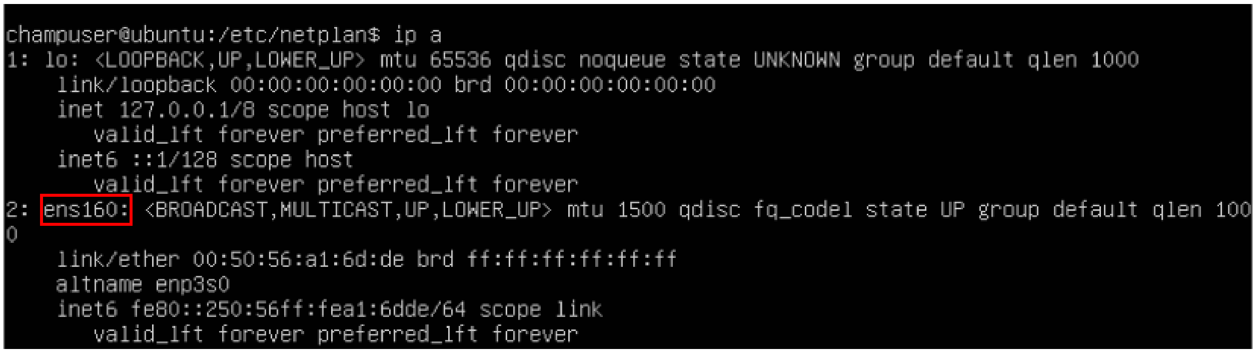
New VM: docker01
IP Address: 10.0.5.12
Hostname: docker01-seraphim

CONFIGURE STATIC IP ADDRESS

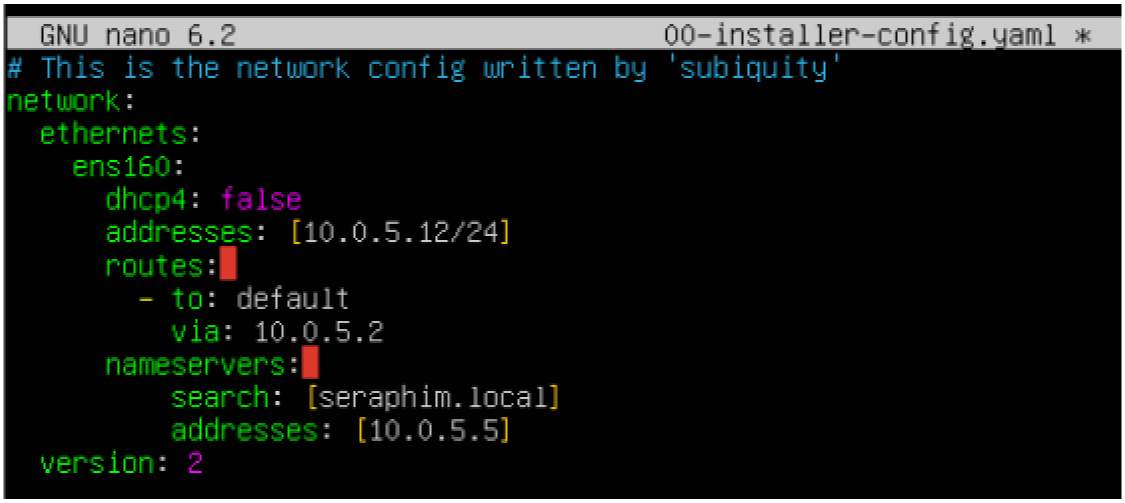
cd /etc/netplan/

ip a



```
champuser@ubuntu:/etc/netplan$ ip a
1: lo: <LOOPBACK,UP,LOWER_UP> mtu 65536 qdisc noqueue state UNKNOWN group default qlen 1000
    link/loopback 00:00:00:00:00:00 brd 00:00:00:00:00:00
    inet 127.0.0.1/8 scope host lo
       valid_lft forever preferred_lft forever
    inet6 ::1/128 scope host
       valid_lft forever preferred_lft forever
2: ens160: <BROADCAST,MULTICAST,UP,LOWER_UP> mtu 1500 qdisc fq_codel state UP group default qlen 100
0
    link/ether 00:50:56:a1:6d:de brd ff:ff:ff:ff:ff:ff
    altname enp3s0
    inet6 fe80::250:56ff:fea1:6dde/64 scope link
       valid_lft forever preferred_lft forever
```

sudo nano 00-installer-config.yaml

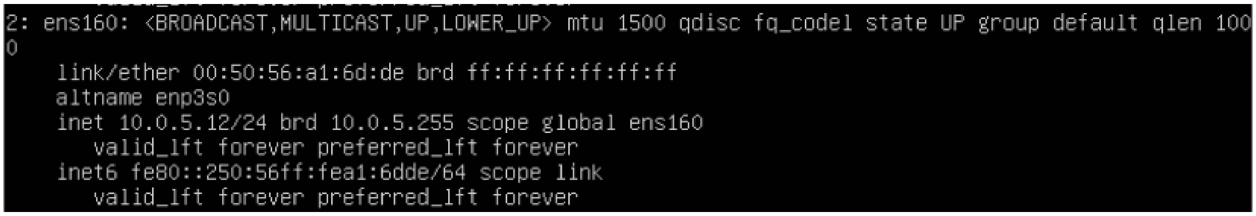


```
  GNU nano 6.2                       00-installer-config.yaml *
# This is the network config written by 'subiquity'
network:
  ethernets:
    ens160:
      dhcp4: false
      addresses: [10.0.5.12/24]
      routes:
        - to: default
          via: 10.0.5.2
      nameservers:
          search: [seraphim.local]
          addresses: [10.0.5.5]
  version: 2
```

