



# CONESTOGA

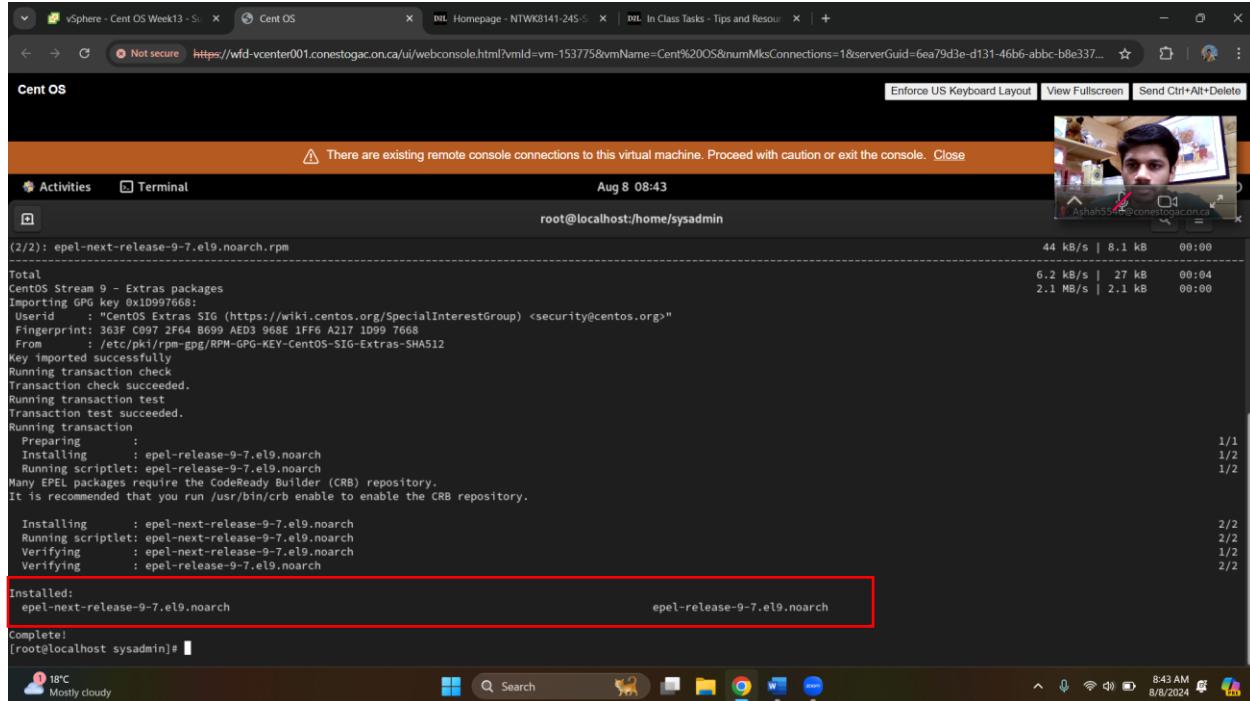
Connect Life and Learning

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<b>Deliverable:</b>	In-Class Tasks Week 14 Assignment
<b>Course Name:</b>	NTWK8141-24S-Sec3-Linux Server

<b>Date Assigned:</b>	07/08/2024
<b>Date Due:</b>	09/08/2024
<b>Rules:</b>	<ul style="list-style-type: none"><li>• Individual.</li><li>• Cheating is not allowed.</li><li>• Plagiarism counts as cheating!</li><li>• That FAILURE to submit work in the course can result in a grade of 'F' or 'I' for failure to complete the course!</li></ul>

```
# Installation epel source (also called repository)
```

```
dnf -y install epel-release
```



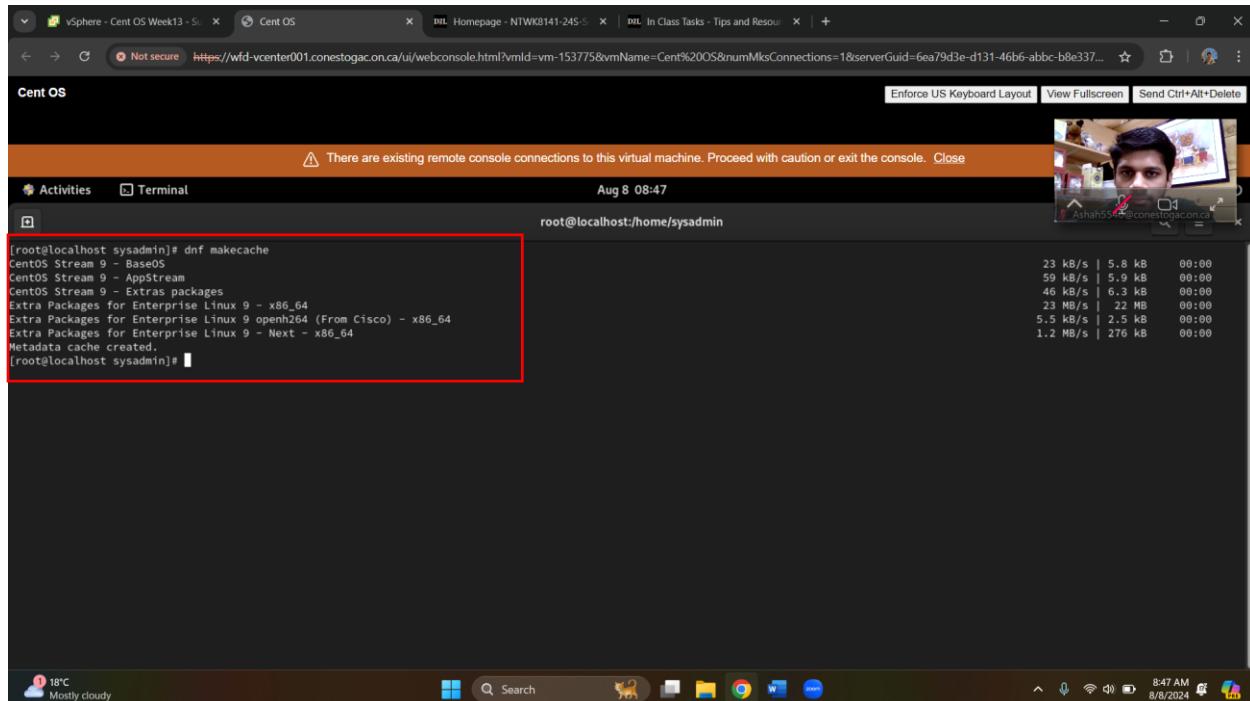
```
vSphere - Cent OS Week13 - S... Cent OS Not secure https://wfd-vcenter001.conestogac.on.ca/ui/webconsole.html?vmId=vm-153775&vmName=Cent%20OS&numMksConnections=1&serverGuid=6ea79d3e-d131-46b6-abbc-b8e337... Enforce US Keyboard Layout View Fullscreen Send Ctrl+Alt+Delete

Cent OS
Activities Terminal Aug 8 08:43
root@localhost:/home/sysadmin

(2/2) epel-next-release-9-7.el9.noarch.rpm
Total
CentOS Stream 9 - Extras packages
Importing GPG key 0x1D997668:
Userid : "CentOS Extras SIG (https://wiki.centos.org/SpecialInterestGroup) <security@centos.org>"
Fingerprint: 363F C097 2F64 B699 AED3 968E 1FF6 A217 1D99 7668
From : /etc/pki/rpm-gpg/RPM-GPG-KEY-CentOS-SIG-Extras-SHA512
Key imported successfully
Running transaction check
Transaction check succeeded.
Running transaction test
Transaction test succeeded.
Running transaction
Preparing :
Installing : epel-next-release-9-7.el9.noarch
Running scriptlet: epel-next-release-9-7.el9.noarch
Many EPEL packages require the CodeReady Builder (CRB) repository.
It is recommended that you run /usr/bin/crb enable to enable the CRB repository.
Installing : epel-next-release-9-7.el9.noarch
Running scriptlet: epel-next-release-9-7.el9.noarch
Verifying : epel-next-release-9-7.el9.noarch
Verifying : epel-next-release-9-7.el9.noarch
Installed:
epel-next-release-9-7.el9.noarch
epel-release-9-7.el9.noarch
Complete!
[root@localhost sysadmin]#
```

```
# Generate cache
```

```
dnf makecache
```



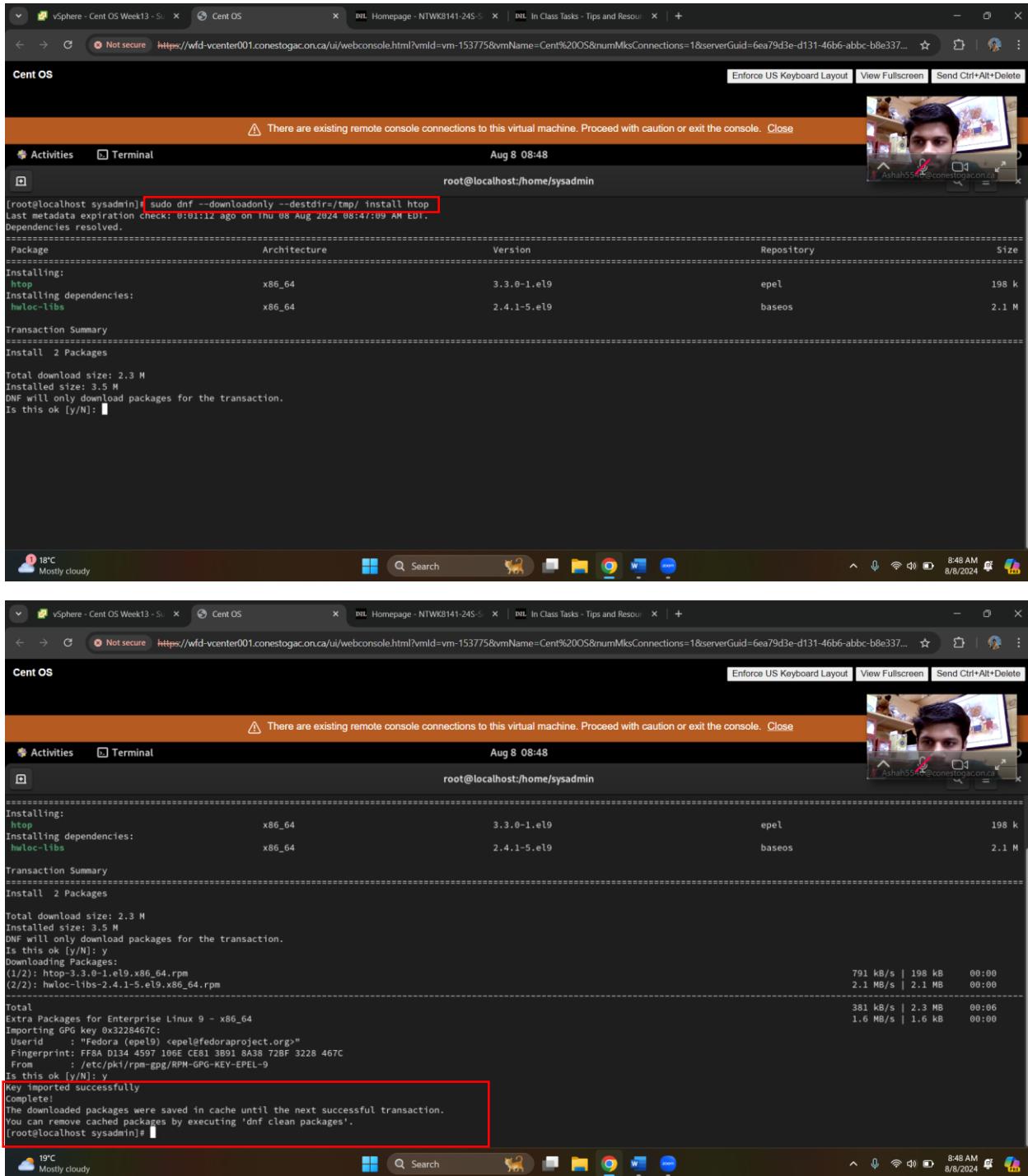
```
vSphere - Cent OS Week13 - S... Cent OS Not secure https://wfd-vcenter001.conestogac.on.ca/ui/webconsole.html?vmId=vm-153775&vmName=Cent%20OS&numMksConnections=1&serverGuid=6ea79d3e-d131-46b6-abbc-b8e337... Enforce US Keyboard Layout View Fullscreen Send Ctrl+Alt+Delete

Cent OS
Activities Terminal Aug 8 08:47
root@localhost:/home/sysadmin

[root@localhost sysadmin]# dnf makecache
CentOS Stream 9 - BaseOS
CentOS Stream 9 - AppStream
CentOS Stream 9 - Extras packages
Extra Packages for Enterprise Linux 9 - x86_64
Extra Packages for Enterprise Linux 9 openH264 (From Cisco) - x86_64
Extra Packages for Enterprise Linux 9 - Next - x86_64
Metadata cache created.
[root@localhost sysadmin]#
```

```
# Download htop and dependencies
```

```
sudo dnf --downloadonly --destdir=/tmp/ install htop
```



The screenshot shows a Linux terminal window titled "Cent OS" running on a virtual machine. The terminal is displaying the output of a command to download the htop package and its dependencies. The command is:

```
sudo dnf --downloadonly --destdir=/tmp/ install htop
```

The terminal output shows the following details:

- Dependencies resolved.
- Installing:  
htop x86\_64 3.3.0-1.el9 epel 198 k
- Installing dependencies:  
hwloc-libs x86\_64 2.4.1-5.el9 baseos 2.1 M
- Transaction Summary  
Install 2 Packages
- Total download size: 2.3 M  
Installed size: 3.5 M  
DNF will only download packages for the transaction.  
Is this ok [y/N]:

At the bottom of the terminal window, there is a red box highlighting the message "Key imported successfully" and "Complete! The downloaded packages were saved in cache until the next successful transaction. You can remove cached packages by executing 'dnf clean packages'." The terminal window has a dark theme and includes a weather widget showing 18°C and mostly cloudy conditions.

```
# Switch to /tmp directory
```

```
cd /tmp
```

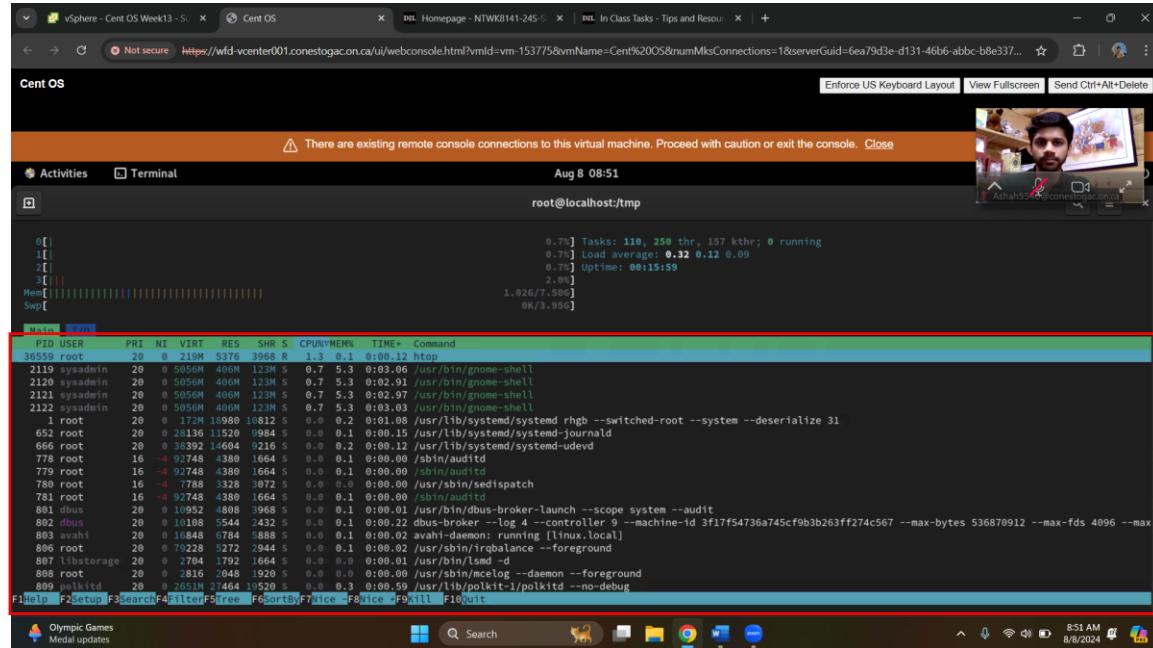
```
# Install RPM File manually
```

```
sudo rpm -i ./hwloc <tab>
```

```
sudo rpm -i ./htop <tab>
```

```
# Run htop
```

```
htop
```



```
Aug 8 08:51
root@localhost:/tmp

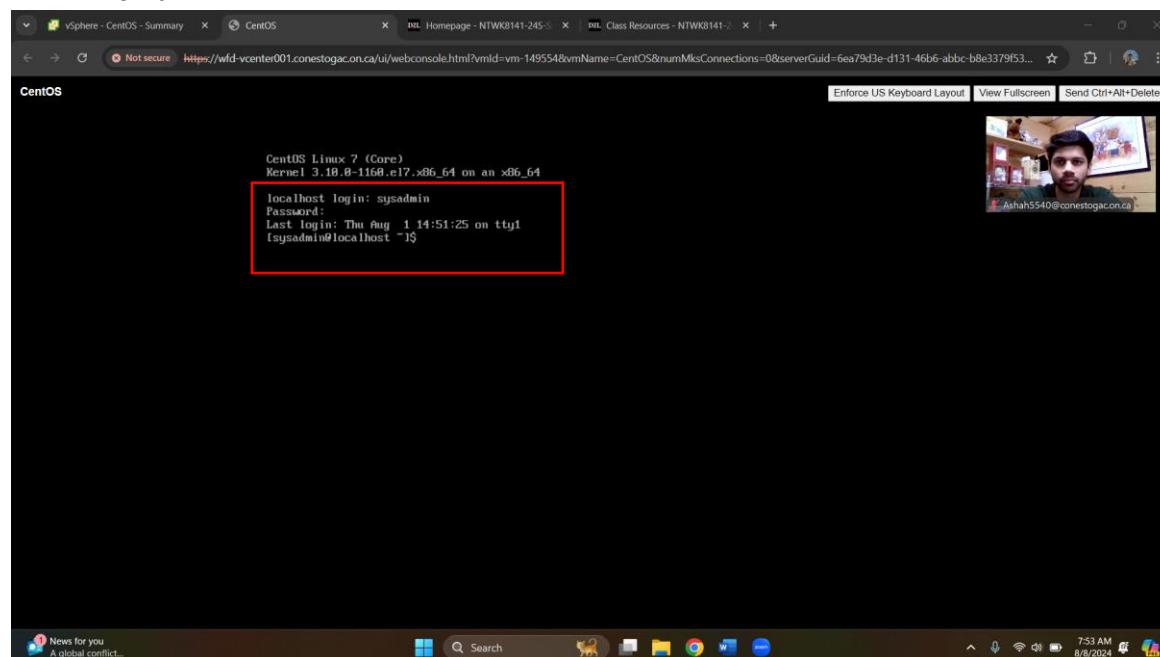
PID USER PRV NI VIRT RES SHR CPU% MEM% TIME+ COMMAND
36559 root 20 0 219M 5376 3968 R 1.3 0.1 0:00.12 htop
2119 sysadmin 20 0 5056M 406M 123M S 0.7 5.3 0:02.91 /usr/bin/gnome-shell
2120 sysadmin 20 0 5056M 406M 123M S 0.7 5.3 0:02.91 /usr/bin/gnome-shell
2121 sysadmin 20 0 5056M 406M 123M S 0.7 5.3 0:02.97 /usr/bin/gnome-shell
2122 sysadmin 20 0 5056M 406M 123M S 0.7 5.3 0:03.03 /usr/bin/gnome-shell
1 root 20 0 172M 11980 10812 S 0.0 0.2 0:01.08 /usr/lib/systemd/systemd rhgb --switched-root --system --deserialize 31
652 root 20 0 28136 11520 9984 S 0.0 0.1 0:00.15 /usr/lib/systemd/systemd-journald
666 root 20 0 38392 14604 9216 S 0.0 0.2 0:00.12 /usr/lib/systemd/systemd-udevd
778 root 16 -4 92748 4380 3360 S 0.0 0.1 0:00.00 /sbin/auditd
779 root 16 -4 92748 4380 3360 S 0.0 0.1 0:00.00 /sbin/auditd
780 root 16 -4 92748 4380 3360 S 0.0 0.1 0:00.00 /sbin/auditd
781 root 16 -4 92748 4380 1664 S 0.0 0.1 0:00.00 /sbin/auditd
801 dbus 20 0 10952 4808 3968 S 0.0 0.1 0:00.01 /usr/bin/dbus-broker-launch --scope system --audit
802 dbus 20 0 10108 5544 2432 S 0.0 0.1 0:00.22 dbus-broker --log 4 --controller 9 --machine-id 3f17f54736a745cf9b3b263ff274c567 --max-bytes 536870912 --max-fds 4096 --max
803 avahi 20 0 16844 6784 5988 S 0.0 0.1 0:00.02 avahi-daemon: running [linux.local]
806 root 20 0 79228 5272 2944 S 0.0 0.1 0:00.02 /usr/sbin/irqbalance --foreground
807 libstorage 20 0 2708 1792 1664 S 0.0 0.0 0:00.01 /usr/bin/lsm -d
808 root 20 0 2816 2048 1920 S 0.0 0.0 0:00.00 /usr/bin/mcelog --daemon --foreground
809 polkitd 20 0 26318 17464 19520 S 0.3 0.3 0:00.59 /usr/lib/polkit-1/polkitd --no-debug
P101 F102 F2-Setup F4=Search F5=Terminal F6=Copy/F7=Paste F8=Delete F9=Kill F10=Quit
```

## Week 14 Slide 11

### Complete the Real World Scenario: Trying Out Docker on Your Linux System in Ch 22

#### TRYING OUT DOCKER ON YOUR LINUX SYSTEM

1. Log into your CentOS Linux system using the sysadmin account and the password you created for it.



```
CentOS Linux 7 (Core)
Kernel 3.18.0-1168.el7.x86_64 on an x86_64
localhost login: sysadmin
Password:
Last login: Thu Aug 1 14:51:25 on ttym1
(sysadmin@localhost ~)$
```

```
[sysadmin@localhost ~]$ sudo su
We trust you have received the usual lecture from the local System Administrator. It usually boils down to these three things:
 #1) Respect the privacy of others.
 #2) Think before you type.
 #3) With great power comes great responsibility.

[sudo] password for sysadmin:
[root@localhost sysadmin]#
```

