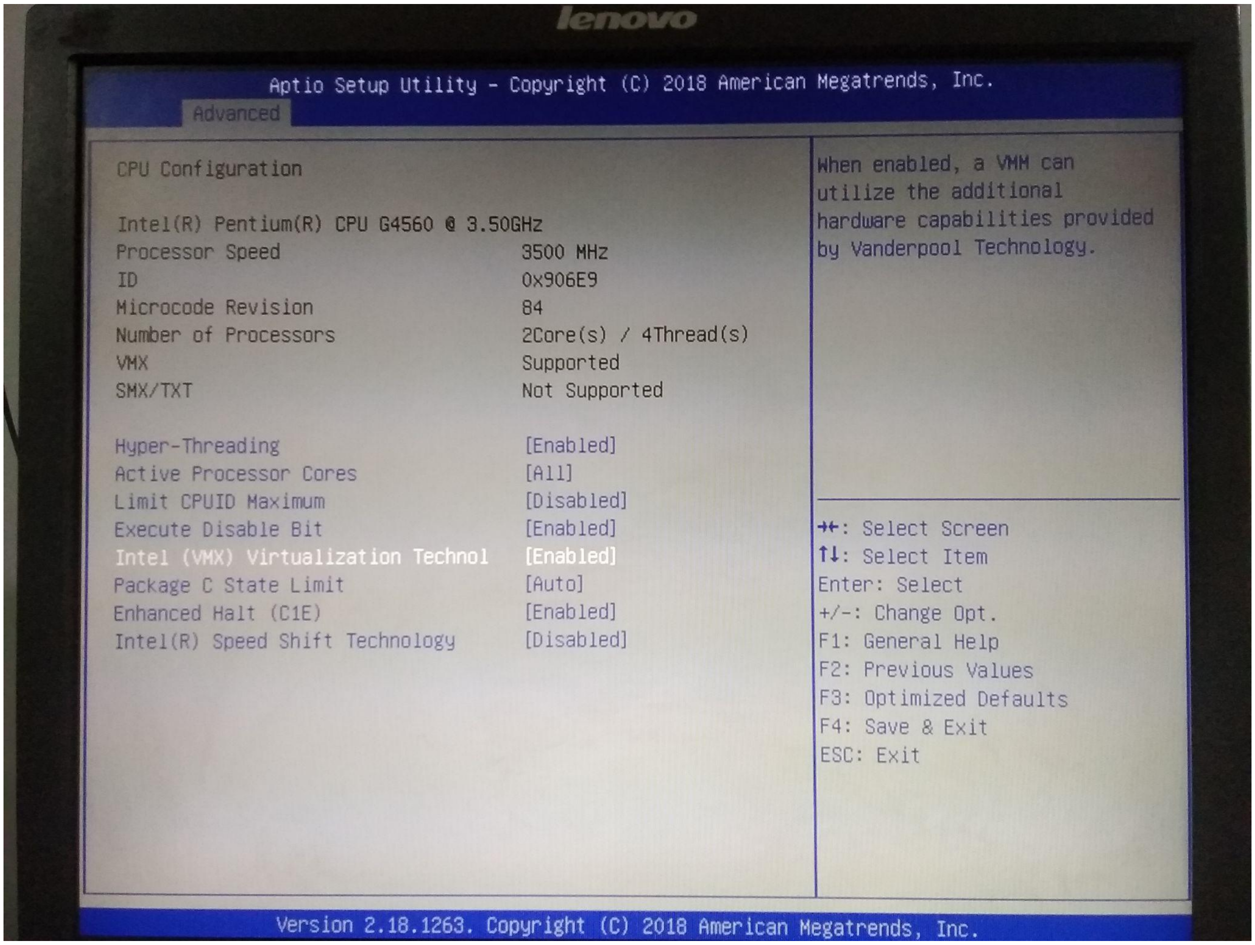
ZeekWeek21 - Introduction to Zeek

Instructions for installation of Zeek in Ubuntu 20.04

Step 1: We will be installing Zeek using docker. To install docker, first, we have to enable Virtualization in the BIOS. On most systems, the BIOS is accessible by pressing the F2 key or Del key on boot.



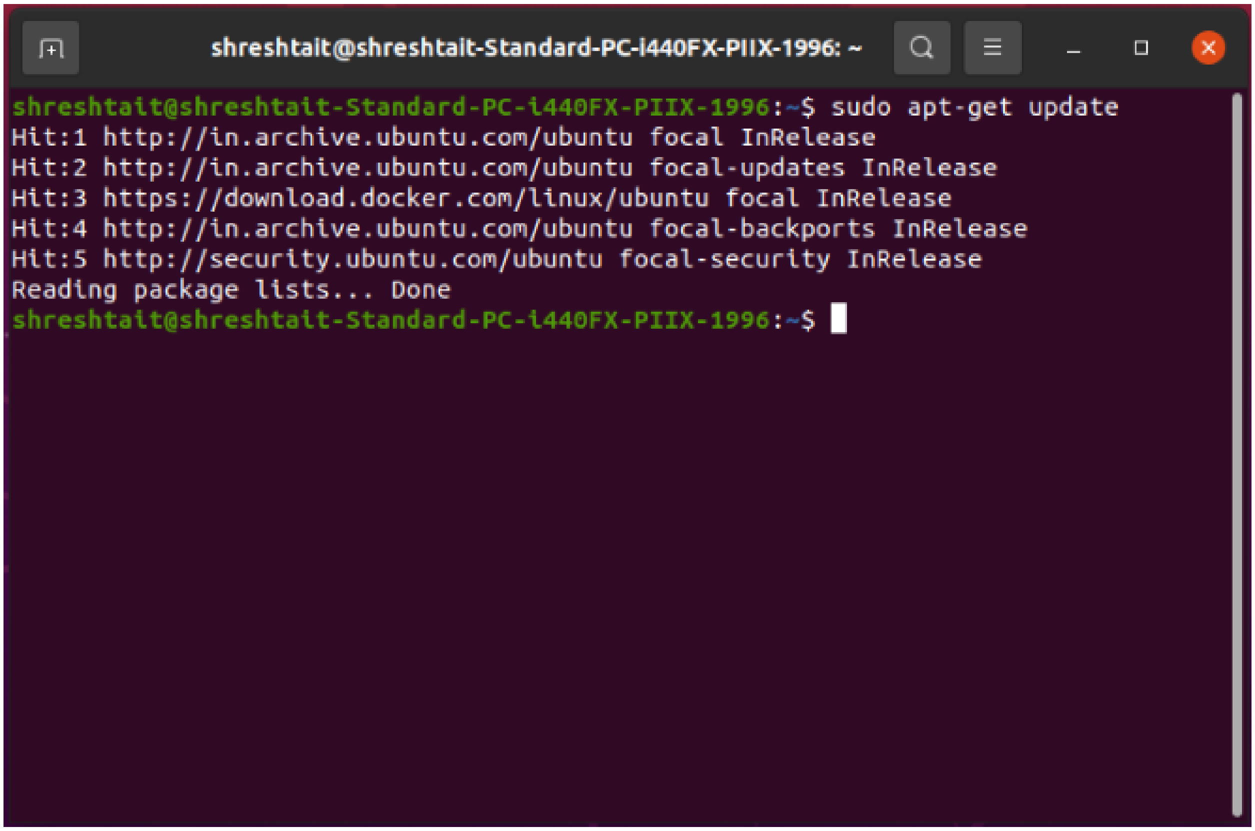
```
Aptio Setup Utility - Copyright (C) 2018 American Megatrends, Inc.
  Advanced

 CPU Configuration                                        When enabled, a VMM can
                                                          utilize the additional
 Intel(R) Pentium(R) CPU G4560 @ 3.50GHz                  hardware capabilities provided
 Processor Speed                    3500 MHz              by Vanderpool Technology.
 ID                                 0x906E9
 Microcode Revision                 84
 Number of Processors               2Core(s) / 4Thread(s)
 VMX                                Supported
 SMX/TXT                            Not Supported

 Hyper-Threading                    [Enabled]
 Active Processor Cores             [All]
 Limit CPUID Maximum                [Disabled]
 Execute Disable Bit                [Enabled]             →←: Select Screen
 Intel (VMX) Virtualization Technol [Enabled]             ↑↓: Select Item
 Package C State Limit              [Auto]                Enter: Select
 Enhanced Halt (C1E)                [Enabled]             +/-: Change Opt.
 Intel(R) Speed Shift Technology    [Disabled]            F1: General Help
                                                          F2: Previous Values
                                                          F3: Optimized Defaults
                                                          F4: Save & Exit
                                                          ESC: Exit

      Version 2.18.1263. Copyright (C) 2018 American Megatrends, Inc.
```