sudo netplan try

sudo netplan apply

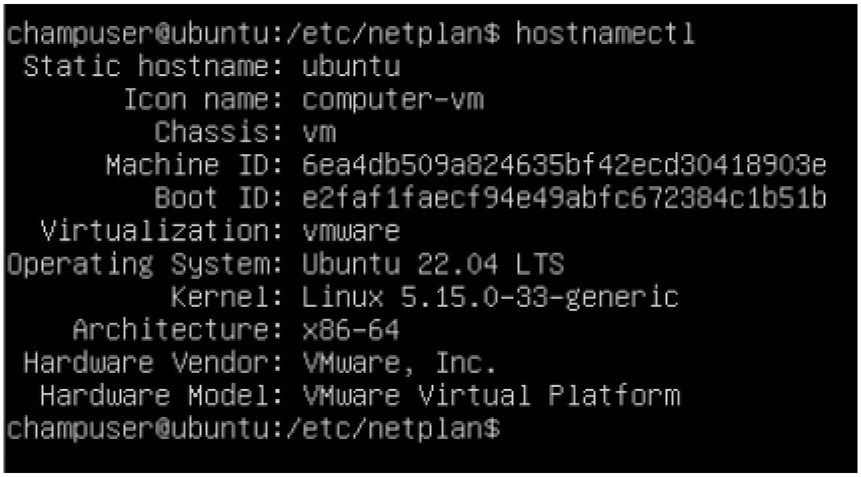
ip a



```
2: ens160: <BROADCAST,MULTICAST,UP,LOWER_UP> mtu 1500 qdisc fq_codel state UP group default qlen 100
0
    link/ether 00:50:56:a1:6d:de brd ff:ff:ff:ff:ff:ff
    altname enp3s0
    inet 10.0.5.12/24 brd 10.0.5.255 scope global ens160
       valid_lft forever preferred_lft forever
    inet6 fe80::250:56ff:fea1:6dde/64 scope link
       valid_lft forever preferred_lft forever
```

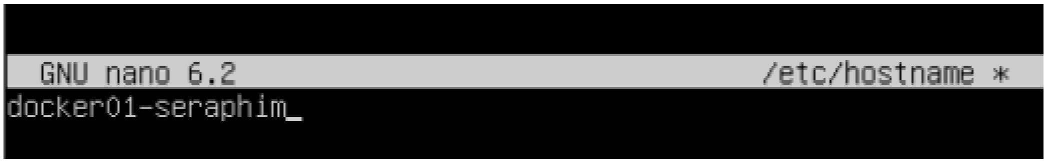
CONFIGURE HOSTNAME

hostnamectl



```
champuser@ubuntu:/etc/netplan$ hostnamectl
 Static hostname: ubuntu
       Icon name: computer-vm
         Chassis: vm
      Machine ID: 6ea4db509a824635bf42ecd30418903e
         Boot ID: e2faf1faecf94e49abfc672384c1b51b
  Virtualization: vmware
Operating System: Ubuntu 22.04 LTS
          Kernel: Linux 5.15.0-33-generic
    Architecture: x86-64
 Hardware Vendor: VMware, Inc.
  Hardware Model: VMware Virtual Platform
champuser@ubuntu:/etc/netplan$
```

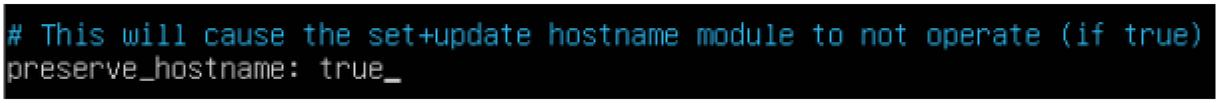
sudo nano /etc/hostname



```
  GNU nano 6.2                                     /etc/hostname *
docker01-seraphim_
```

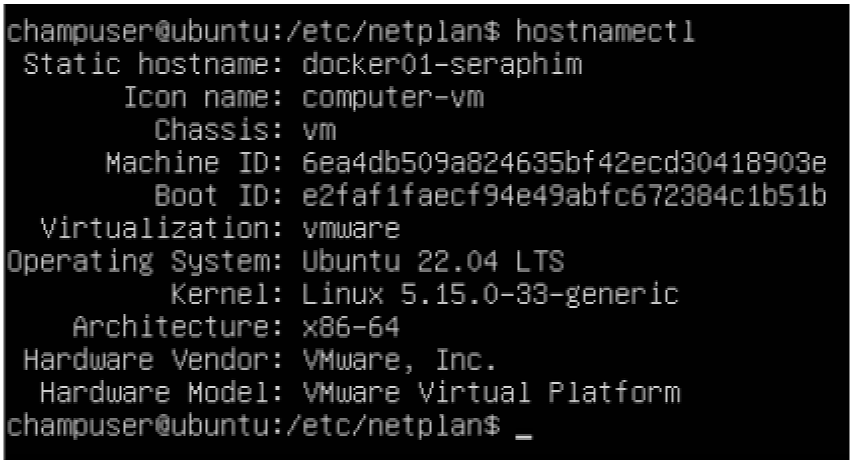
hostnamectl set-hostname docker01-seraphim

sudo nano /etc/cloud/cloud.cfg



```
# This will cause the set+update hostname module to not operate (if true)
preserve_hostname: true_
```