## 2. Install the docker package:

1. If your sysadmin account is not configured to use sudo, log into the root account using the su - command and the root password, type **dnf install docker**, and press Enter. If your sysadmin account is configured to use sudo, then type **sudo dnf install docker** and press Enter.

```
[root@localhost sysadmin]# sudo su
[root@localhost sysadmin]# dnf install docker
CentOS Stream 9 - BaseOS
CentOS Stream 9 - AppStream
CentOS Stream 9 - Extras packages
CentOS Stream 9 - Extras packages
Dependencies resolved.
=====
| Package           | Architecture | Version      | Repository | Size
| Installing:      |              |              | appstream  | 102 k
| podman-docker   | noarch      | 2:5.1.2-1.el9 | appstream  | 102 k
| Upgrading:       |              |              | appstream  | 16 M
| podman          | x86_64      | 2:5.1.2-1.el9 | appstream  | 16 M
| Installing dependencies:
|   pass            | x86_64      | 0:20240624.g1ee2eca-1.el9 | appstream  | 189 k
|   pass-selinux    | noarch      | 0:20240624.g1ee2eca-1.el9 | appstream  | 31 k
=====
Transaction Summary
=====
Install 3 Packages
Upgrade 1 Package
Total download size: 16 M
Is this ok [y/N]:
```

2. Type **y** to answer any questions, and press Enter after doing so.

```

Key imported successfully
Running transaction check
Transaction check succeeded.
Running transaction test
Transaction test succeeded.
Running transaction
Preparing :
Installing : passt-selinux-0*20240624.glee2eca-1.el9.x86_64 1/1
Running scriptlet: passt-selinux-0*20240624.glee2eca-1.el9.noarch 1/5
Installing : passt-selinux-0*20240624.glee2eca-1.el9.noarch 2/5
Running scriptlet: passt-selinux-0*20240624.glee2eca-1.el9.noarch 2/5
Upgrading : podman-2:5.1.2-1.el9.x86_64 2/5
Installing : podman-docker-2:5.1.2-1.el9.x86_64 3/5
Running scriptlet: podman-2:5.0.0-1.el9.x86_64 4/5
Cleanup : podman-2:5.0.0-1.el9.x86_64 5/5
Running scriptlet: passt-selinux-0*20240624.glee2eca-1.el9.noarch 5/5
Running scriptlet: podman-2:5.0.0-1.el9.x86_64 5/5
Verifying : passt-selinux-0*20240624.glee2eca-1.el9.x86_64 1/5
Verifying : passt-selinux-0*20240624.glee2eca-1.el9.noarch 2/5
Verifying : podman-docker-2:5.1.2-1.el9.x86_64 3/5
Verifying : podman-2:5.1.2-1.el9.x86_64 4/5
Verifying : podman-2:5.0.0-1.el9.x86_64 5/5

Upgraded:
podman-2:5.1.2-1.el9.x86_64
Installed:
passt-0*20240624.glee2eca-1.el9.x86_64          passt-selinux-0*20240624.glee2eca-1.el9.noarch
podman-docker-2:5.1.2-1.el9.x86_64                podman-docker-2:5.1.2-1.el9.noarch

Complete!
[root@localhost sysadmin]#

```

3. If you used the root account for privilege escalation, type **exit** and press Enter to leave the account.

```

Transaction test succeeded.
Running transaction
Preparing :
Installing : passt-selinux-0*20240624.glee2eca-1.el9.x86_64 1/1
Running scriptlet: passt-selinux-0*20240624.glee2eca-1.el9.noarch 1/5
Installing : passt-selinux-0*20240624.glee2eca-1.el9.noarch 2/5
Running scriptlet: passt-selinux-0*20240624.glee2eca-1.el9.noarch 2/5
Upgrading : podman-2:5.1.2-1.el9.x86_64 2/5
Installing : podman-docker-2:5.1.2-1.el9.x86_64 3/5
Running scriptlet: podman-2:5.0.0-1.el9.x86_64 4/5
Cleanup : podman-2:5.0.0-1.el9.x86_64 5/5
Running scriptlet: passt-selinux-0*20240624.glee2eca-1.el9.noarch 5/5
Running scriptlet: podman-2:5.0.0-1.el9.x86_64 5/5
Verifying : passt-selinux-0*20240624.glee2eca-1.el9.x86_64 1/5
Verifying : podman-docker-2:5.1.2-1.el9.x86_64 2/5
Verifying : podman-2:5.1.2-1.el9.x86_64 3/5
Verifying : podman-2:5.0.0-1.el9.x86_64 4/5
Verifying : podman-2:5.0.0-1.el9.x86_64 5/5

Upgraded:
podman-2:5.1.2-1.el9.x86_64
Installed:
passt-0*20240624.glee2eca-1.el9.x86_64          passt-selinux-0*20240624.glee2eca-1.el9.noarch
podman-docker-2:5.1.2-1.el9.x86_64                podman-docker-2:5.1.2-1.el9.noarch

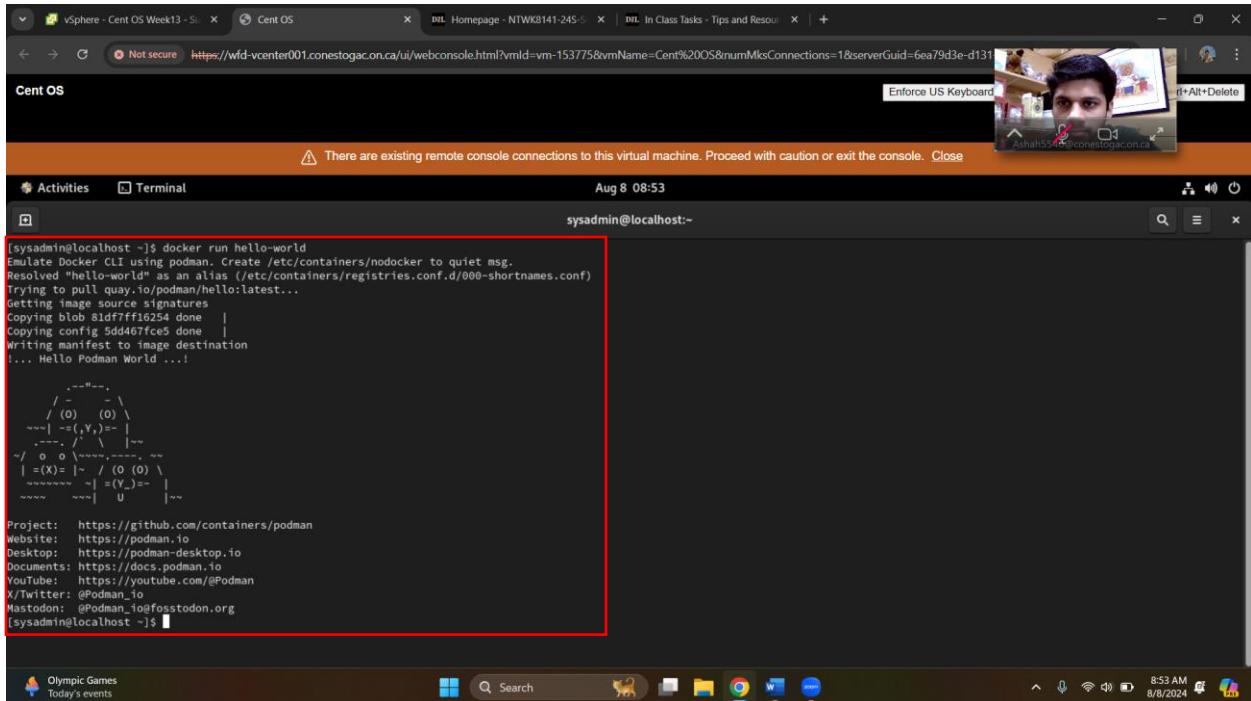
Complete!
[root@localhost sysadmin]# exit
exit
[root@localhost sysadmin]# exit
exit
[sysadmin@localhost ~]$ 

```

3. Once the installation is complete, test Docker by typing **docker run hello-world** and pressing Enter. You may see some error messages, and that's OK. You know the installation was successful when you receive a message similar to the following along with additional information:

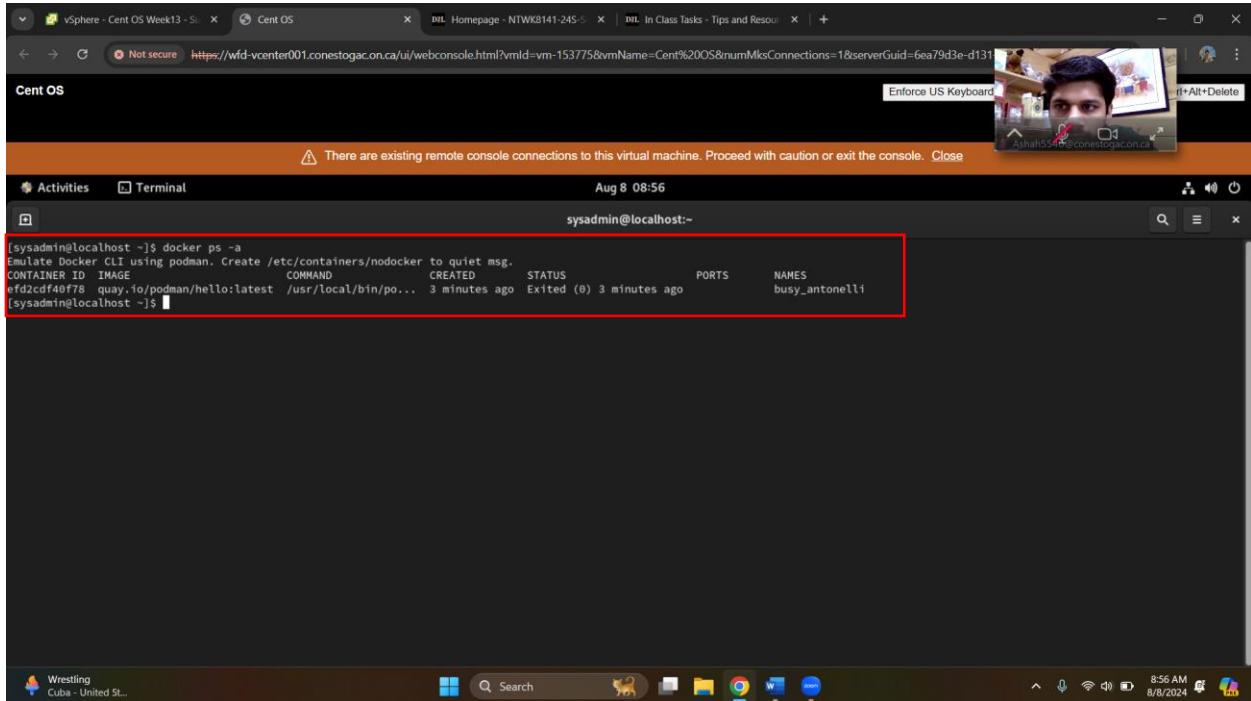
## Hello from Docker!

This message shows that your installation appears to be working correctly.



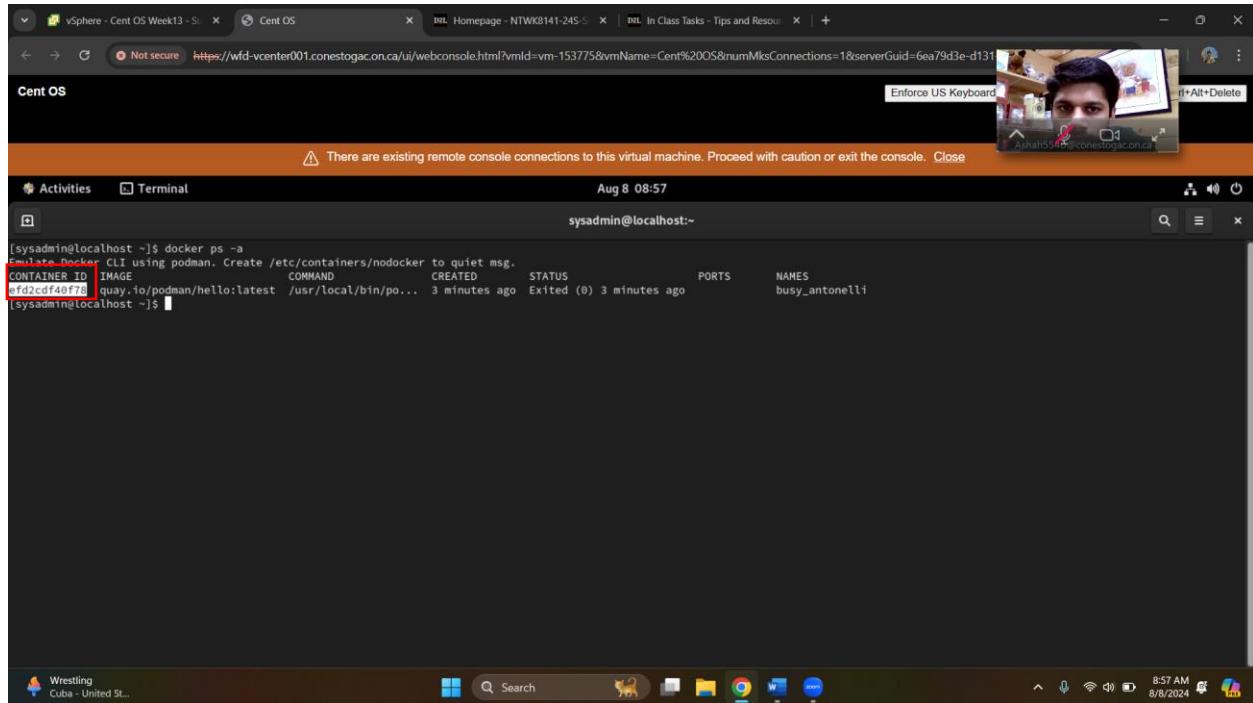
```
[sysadmin@localhost ~]$ docker run hello-world
Emulate Docker CLI using podman. Create /etc/containers/nodocker to quiet msg.
Resolved "hello-world" as an alias (/etc/containers/registries.conf.d/000-shortnames.conf)
Trying to pull quay.io/podman/hello:latest...
Getting image source signatures
Copying blob 81df7ff16254 done
Copying config 5dd467fce5 done
writing manifest to image destination
.... Hello Podman World ...
.
.
.
Project: https://github.com/containers/podman
website: https://podman.io
desktop: https://podman-desktop.io
documents: https://docs.podman.io
YouTube: https://youtube.com/@Podman
X/Twitter: @Podman_10
Mastodon: @Podman_10@fosstodon.org
[sysadmin@localhost ~]$
```

- When you issued the previous command (`docker run hello-world`), you actually created a container called Hello-World. View this container's information by typing `docker ps -a` and pressing Enter.



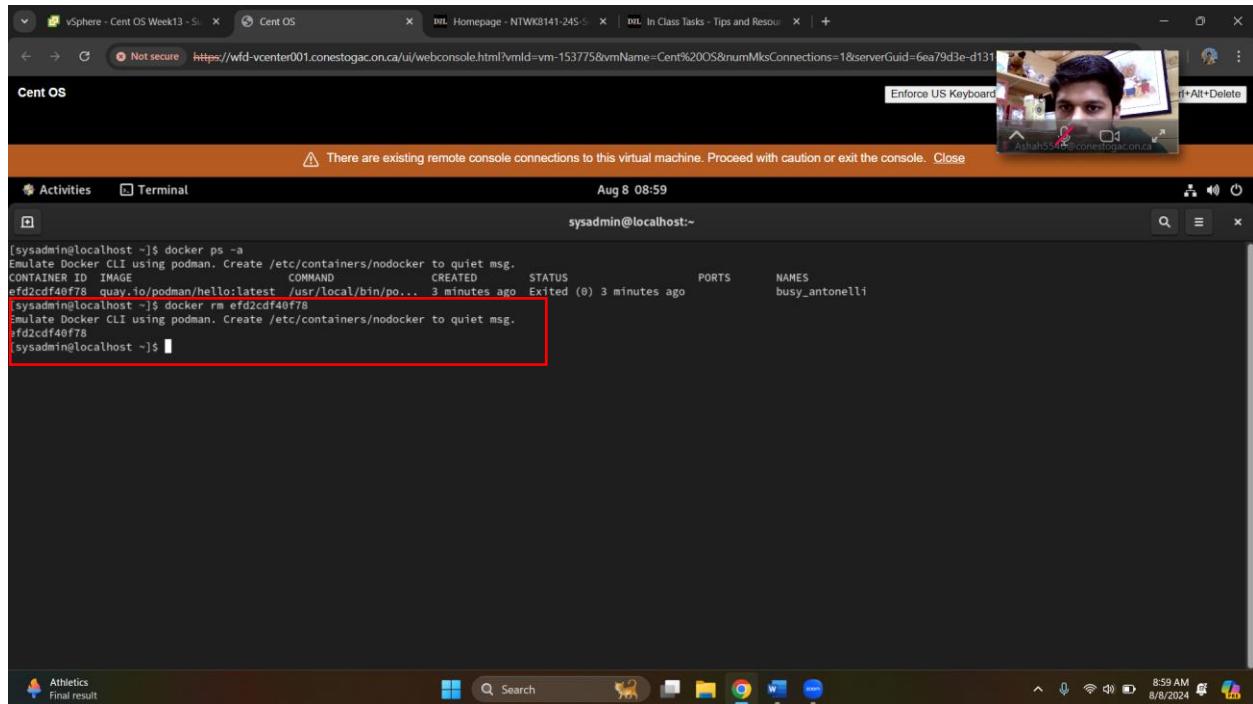
```
[sysadmin@localhost ~]$ docker ps -a
Emulate Docker CLI using podman. Create /etc/containers/nodocker to quiet msg.
CONTAINER ID IMAGE COMMAND CREATED STATUS PORTS NAMES
efd2cdf40f78 quay.io/podman/hello:latest /usr/local/bin/po... 3 minutes ago Exited (0) 3 minutes ago busy_antonelli
[sysadmin@localhost ~]$
```

5. Find the Container ID number from the previous step's command output and record it. (Hint: The Container ID number will contain both letters and numbers and will be listed under the Container ID column.)



```
[sysadmin@localhost ~]$ docker ps -a
Emulate Docker CLI using podman. Create /etc/containers/nodocker to quiet msg.
CONTAINER ID IMAGE COMMAND CREATED STATUS PORTS NAMES
efd2cdf40f78 quay.io/podman/hello:latest /usr/local/bin/po... 3 minutes ago Exited (0) 3 minutes ago
busy_antonelli
[sysadmin@localhost ~]$
```

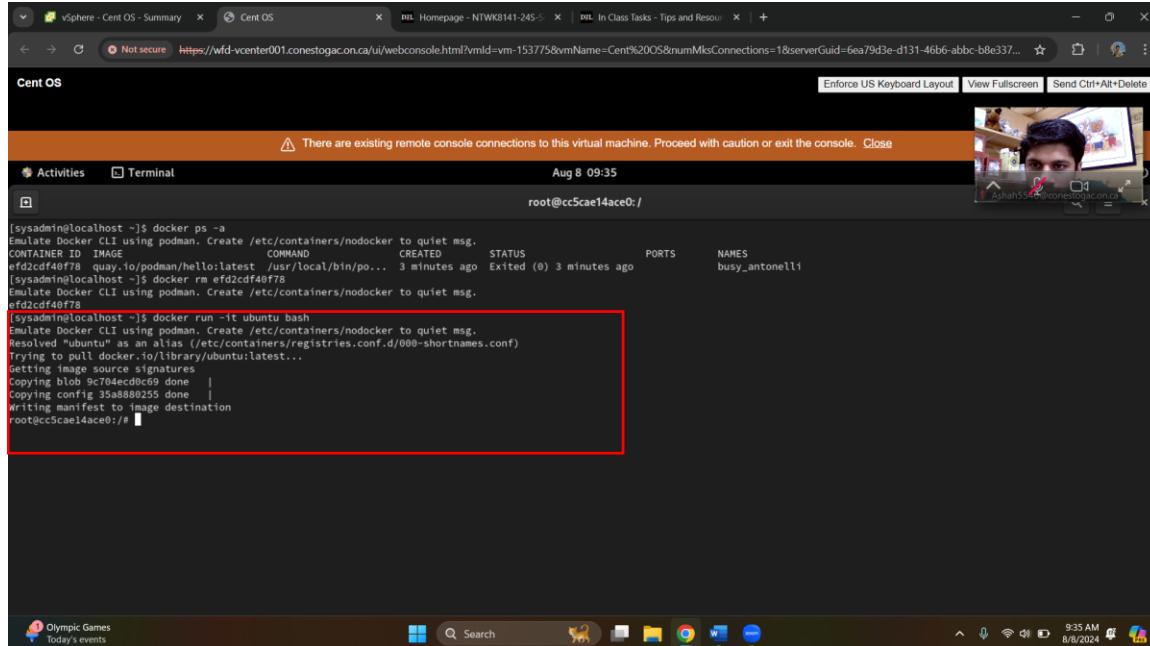
6. Delete the Hello-World container by typing **docker rm Container-ID** and pressing Enter, where **Container-ID** is the number you recorded in the previous step.



```
[sysadmin@localhost ~]$ docker ps -a
Emulate Docker CLI using podman. Create /etc/containers/nodocker to quiet msg.
CONTAINER ID IMAGE COMMAND CREATED STATUS PORTS NAMES
efd2cdf40f78 quay.io/podman/hello:latest /usr/local/bin/po... 3 minutes ago Exited (0) 3 minutes ago
busy_antonelli
[sysadmin@localhost ~]$ docker rm efd2cdf40f78
Emulate Docker CLI using podman. Create /etc/containers/nodocker to quiet msg.
[sysadmin@localhost ~]$
```

7. Start up an Ubuntu container on your CentOS system by typing **docker run -it ubuntu bash** and pressing Enter. Besides starting the container, this command will put you into the container. The **-it** options on the run command allow you to enter into interactive mode (**i**) and use a pseudo-terminal (**t**). Once you are in the container, your prompt will look similar to the following:

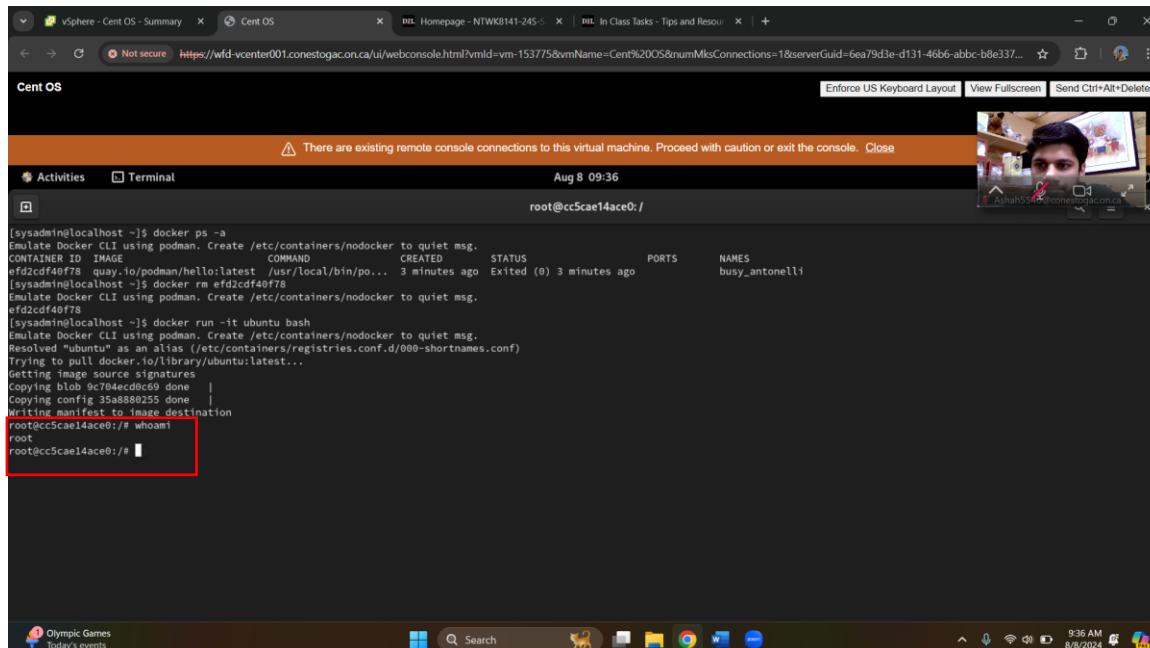
```
root@8a7a39343829:/#
```



This screenshot shows a web-based terminal session for a virtual machine named 'Cent OS'. The terminal window title is 'Terminal' and the prompt is 'root@cc5cae14ace0:/'. The user has run several commands to start a Docker container and enter its root shell:

```
[sysadmin@localhost ~]$ docker ps -a
Emulate Docker CLI using podman. Create /etc/containers/nodocker to quiet msg.
CONTAINER ID IMAGE COMMAND CREATED STATUS PORTS NAMES
ef2cdcf40f78 quay.io/podman/hello:latest /usr/local/bin/po... 3 minutes ago Exited (0) 3 minutes ago busy_antonelli
[sysadmin@localhost ~]$ docker rm ef2cdcf40f78
Emulate Docker CLI using podman. Create /etc/containers/nodocker to quiet msg.
ef2cdcf40f78
[sysadmin@localhost ~]$ docker run -it ubuntu bash
Emulate Docker CLI using podman. Create /etc/containers/nodocker to quiet msg.
Resolved "ubuntu" as an alias (/etc/containers/registries.conf.d/000-shortnames.conf)
Trying to pull docker.io/library/ubuntu:latest...
getting image source signatures
copying blob 9c704ecd6e99 done |
copying config 35a8880255 done |
writing manifest to image destination
root@cc5cae14ace0:/#
```

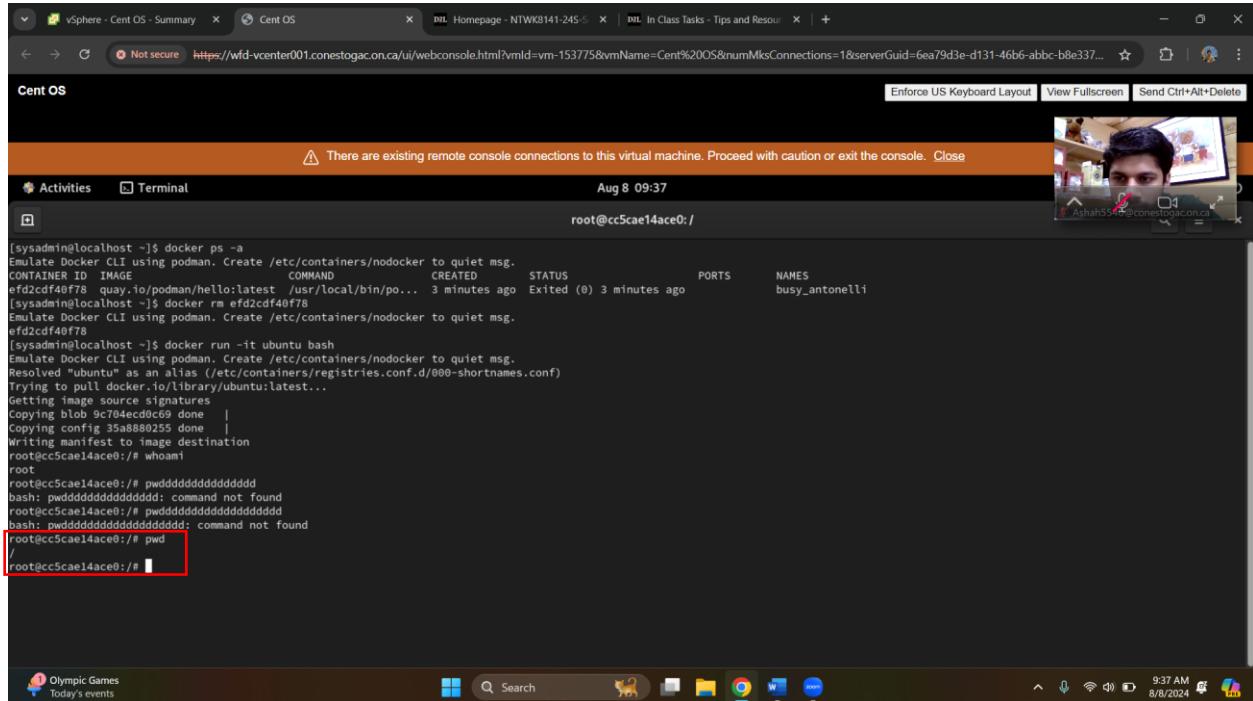
8. At the container prompt, type **whoami** and press Enter. Surprise! You're logged in as the root user, and that's OK, because you are contained.



This screenshot shows a continuation of the previous terminal session. The user has run the **whoami** command at the root prompt:

```
[sysadmin@localhost ~]$ docker ps -a
Emulate Docker CLI using podman. Create /etc/containers/nodocker to quiet msg.
CONTAINER ID IMAGE COMMAND CREATED STATUS PORTS NAMES
ef2cdcf40f78 quay.io/podman/hello:latest /usr/local/bin/po... 3 minutes ago Exited (0) 3 minutes ago busy_antonelli
[sysadmin@localhost ~]$ docker rm ef2cdcf40f78
Emulate Docker CLI using podman. Create /etc/containers/nodocker to quiet msg.
ef2cdcf40f78
[sysadmin@localhost ~]$ docker run -it ubuntu bash
Emulate Docker CLI using podman. Create /etc/containers/nodocker to quiet msg.
Resolved "ubuntu" as an alias (/etc/containers/registries.conf.d/000-shortnames.conf)
Trying to pull docker.io/library/ubuntu:latest...
getting image source signatures
copying blob 9c704ecd6e99 done |
copying config 35a8880255 done |
writing manifest to image destination
root@cc5cae14ace0:/# whoami
root
root@cc5cae14ace0:/#
```

9. See where you are in the container's virtual directory system by typing **pwd** and pressing Enter. You should see that you are at the root (/) of the directory structure.

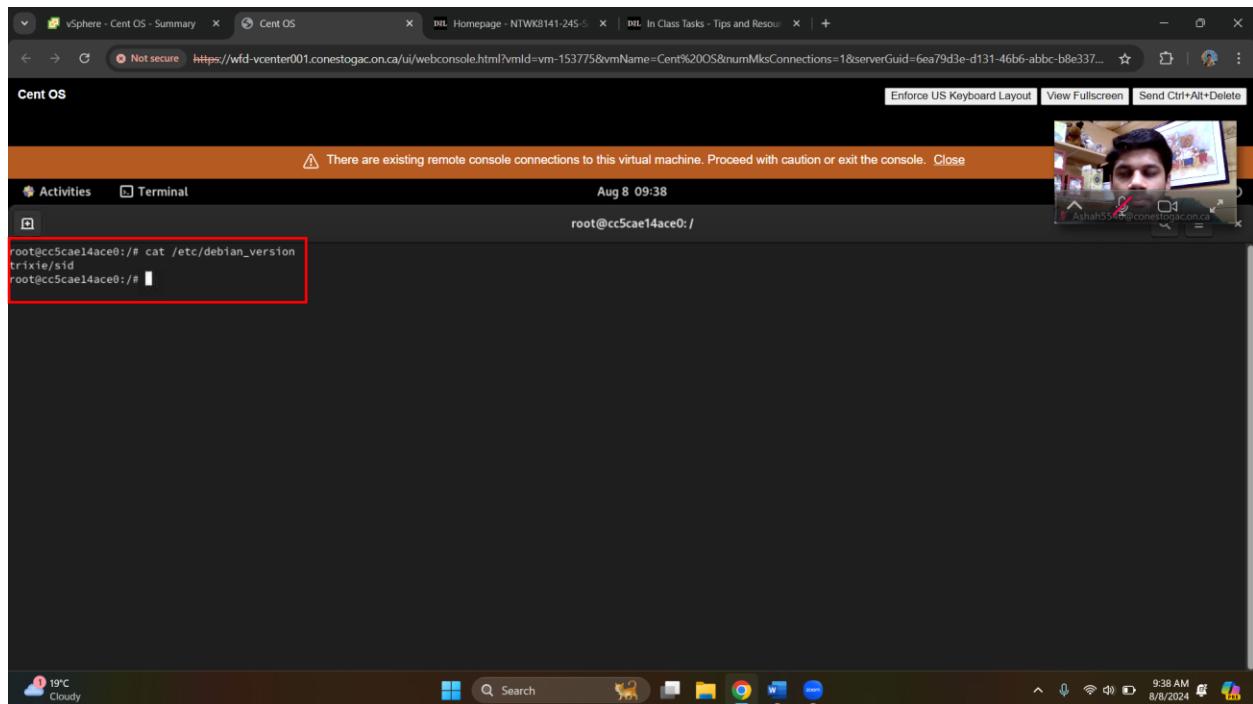


The screenshot shows a terminal window titled "Cent OS" running on a virtual machine. The terminal displays the following command and its output:

```
[sysadmin@localhost ~]$ docker ps -a
Emulate Docker CLI using podman. Create /etc/containers/nodocker to quiet msg.
CONTAINER ID IMAGE COMMAND CREATED STATUS PORTS NAMES
efd2cdf40f78 quay.io/podman/hello:latest /usr/local/bin/po... 3 minutes ago Exited (0) 3 minutes ago busy_antonelli
[sysadmin@localhost ~]$ docker rm efd2cdf40f78
Emulate Docker CLI using podman. Create /etc/containers/nodocker to quiet msg.
efd2cdf40f78
[sysadmin@localhost ~]$ docker run -it ubuntu bash
Emulate Docker CLI using podman. Create /etc/containers/nodocker to quiet msg.
Resolved "ubuntu" as an alias (/etc/containers/registries.conf.d/000-shortnames.conf)
Trying to pull docker.io/library/ubuntu:latest...
Getting image source signatures
Copying blob 9c704ecddc69 done
Copying config 35a8880255 done
Writing manifest to image destination
root@cc5cae14ace0:~# whoami
root
root@cc5cae14ace0:~# pwd
/
root@cc5cae14ace0:~#
```

The command **pwd** is highlighted with a red box in the terminal output.

10. View the version of Ubuntu you are running in this container by typing **cat /etc/debian\_version** and pressing Enter. Record your findings.



The screenshot shows a terminal window titled "Cent OS" running on a virtual machine. The terminal displays the following command and its output:

```
root@cc5cae14ace0:~# cat /etc/debian_version
trixie/sid
root@cc5cae14ace0:~#
```

The command **cat /etc/debian\_version** is highlighted with a red box in the terminal output.

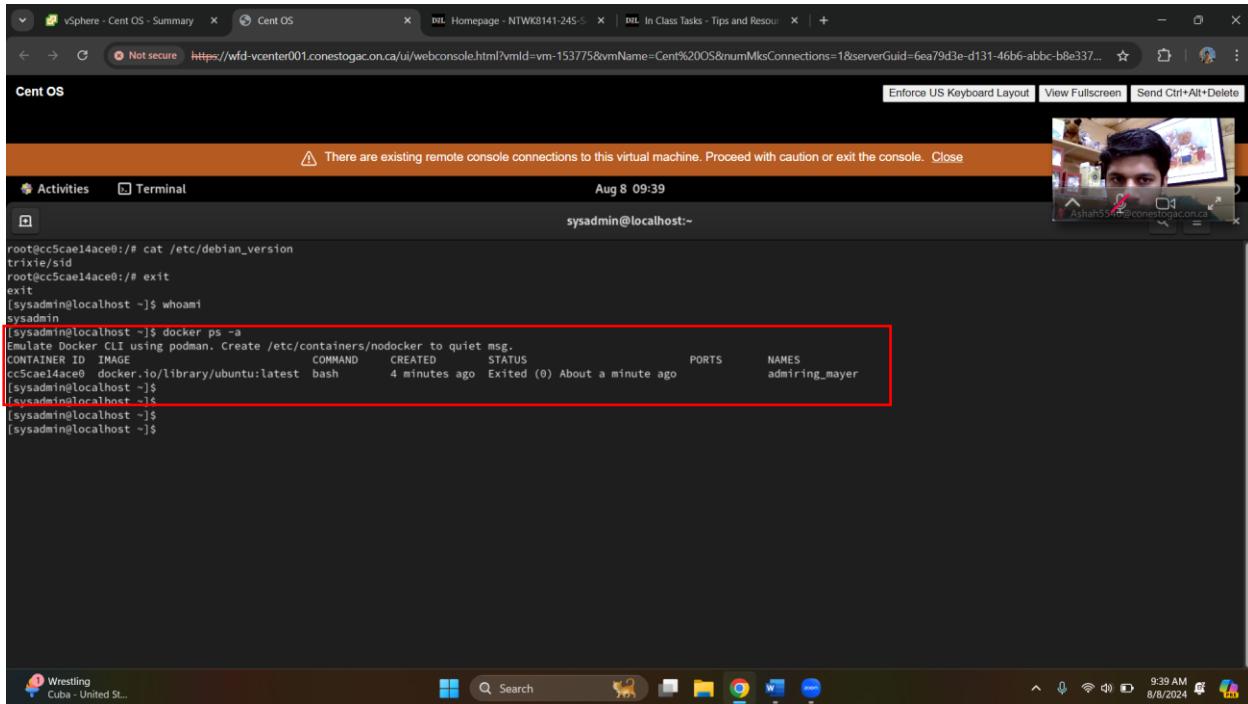
11. Leave the Ubuntu container by typing **exit** and pressing Enter. You should see your prompt change.

A screenshot of a Linux terminal window titled "Cent OS". The terminal shows a root shell session. The user runs the command "cat /etc/debian\_version" which outputs "trixie/sid". Then, the user runs "exit" to log out. The terminal then shows a sysadmin account shell with the command "[sysadmin@localhost ~]\$". A red box highlights the command "cat /etc/debian\_version".

12. Double-check that you are out of the container by typing **whoami** and pressing Enter. You should now be logged into the sysadmin account, instead of the root account.

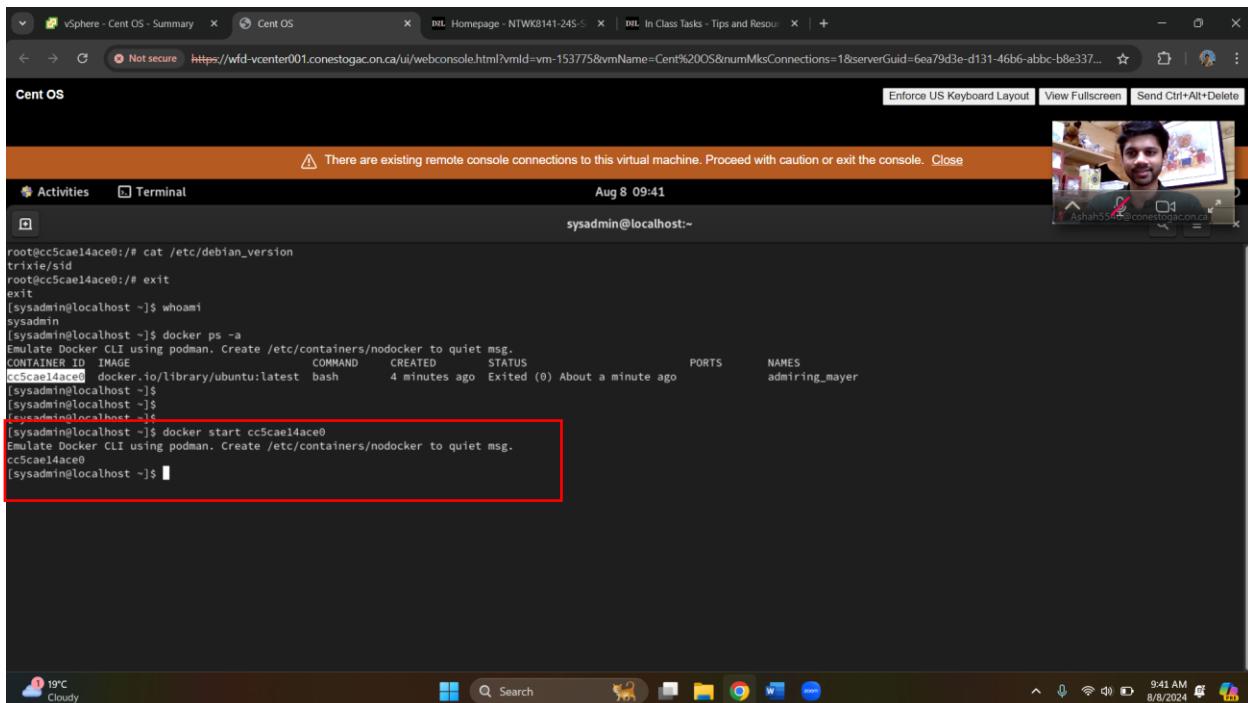
A screenshot of a Linux terminal window titled "Cent OS". The terminal shows a sysadmin account shell. The user runs the command "cat /etc/debian\_version" which outputs "trixie/sid". Then, the user runs "exit" to log out. The terminal then shows a sysadmin account shell with the command "[sysadmin@localhost ~]\$ whoami". The output "sysadmin" is highlighted with a red box.

13. View the available containers by typing **docker ps -a** and pressing Enter. You should see only one container. Record its Container ID.



```
root@cc5cae14ace0:/# cat /etc/debian_version
trixie/sid
root@cc5cae14ace0:/# exit
exit
[sysadmin@localhost ~]$ whoami
sysadmin
[sysadmin@localhost ~]$ docker ps -a
Emulate Docker CLI using podman. Create /etc/containers/nodocker to quiet msg.
CONTAINER ID IMAGE COMMAND CREATED STATUS PORTS NAMES
cc5cae14ace0 docker.io/library/ubuntu:latest bash 4 minutes ago Exited (0) About a minute ago admiring_mayer
[sysadmin@localhost ~]$ 
[sysadmin@localhost ~]$ 
[sysadmin@localhost ~]$
```

14. Start the container you viewed in the previous step by typing **docker start Container-ID** and pressing Enter, where **Container-ID** is the number you recorded in the previous step.



```
root@cc5cae14ace0:/# cat /etc/debian_version
trixie/sid
root@cc5cae14ace0:/# exit
exit
[sysadmin@localhost ~]$ whoami
sysadmin
[sysadmin@localhost ~]$ docker ps -a
Emulate Docker CLI using podman. Create /etc/containers/nodocker to quiet msg.
CONTAINER ID IMAGE COMMAND CREATED STATUS PORTS NAMES
cc5cae14ace0 docker.io/library/ubuntu:latest bash 4 minutes ago Exited (0) About a minute ago admiring_mayer
[sysadmin@localhost ~]$ 
[sysadmin@localhost ~]$ 
[sysadmin@localhost ~]$ docker start cc5cae14ace0
Emulate Docker CLI using podman. Create /etc/containers/nodocker to quiet msg.
cc5cae14ace0
[sysadmin@localhost ~]$
```

15. Jump back into the Ubuntu container by typing **docker attach Container-ID** and pressing Enter, where **Container-ID** is the number you recorded in step 13. You should see that your prompt has changed.

```
root@cc5cae14ace0:/# cat /etc/debian_version
trixie/sid
root@cc5cae14ace0:/# exit
exit
[sysadmin@localhost ~]$ whoami
sysadmin
[sysadmin@localhost ~]$ docker ps -a
Emulate Docker CLI using podman. Create /etc/containers/nodocker to quiet msg.
CONTAINER ID IMAGE COMMAND CREATED STATUS PORTS NAMES
cc5cae14ace0 docker.io/library/ubuntu:latest bash 4 minutes ago Exited (0) About a minute ago admiring_mayer
[sysadmin@localhost ~]$ 
[sysadmin@localhost ~]$ 
[sysadmin@localhost ~]$ 
[sysadmin@localhost ~]$ docker start cc5cae14ace0
Emulate Docker CLI using podman. Create /etc/containers/nodocker to quiet msg.
cc5cae14ace0
[sysadmin@localhost ~]$ docker attach cc5cae14ace0
Emulate Docker CLI using podman. Create /etc/containers/nodocker to quiet msg.
root@cc5cae14ace0:/# 
```

16. At the container prompt, type **whoami** and press Enter. You should see that you are logged in as the root user.

```
root@cc5cae14ace0:/# cat /etc/debian_version
trixie/sid
root@cc5cae14ace0:/# exit
exit
[sysadmin@localhost ~]$ whoami
sysadmin
[sysadmin@localhost ~]$ docker ps -a
Emulate Docker CLI using podman. Create /etc/containers/nodocker to quiet msg.
CONTAINER ID IMAGE COMMAND CREATED STATUS PORTS NAMES
cc5cae14ace0 docker.io/library/ubuntu:latest bash 4 minutes ago Exited (0) About a minute ago admiring_mayer
[sysadmin@localhost ~]$ 
[sysadmin@localhost ~]$ 
[sysadmin@localhost ~]$ 
[sysadmin@localhost ~]$ docker start cc5cae14ace0
Emulate Docker CLI using podman. Create /etc/containers/nodocker to quiet msg.
cc5cae14ace0
[sysadmin@localhost ~]$ docker attach cc5cae14ace0
Emulate Docker CLI using podman. Create /etc/containers/nodocker to quiet msg.
root@cc5cae14ace0:/# whoami
bash: whoammi: command not found
root@cc5cae14ace0:/# whoami
root
root@cc5cae14ace0:/# 
```