Step 2: Access https://docs.docker.com/engine/install/ubuntu/ and follow the steps to install docker or follow along,

Install docker using the official repository

Step 1: Open a terminal and update the repositories

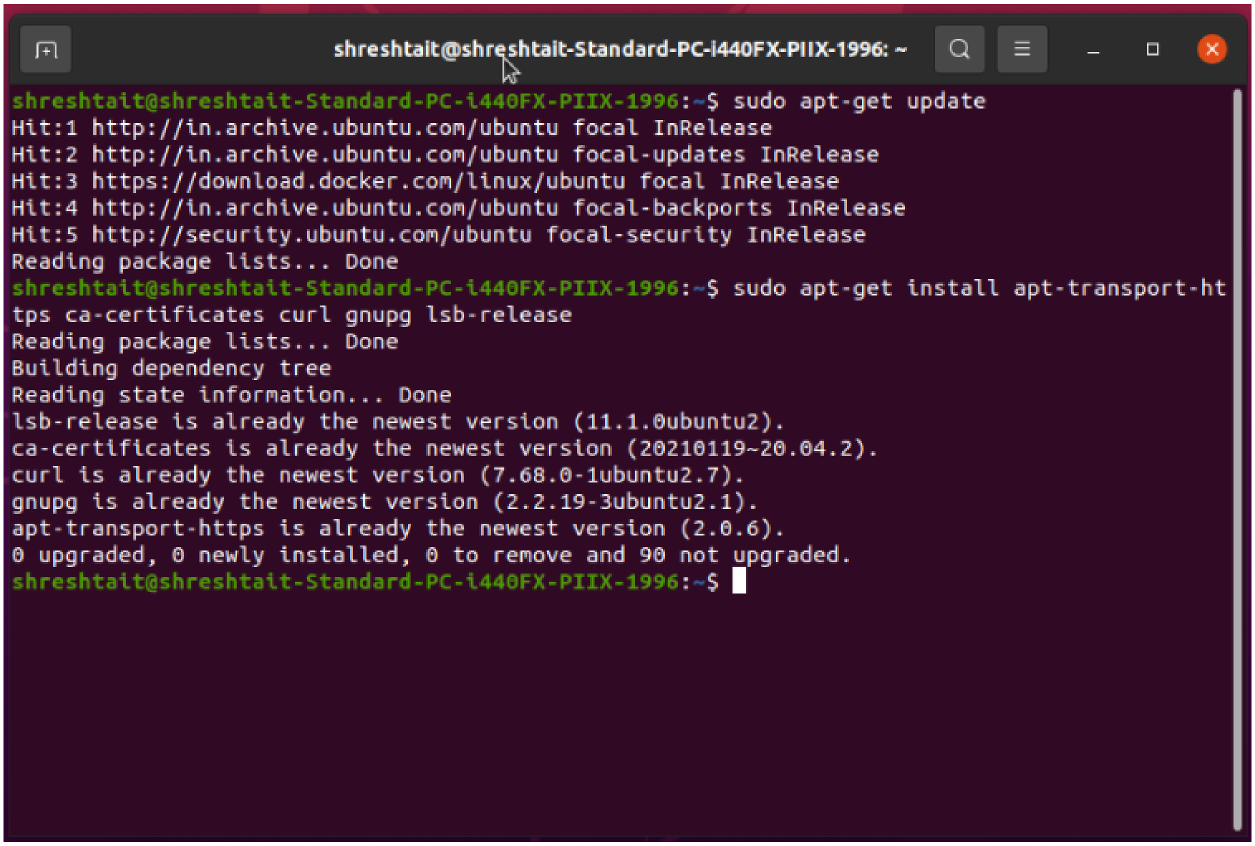
sudo apt-get update



```
shreshtait@shreshtait-Standard-PC-i440FX-PIIX-1996:~$ sudo apt-get update
Hit:1 http://in.archive.ubuntu.com/ubuntu focal InRelease
Hit:2 http://in.archive.ubuntu.com/ubuntu focal-updates InRelease
Hit:3 https://download.docker.com/linux/ubuntu focal InRelease
Hit:4 http://in.archive.ubuntu.com/ubuntu focal-backports InRelease
Hit:5 http://security.ubuntu.com/ubuntu focal-security InRelease
Reading package lists... Done
shreshtait@shreshtait-Standard-PC-i440FX-PIIX-1996:~$ 
```

Step 2: Install the dependency packages required by docker,

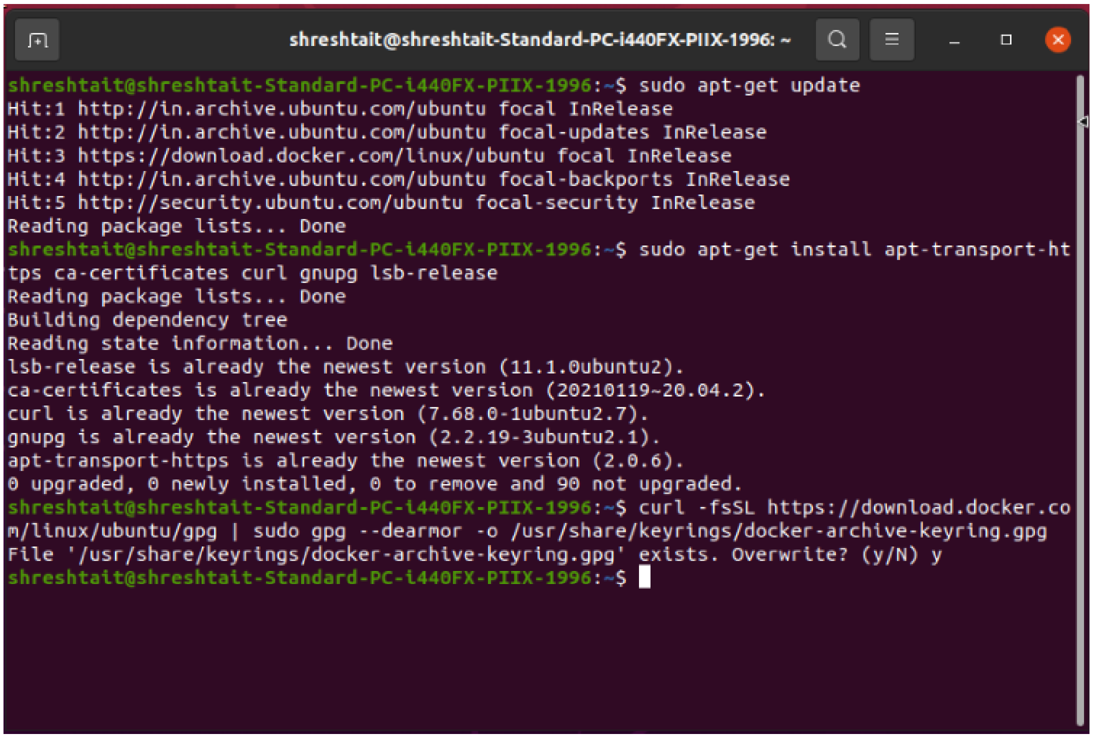
sudo apt-get install apt-transport-https ca-certificates curl gnupg lsb-release



```
shreshtait@shreshtait-Standard-PC-i440FX-PIIX-1996:~$ sudo apt-get update
Hit:1 http://in.archive.ubuntu.com/ubuntu focal InRelease
Hit:2 http://in.archive.ubuntu.com/ubuntu focal-updates InRelease
Hit:3 https://download.docker.com/linux/ubuntu focal InRelease
Hit:4 http://in.archive.ubuntu.com/ubuntu focal-backports InRelease
Hit:5 http://security.ubuntu.com/ubuntu focal-security InRelease
Reading package lists... Done
shreshtait@shreshtait-Standard-PC-i440FX-PIIX-1996:~$ sudo apt-get install apt-transport-ht
tps ca-certificates curl gnupg lsb-release
Reading package lists... Done
Building dependency tree
Reading state information... Done
lsb-release is already the newest version (11.1.0ubuntu2).
ca-certificates is already the newest version (20210119~20.04.2).
curl is already the newest version (7.68.0-1ubuntu2.7).
gnupg is already the newest version (2.2.19-3ubuntu2.1).
apt-transport-https is already the newest version (2.0.6).
0 upgraded, 0 newly installed, 0 to remove and 90 not upgraded.
shreshtait@shreshtait-Standard-PC-i440FX-PIIX-1996:~$
```