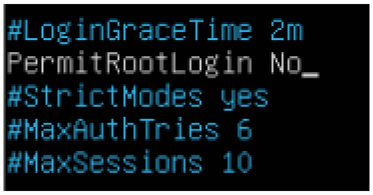
hostnamectl



```
champuser@ubuntu:/etc/netplan$ hostnamectl
 Static hostname: docker01-seraphim
       Icon name: computer-vm
         Chassis: vm
      Machine ID: 6ea4db509a824635bf42ecd30418903e
         Boot ID: e2faf1faecf94e49abfc672384c1b51b
  Virtualization: vmware
Operating System: Ubuntu 22.04 LTS
          Kernel: Linux 5.15.0-33-generic
    Architecture: x86-64
 Hardware Vendor: VMware, Inc.
  Hardware Model: VMware Virtual Platform
champuser@ubuntu:/etc/netplan$ _
```

DISABLE REMOTE ROOT SSH

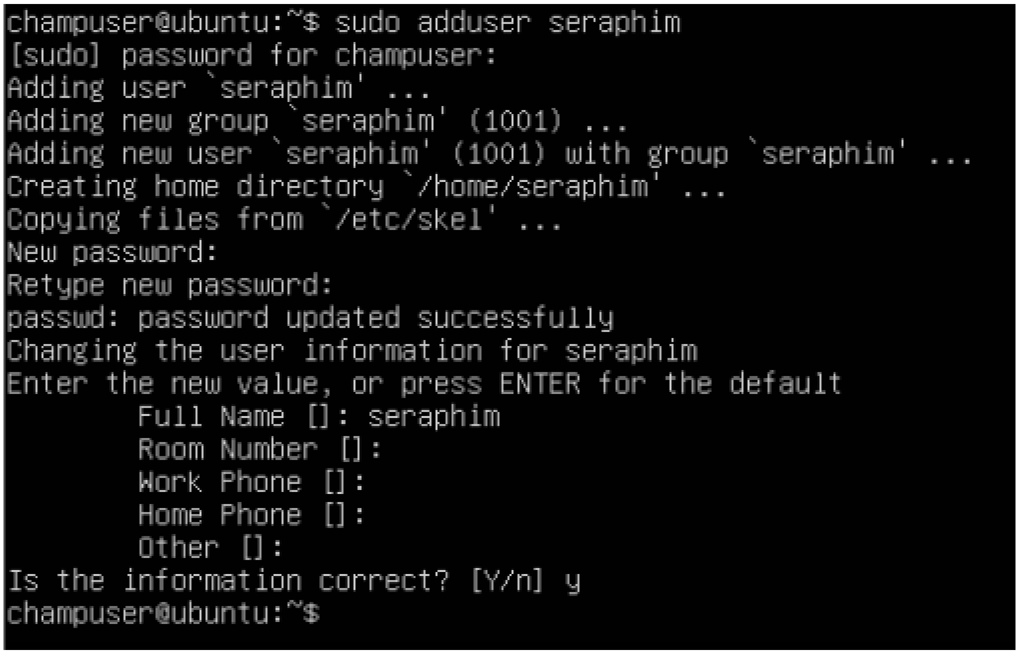
sudo nano /etc/ssh/sshd_config



```
#LoginGraceTime 2m
PermitRootLogin No_
#StrictModes yes
#MaxAuthTries 6
#MaxSessions 10
```

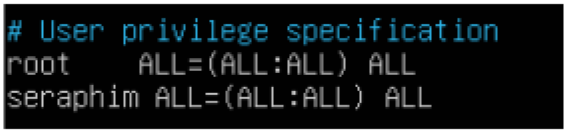
CONFIGURE NAMED SUDO USER

sudo adduser seraphim



```
champuser@ubuntu:~$ sudo adduser seraphim
[sudo] password for champuser:
Adding user `seraphim' ...
Adding new group `seraphim' (1001) ...
Adding new user `seraphim' (1001) with group `seraphim' ...
Creating home directory `/home/seraphim' ...
Copying files from `/etc/skel' ...
New password:
Retype new password:
passwd: password updated successfully
Changing the user information for seraphim
Enter the new value, or press ENTER for the default
        Full Name []: seraphim
        Room Number []:
        Work Phone []:
        Home Phone []:
        Other []:
Is the information correct? [Y/n] y
champuser@ubuntu:~$
```

sudo visudo

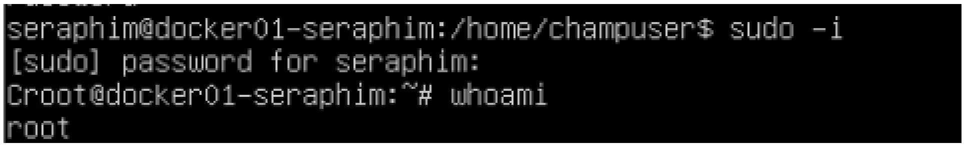


```
# User privilege specification
root    ALL=(ALL:ALL) ALL
seraphim ALL=(ALL:ALL) ALL
```

