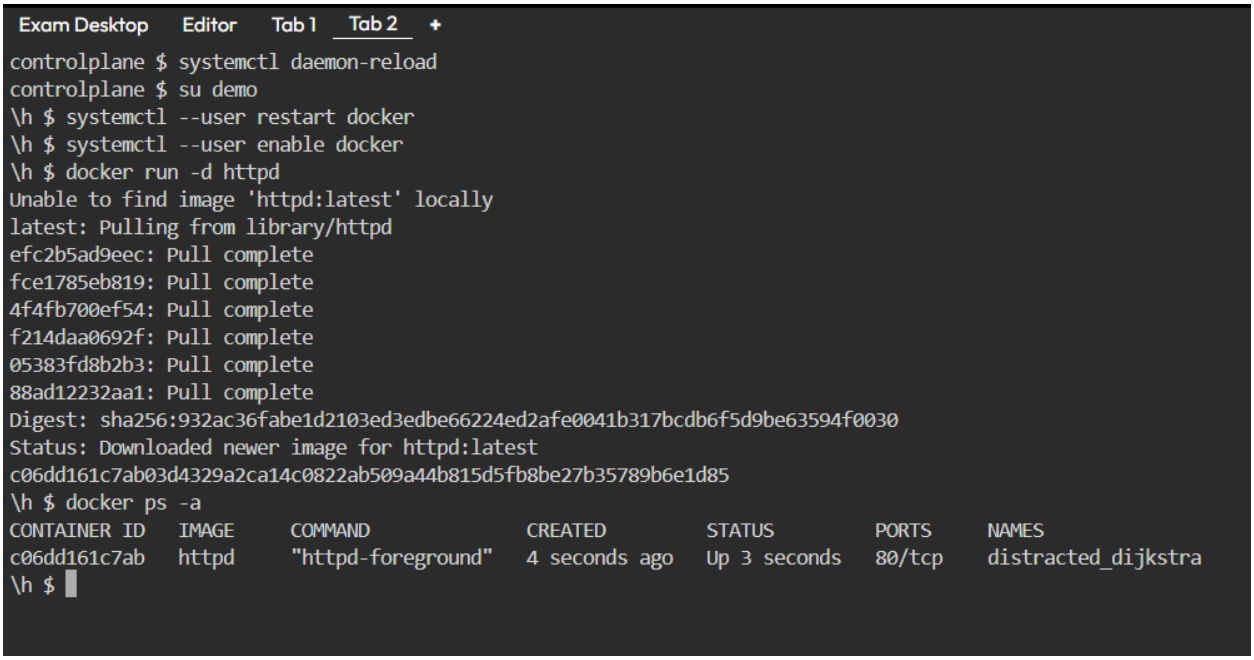
Step 5 – Reload the Daemon And Switch to Normal User again.

Docker has become rootless and now we just have to run this command using Normal User

systemctl --user restart docker

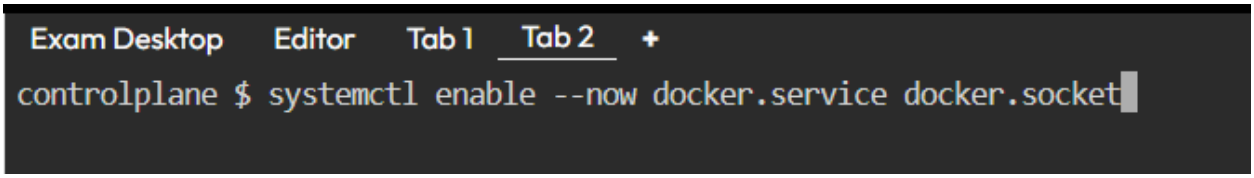
systemctl --user enable docker

Now you can RUN, STOP , DELETE container’s using Normal User.



Step 6 – This is Additional Step and can be used to check the Rootless behavior of Docker and can also be used to Isolate two user.

Come back to Super User/Root User and Enable docker Service Socket



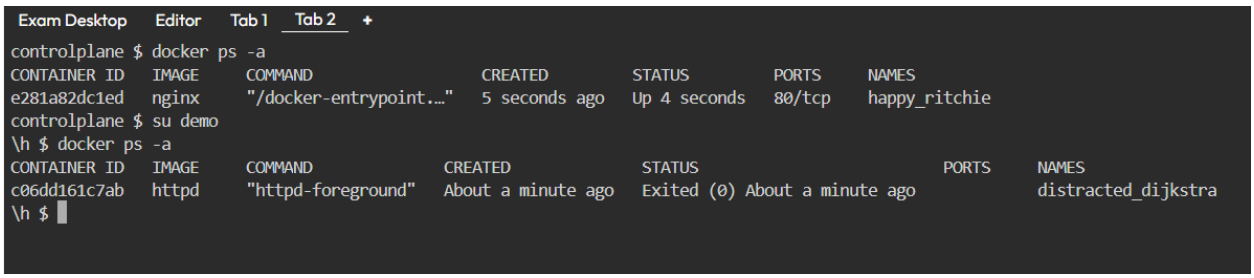
Run the Following Command using Root User

docker run -d nginx

docker ps –a

Now you will notice, Root user is only able to see the Container's which are started by him and he cannot see the container of Normal User we need to Switch into Normal User to see his Container's.

Hence we can also Isolate two user's in Docker using the Concept of Rootless Docker



----------Thank You----------