Step 3: Add Docker's official GPG key as follows,

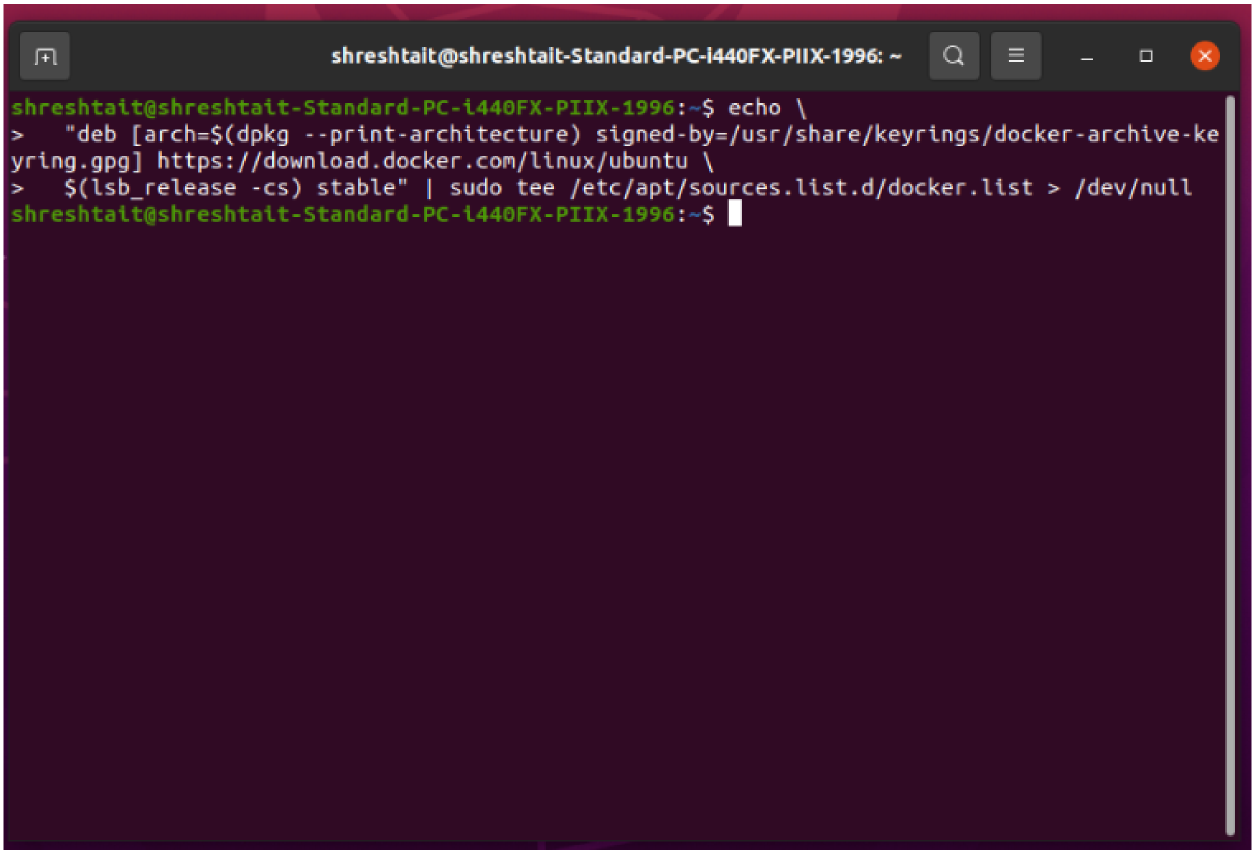
curl -fsSL https://download.docker.com/linux/ubuntu/gpg | sudo gpg --dearmor -o /usr/share/keyrings/docker-archive-keyring.gpg



```
shreshtait@shreshtait-Standard-PC-i440FX-PIIX-1996:~$ sudo apt-get update
Hit:1 http://in.archive.ubuntu.com/ubuntu focal InRelease
Hit:2 http://in.archive.ubuntu.com/ubuntu focal-updates InRelease
Hit:3 https://download.docker.com/linux/ubuntu focal InRelease
Hit:4 http://in.archive.ubuntu.com/ubuntu focal-backports InRelease
Hit:5 http://security.ubuntu.com/ubuntu focal-security InRelease
Reading package lists... Done
shreshtait@shreshtait-Standard-PC-i440FX-PIIX-1996:~$ sudo apt-get install apt-transport-ht
tps ca-certificates curl gnupg lsb-release
Reading package lists... Done
Building dependency tree
Reading state information... Done
lsb-release is already the newest version (11.1.0ubuntu2).
ca-certificates is already the newest version (20210119~20.04.2).
curl is already the newest version (7.68.0-1ubuntu2.7).
gnupg is already the newest version (2.2.19-3ubuntu2.1).
apt-transport-https is already the newest version (2.0.6).
0 upgraded, 0 newly installed, 0 to remove and 90 not upgraded.
shreshtait@shreshtait-Standard-PC-i440FX-PIIX-1996:~$ curl -fsSL https://download.docker.co
m/linux/ubuntu/gpg | sudo gpg --dearmor -o /usr/share/keyrings/docker-archive-keyring.gpg
File '/usr/share/keyrings/docker-archive-keyring.gpg' exists. Overwrite? (y/N) y
shreshtait@shreshtait-Standard-PC-i440FX-PIIX-1996:~$ 
```

Step 5: Use the following command to add the docker repository in apt,

echo "deb [arch=$(dpkg --print-architecture) signed-by=/usr/share/keyrings/docker-archive-keyring.gpg] https://download.docker.com/linux/ubuntu $(lsb_release -cs) stable" | sudo tee /etc/apt/sources.list.d/docker.list > /dev/null