su seraphim

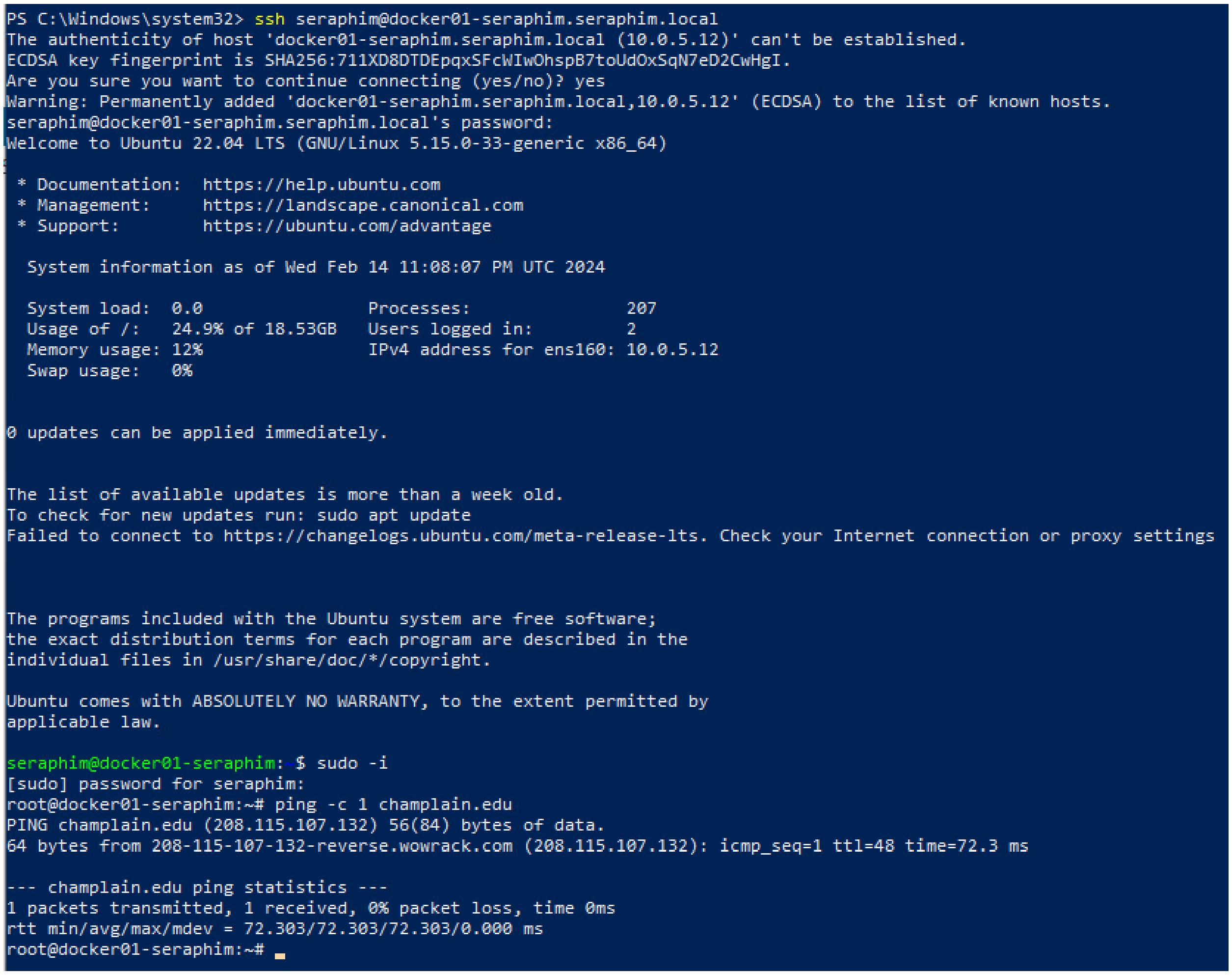
sudo -i

whoami



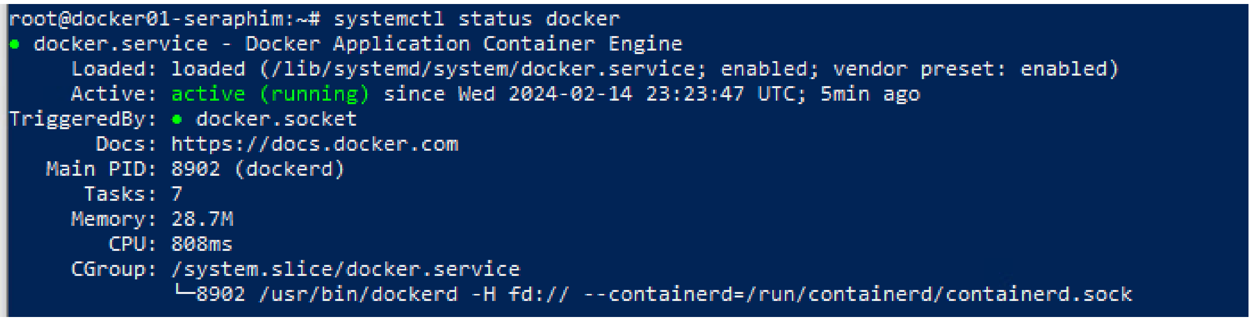
```
seraphim@docker01-seraphim:/home/champuser$ sudo -i
[sudo] password for seraphim:
Croot@docker01-seraphim:~# whoami
root
```

Deliverable 1. Screenshot showing PuTTY or powershell SSH session from mgmt01 (use hostname, not ip address). Elevate to root using sudo -i and within the session, ping champlain.edu.