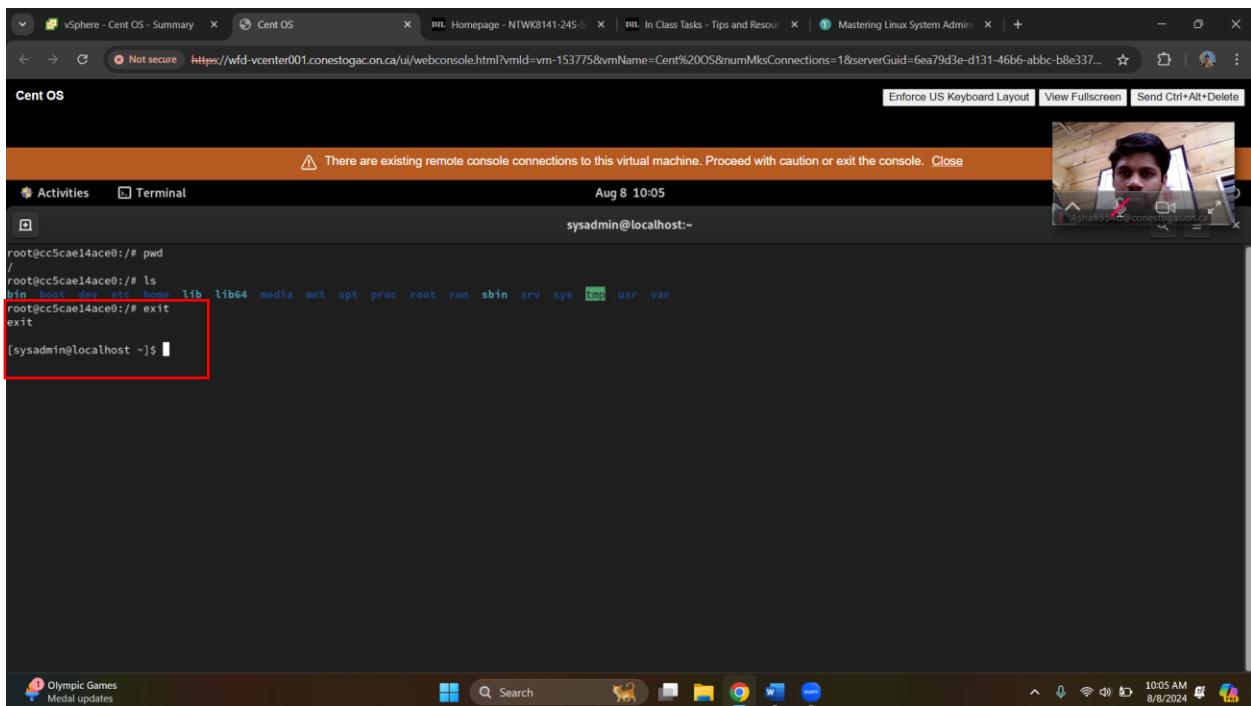
17. View the version of Ubuntu you are running in this container by typing **cat /etc/debian\_version** and pressing Enter. Check that the version information matches what you recorded in step 10. It should.

```
root@cc5cae14ace0:/# cat /etc/debian_version
trixie/sid
root@cc5cae14ace0:/# exit
exit
[sysadmin@localhost ~]$ whoami
sysadmin
[sysadmin@localhost ~]$ docker ps -a
Emulate Docker CLI using podman. Create /etc/containers/nodocker to quiet msg.
CONTAINER ID IMAGE COMMAND CREATED STATUS PORTS NAMES
cc5cae14ace0 docker.io/library/ubuntu:latest bash 4 minutes ago Exited (0) About a minute ago admiring_mayer
[sysadmin@localhost ~]$ 
[sysadmin@localhost ~]$ 
[sysadmin@localhost ~]$ docker start cc5cae14ace0
Emulate Docker CLI using podman. Create /etc/containers/nodocker to quiet msg.
cc5cae14ace0
[sysadmin@localhost ~]$ docker attach cc5cae14ace0
Emulate Docker CLI using podman. Create /etc/containers/nodocker to quiet msg.
root@cc5cae14ace0:/# whoami
bash: whoammi: command not found
root@cc5cae14ace0:/# whoami
root
root@cc5cae14ace0:/# cat /etc/debian_version
trixie/sid
root@cc5cae14ace0:/# 
```

18. If you want, do a little exploring in the container. Try different commands you have learned in this book, and look through the Linux virtual directory structure.

```
root@cc5cae14ace0:/# pwd
/
root@cc5cae14ace0:/# ls
bin boot dev etc home lib lib64 media mnt opt proc root run sbin srv sys tmp usr var
root@cc5cae14ace0:/# exit
exit
[sysadmin@localhost ~]$ 
```

19. Leave the Ubuntu container by typing **exit** and pressing Enter. You should see your prompt change.

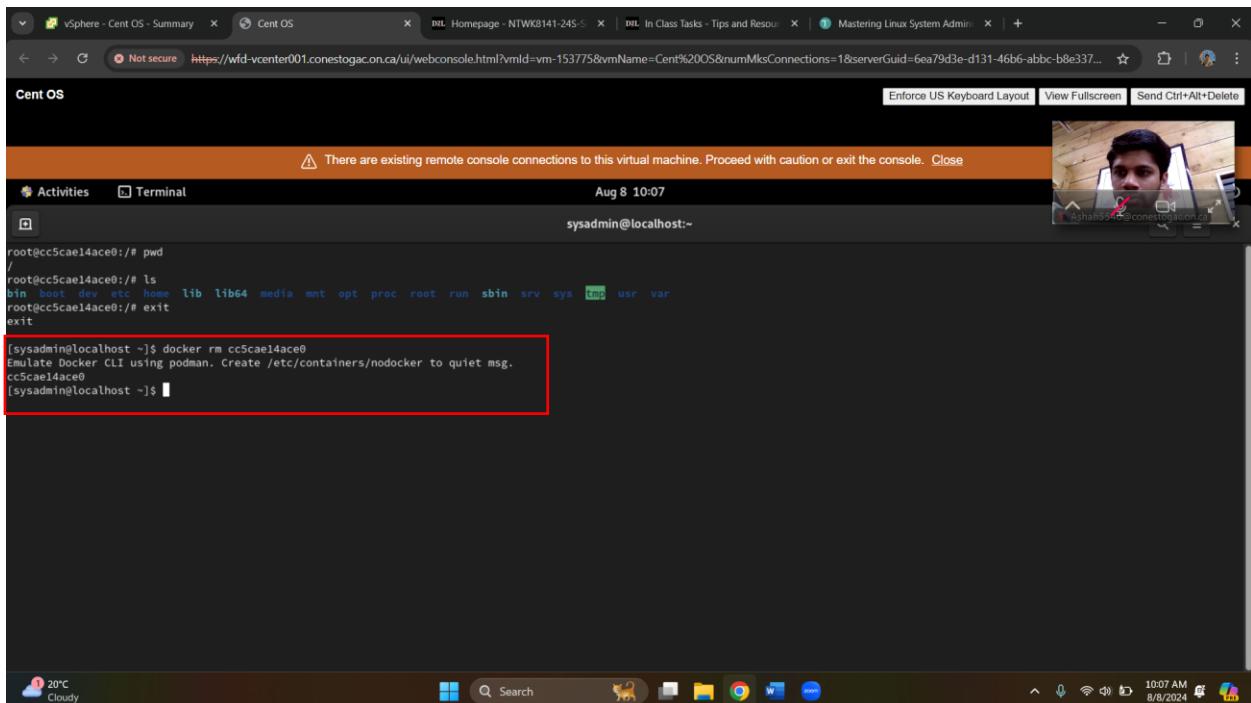


```
Cent OS
Not secure https://wfd-vcenter001.conestogac.on.ca/ui/webconsole.html?vmId=vm-153775&vmName=Cent%20OS&numMksConnections=1&serverGuid=6ea79d3e-d131-46b6-abbc-b8e37...
Enforce US Keyboard Layout View Fullscreen Send Ctrl+Alt+Delete

Cent OS
Activities Terminal Aug 8 10:05
sysadmin@localhost:~>

root@cc5cae14ace0:/# pwd
/
root@cc5cae14ace0:/# ls
bin boot dev etc home lib lib64 media mnt opt proc root run sbin srv sys tmp usr var
root@cc5cae14ace0:/# exit
exit
[sysadmin@localhost ~]$
```

20. Delete the Ubuntu container by typing **docker rm Container-ID** and pressing Enter, where **Container-ID** is the number you recorded in step 13.



```
Cent OS
Not secure https://wfd-vcenter001.conestogac.on.ca/ui/webconsole.html?vmId=vm-153775&vmName=Cent%20OS&numMksConnections=1&serverGuid=6ea79d3e-d131-46b6-abbc-b8e37...
Enforce US Keyboard Layout View Fullscreen Send Ctrl+Alt+Delete

Cent OS
Activities Terminal Aug 8 10:07
sysadmin@localhost:~>

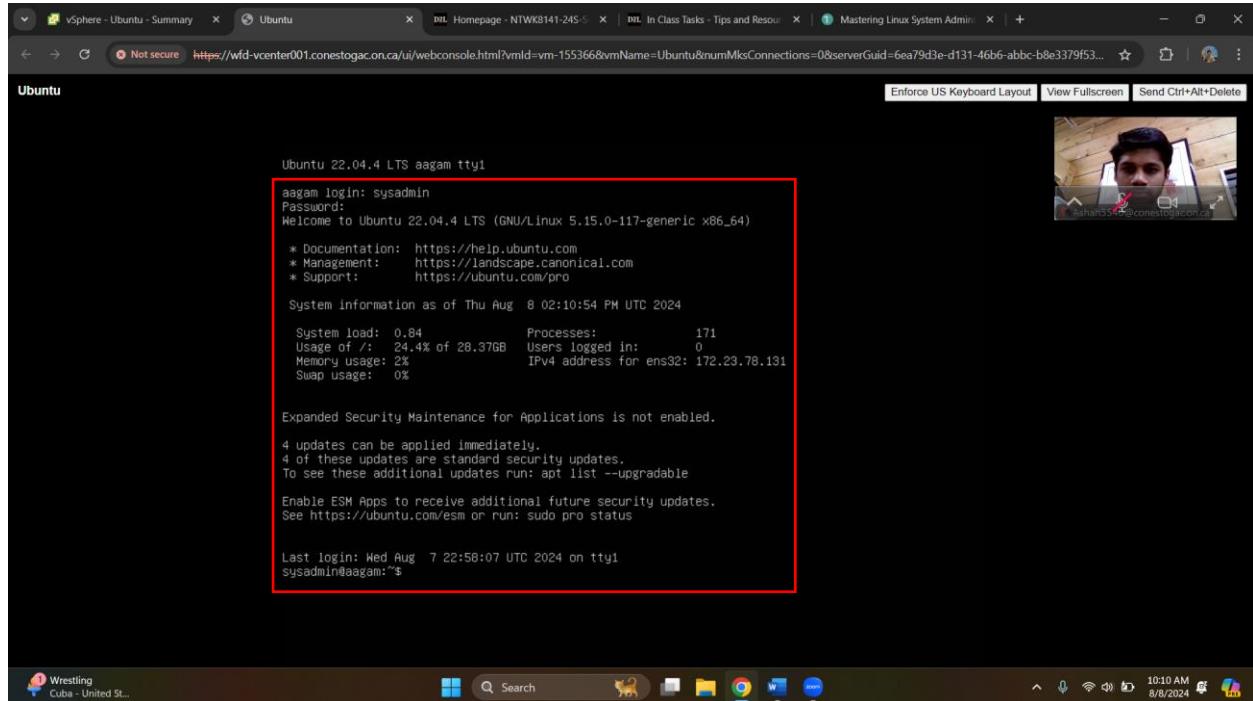
root@cc5cae14ace0:/# pwd
/
root@cc5cae14ace0:/# ls
bin boot dev etc home lib lib64 media mnt opt proc root run sbin srv sys tmp usr var
root@cc5cae14ace0:/# exit
exit
[sysadmin@localhost ~]$ docker rm cc5cae14ace0
Emulate Docker CLI using podman. Create /etc/containers/nodocker to quiet msg.
cc5cae14ace0
[sysadmin@localhost ~]$
```

## Week 14 Slide 17

Complete the Real World Scenario: Using Snap on Your Linux System in Ch 22

USING SNAP ON YOUR LINUX SYSTEM

1. Log into your Ubuntu Linux system using the sysadmin account and the password you created for it.



```
Ubuntu 22.04.4 LTS aagam tty1
aagam login: sysadmin
Password:
Welcome to Ubuntu 22.04.4 LTS (GNU/Linux 5.15.0-117-generic x86_64)

 * Documentation: https://help.ubuntu.com
 * Management: https://landscape.canonical.com
 * Support: https://ubuntu.com/pro

System information as of Thu Aug  8 02:10:54 PM UTC 2024

System load: 0.84      Processes:           171
Usage of /: 24.4% of 28.37GB  Users logged in:        0
Memory usage: 2%          IPv4 address for ens32: 172.23.78.131
Swap usage: 0%

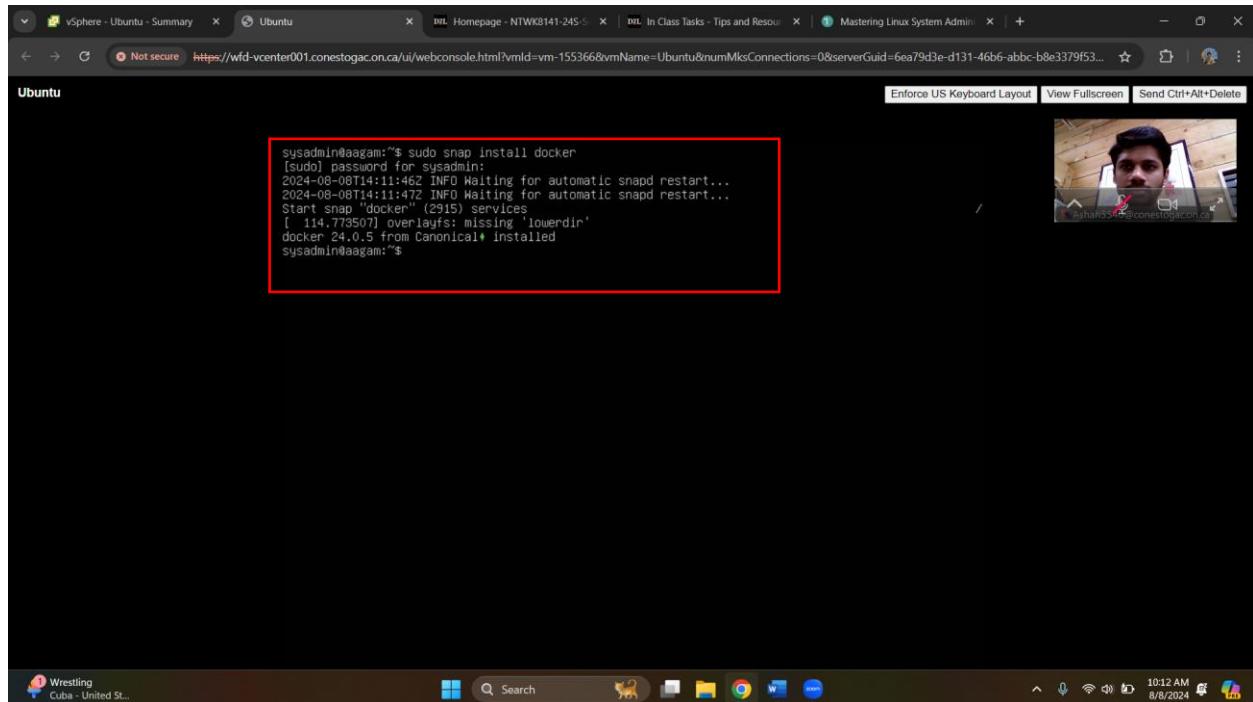
Expanded Security Maintenance for Applications is not enabled.

4 updates can be applied immediately.
4 of these updates are standard security updates.
To see these additional updates run: apt list --upgradable

Enable ESM Apps to receive additional future security updates.
See https://ubuntu.com/esm or run: sudo pro status

Last login: Wed Aug  7 22:58:07 UTC 2024 on tty1
sysadmin@aagam:~$
```

2. Install the docker snap package by typing **sudo snap install docker** and pressing Enter. If you're asked for a password, type in the sysadmin account's password. If asked, type **y** to answer any questions, and press Enter after doing so.

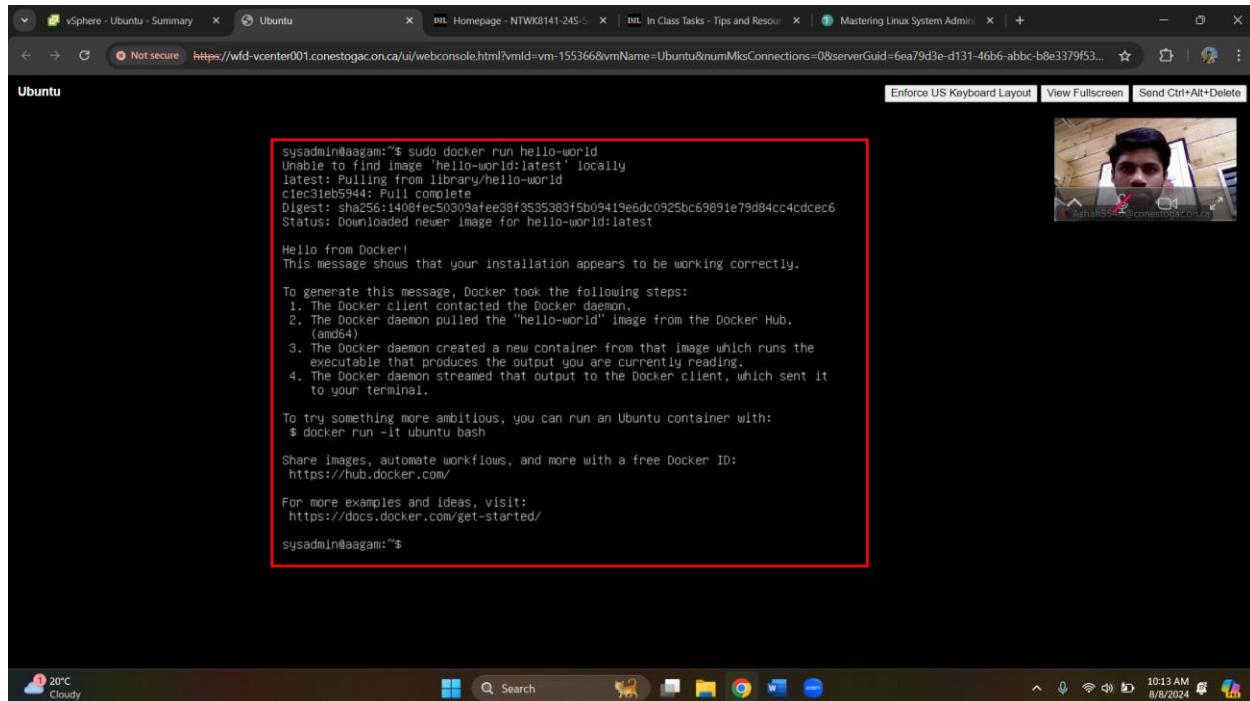


```
sysadmin@aagam:~$ sudo snap install docker
[sudo] password for sysadmin:
2024-08-08T14:11:46Z INFO Waiting for automatic snapd restart...
2024-08-08T14:11:47Z INFO Waiting for automatic snapd restart...
Start snap "docker" (2915) services
[ 114.773507] overlays: missing 'lowerdir'
docker 24.0.5 from Canonical+ installed
sysadmin@aagam:~$
```

- Once the installation is complete, test Docker by typing **sudo docker run hello-world** and pressing Enter. If asked for a password, type in the sysadmin account's password. You may see some error messages, and that is OK. You know the installation was successful when you receive a message similar to the following along with additional information:

Hello from Docker!

This message shows that your installation appears to be working correctly.



The screenshot shows a terminal window titled "Ubuntu" with the following text:

```
susadmin@aagam:~$ sudo docker run hello-world
Unable to find image 'hello-world:latest' locally
latest: Pulling from library/hello-world
c1ec31eb5344: Pull complete
Digest: sha256:1408fec50309afee38f3535303fb09419e6dc0925bc69891e79d84cc4cdcec6
Status: Downloaded newer image for hello-world:latest

Hello from Docker!
This message shows that your installation appears to be working correctly.

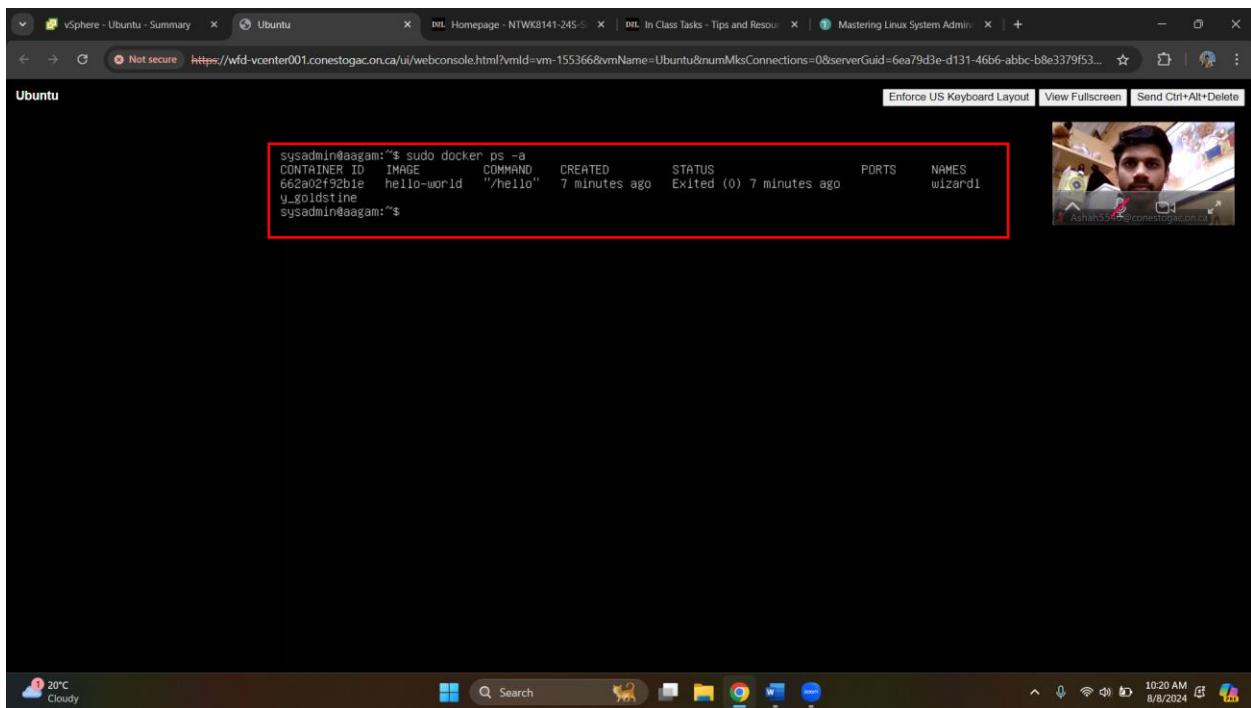
To generate this message, Docker took the following steps:
1. The Docker client contacted the Docker daemon.
2. The Docker daemon pulled the "hello-world" image from the Docker Hub.
   (amd64)
3. The Docker daemon created a new container from that image which runs the
   executable that produces the output you are currently reading.
4. The Docker daemon streamed that output to the Docker client, which sent it
   to your terminal.

To try something more ambitious, you can run an Ubuntu container with:
$ docker run -it ubuntu bash

Share images, automate workflows, and more with a free Docker ID:
https://hub.docker.com/

For more examples and ideas, visit:
https://docs.docker.com/get-started/
susadmin@aagam:~$
```