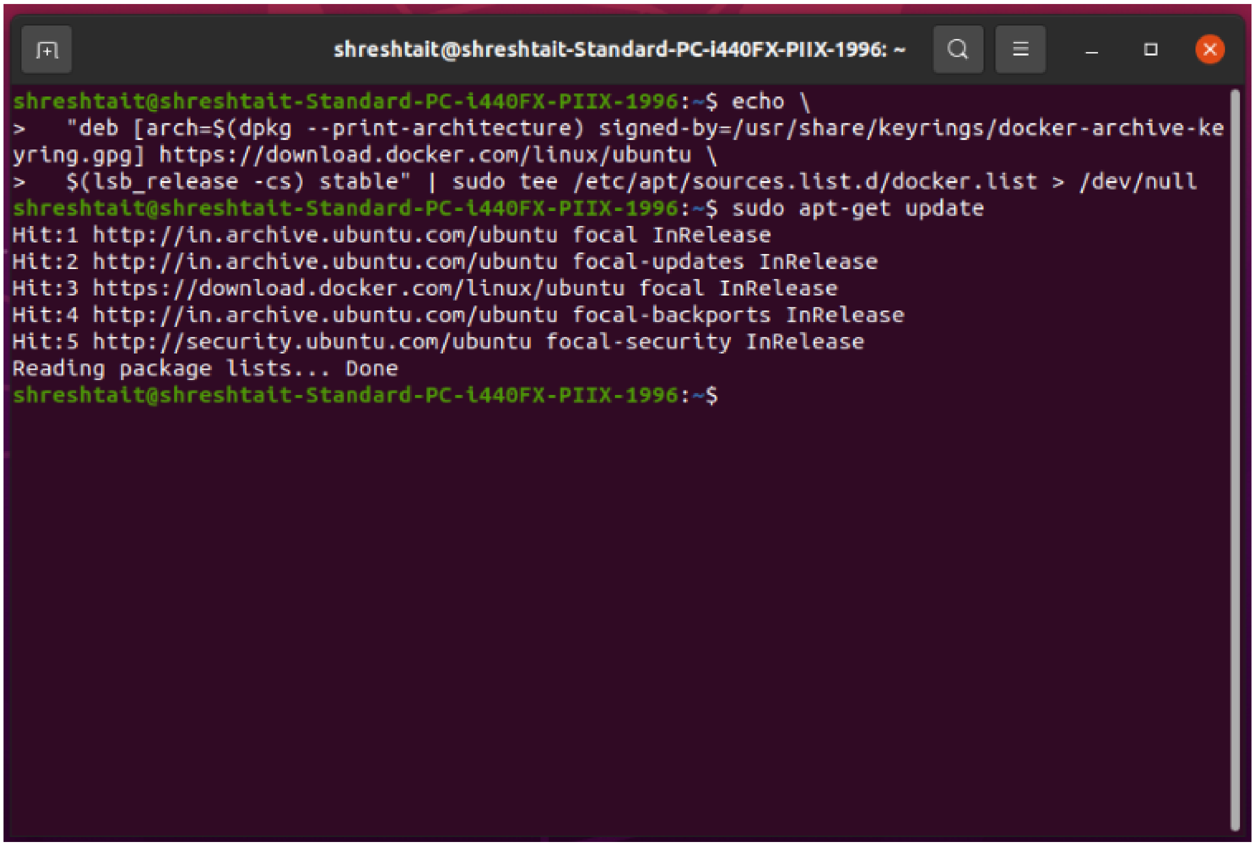


```
shreshtait@shreshtait-Standard-PC-i440FX-PIIX-1996:~$ echo \
>   "deb [arch=$(dpkg --print-architecture) signed-by=/usr/share/keyrings/docker-archive-ke
yring.gpg] https://download.docker.com/linux/ubuntu \
>   $(lsb_release -cs) stable" | sudo tee /etc/apt/sources.list.d/docker.list > /dev/null
shreshtait@shreshtait-Standard-PC-i440FX-PIIX-1996:~$ 
```

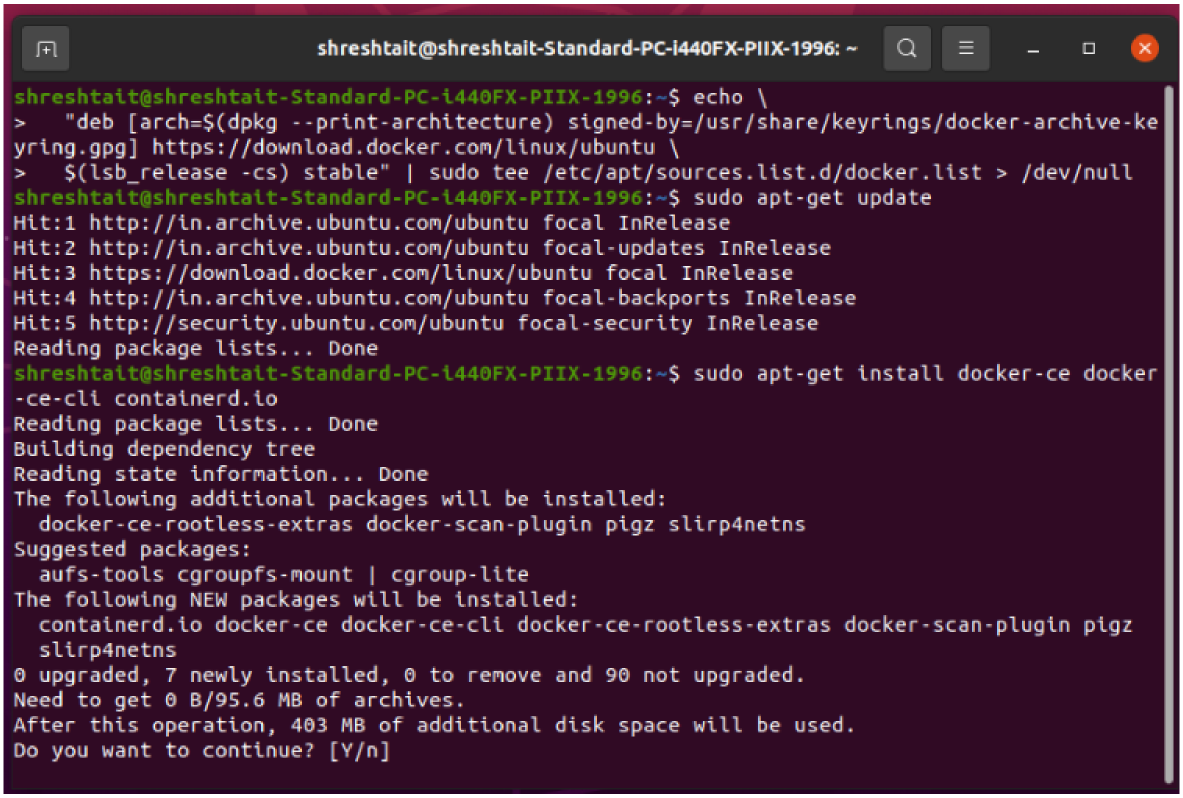
Step 6: Update the apt package index, and install the latest version of Docker Engine and containerd,