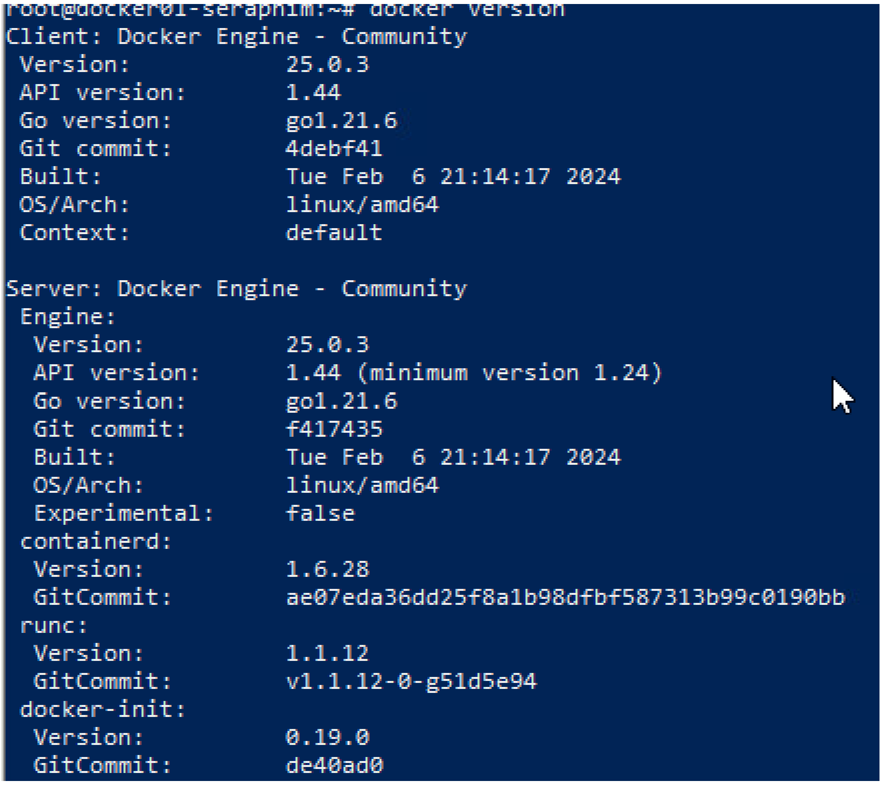
```
PS C:\Windows\system32> ssh seraphim@docker01-seraphim.seraphim.local
The authenticity of host 'docker01-seraphim.seraphim.local (10.0.5.12)' can't be established.
ECDSA key fingerprint is SHA256:711XD8DTDEpqxSFcWIwOhspB7toUdOxSqN7eD2CwHgI.
Are you sure you want to continue connecting (yes/no)? yes
Warning: Permanently added 'docker01-seraphim.seraphim.local,10.0.5.12' (ECDSA) to the list of known hosts.
seraphim@docker01-seraphim.seraphim.local's password:
Welcome to Ubuntu 22.04 LTS (GNU/Linux 5.15.0-33-generic x86_64)

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

  System information as of Wed Feb 14 11:08:07 PM UTC 2024

  System load:  0.0               Processes:               207
  Usage of /:   24.9% of 18.53GB   Users logged in:         2
  Memory usage: 12%               IPv4 address for ens160: 10.0.5.12
  Swap usage:   0%


0 updates can be applied immediately.


The list of available updates is more than a week old.
To check for new updates run: sudo apt update
Failed to connect to https://changelogs.ubuntu.com/meta-release-lts. Check your Internet connection or proxy settings



The programs included with the Ubuntu system are free software;
the exact distribution terms for each program are described in the
individual files in /usr/share/doc/*/copyright.

Ubuntu comes with ABSOLUTELY NO WARRANTY, to the extent permitted by
applicable law.

seraphim@docker01-seraphim:~$ sudo -i
[sudo] password for seraphim:
root@docker01-seraphim:~# ping -c 1 champlain.edu
PING champlain.edu (208.115.107.132) 56(84) bytes of data.
64 bytes from 208-115-107-132-reverse.wowrack.com (208.115.107.132): icmp_seq=1 ttl=48 time=72.3 ms

--- champlain.edu ping statistics ---
1 packets transmitted, 1 received, 0% packet loss, time 0ms
rtt min/avg/max/mdev = 72.303/72.303/72.303/0.000 ms
root@docker01-seraphim:~# _
```

Deliverable 2. Confirm the Docker Service is running and provide a screenshot similar to the one below:



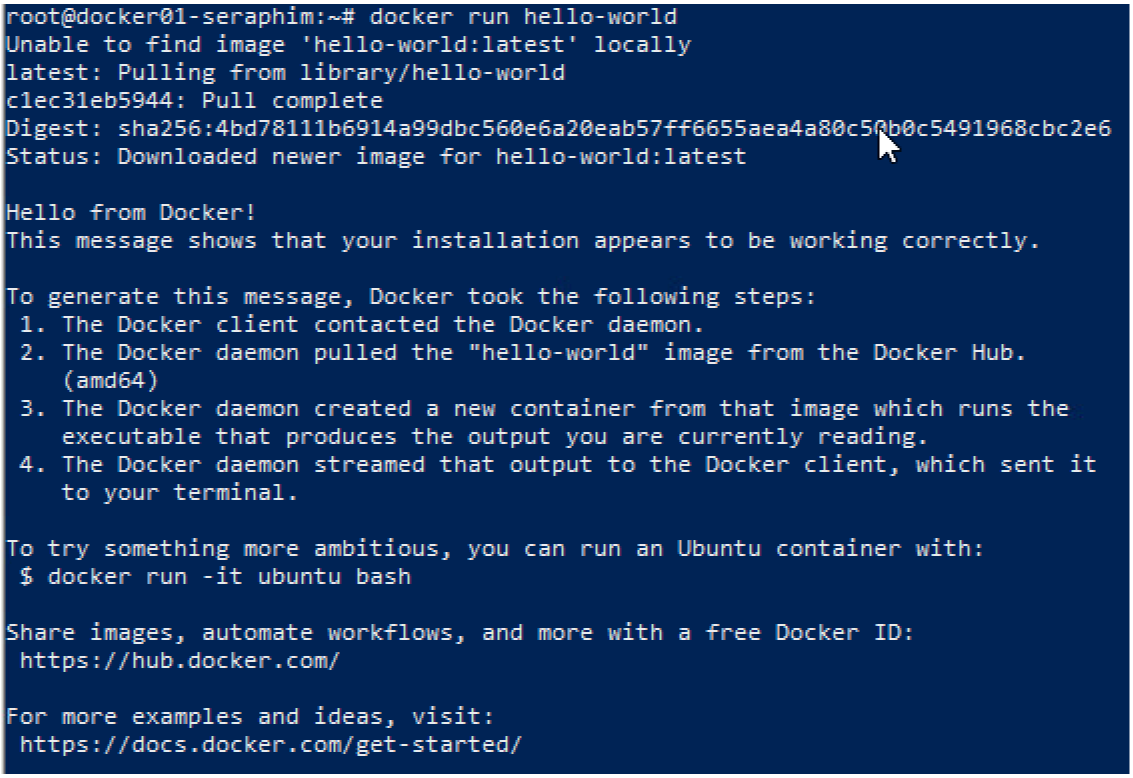
```
root@docker01-seraphim:~# systemctl status docker
● docker.service - Docker Application Container Engine
     Loaded: loaded (/lib/systemd/system/docker.service; enabled; vendor preset: enabled)
     Active: active (running) since Wed 2024-02-14 23:23:47 UTC; 5min ago
TriggeredBy: ● docker.socket
       Docs: https://docs.docker.com
   Main PID: 8902 (dockerd)
      Tasks: 7
     Memory: 28.7M
        CPU: 808ms
     CGroup: /system.slice/docker.service
             └─8902 /usr/bin/dockerd -H fd:// --containerd=/run/containerd/containerd.sock
```

Deliverable 3. Confirm that your sudo user can access and print out version information using a screenshot similar to the one below



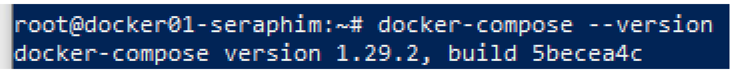
```
root@docker01-seraphim:~# docker version
Client: Docker Engine - Community
 Version:           25.0.3
 API version:       1.44
 Go version:        go1.21.6
 Git commit:        4debf41
 Built:             Tue Feb  6 21:14:17 2024
 OS/Arch:           linux/amd64
 Context:           default

Server: Docker Engine - Community
 Engine:
  Version:          25.0.3
  API version:      1.44 (minimum version 1.24)
  Go version:       go1.21.6
  Git commit:       f417435
  Built:            Tue Feb  6 21:14:17 2024
  OS/Arch:          linux/amd64
  Experimental:     false
 containerd:
  Version:          1.6.28
  GitCommit:        ae07eda36dd25f8a1b98dfbf587313b99c0190bb
 runc:
  Version:          1.1.12
  GitCommit:        v1.1.12-0-g51d5e94
 docker-init:
  Version:          0.19.0
  GitCommit:        de40ad0
```

Deliverable 4. After running the docker hello world application as your named user & providing a screenshot similar to the one below, explain what has happened?



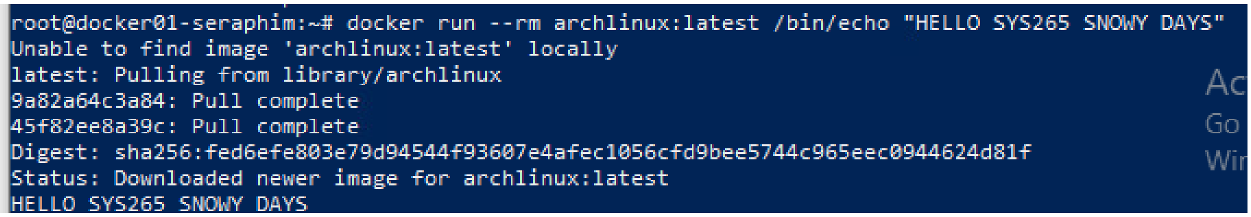
```
root@docker01-seraphim:~# docker run hello-world
Unable to find image 'hello-world:latest' locally
latest: Pulling from library/hello-world
c1ec31eb5944: Pull complete
Digest: sha256:4bd78111b6914a99dbc560e6a20eab57ff6655aea4a80c50b0c5491968cbc2e6
Status: Downloaded newer image for hello-world:latest

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/
```

Deliverable 5. Provide a screenshot similar to the one below that shows the docker-compose version.