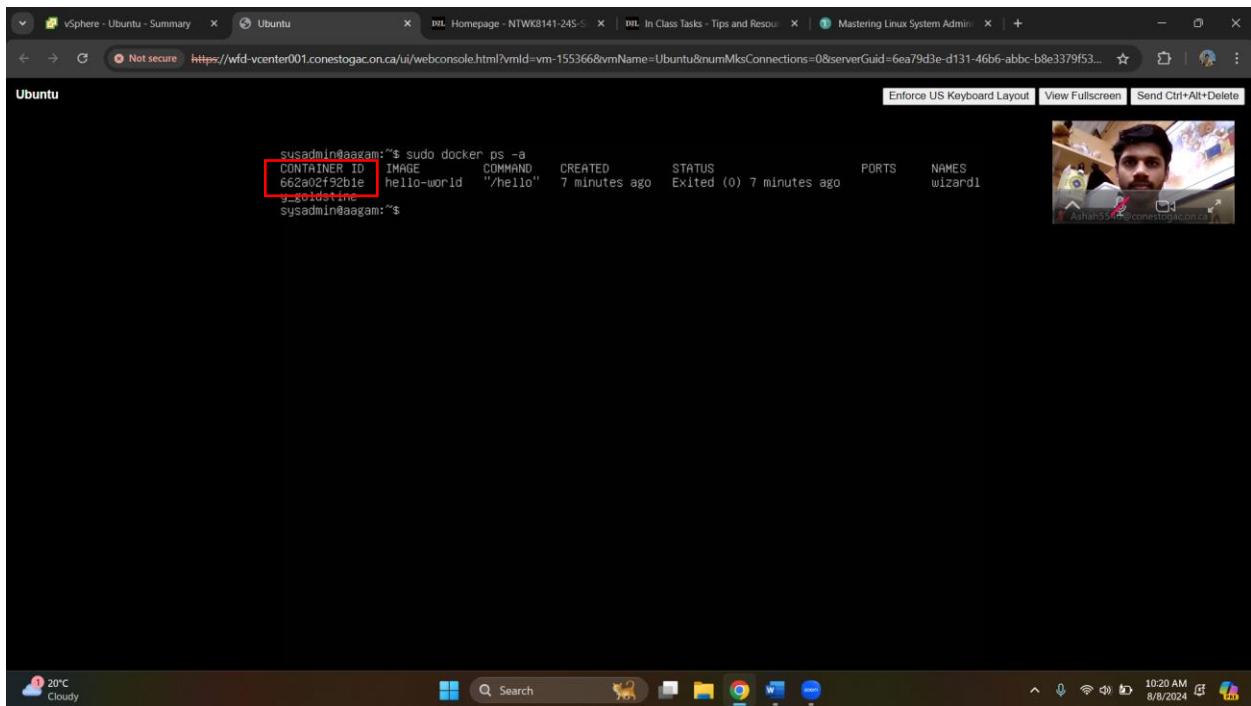
- When you issued the previous command (`sudo docker run hello-world`), you actually created a container called Hello-World. View this container's information by typing **sudo docker ps -a** and pressing Enter. If you're asked for a password, type in the sysadmin account's password.



```
susadmin@aagam:~$ sudo docker ps -a
CONTAINER ID IMAGE COMMAND CREATED STATUS PORTS NAMES
662a02f92b1e hello-world "/hello" 7 minutes ago Exited (0) 7 minutes ago
sysadmin@aagam:~$
```

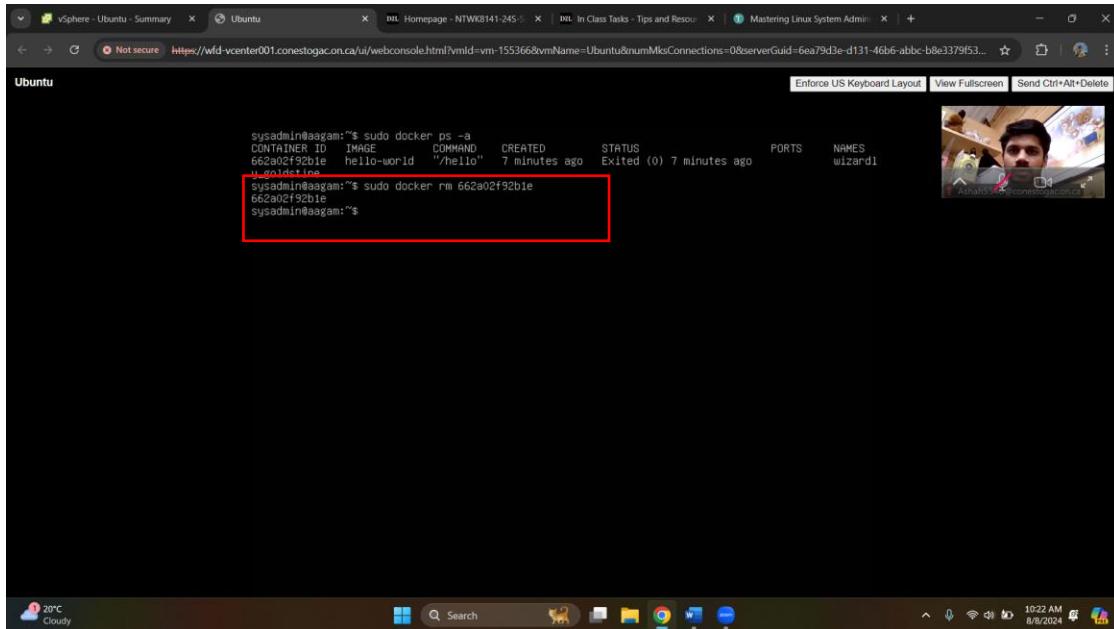
5. Find the Container ID number from the previous step's command output and record it. (Hint: The Container ID number will contain both letters and numbers and will be listed under the Container ID column.)

→ 662a02f92b1e



```
susadmin@aagam:~$ sudo docker ps -a
CONTAINER ID IMAGE COMMAND CREATED STATUS PORTS NAMES
662a02f92b1e hello-world "/hello" 7 minutes ago Exited (0) 7 minutes ago
sysadmin@aagam:~$
```

6. Delete the Hello-World container by typing **`sudo docker rm Container-ID`** and pressing Enter, where **`Container-ID`** is the number you recorded in the previous step. If you're asked for a password, type in the sysadmin account's password.

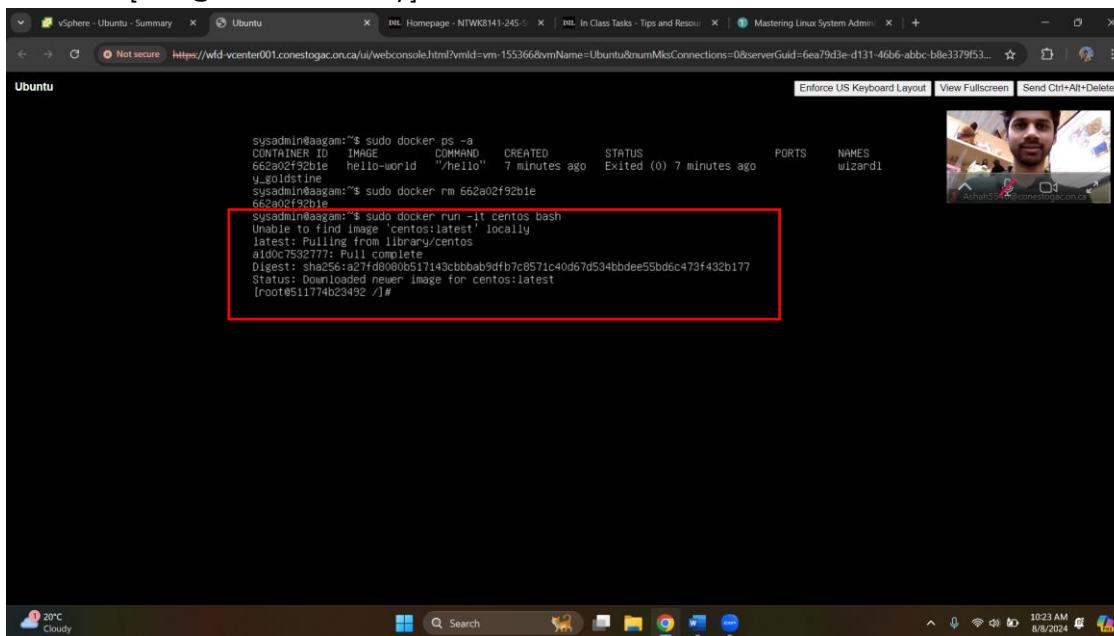


A screenshot of a Linux terminal window titled "Ubuntu". The terminal shows the command `sudo docker ps -a` being run, followed by the container ID `662a02f92b1e`, and then the command `sudo docker rm 662a02f92b1e`. A red box highlights the command and its output. In the top right corner of the terminal, there is a video feed of a person's face. The desktop environment at the bottom shows icons for a search bar, file explorer, and other applications.

```
Sysadmin@aaagam:~$ sudo docker ps -a
CONTAINER ID IMAGE COMMAND CREATED STATUS PORTS NAMES
662a02f92b1e hello-world "/hello" 7 minutes ago Exited (0) 7 minutes ago
Sysadmin@aaagam:~$ sudo docker rm 662a02f92b1e
662a02f92b1e
Sysadmin@aaagam:~$
```

7. Start up a CentOS container using Docker running in a snap sandbox on your Ubuntu system by typing **`sudo docker run -it centos bash`** and pressing Enter. Besides starting the container, this command will put you into the container. The `-it` options on the run command allow you to enter into interactive mode (`i`) and use a pseudo-terminal (`t`). If you're asked for a password, type in the sysadmin account's password. After you are in the container, your prompt will look similar to the following:

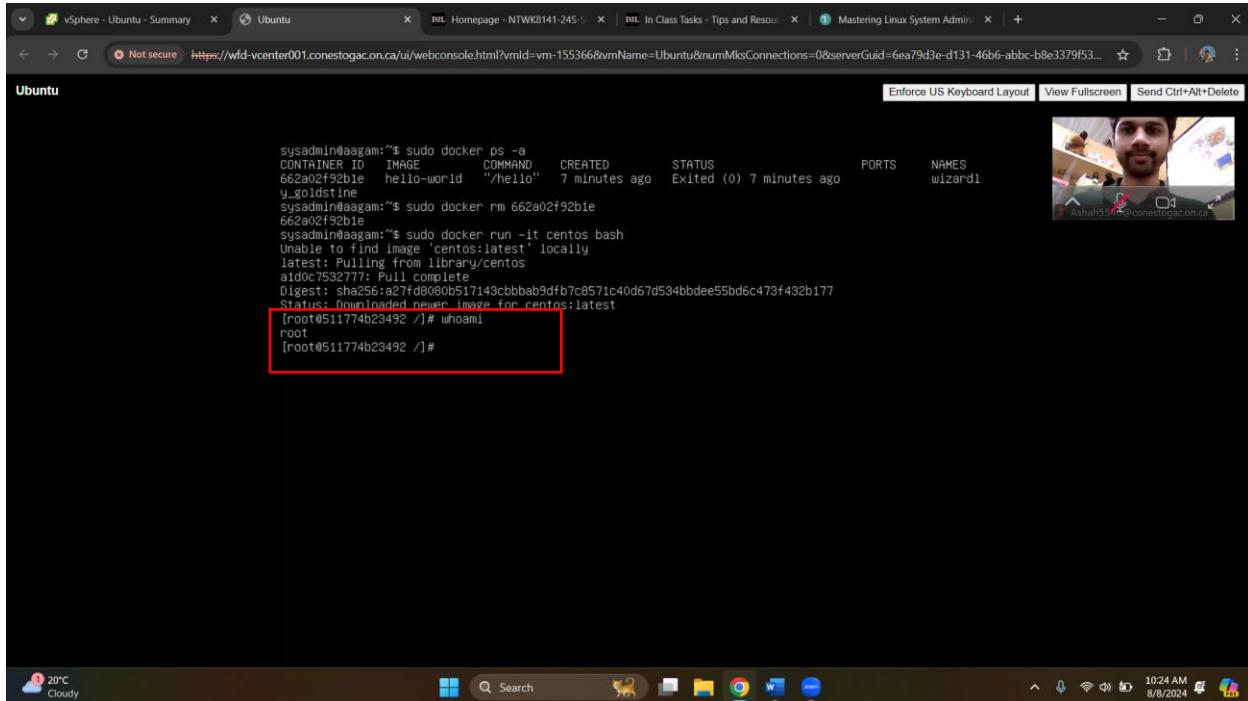
```
[root@8a7a39343829 /]#
```



A screenshot of a Linux terminal window titled "Ubuntu". The terminal shows the command `sudo docker ps -a` being run, followed by the command `sudo docker run -it centos bash`. A red box highlights the command and its output. In the top right corner of the terminal, there is a video feed of a person's face. The desktop environment at the bottom shows icons for a search bar, file explorer, and other applications.

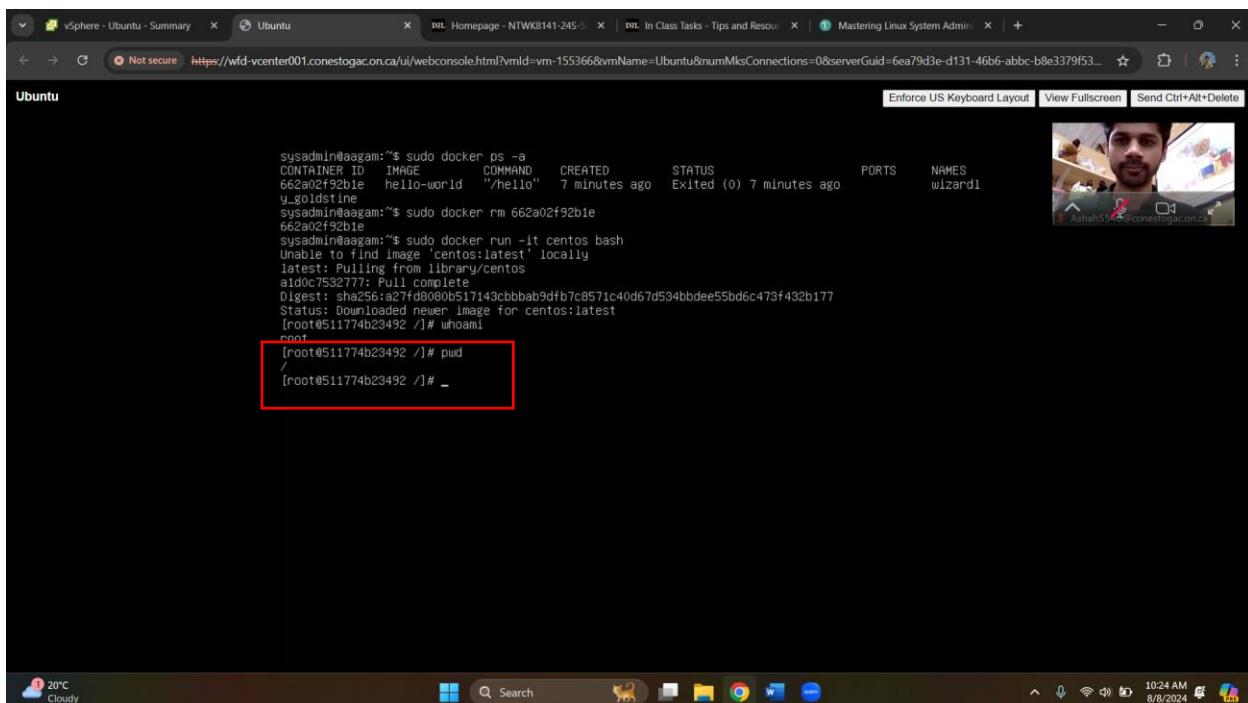
```
Sysadmin@aaagam:~$ sudo docker ps -a
CONTAINER ID IMAGE COMMAND CREATED STATUS PORTS NAMES
662a02f92b1e hello-world "/hello" 7 minutes ago Exited (0) 7 minutes ago
Sysadmin@aaagam:~$ sudo docker rm 662a02f92b1e
Sysadmin@aaagam:~$ sudo docker run -it centos bash
Unable to find image 'centos:latest' locally
latest: Pulling from library/centos
a1d0c7532777: Pull complete
Digest: sha256:a27f08000517143cbbbabbdfb7c0571c40d67d534bbdee55bd6c473f432b177
Status: Downloaded newer image for centos:latest
[root@511774b23492 ~]#
```

8. At the container prompt, type **whoami** and press Enter. Surprise! You're logged in as the root user, and that's OK, because you are contained.



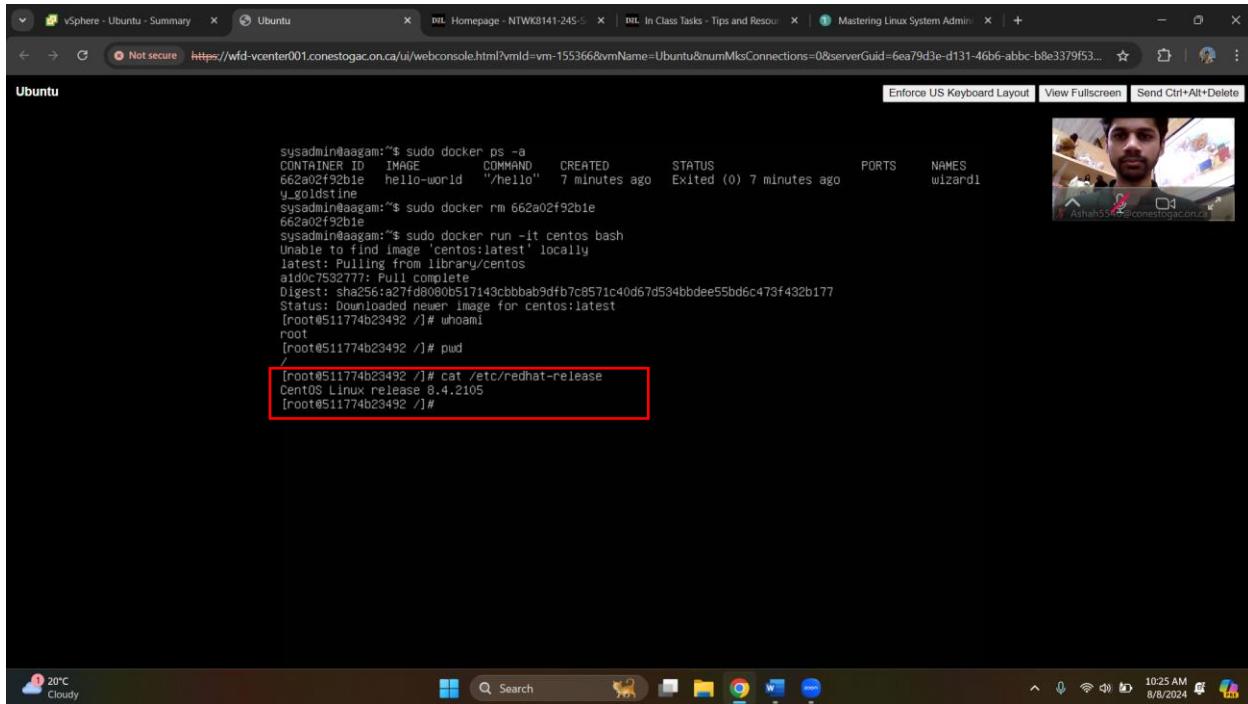
```
susadmin@aayam:~$ sudo docker ps -a
CONTAINER ID IMAGE COMMAND CREATED STATUS PORTS NAMES
662a02f92b1e hello-world "/hello" 7 minutes ago Exited (0) 7 minutes ago
y_goldstone
susadmin@aayam:~$ sudo docker rm 662a02f92b1e
662a02f92b1e
susadmin@aayam:~$ sudo docker run -it centos bash
Unable to find image 'centos:latest' locally
latest: Pulling from library/centos
a1d0c7532777: Pull complete
Digest: sha256:a27fd8080b517143cbbb9dfb7c8571c40d67d534bbdee55bd6c473f432b177
Status: Downloaded newer image for centos:latest
Status: Journalreader never image for centos:latest
[root@511774b23492 ~]# whoami
root
[root@511774b23492 ~]#
```

9. See where you are at in the container's virtual directory system by typing **pwd** and pressing Enter. You should see that you are at the root (/) of the directory structure.