sudo apt-get update

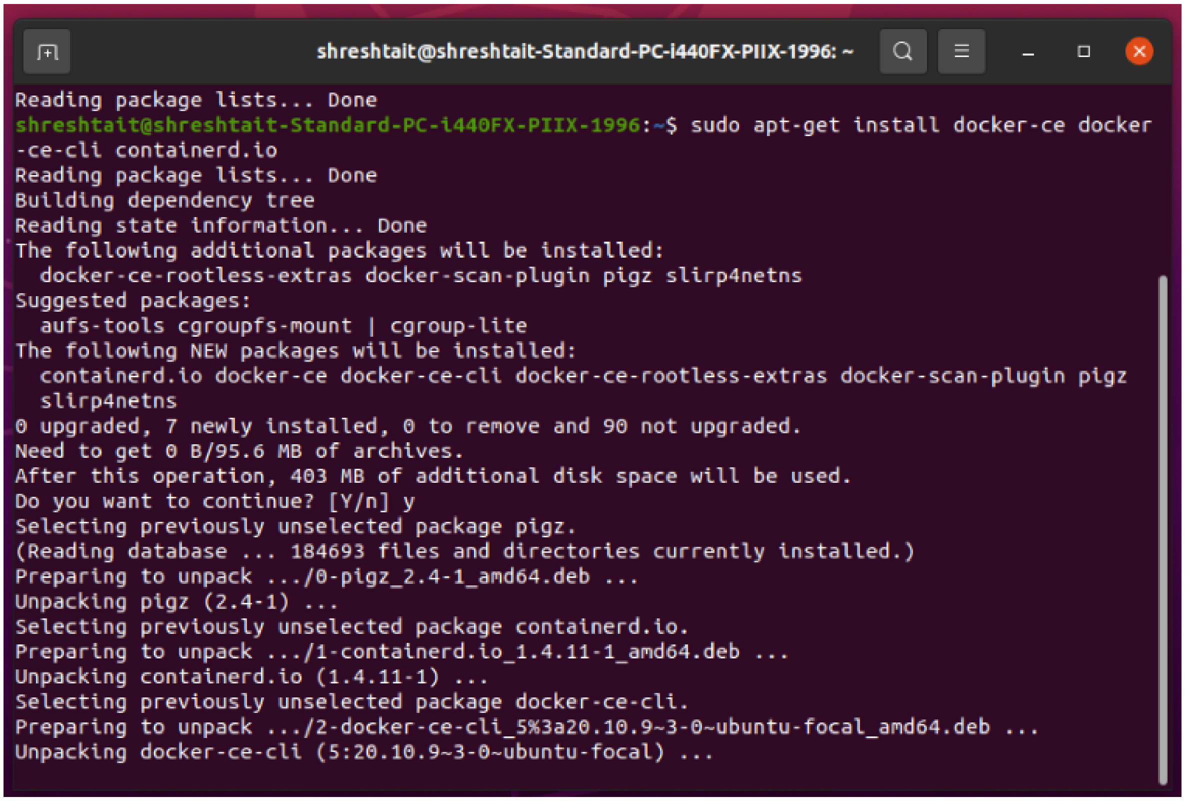
sudo apt-get install docker-ce docker-ce-cli containerd.io



```
shreshtait@shreshtait-Standard-PC-i440FX-PIIX-1996:~$ echo \
>   "deb [arch=$(dpkg --print-architecture) signed-by=/usr/share/keyrings/docker-archive-ke
yring.gpg] https://download.docker.com/linux/ubuntu \
>   $(lsb_release -cs) stable" | sudo tee /etc/apt/sources.list.d/docker.list > /dev/null
shreshtait@shreshtait-Standard-PC-i440FX-PIIX-1996:~$ sudo apt-get update
Hit:1 http://in.archive.ubuntu.com/ubuntu focal InRelease
Hit:2 http://in.archive.ubuntu.com/ubuntu focal-updates InRelease
Hit:3 https://download.docker.com/linux/ubuntu focal InRelease
Hit:4 http://in.archive.ubuntu.com/ubuntu focal-backports InRelease
Hit:5 http://security.ubuntu.com/ubuntu focal-security InRelease
Reading package lists... Done
shreshtait@shreshtait-Standard-PC-i440FX-PIIX-1996:~$
```



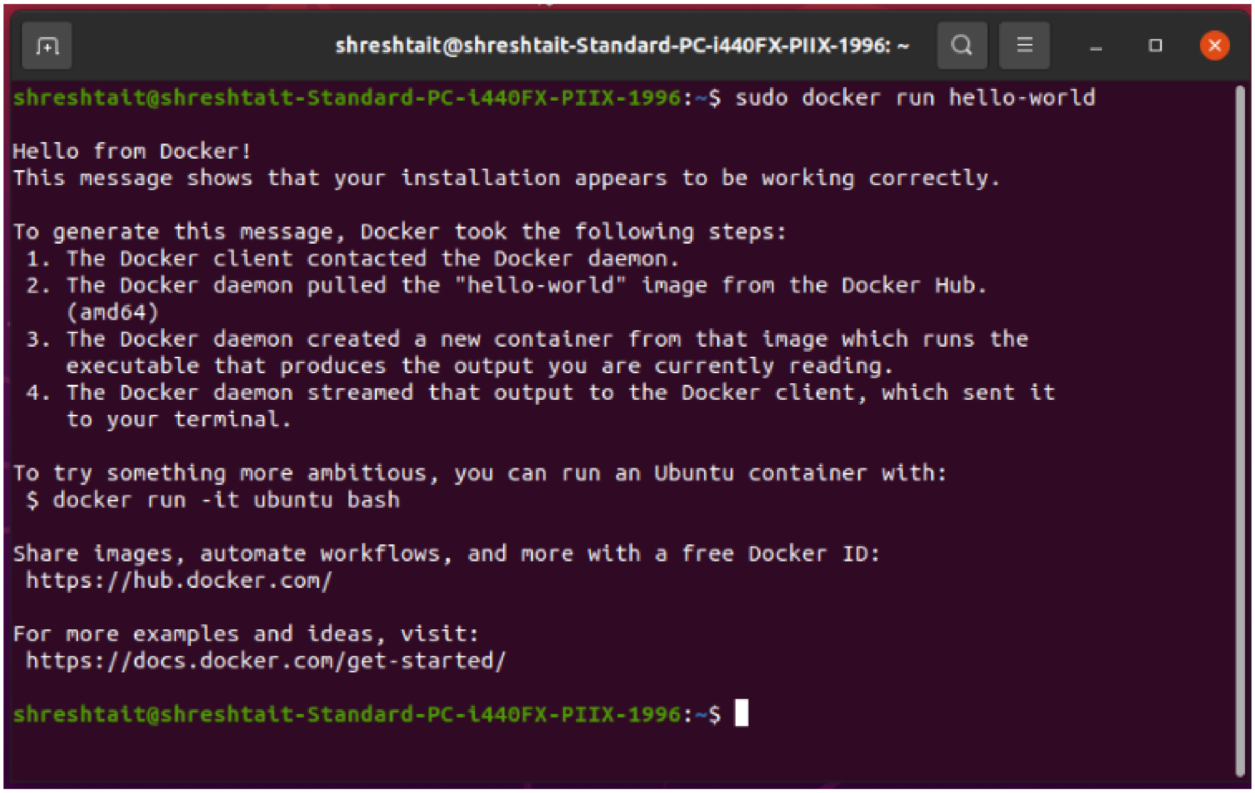
```
shreshtait@shreshtait-Standard-PC-i440FX-PIIX-1996:~$ echo \
>   "deb [arch=$(dpkg --print-architecture) signed-by=/usr/share/keyrings/docker-archive-ke
yring.gpg] https://download.docker.com/linux/ubuntu \
>   $(lsb_release -cs) stable" | sudo tee /etc/apt/sources.list.d/docker.list > /dev/null
shreshtait@shreshtait-Standard-PC-i440FX-PIIX-1996:~$ sudo apt-get update
Hit:1 http://in.archive.ubuntu.com/ubuntu focal InRelease
Hit:2 http://in.archive.ubuntu.com/ubuntu focal-updates InRelease
Hit:3 https://download.docker.com/linux/ubuntu focal InRelease
Hit:4 http://in.archive.ubuntu.com/ubuntu focal-backports InRelease
Hit:5 http://security.ubuntu.com/ubuntu focal-security InRelease
Reading package lists... Done
shreshtait@shreshtait-Standard-PC-i440FX-PIIX-1996:~$ sudo apt-get install docker-ce docker
-ce-cli containerd.io
Reading package lists... Done
Building dependency tree
Reading state information... Done
The following additional packages will be installed:
  docker-ce-rootless-extras docker-scan-plugin pigz slirp4netns
Suggested packages:
  aufs-tools cgroupfs-mount | cgroup-lite
The following NEW packages will be installed:
  containerd.io docker-ce docker-ce-cli docker-ce-rootless-extras docker-scan-plugin pigz
  slirp4netns
0 upgraded, 7 newly installed, 0 to remove and 90 not upgraded.
Need to get 0 B/95.6 MB of archives.
After this operation, 403 MB of additional disk space will be used.
Do you want to continue? [Y/n]
```



```
Reading package lists... Done
shreshtait@shreshtait-Standard-PC-i440FX-PIIX-1996:~$ sudo apt-get install docker-ce docker
-ce-cli containerd.io
Reading package lists... Done
Building dependency tree
Reading state information... Done
The following additional packages will be installed:
  docker-ce-rootless-extras docker-scan-plugin pigz slirp4netns
Suggested packages:
  aufs-tools cgroupfs-mount | cgroup-lite
The following NEW packages will be installed:
  containerd.io docker-ce docker-ce-cli docker-ce-rootless-extras docker-scan-plugin pigz
  slirp4netns
0 upgraded, 7 newly installed, 0 to remove and 90 not upgraded.
Need to get 0 B/95.6 MB of archives.
After this operation, 403 MB of additional disk space will be used.
Do you want to continue? [Y/n] y
Selecting previously unselected package pigz.
(Reading database ... 184693 files and directories currently installed.)
Preparing to unpack .../0-pigz_2.4-1_amd64.deb ...
Unpacking pigz (2.4-1) ...
Selecting previously unselected package containerd.io.
Preparing to unpack .../1-containerd.io_1.4.11-1_amd64.deb ...
Unpacking containerd.io (1.4.11-1) ...
Selecting previously unselected package docker-ce-cli.
Preparing to unpack .../2-docker-ce-cli_5%3a20.10.9~3-0~ubuntu-focal_amd64.deb ...
Unpacking docker-ce-cli (5:20.10.9~3-0~ubuntu-focal) ...
```