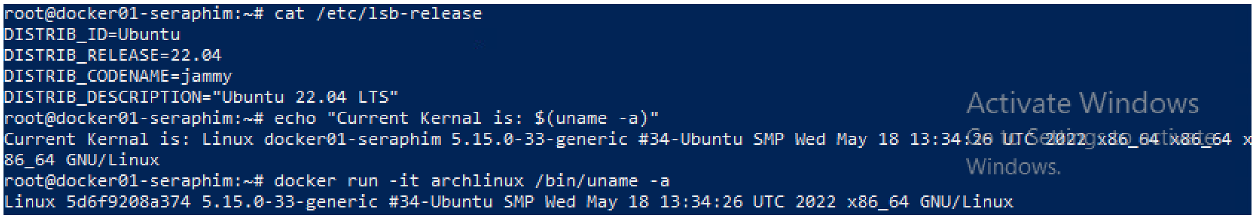
```
root@docker01-seraphim:~# docker-compose --version
docker-compose version 1.29.2, build 5becea4c
```

Deliverable 6. Provide a screenshot similar to the one below showing your "Hello Message":



```
root@docker01-seraphim:~# docker run --rm archlinux:latest /bin/echo "HELLO SYS265 SNOWY DAYS"
Unable to find image 'archlinux:latest' locally
latest: Pulling from library/archlinux
9a82a64c3a84: Pull complete
45f82ee8a39c: Pull complete
Digest: sha256:fed6efe803e79d94544f93607e4afec1056cfd9bee5744c965eec0944624d81f
Status: Downloaded newer image for archlinux:latest
HELLO SYS265 SNOWY DAYS
```

Deliverable 7. Provide a screenshot similar to the one below and an answer to the question: Based upon the version of kernels you see displayed within and outside of the container, what do you think is going on?



```
root@docker01-seraphim:~# cat /etc/lsb-release
DISTRIB_ID=Ubuntu
DISTRIB_RELEASE=22.04
DISTRIB_CODENAME=jammy
DISTRIB_DESCRIPTION="Ubuntu 22.04 LTS"
root@docker01-seraphim:~# echo "Current Kernal is: $(uname -a)"
Current Kernal is: Linux docker01-seraphim 5.15.0-33-generic #34-Ubuntu SMP Wed May 18 13:34:26 UTC 2022 x86_64 x86_64 x
86_64 GNU/Linux
root@docker01-seraphim:~# docker run -it archlinux /bin/uname -a
Linux 5d6f9208a374 5.15.0-33-generic #34-Ubuntu SMP Wed May 18 13:34:26 UTC 2022 x86_64 GNU/Linux
```

The following commands will:

"cat /etc/lsb-release"
Print out the current version of Ubuntu on docker01.

echo "Current Kernal is: $(uname -a)"
Print out the current version of docker01's linux kernel.

"docker run -it archlinux /bin/uname -a"
Print out the kernel being used by the Ubuntu container.

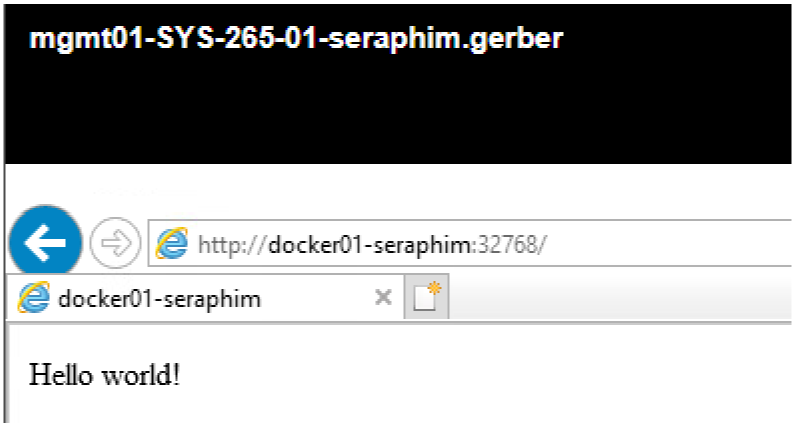
This shows that the host machine and the container are using the same Linux version, being 5.15.0-33-generic. This means that Docker is not using a separate kernel for the container but is sharing the kernel of the host machine with the container. This is because Docker containers typically rely on the host machine's kernel.

Deliverable 8. Research the docker run command. What does the -d and -P mean?

The -d flag is for detached mode, which runs the container in the background and prints the new container ID. The default is false.