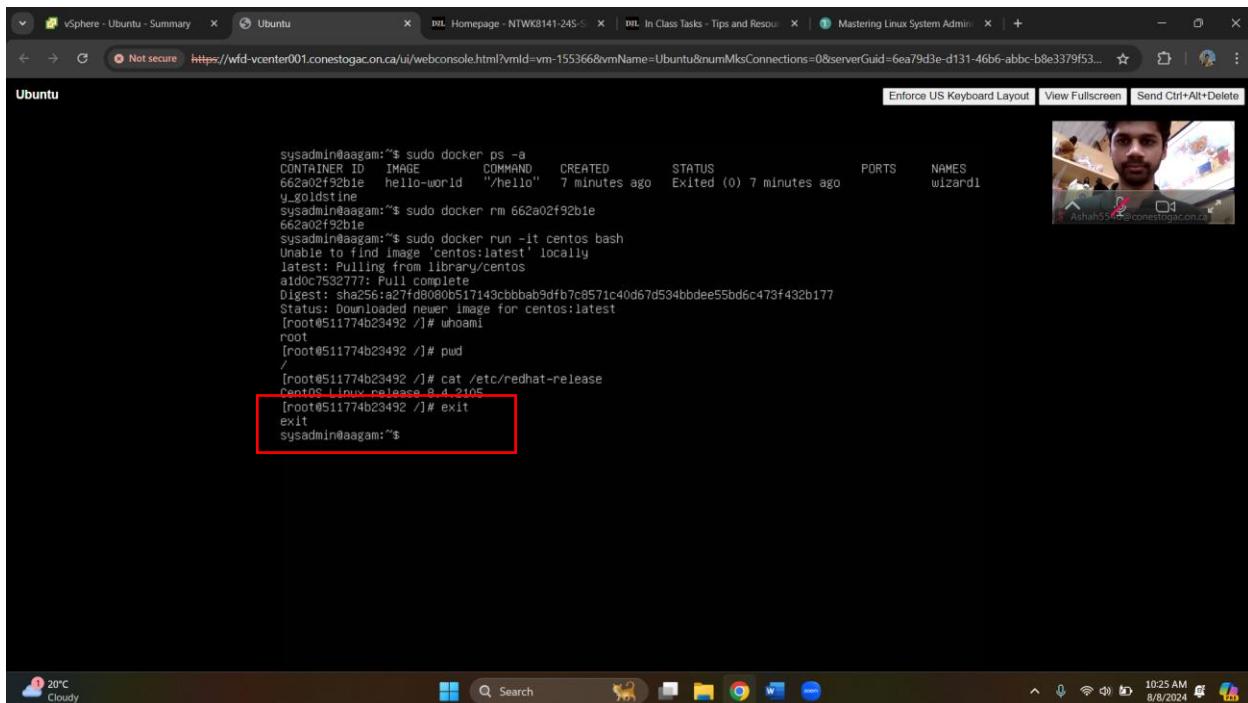
```
susadmin@aayam:~$ sudo docker ps -a
CONTAINER ID IMAGE COMMAND CREATED STATUS PORTS NAMES
662a02f92b1e hello-world "/hello" 7 minutes ago Exited (0) 7 minutes ago
y_goldstone
susadmin@aayam:~$ sudo docker rm 662a02f92b1e
662a02f92b1e
susadmin@aayam:~$ sudo docker run -it centos bash
Unable to find image 'centos:latest' locally
latest: Pulling from library/centos
a1d0c7532777: Pull complete
Digest: sha256:a27fd8080b517143cbbb9dfb7c8571c40d67d534bbdee55bd6c473f432b177
Status: Downloaded newer image for centos:latest
Status: Journalreader never image for centos:latest
[root@511774b23492 ~]# whoami
root
[root@511774b23492 ~]# pwd
/
[root@511774b23492 ~]#
```

10. View the version of CentOS you are running in this container by typing **cat /etc/redhat-release** and pressing Enter. Record your findings.



```
susadmin@aagam:~$ sudo docker ps -a
CONTAINER ID IMAGE COMMAND CREATED STATUS PORTS NAMES
662a02f92b1e hello-world "/hello" 7 minutes ago Exited (0) 7 minutes ago
susadmin@aagam:~$ sudo docker rm 662a02f92b1e
662a02f92b1e
susadmin@aagam:~$ sudo docker run -it centos bash
Unable to find image 'centos:latest' locally
latest: Pulling from library/centos
a1d0c532777: Pull complete
Digest: sha256:a27fd8080b517143cbbbab9dfb7c8571c40d67d534bbdee55bd6c473f432b177
Status: Downloaded newer image for centos:latest
[root@511774b23492 ~]# whoami
root
[root@511774b23492 ~]# cat /etc/redhat-release
CentOS Linux release 8.4.2105
[root@511774b23492 ~]#
```

11. Leave the CentOS container by typing **exit** and pressing Enter. You should see your prompt change.



```
susadmin@aagam:~$ sudo docker ps -a
CONTAINER ID IMAGE COMMAND CREATED STATUS PORTS NAMES
662a02f92b1e hello-world "/hello" 7 minutes ago Exited (0) 7 minutes ago
susadmin@aagam:~$ sudo docker rm 662a02f92b1e
662a02f92b1e
susadmin@aagam:~$ sudo docker run -it centos bash
Unable to find image 'centos:latest' locally
latest: Pulling from library/centos
a1d0c532777: Pull complete
Digest: sha256:a27fd8080b517143cbbbab9dfb7c8571c40d67d534bbdee55bd6c473f432b177
Status: Downloaded newer image for centos:latest
[root@511774b23492 ~]# whoami
root
[root@511774b23492 ~]# cat /etc/redhat-release
CentOS Linux release 8.4.2105
[root@511774b23492 ~]# exit
exit
susadmin@aagam:~$
```

12. Double-check that you are out of the container by typing **whoami** and pressing Enter. You should now be logged into the sysadmin account, instead of the root account.

A screenshot of a Linux terminal window titled "Ubuntu". The terminal shows the following command sequence:

```
susadmin@aagam:~$ sudo docker ps -a
CONTAINER ID IMAGE COMMAND CREATED STATUS PORTS NAMES
662a02f92b1e hello-world "/hello" 7 minutes ago Exited (0) 7 minutes ago
y_goldstone

susadmin@aagam:~$ sudo docker rm 662a02f92b1e
662a02f92b1e

susadmin@aagam:~$ sudo docker run -it centos bash
Unable to find image 'centos:latest' locally
latest: Pulling from library/centos
a1d0c7532777: Pull complete
Digest: sha256:a27fd080b517143cbbbab9dfb7c8571c40d67d534bbdee55bd6c473f432b177
Status: Downloaded newer image for centos:latest
[root@511774b23492 ~]# whoami
root
[root@511774b23492 ~]# cat /etc/redhat-release
CentOS Linux release 8.4.2105
[root@511774b23492 ~]# exit
exit
susadmin@aagam:~$ whoami
susadmin
susadmin@aagam:~$
```

13. View the available containers by typing **sudo docker ps -a** and pressing Enter. If you're asked for a password, type in the sysadmin account's password. You should see only one container. Record its Container ID.

A screenshot of a Linux terminal window titled "Ubuntu". The terminal shows the following command sequence, including the creation of a new container named "gallant\_hel":

```
susadmin@aagam:~$ sudo docker ps -a
CONTAINER ID IMAGE COMMAND CREATED STATUS PORTS NAMES
662a02f92b1e hello-world "/hello" 7 minutes ago Exited (0) 7 minutes ago
y_goldstone

susadmin@aagam:~$ sudo docker rm 662a02f92b1e
662a02f92b1e

susadmin@aagam:~$ sudo docker run -it centos bash
Unable to find image 'centos:latest' locally
latest: Pulling from library/centos
a1d0c7532777: Pull complete
Digest: sha256:a27fd080b517143cbbbab9dfb7c8571c40d67d534bbdee55bd6c473f432b177
Status: Downloaded newer image for centos:latest
[root@511774b23492 ~]# whoami
root
[root@511774b23492 ~]# cat /etc/redhat-release
CentOS Linux release 8.4.2105
[root@511774b23492 ~]# exit
exit
susadmin@aagam:~$ whoami
susadmin
susadmin@aagam:~$ sudo docker ps -a
CONTAINER ID IMAGE COMMAND CREATED STATUS PORTS NAMES
511774b23492 centos "bash" 2 minutes ago Exited (0) 56 seconds ago
iman
gallant_hel

susadmin@aagam:~$
```

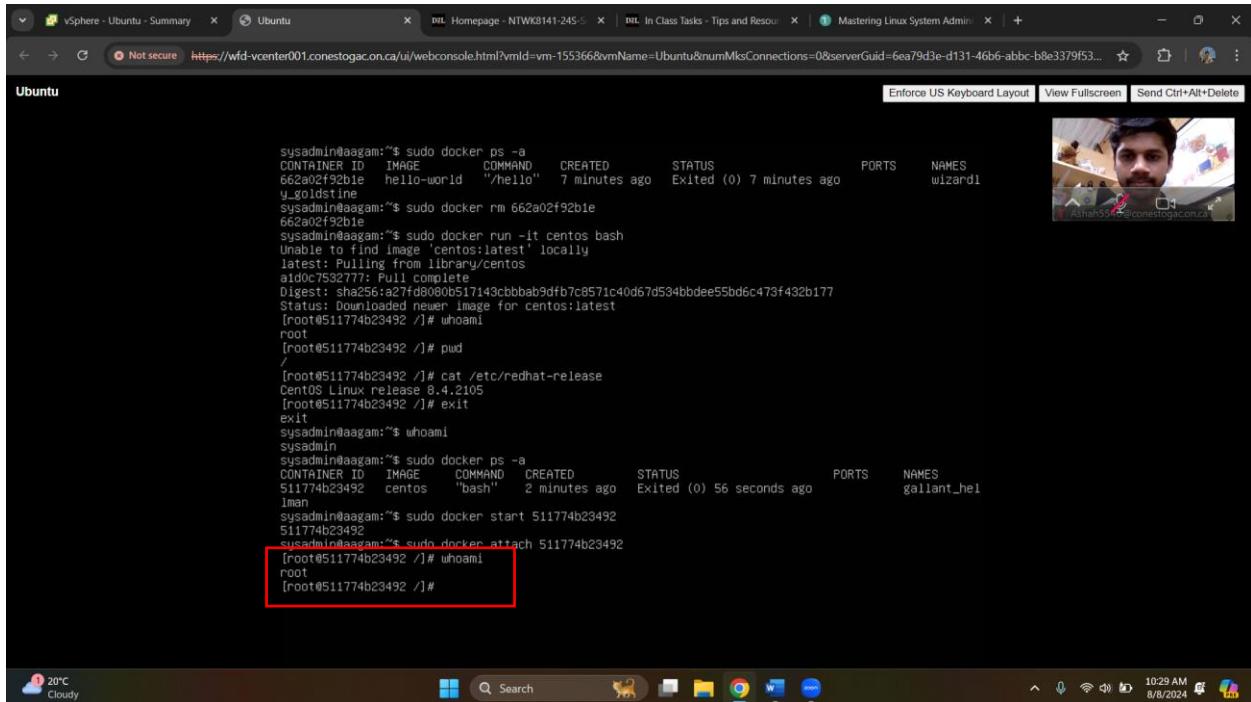
14. Start the container you viewed in the previous step by typing **dsudo docker start Container-ID** and pressing Enter, where **Container-ID** is the number you recorded in the previous step. If you're asked for a password, type in the sysadmin account's password.

```
susadmin@aagam:~$ sudo docker ps -a
CONTAINER ID IMAGE COMMAND CREATED STATUS PORTS NAMES
662a02f92b1e hello-world "/hello" 7 minutes ago Exited (0) 7 minutes ago
susadmin@aagam:~$ sudo docker rm 662a02f92b1e
susadmin@aagam:~$ sudo docker run -it centos bash
Unable to find image 'centos:latest' locally
latest: Pulling from library/centos
aifdc532777: Pull complete
Digest: sha256:a27fd8080b517143cbbbab9dfb7c8571c40d67d534bbdee55bd6c473f432b177
Status: Downloaded newer image for centos:latest
[root@511774b23492 ~]# whoami
root
[root@511774b23492 ~]# pwd
/
[root@511774b23492 ~]# cat /etc/redhat-release
CentOS Linux release 8.4.2105
[root@511774b23492 ~]# exit
exit
susadmin@aagam:~$ whoami
susadmin
susadmin@aagam:~$ sudo docker ps -a
CONTAINER ID IMAGE COMMAND CREATED STATUS PORTS NAMES
511774b23492 centos "bash" 2 minutes ago Exited (0) 56 seconds ago
susadmin@aagam:~$ sudo docker start 511774b23492
511774b23492
susadmin@aagam:~$ _
```

15. Jump back into the Ubuntu container by typing **sudo docker attach Container-ID** and pressing Enter, where **Container-ID** is the number you recorded in step 13. If you're asked for a password, type in the sysadmin account's password. You should see that your prompt has changed.

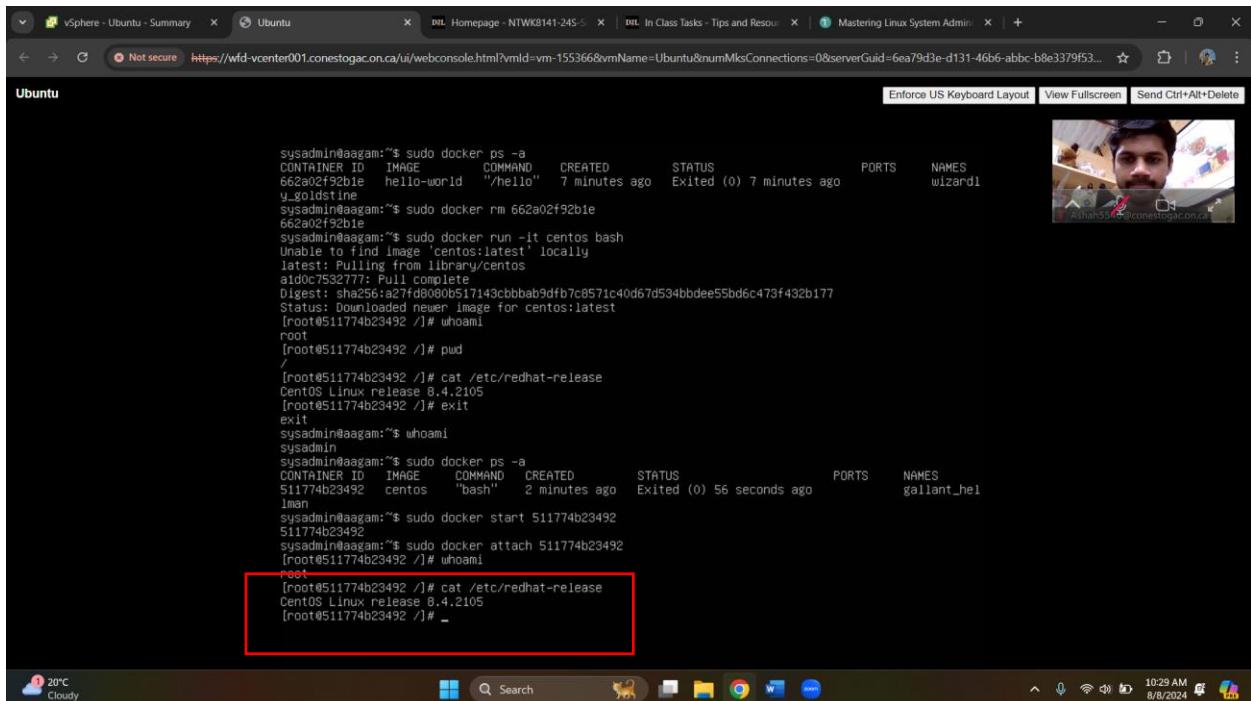
```
susadmin@aagam:~$ sudo docker ps -a
CONTAINER ID IMAGE COMMAND CREATED STATUS PORTS NAMES
662a02f92b1e hello-world "/hello" 7 minutes ago Exited (0) 7 minutes ago
susadmin@aagam:~$ sudo docker rm 662a02f92b1e
susadmin@aagam:~$ sudo docker run -it centos bash
Unable to find image 'centos:latest' locally
latest: Pulling from library/centos
aifdc532777: Pull complete
Digest: sha256:a27fd8080b517143cbbbab9dfb7c8571c40d67d534bbdee55bd6c473f432b177
Status: Downloaded newer image for centos:latest
[root@511774b23492 ~]# whoami
root
[root@511774b23492 ~]# pwd
/
[root@511774b23492 ~]# cat /etc/redhat-release
CentOS Linux release 8.4.2105
[root@511774b23492 ~]# exit
exit
susadmin@aagam:~$ whoami
susadmin
susadmin@aagam:~$ sudo docker ps -a
CONTAINER ID IMAGE COMMAND CREATED STATUS PORTS NAMES
511774b23492 centos "bash" 2 minutes ago Exited (0) 56 seconds ago
susadmin@aagam:~$ sudo docker start 511774b23492
511774b23492
susadmin@aagam:~$ sudo docker attach 511774b23492
[root@511774b23492 ~]#
```

16. At the container prompt, type **whoami** and press Enter. You should see that you are logged in as the root user.



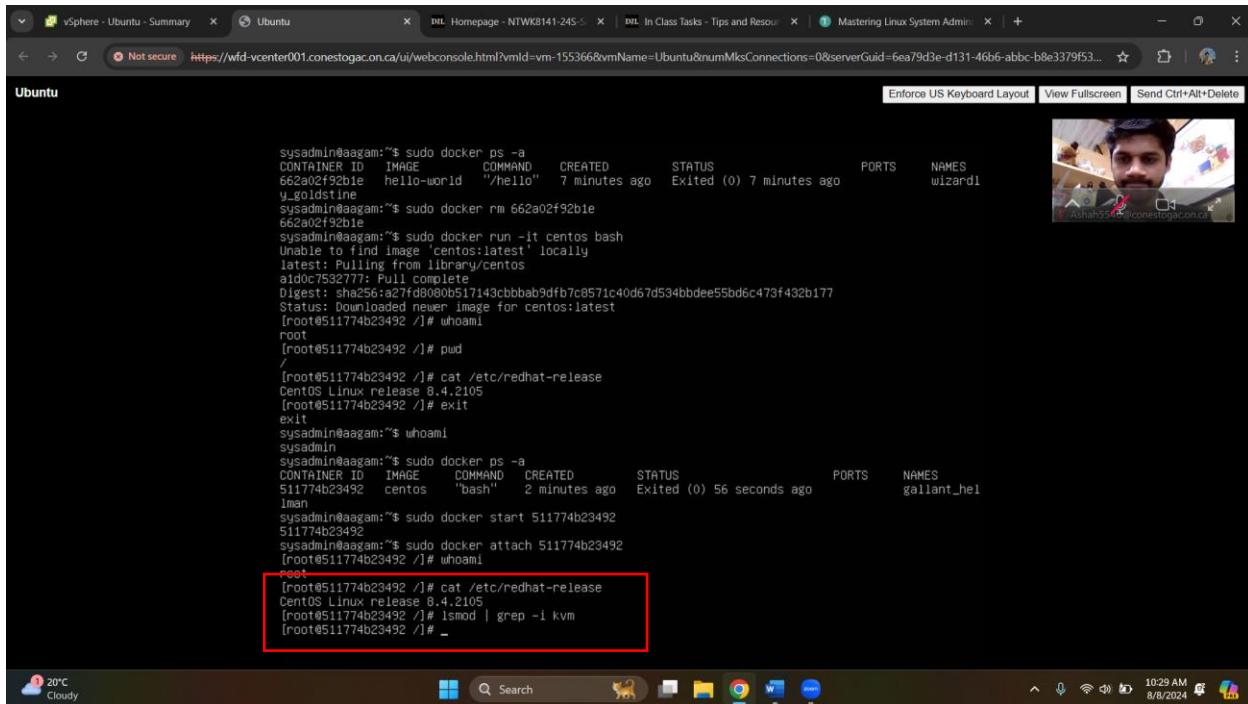
```
susadmin@aagam:~$ sudo docker ps -a
CONTAINER ID IMAGE COMMAND CREATED STATUS PORTS NAMES
662a02f92b1e hello-world "/hello" 7 minutes ago Exited (0) 7 minutes ago
y_goldstine
susadmin@aagam:~$ sudo docker rm 662a02f92b1e
662a02f92b1e
susadmin@aagam:~$ sudo docker run -it centos bash
Unable to find image 'centos:latest' locally
latest: Pulling from library/centos
a1d0c7532777: Pull complete
Digest: sha256:a27fd080b517143cbbb9dfb7c8571c40d67d534bbdee55bd6c473f432b177
Status: Downloaded newer image for centos:latest
[root@511774b23492 ~]# whoami
root
[root@511774b23492 ~]# cat /etc/redhat-release
CentOS Linux release 8.4.2105
[root@511774b23492 ~]# exit
exit
susadmin@aagam:~$ whoami
susadmin
susadmin@aagam:~$ sudo docker ps -a
CONTAINER ID IMAGE COMMAND CREATED STATUS PORTS NAMES
511774b23492 centos "bash" 2 minutes ago Exited (0) 56 seconds ago
iman
susadmin@aagam:~$ sudo docker start 511774b23492
511774b23492
susadmin@aagam:~$ sudo docker attach 511774b23492
[root@511774b23492 ~]# whoami
root
[root@511774b23492 ~]#
```

17. View the version of CentOS you are running in this container by typing **cat /etc/redhat-release** and pressing Enter. Check that the version information matches what you recorded in step 10. It should.