Step 7: Verify that the Docker engine is installed correctly by running the hello-world image.

sudo docker run hello-world



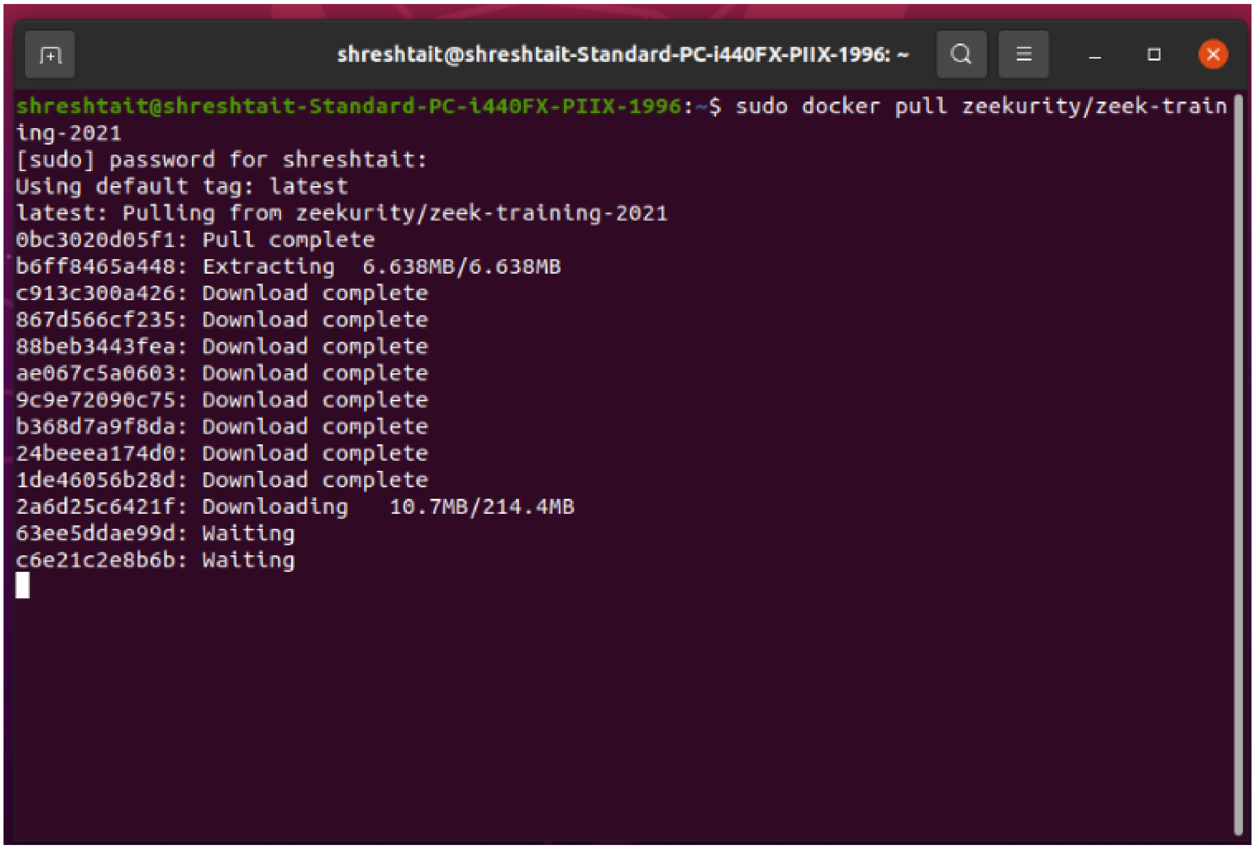
```
shreshtait@shreshtait-Standard-PC-i440FX-PIIX-1996:~$ sudo docker run hello-world

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/

shreshtait@shreshtait-Standard-PC-i440FX-PIIX-1996:~$
```

The above command downloads a test image and runs it in a container. When the container runs, it prints a message and exits.