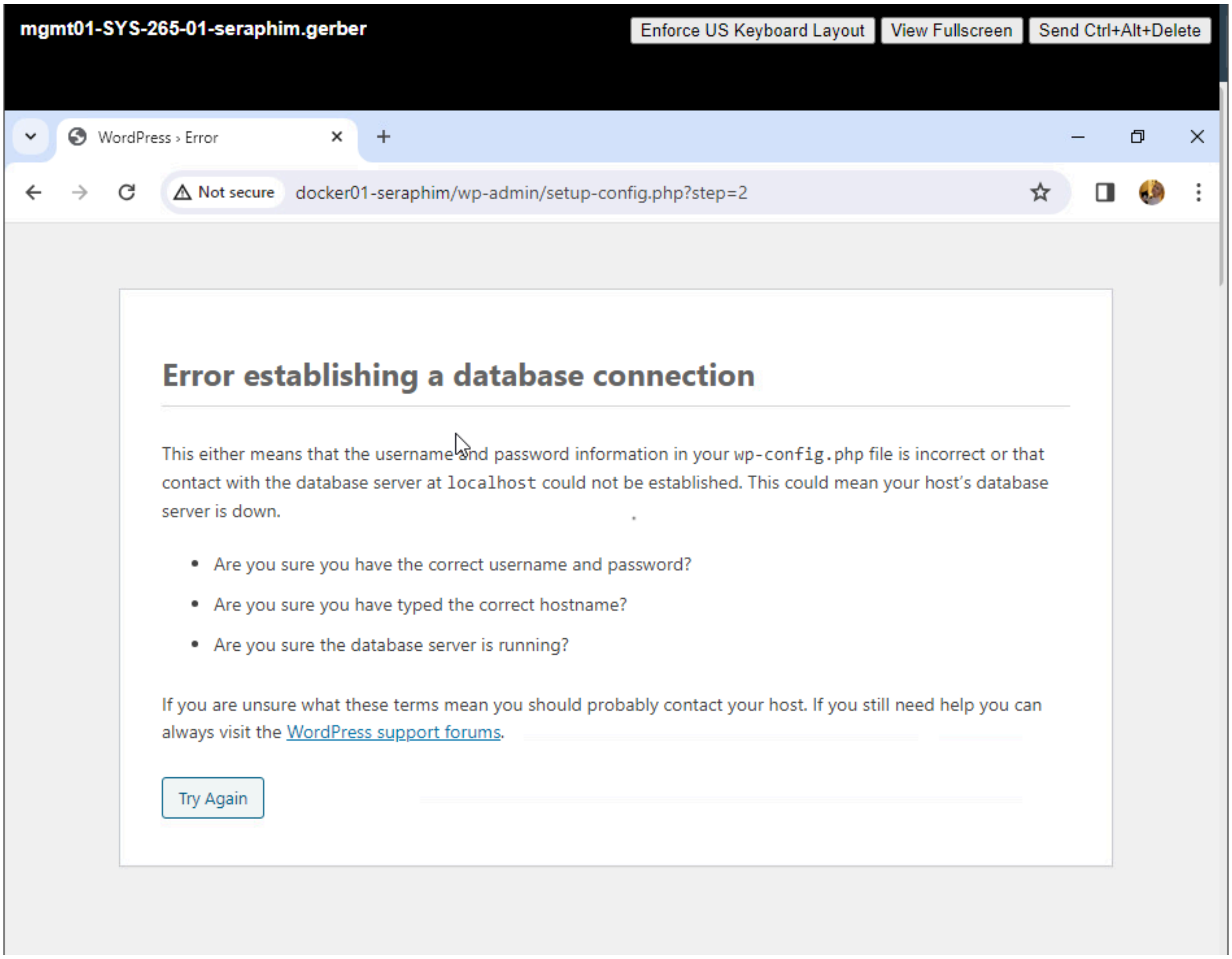
The -P flag is for publish all, which shows all the exposed ports to random ports on the host interfaces. The default is false.

Deliverable 9. Screenshot showing a browsing session between mgmt01 and docker01 on the port shown in docker ps (you may have another port)


mgmt01-SYS-265-01-seraphim.gerber
http://docker01-seraphim:32768/
docker01-seraphim

Hello world!

Deliverable 10. Provide a screenshot showing a completed Wordpress installation that contains reference to the course and your name. You should be accessing it by hostname and not IP address.


mgmt01-SYS-265-01-seraphim.gerber
Enforce US Keyboard Layout
View Fullscreen
Send Ctrl+Alt+Delete
WordPress › Error
Not secure
docker01-seraphim/wp-admin/setup-config.php?step=2

Error establishing a database connection

This either means that the username and password information in your `wp-config.php` file is incorrect or that contact with the database server at `localhost` could not be established. This could mean your host's database server is down.

- Are you sure you have the correct username and password?
- Are you sure you have typed the correct hostname?
- Are you sure the database server is running?

If you are unsure what these terms mean you should probably contact your host. If you still need help you can always visit the WordPress support forums.

I've spent around 5 hours alone today trying to troubleshoot this, but I can't seem to get past this error. I've restarted my entire configuration, double checked and even directly pasted in the syntax, ensured that all my ports open and all my software is running, and still nothing. This is the best that I can get for now.

Deliverable 11. Provide a link to your tech journal. In addition to your reflection on this lab, Make sure you spend some time on how to:

- **Configure networking and netplan on your Ubuntu system.**
- **The differences in adding a sudo user as well as**
- **some of the frequently used docker commands you have been exposed to.**

We are raising the bar on tech journal entries. They should actually be useful and exceptionally well-formatted.

https://github.com/seraphimgerber/SYS-265