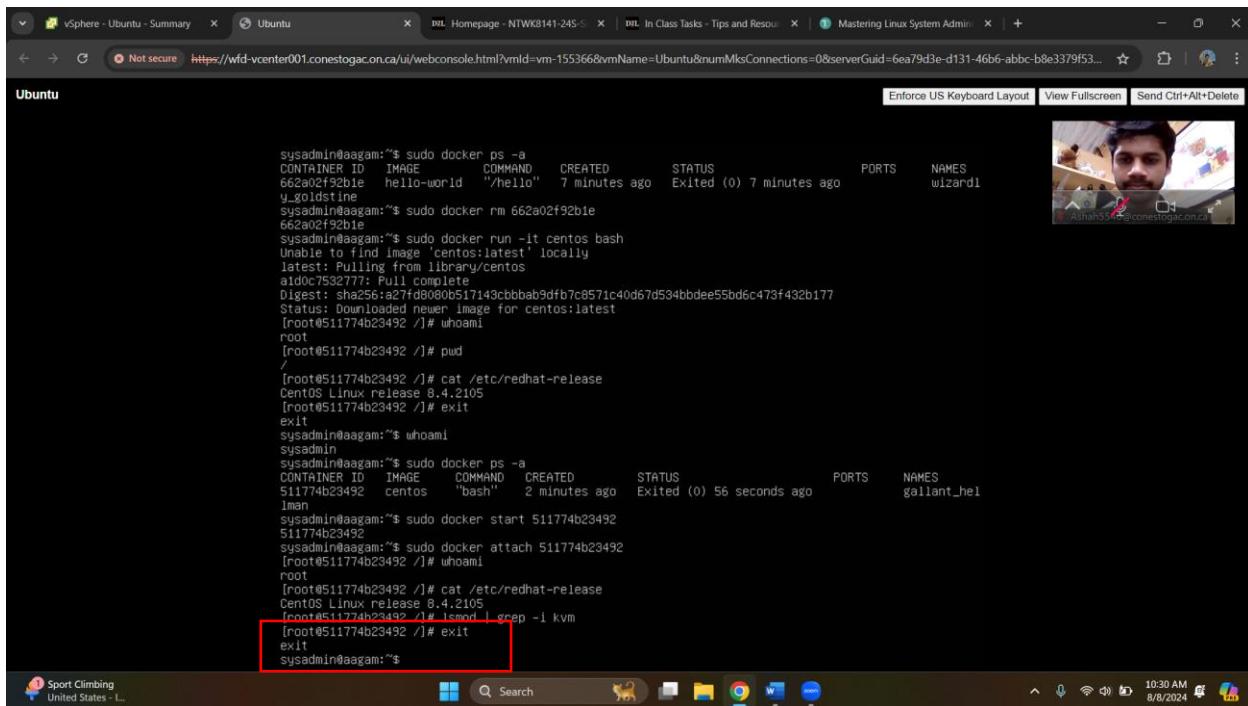
```
susadmin@aagam:~$ sudo docker ps -a
CONTAINER ID IMAGE COMMAND CREATED STATUS PORTS NAMES
662a02f92b1e hello-world "/hello" 7 minutes ago Exited (0) 7 minutes ago
y_goldstine
susadmin@aagam:~$ sudo docker rm 662a02f92b1e
662a02f92b1e
susadmin@aagam:~$ sudo docker run -it centos bash
Unable to find image 'centos:latest' locally
latest: Pulling from library/centos
a1d0c7532777: Pull complete
Digest: sha256:a27fd080b517143cbbb9dfb7c8571c40d67d534bbdee55bd6c473f432b177
Status: Downloaded newer image for centos:latest
[root@511774b23492 ~]# whoami
root
[root@511774b23492 ~]# cat /etc/redhat-release
CentOS Linux release 8.4.2105
[root@511774b23492 ~]# exit
exit
susadmin@aagam:~$ whoami
susadmin
susadmin@aagam:~$ sudo docker ps -a
CONTAINER ID IMAGE COMMAND CREATED STATUS PORTS NAMES
511774b23492 centos "bash" 2 minutes ago Exited (0) 56 seconds ago
iman
susadmin@aagam:~$ sudo docker start 511774b23492
511774b23492
susadmin@aagam:~$ sudo docker attach 511774b23492
[root@511774b23492 ~]# whoami
root
[root@511774b23492 ~]# cat /etc/redhat-release
CentOS Linux release 8.4.2105
[root@511774b23492 ~]#
```

18. If you want, do a little exploring in the container that was started from the Docker snap. Try different commands you have learned in this book, and look through the Linux virtual directory structure.



```
sysadmin@aagam:~$ sudo docker ps -a
CONTAINER ID IMAGE COMMAND CREATED STATUS PORTS NAMES
662a02f92b1e hello-world "/hello" 7 minutes ago Exited (0) 7 minutes ago
y_goldstine
sysadmin@aagam:~$ sudo docker rm 662a02f92b1e
662a02f92b1e
sysadmin@aagam:~$ sudo docker run -it centos bash
Unable to find image 'centos:latest' locally
latest: Pulling from library/centos
a1d0c532777: Pull complete
Digest: sha256:a27ff80800b517143cbbbab9dfb7c8571c40d67d534bbdee55bd6c473f432b177
Status: Downloaded newer image for centos:latest
[root@511774b23492 ~]# whoami
root
[root@511774b23492 ~]# pwd
/
[root@511774b23492 ~]# cat /etc/redhat-release
CentOS Linux release 8.4.2105
[root@511774b23492 ~]# exit
exit
sysadmin@aagam:~$ whoami
sysadmin
sysadmin@aagam:~$ sudo docker ps -a
CONTAINER ID IMAGE COMMAND CREATED STATUS PORTS NAMES
511774b23492 centos "bash" 2 minutes ago Exited (0) 56 seconds ago
lman
sysadmin@aagam:~$ sudo docker start 511774b23492
511774b23492
sysadmin@aagam:~$ sudo docker attach 511774b23492
[root@511774b23492 ~]# lsmod | grep -i kvm
[root@511774b23492 ~]# cat /etc/redhat-release
CentOS Linux release 8.4.2105
[root@511774b23492 ~]# lsmod | grep -i kvm
[root@511774b23492 ~]# _
```

19. Leave the CentOS container by typing **exit** and pressing Enter. You should see your prompt change.



```
sysadmin@aagam:~$ sudo docker ps -a
CONTAINER ID IMAGE COMMAND CREATED STATUS PORTS NAMES
662a02f92b1e hello-world "/hello" 7 minutes ago Exited (0) 7 minutes ago
y_goldstine
sysadmin@aagam:~$ sudo docker rm 662a02f92b1e
662a02f92b1e
sysadmin@aagam:~$ sudo docker run -it centos bash
Unable to find image 'centos:latest' locally
latest: Pulling from library/centos
a1d0c532777: Pull complete
Digest: sha256:a27ff80800b517143cbbbab9dfb7c8571c40d67d534bbdee55bd6c473f432b177
Status: Downloaded newer image for centos:latest
[root@511774b23492 ~]# whoami
root
[root@511774b23492 ~]# pwd
/
[root@511774b23492 ~]# cat /etc/redhat-release
CentOS Linux release 8.4.2105
[root@511774b23492 ~]# exit
exit
sysadmin@aagam:~$ whoami
sysadmin
sysadmin@aagam:~$ sudo docker ps -a
CONTAINER ID IMAGE COMMAND CREATED STATUS PORTS NAMES
511774b23492 centos "bash" 2 minutes ago Exited (0) 56 seconds ago
lman
sysadmin@aagam:~$ sudo docker start 511774b23492
511774b23492
sysadmin@aagam:~$ sudo docker attach 511774b23492
[root@511774b23492 ~]# lsmod | grep -i kvm
[root@511774b23492 ~]# cat /etc/redhat-release
CentOS Linux release 8.4.2105
[root@511774b23492 ~]# lsmod | grep -i kvm
[root@511774b23492 ~]# exit
exit
sysadmin@aagam:~$
```

20. Delete the CentOS container by typing **sudo docker rm Container-ID** and pressing Enter, where **Container-ID** is the number you recorded in step 13. If you're asked for a password, type in the sysadmin account's password.

```

662a02f92b1e hello-world "/hello" 7 minutes ago Exited (0) 7 minutes ago wizard1
sysadmin@aaagam:~$ sudo docker rm 662a02f92b1e
662a02f92b1e
sysadmin@aaagam:~$ sudo docker run -it centos bash
Untagged: centos:latest
latest: Pulling from library/centos
a1d0c7532777: Pull complete
Digest: sha256:a2774d8080b517143cbbbba9dfb7c8571c40d67d534bbdee55bd6c473f432b177
Status: Downloaded newer image for centos:latest
[root@511774b23492 ~]# whoami
root
[root@511774b23492 ~]# pwd
/
[root@511774b23492 ~]# cat /etc/redhat-release
CentOS Linux release 8.4.2105
[root@511774b23492 ~]# exit
exit
sysadmin@aaagam:~$ whoami
sysadmin
sysadmin@aaagam:~$ sudo docker ps -a
CONTAINER ID IMAGE COMMAND CREATED STATUS PORTS NAMES
511774b23492 centos "bash" 2 minutes ago Exited (0) 56 seconds ago gallant_hel
lman
sysadmin@aaagam:~$ sudo docker start 511774b23492
511774b23492
sysadmin@aaagam:~$ sudo docker attach 511774b23492
[root@511774b23492 ~]# whoami
root
[root@511774b23492 ~]# cat /etc/redhat-release
CentOS Linux release 8.4.2105
[root@511774b23492 ~]# lsmod | grep -i kvm
[root@511774b23492 ~]# exit
exit
sysadmin@aaagam:~$ sudo docker rm 511774b23492
511774b23492
sysadmin@aaagam:~$ 

```

## Week 14 Slide 21

Install snap and flatpack on systems of your choosing and then install a sample program of your choice. Provide screenshots

### # Install Flatpak

`sudo dnf install flatpak`

```

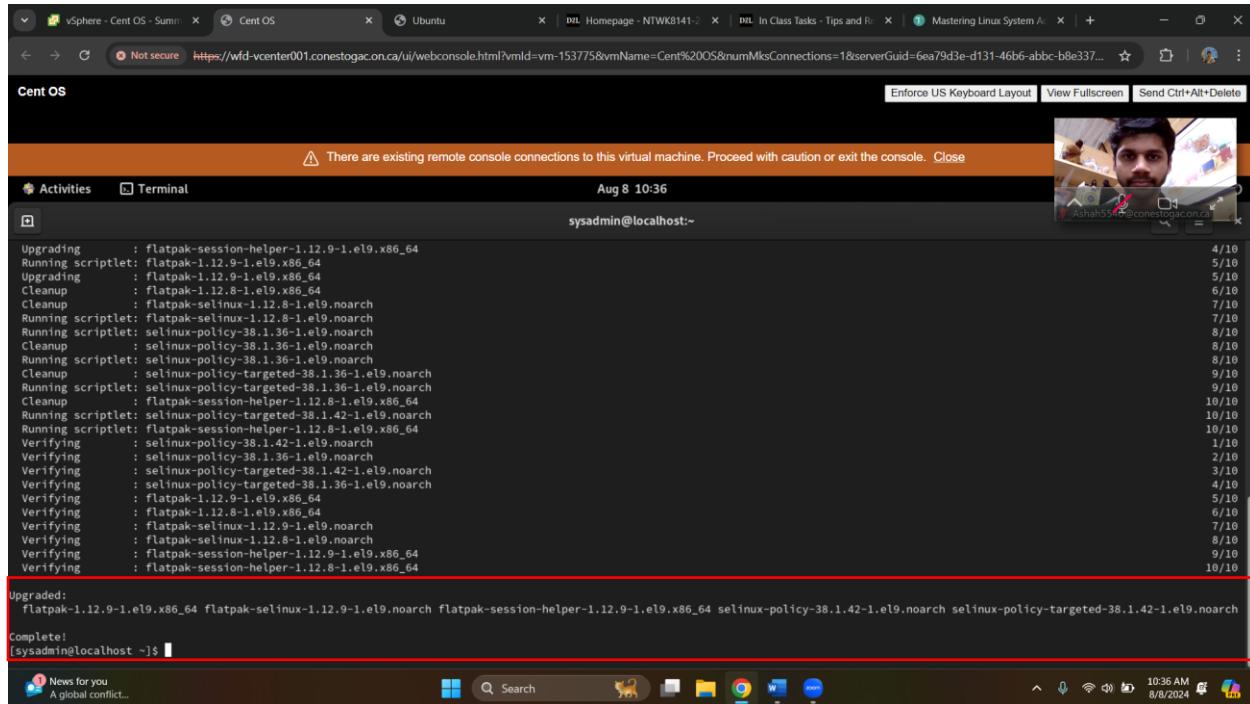
Cent OS
Activities Terminal Aug 8 10:35
sysadmin@localhost:~ -- sudo dnf install flatpak

[sudo] password for sysadmin:
Last metadata expiration check: 1:19:38 ago on Thu 08 Aug 2024 09:15:28 AM EDT.
Package flatpak-1.12.8-1.el9.x86_64 is already installed.
Dependencies resolved.
=====
Package           Architecture Version       Repository  Size
=====
Upgrading:
flatpak          x86_64      1.12.9-1.el9 appstream   1.7 M
flatpak-selinux  noarch     1.12.9-1.el9 appstream   22 k
flatpak-session-helper x86_64      1.12.9-1.el9 appstream   73 k
selinux-policy    noarch     38.1.42-1.el9 baseos      59 k
selinux-policy-targeted noarch     38.1.42-1.el9 baseos      6.9 M

Transaction Summary
=====
Upgrade 5 Packages

Total download size: 8.7 M
Is this ok [y/N]: 

```

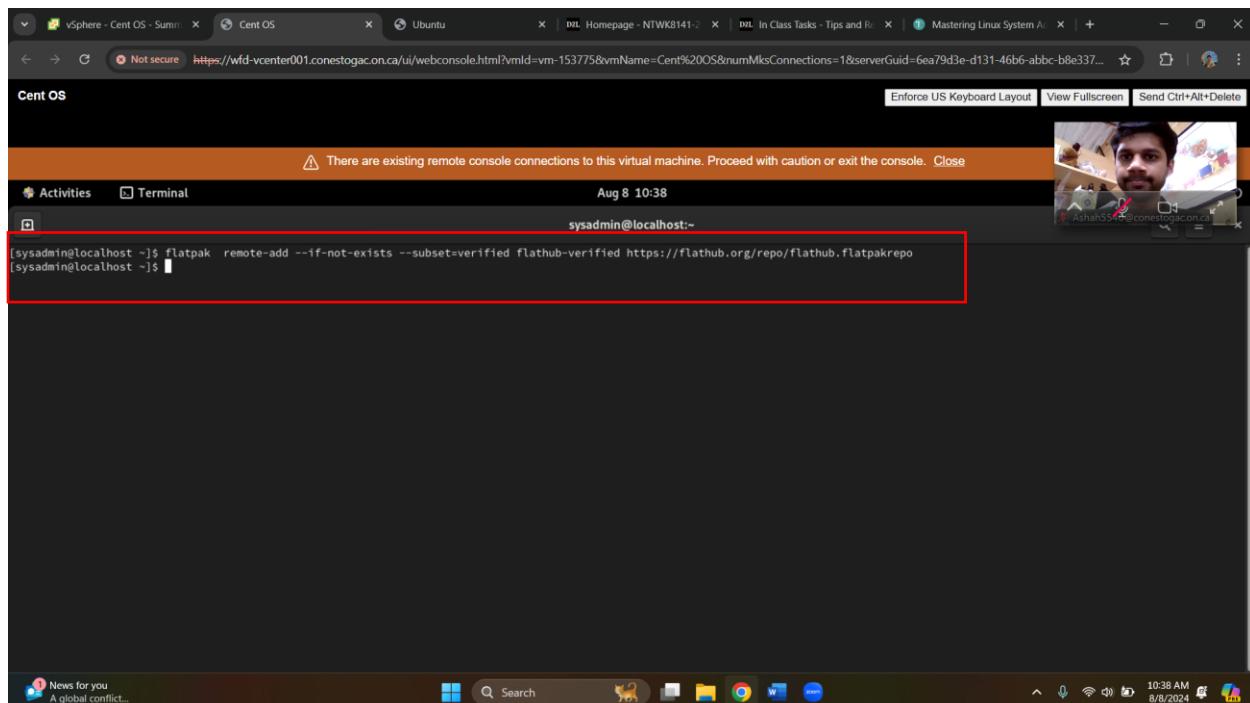


```
Upgrading      : flatpak-session-helper-1.12.9-1.el9.x86_64          4/10
Running scriptlet: flatpak-1.12.9-1.el9.x86_64                  5/10
Upgrading      : flatpak-1.12.9-1.el9.x86_64                  5/10
Cleanup        : flatpak-1.12.8-1.el9.x86_64                  6/10
Cleanup        : flatpak-selinux-1.12.8-1.el9.noarch            7/10
Running scriptlet: flatpak-selinux-1.12.8-1.el9.noarch            7/10
Running scriptlet: selinux-policy-38.1.36-1.el9.noarch           8/10
Cleanup        : selinux-policy-38.1.36-1.el9.noarch           8/10
Running scriptlet: selinux-policy-38.1.36-1.el9.noarch           8/10
Running scriptlet: selinux-policy-38.1.36-1.el9.noarch           8/10
Cleanup        : selinux-policy-targeted-38.1.36-1.el9.noarch         9/10
Running scriptlet: selinux-policy-targeted-38.1.36-1.el9.noarch         9/10
Cleanup        : flatpak-session-helper-1.12.8-1.el9.x86_64          10/10
Running scriptlet: flatpak-selinux-1.12.42-1.el9.noarch           10/10
Running scriptlet: flatpak-session-helper-1.12.8-1.el9.x86_64          10/10
Verifying       : selinux-policy-38.1.42-1.el9.noarch             1/10
Verifying       : selinux-policy-38.1.36-1.el9.noarch             2/10
Verifying       : selinux-policy-targeted-38.1.42-1.el9.noarch         3/10
Verifying       : selinux-policy-targeted-38.1.36-1.el9.noarch         4/10
Verifying       : flatpak-1.12.9-1.el9.x86_64                  5/10
Verifying       : flatpak-1.12.8-1.el9.x86_64                  6/10
Verifying       : flatpak-selinux-1.12.9-1.el9.noarch            7/10
Verifying       : flatpak-selinux-1.12.8-1.el9.noarch            8/10
Verifying       : flatpak-session-helper-1.12.9-1.el9.x86_64          9/10
Verifying       : flatpak-session-helper-1.12.8-1.el9.x86_64          10/10
Upgraded:
flatpak-1.12.9-1.el9.x86_64 flatpak-selinux-1.12.9-1.el9.noarch flatpak-session-helper-1.12.9-1.el9.x86_64 selinux-policy-38.1.42-1.el9.noarch selinux-policy-targeted-38.1.42-1.el9.noarch
Complete!
[sysadmin@localhost ~]$
```

# Follow steps in this install doc: <https://docs.flathub.org/docs/for-users/installation>

**flatpak remote-add --if-not-exists --subset=verified flathub-verified**

<https://flathub.org/repo/flathub.flatpakrepo>

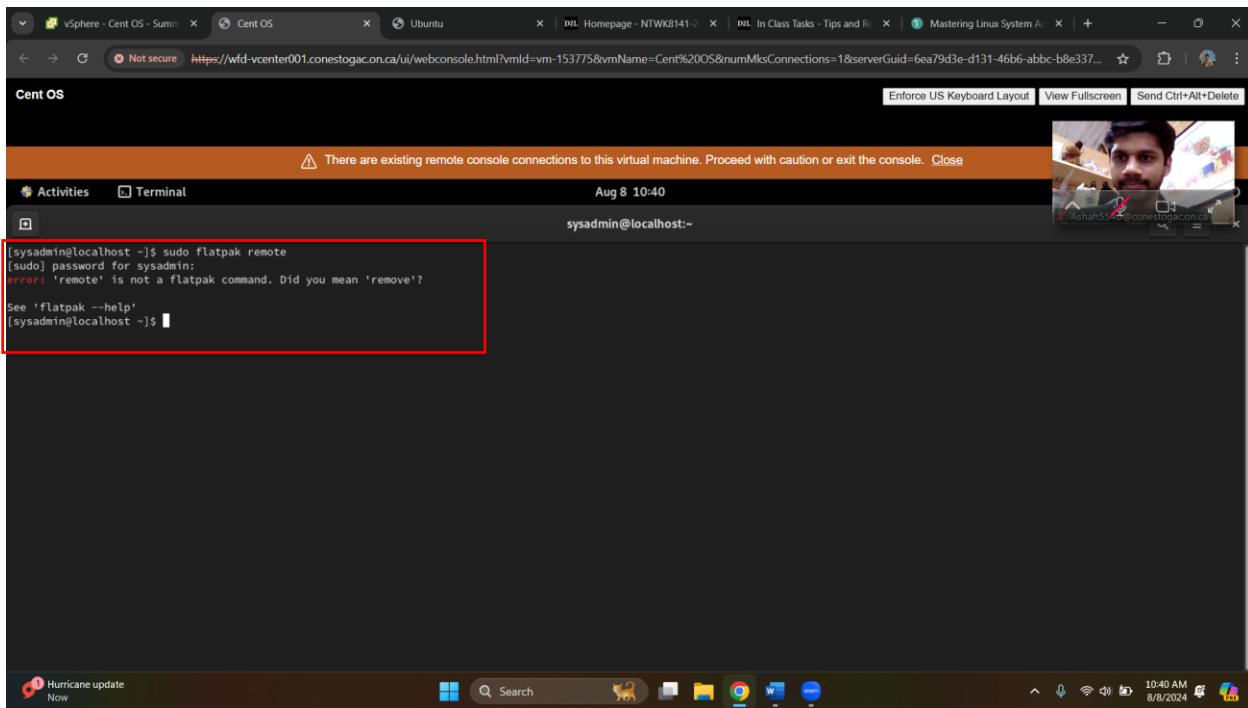


```
[sysadmin@localhost ~]$ flatpak remote-add --if-not-exists --subset=verified flathub-verified https://flathub.org/repo/flathub.flatpakrepo
[sysadmin@localhost ~]$
```

# Reboot, or log out and back in to refresh your environment variables

# Check remote flatpak repositories

## sudo flatpak remotes



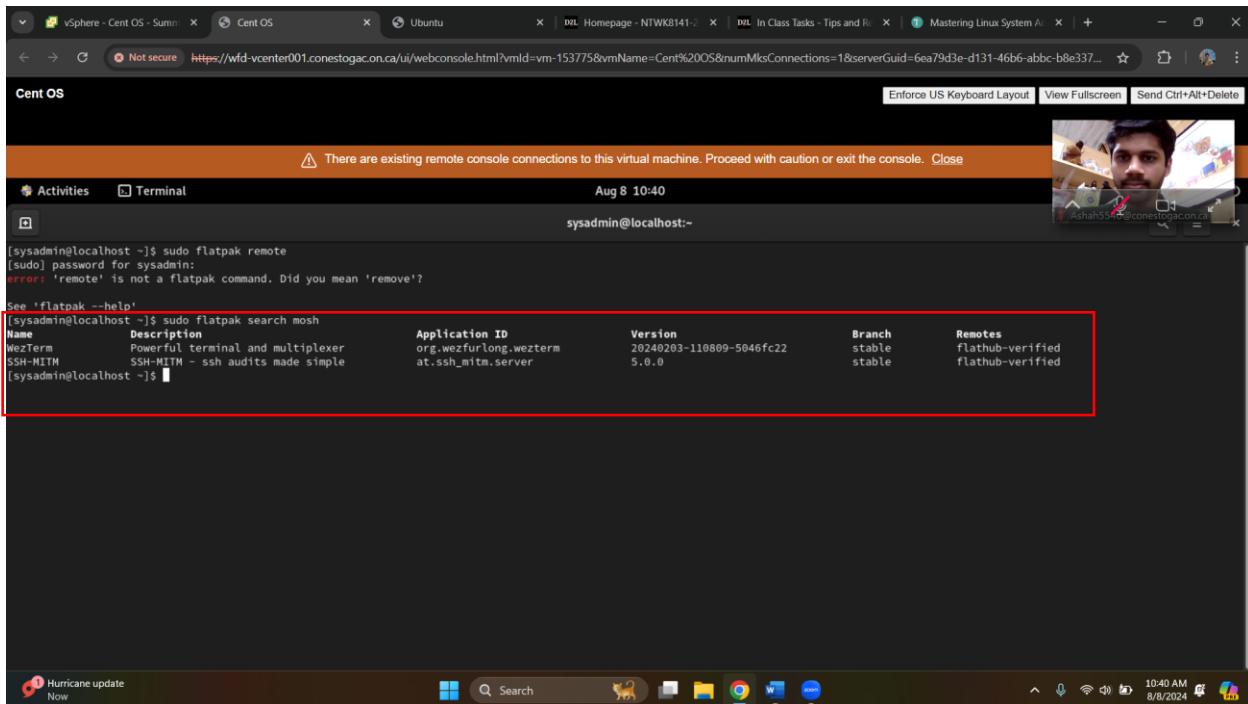
A screenshot of a Linux desktop environment showing a terminal window. The terminal window has a red border around the command output. The command entered was `sudo flatpak remote`. The output shows an error message: `[sudo] password for sysadmin:`, followed by `error: 'remote' is not a flatpak command. Did you mean 'remove'?`. Below this, the command `See 'flatpak --help'` is shown. The terminal window title is "Cent OS". The desktop bar at the bottom shows various icons and the date/time as 10:40 AM 8/8/2024.

```
[sysadmin@localhost ~]$ sudo flatpak remote
[sudo] password for sysadmin:
error: 'remote' is not a flatpak command. Did you mean 'remove'?

See 'flatpak --help'
[sysadmin@localhost ~]$
```