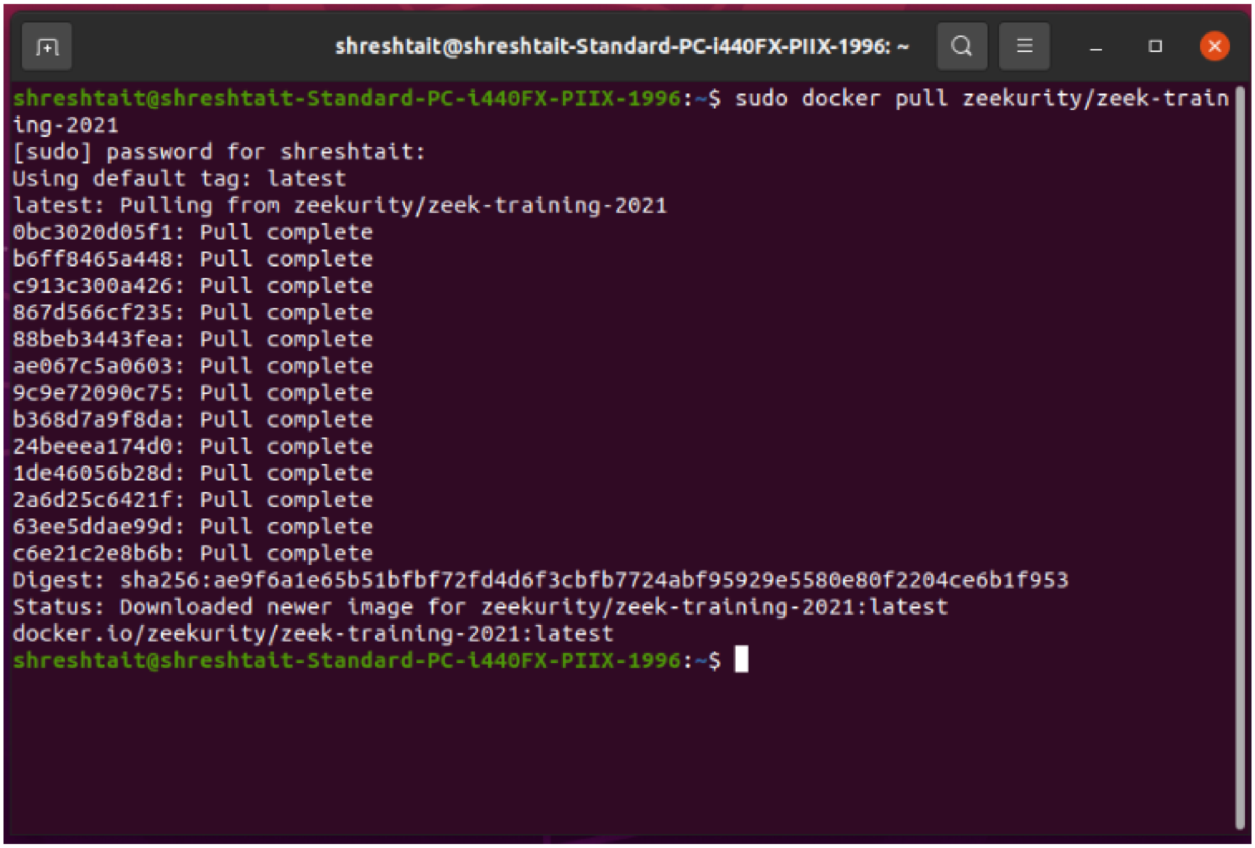
Steps to pull the Zeek Docker Image and start a docker container

Step 1: Open a terminal and pull the Zeek image,

sudo docker pull zeekurity/zeek-training-2021



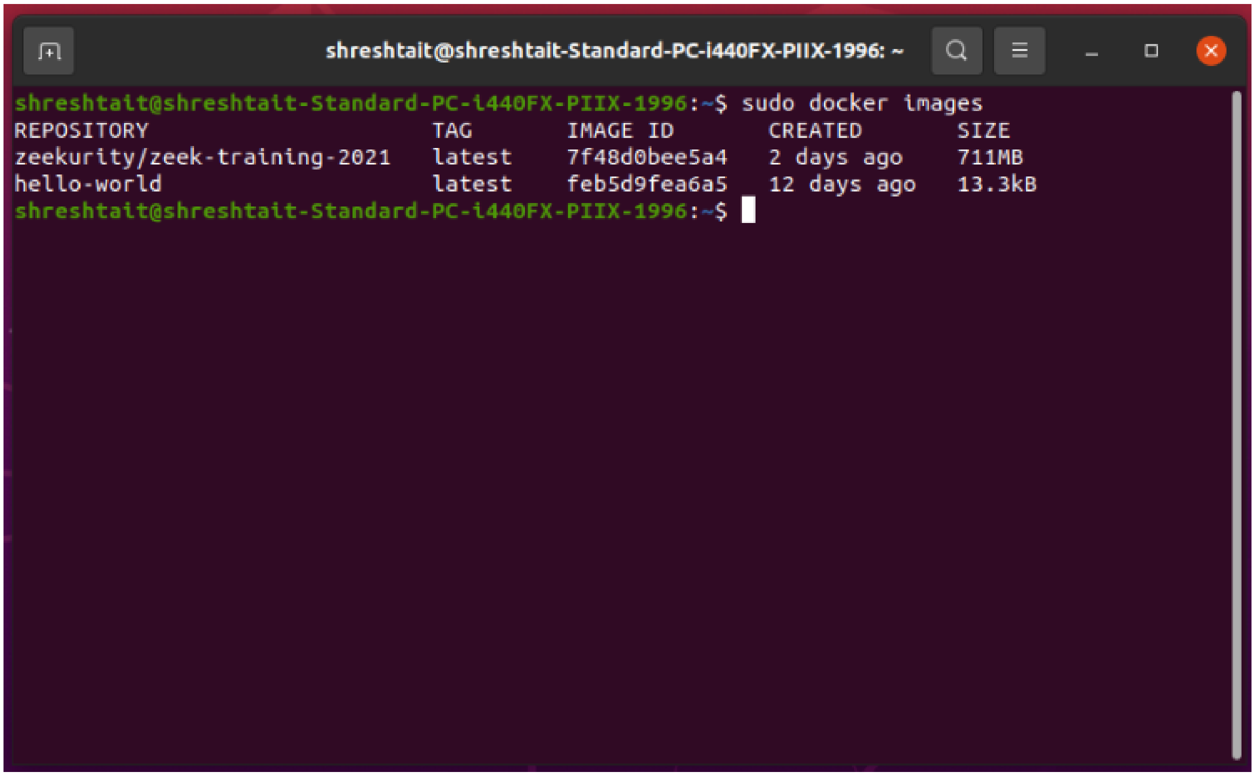
```
shreshtait@shreshtait-Standard-PC-i440FX-PIIX-1996:~$ sudo docker pull zeekurity/zeek-train
ing-2021
[sudo] password for shreshtait:
Using default tag: latest
latest: Pulling from zeekurity/zeek-training-2021
0bc3020d05f1: Pull complete
b6ff8465a448: Extracting  6.638MB/6.638MB
c913c300a426: Download complete
867d566cf235: Download complete
88beb3443fea: Download complete
ae067c5a0603: Download complete
9c9e72090c75: Download complete
b368d7a9f8da: Download complete
24beeea174d0: Download complete
1de46056b28d: Download complete
2a6d25c6421f: Downloading   10.7MB/214.4MB
63ee5ddae99d: Waiting
c6e21c2e8b6b: Waiting
```



```
shreshtait@shreshtait-Standard-PC-i440FX-PIIX-1996:~$ sudo docker pull zeekurity/zeek-train
ing-2021
[sudo] password for shreshtait:
Using default tag: latest
latest: Pulling from zeekurity/zeek-training-2021
0bc3020d05f1: Pull complete
b6ff8465a448: Pull complete
c913c300a426: Pull complete
867d566cf235: Pull complete
88beb3443fea: Pull complete
ae067c5a0603: Pull complete
9c9e72090c75: Pull complete
b368d7a9f8da: Pull complete
24beeea174d0: Pull complete
1de46056b28d: Pull complete
2a6d25c6421f: Pull complete
63ee5ddae99d: Pull complete
c6e21c2e8b6b: Pull complete
Digest: sha256:ae9f6a1e65b51bfbf72fd4d6f3cbfb7724abf95929e5580e80f2204ce6b1f953
Status: Downloaded newer image for zeekurity/zeek-training-2021:latest
docker.io/zeekurity/zeek-training-2021:latest
shreshtait@shreshtait-Standard-PC-i440FX-PIIX-1996:~$ 
```