# If you run this command you may get an error:

`sudo flatpak search mosh`



A screenshot of a Linux desktop environment showing a terminal window. The terminal window has a red border around the command output. The command entered was `sudo flatpak search mosh`. The output shows an error message: `[sudo] password for sysadmin:`, followed by `error: 'remote' is not a flatpak command. Did you mean 'remove'?`. Below this, the command `See 'flatpak --help'` is shown. The terminal window title is "Cent OS". The desktop bar at the bottom shows various icons and the date/time as 10:40 AM 8/8/2024.

```
[sysadmin@localhost ~]$ sudo flatpak remote
[sudo] password for sysadmin:
error: 'remote' is not a flatpak command. Did you mean 'remove'?

See 'flatpak --help'
[sysadmin@localhost ~]$ sudo flatpak search mosh
Name          Description               Application ID      Version       Branch      Remotes
WezTerm       Powerful terminal and multiplexer org.wezfurlong.wezterm 20240203-110809-5046fc22 stable    flatpak-verified
SSH-MITM     SSH-MITM - ssh audits made simple   at.ssh_mitm.server 5.0.0        stable    flatpak-verified
[sysadmin@localhost ~]$
```

- Installing Docker CLI on Rocky Linux

9: <https://www.digitalocean.com/community/tutorials/how-to-install-and-use-docker-on-rocky-linux-9>

**sudo dnf check-update**

```

Rocky Linux
Enforce US Keyboard Layout View Fullscreen Send Ctrl+Alt+Delete

Not secure https://wfd-vcenter001.conestogac.on.ca/ui/webconsole.html?vmId=vm-138345&vmName=Rocky%20Linux&numMksConnections=0&serverGuid=6ea79d3e-d131-46b6-abbc-b8e...
Ashah5540@conestogac.on.ca

[ 1.135-firmware.noarch
 1.12800-firmware.noarch
 1.12930-firmware.noarch
 1.13030-firmware.noarch
 1.15080-firmware.noarch
 1.15150-firmware.noarch
 1.16100g2e-firmware.noarch
 1.16100g2e-firmware.noarch
 1.17250-firmware.noarch
 kernel.x86_64
 kernel-core.x86_64
 kernel-modules-core.x86_64
 kernel-tools.x86_64
 kernel-tools-libs.x86_64
 libalsa-lib.so.0.11.0
 libalsa-lib.so.0.11.0_64
 libalsa.so.64
 libaudit.so.64
 libassertion.so.1.4
 libassn-nes-idmap.x86_64
 libassn_sudo.x86_64
 libblkv.x86_64
 liblxss-drm-service.search
 liblxss-firmware-shmee.search
 mtr.x86_64
 openssh.x86_64
 openssh-clients.x86_64
 python3.x86_64
 python3-unversioned-command.noarch
 python3.x86_64
 python3.x86_64
 runc.x86_64
 sssd.x86_64
 sssd-ad.x86_64
 sssd-krb5.x86_64
 sssd-common.x86_64
 sssd-common-pac.x86_64
 sssd-ipa.x86_64
 sssd-krb5.x86_64
 sssd-krb5-common.x86_64
 sssd-ipap.x86_64
 systemd.x86_64
 systemd-11bs.x86_64
 systemd-passwd.x86_64
 systemd-resolve.noarch
 systemd-selinux.x86_64
 [root@localhost ~]# ]
```

11:35 AM 8/8/2024

**sudo dnf config-manager --add-repo <https://download.docker.com/linux/centos/docker-ce.repo>**

```

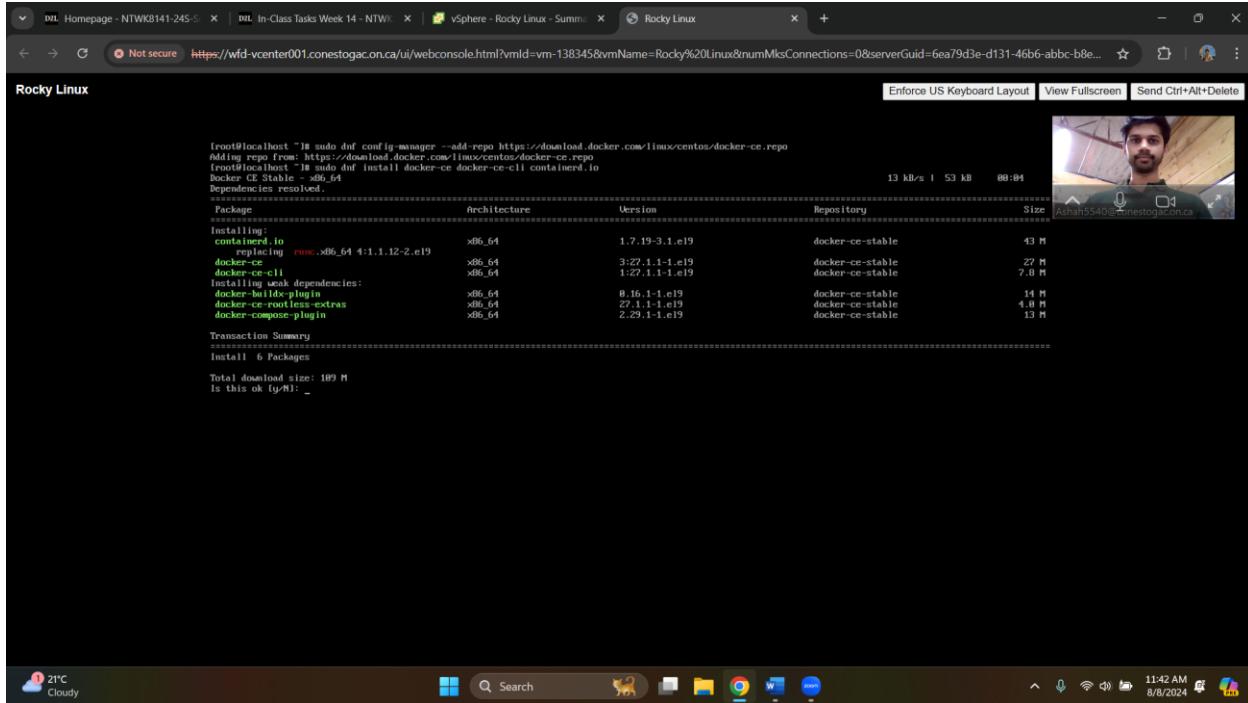
Rocky Linux
Enforce US Keyboard Layout View Fullscreen Send Ctrl+Alt+Delete

Not secure https://wfd-vcenter001.conestogac.on.ca/ui/webconsole.html?vmId=vm-138345&vmName=Rocky%20Linux&numMksConnections=0&serverGuid=6ea79d3e-d131-46b6-abbc-b8e...
Ashah5540@conestogac.on.ca

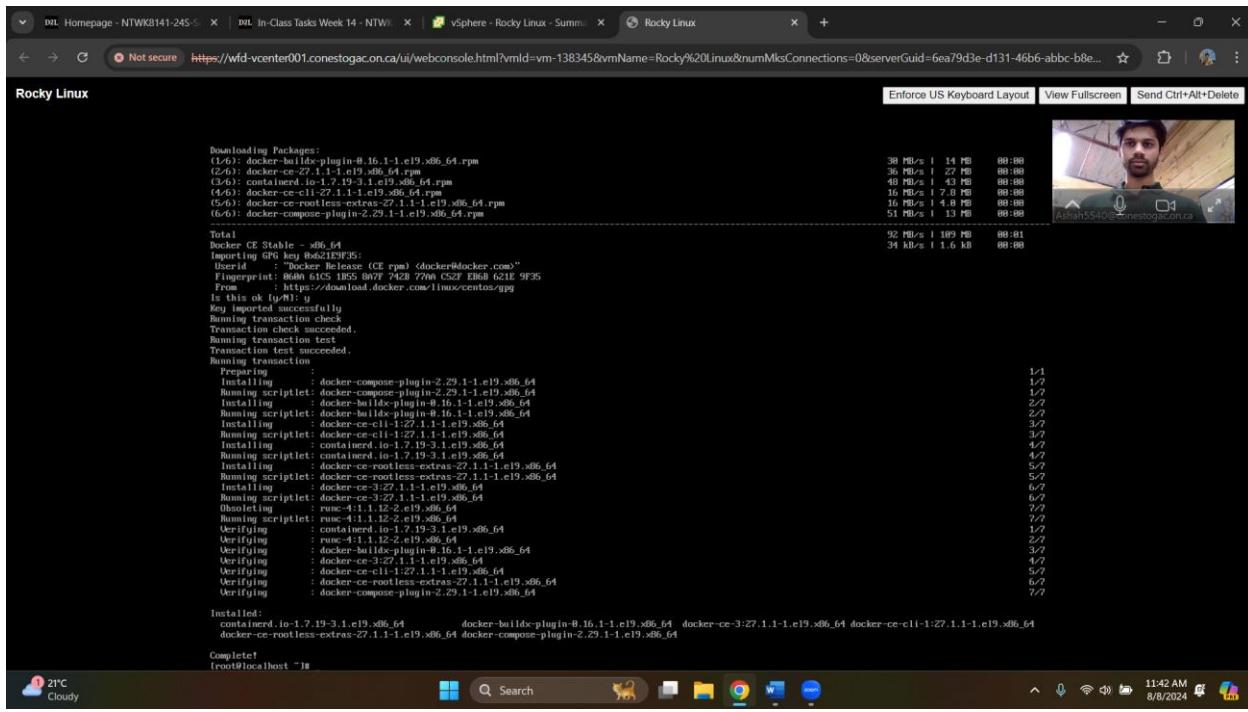
[root@localhost ~]# sudo dnf config-manager --add-repo https://download.docker.com/linux/centos/docker-ce.repo
Adding repo from: https://download.docker.com/linux/centos/docker-ce.repo
[root@localhost ~]# ]
```

11:41 AM 8/8/2024

**sudo dnf install docker-ce docker-ce-cli containerd.io**



```
[root@localhost ~]# sudo dnf config-manager --add-repo https://download.docker.com/linux/centos/docker-ce.repo
Adding repo from: https://download.docker.com/linux/centos/docker-ce.repo
[root@localhost ~]# sudo dnf install docker-ce docker-ce-cli containerd.io
Docker CE Stable - x86_64
Dependencies resolved.
=====
Transaction Summary
=====
Install 6 Packages
Total download size: 109 M
Is this ok [y/N]: _
```



```
Rocky Linux
```

```
Downloading Packages:
(1/6): docker-buildx-plugin-0.16.1-1.e19.x86_64.rpm 38 MB/s | 14 MB 00:00
(2/6): docker-ce-29.1.1-e19.x86_64.rpm 39 MB/s | 1.1 MB 00:00
(3/6): docker-ce-29.1.1-e19.x86_64.rpm 48 MB/s | 43 MB 00:00
(4/6): docker-ce-cli-27.1.1-1.e19.x86_64.rpm 16 MB/s | 7.0 MB 00:00
(5/6): docker-ce-rootless-extras-27.1.1-1.e19.x86_64.rpm 16 MB/s | 4.8 MB 00:00
(6/6): docker-compose-plugin-2.29.1-1.e19.x86_64.rpm 51 MB/s | 13 MB 00:00
Total 92 MB/s | 109 MB 00:01
34 kB/s | 1.6 kB 00:00
```

```
Enforce US Keyboard Layout View Fullscreen Send Ctrl+Alt+Delete
```

```
Rocky Linux
```

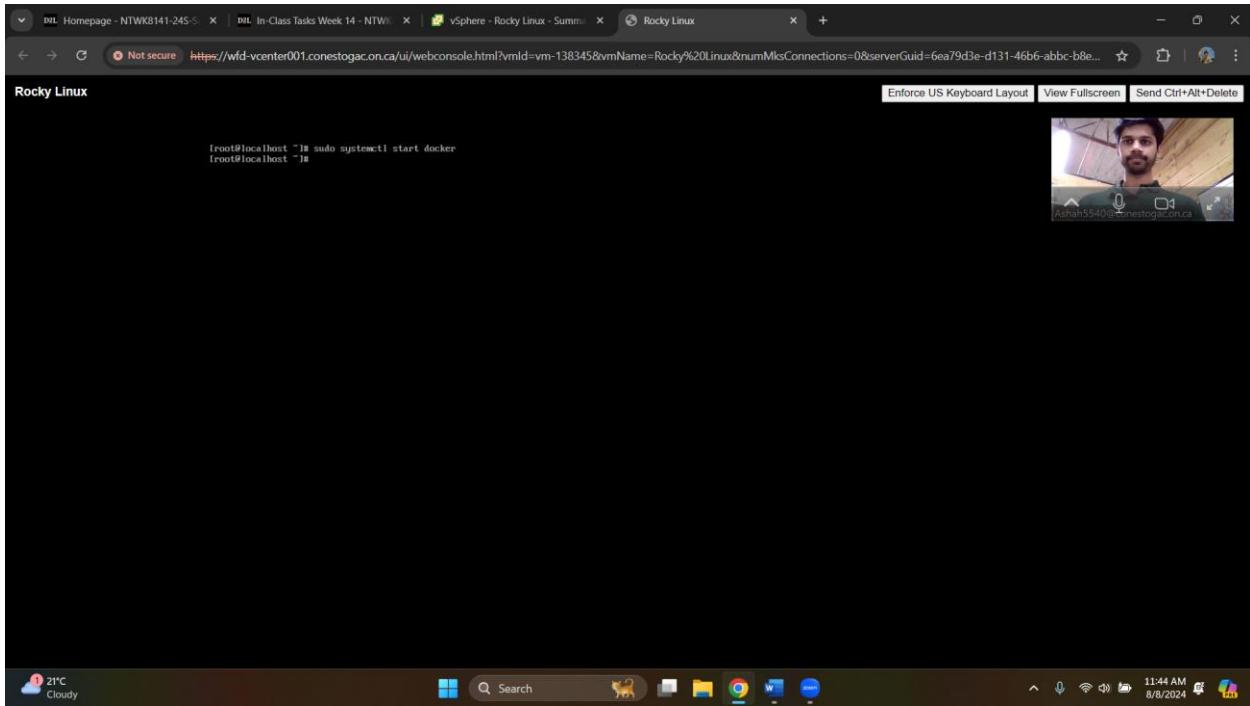
```
Downloading Packages:
(1/6): docker-buildx-plugin-0.16.1-1.e19.x86_64.rpm
(2/6): docker-ce-29.1.1-e19.x86_64.rpm
(3/6): docker-ce-29.1.1-e19.x86_64.rpm
(4/6): docker-ce-cli-27.1.1-1.e19.x86_64.rpm
(5/6): docker-ce-rootless-extras-27.1.1-1.e19.x86_64.rpm
(6/6): docker-compose-plugin-2.29.1-1.e19.x86_64.rpm
```

```
Total
Docker CE Stable - x86_64
Importing GPG key 0E9A61C51B55807F742B7708CS2FEB86221E9F35
From : https://download.docker.com/linux/centos/9/pkgs
Is this ok [y/N]: y
Key imported successfully
Running transaction check
Transaction check succeeded.
Running transaction test
Transaction test succeeded.
Running transaction
Preparing : 1/1
Installing : docker-buildx-plugin-0.16.1-1.e19.x86_64 1/1
Running scriptlet: docker-buildx-plugin-0.16.1-1.e19.x86_64 1/1
Installing : docker-buildx-plugin-0.16.1-1.e19.x86_64 2/2
Running scriptlet: docker-buildx-plugin-0.16.1-1.e19.x86_64 2/2
Installing : docker-ce-29.1.1-e19.x86_64 3/2
Running scriptlet: docker-ce-29.1.1-e19.x86_64 3/2
Installing : docker-ce-29.1.1-e19.x86_64 4/2
Running scriptlet: docker-ce-29.1.1-e19.x86_64 4/2
Installing : docker-ce-cli-27.1.1-1.e19.x86_64 5/2
Running scriptlet: docker-ce-cli-27.1.1-1.e19.x86_64 5/2
Installing : docker-ce-rootless-extras-27.1.1-1.e19.x86_64 6/2
Running scriptlet: docker-ce-rootless-extras-27.1.1-1.e19.x86_64 6/2
Installing : docker-ce-3-27.1.1-1.e19.x86_64 7/2
Running scriptlet: docker-ce-3-27.1.1-1.e19.x86_64 7/2
Installing : docker-compose-plugin-2.29.1-1.e19.x86_64 8/2
Running scriptlet: docker-compose-plugin-2.29.1-1.e19.x86_64 8/2
Verifying : containedr.io-1.7.19-3.1.e19.x86_64 1/2
Verifying : runc-4.11.1-12-2.e19.x86_64 2/2
Verifying : docker-buildx-plugin-0.16.1-1.e19.x86_64 3/2
Verifying : docker-ce-3-27.1.1-1.e19.x86_64 4/2
Verifying : docker-ce-cli-1-27.1.1-1.e19.x86_64 5/2
Verifying : docker-ce-rootless-extras-27.1.1-1.e19.x86_64 6/2
Verifying : docker-compose-plugin-2.29.1-1.e19.x86_64 7/2
```

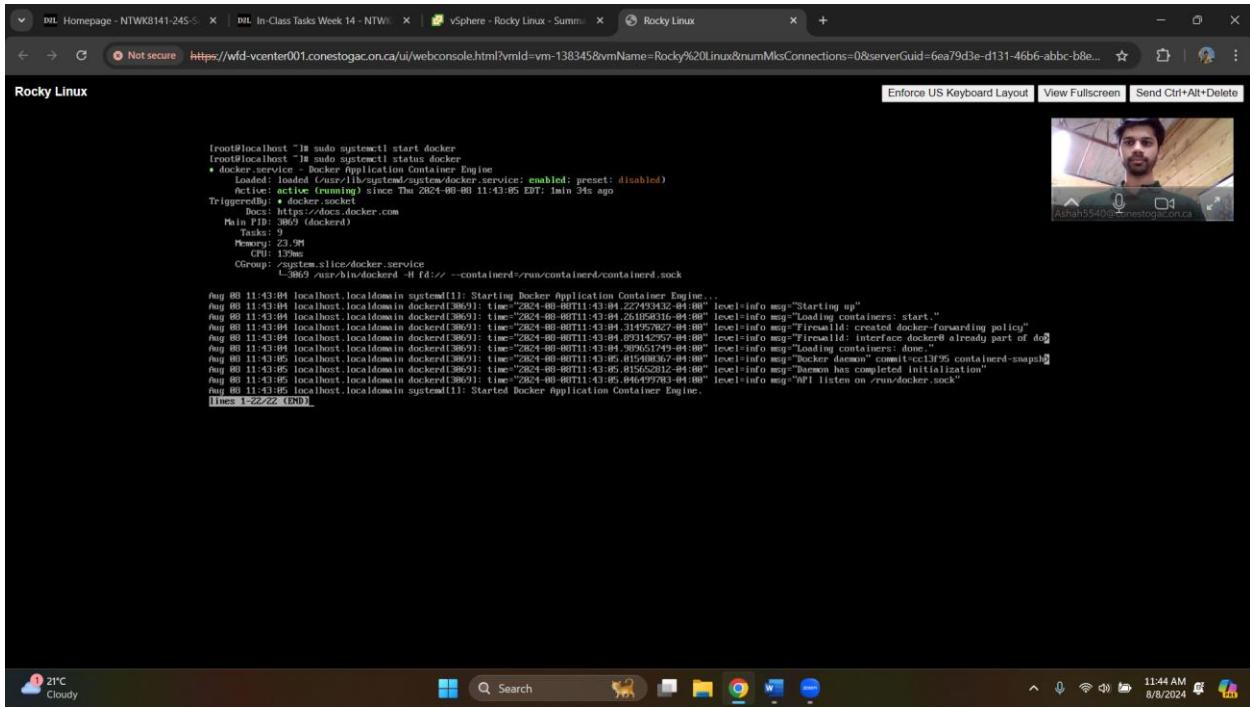
```
Installed:
  containedr.io-1.7.19-3.1.e19.x86_64
  docker-buildx-plugin-0.16.1-1.e19.x86_64
  docker-ce-3-27.1.1-1.e19.x86_64
  docker-ce-cli-1-27.1.1-1.e19.x86_64
```

```
Complete!
[root@localhost ~]
```

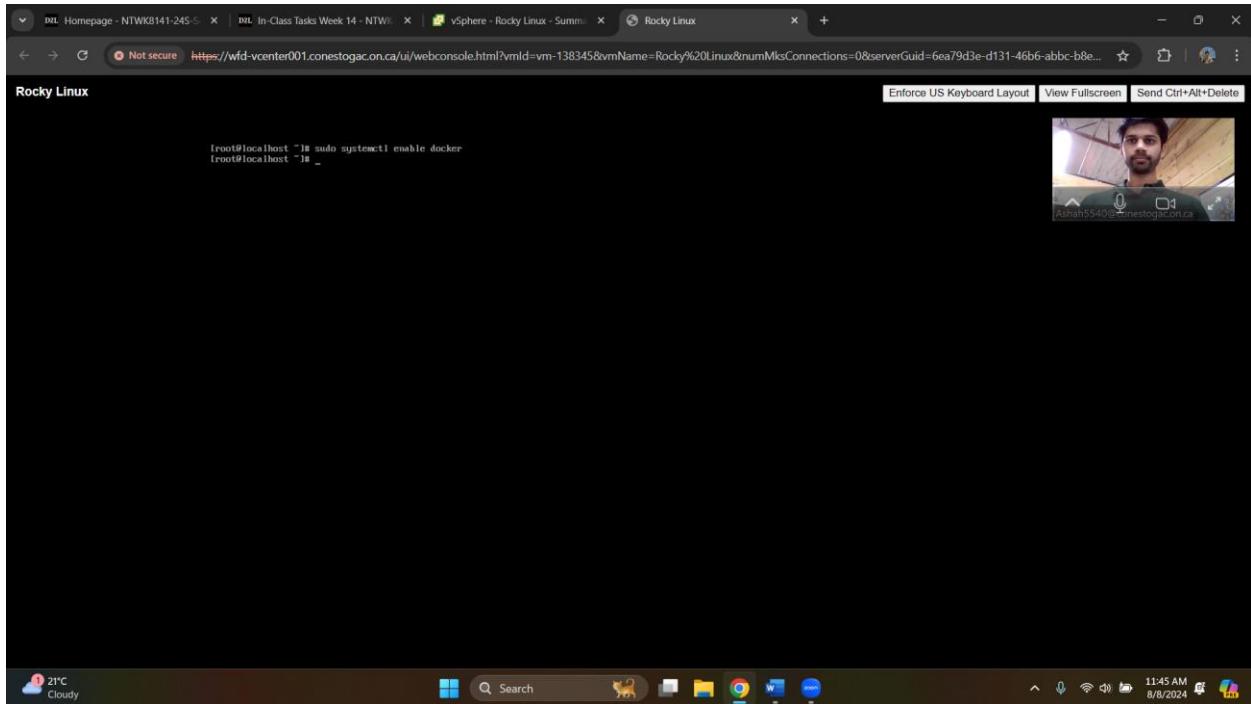
**sudo systemctl start docker**



## **sudo systemctl status docker**



## **sudo systemctl enable docker**



**sudo usermod -aG docker \$(whoami)**

**# log out/in**

**docker run -d -p 80:80 nginx:latest**