Step 2: After pulling the zeek image, verify the image is available,

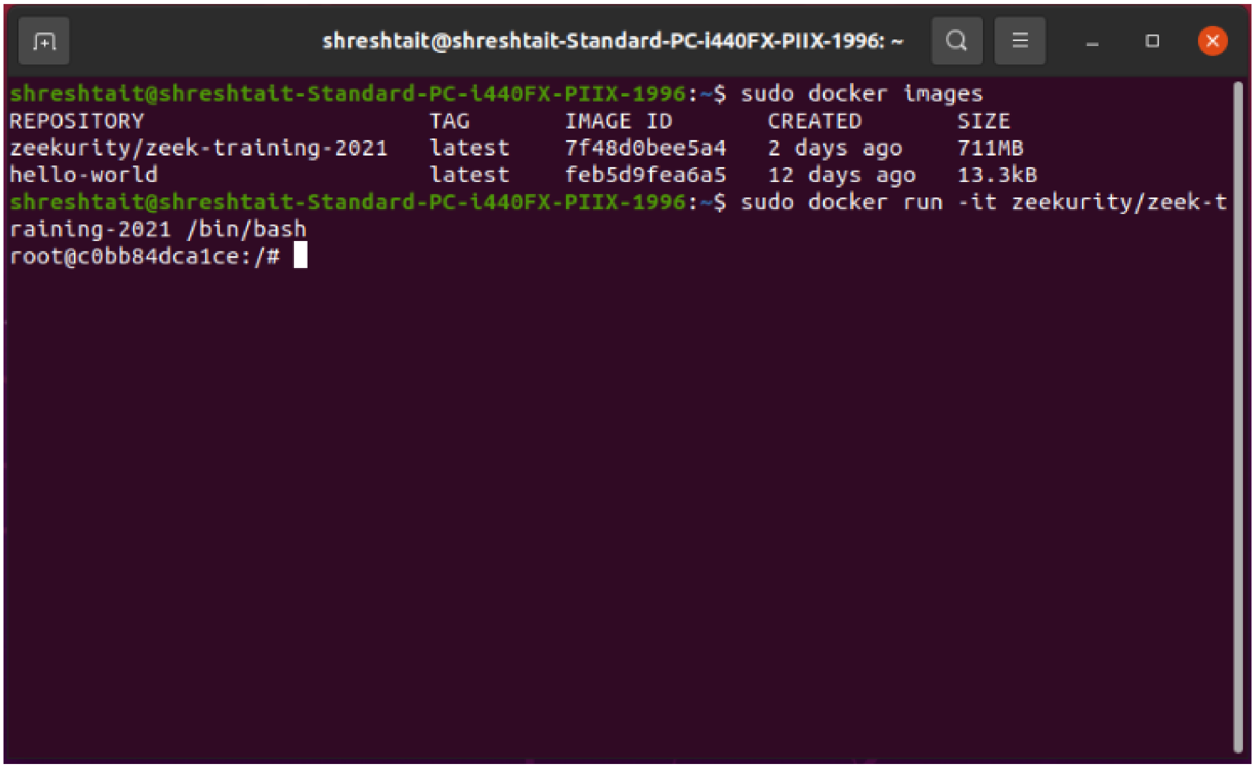
sudo docker images



```
shreshtait@shreshtait-Standard-PC-i440FX-PIIX-1996:~$ sudo docker images
REPOSITORY                     TAG       IMAGE ID       CREATED        SIZE
zeekurity/zeek-training-2021   latest    7f48d0bee5a4   2 days ago     711MB
hello-world                    latest    feb5d9fea6a5   12 days ago    13.3kB
shreshtait@shreshtait-Standard-PC-i440FX-PIIX-1996:~$ 
```

Step 3: Start a docker container using the Zeek image,

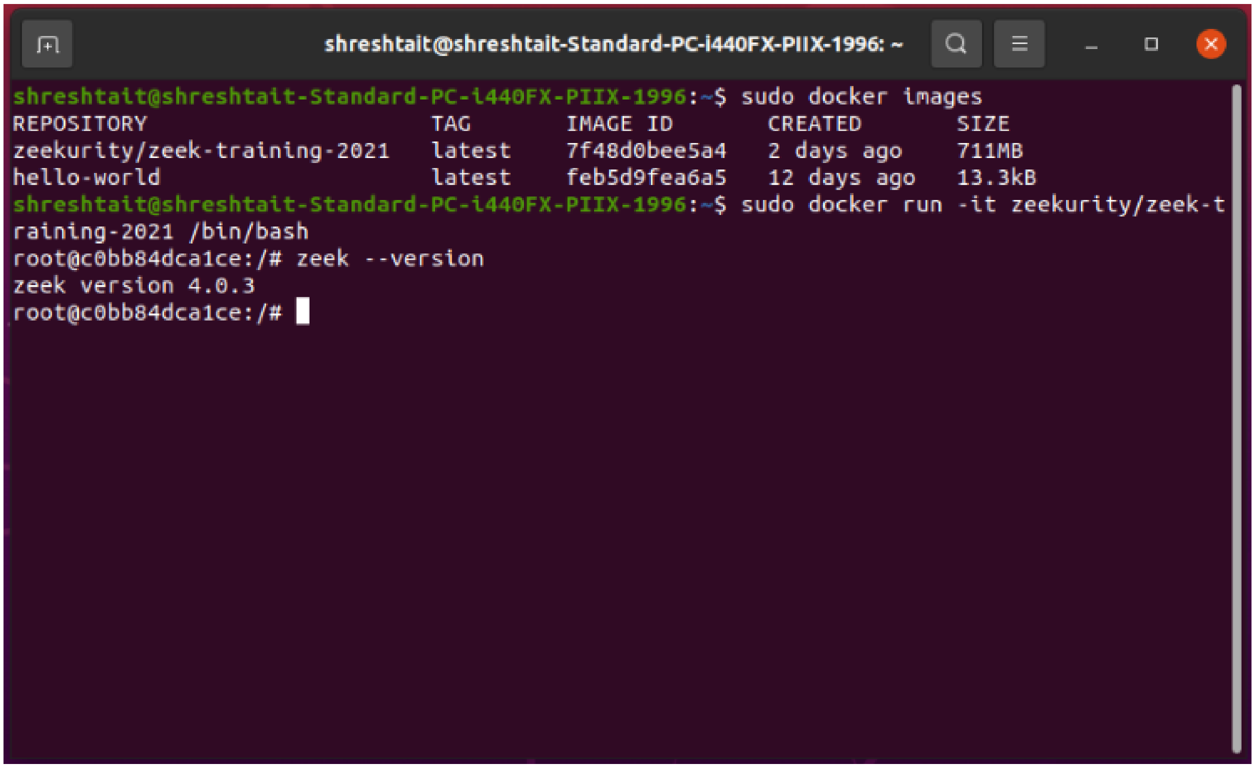
sudo docker run -it zeekurity/zeek-training-2021 /bin/bash



```
shreshtait@shreshtait-Standard-PC-i440FX-PIIX-1996:~$ sudo docker images
REPOSITORY                      TAG       IMAGE ID       CREATED       SIZE
zeekurity/zeek-training-2021    latest    7f48d0bee5a4   2 days ago    711MB
hello-world                     latest    feb5d9fea6a5   12 days ago   13.3kB
shreshtait@shreshtait-Standard-PC-i440FX-PIIX-1996:~$ sudo docker run -it zeekurity/zeek-t
raining-2021 /bin/bash
root@c0bb84dca1ce:/#
```

Step 4: Once the container starts successfully, it will drop us into a shell. Verify Zeek command is accessible,

zeek --version



```
shreshtait@shreshtait-Standard-PC-i440FX-PIIX-1996:~$ sudo docker images
REPOSITORY                      TAG       IMAGE ID       CREATED        SIZE
zeekurity/zeek-training-2021    latest    7f48d0bee5a4   2 days ago     711MB
hello-world                     latest    feb5d9fea6a5   12 days ago    13.3kB
shreshtait@shreshtait-Standard-PC-i440FX-PIIX-1996:~$ sudo docker run -it zeekurity/zeek-t
raining-2021 /bin/bash
root@c0bb84dca1ce:/# zeek --version
zeek version 4.0.3
root@c0bb84dca1ce:/# 
```

Happy ZeekWeek21!