

Experiment: Docker

Docker and Container : Installation & Deployment

Aim:

1. Installation of Docker and Container
2. Deployment of Apache and MySQL in the container.
3. Research & find out how can host your own simple website with it.

Name: ALLEN S PHILIP

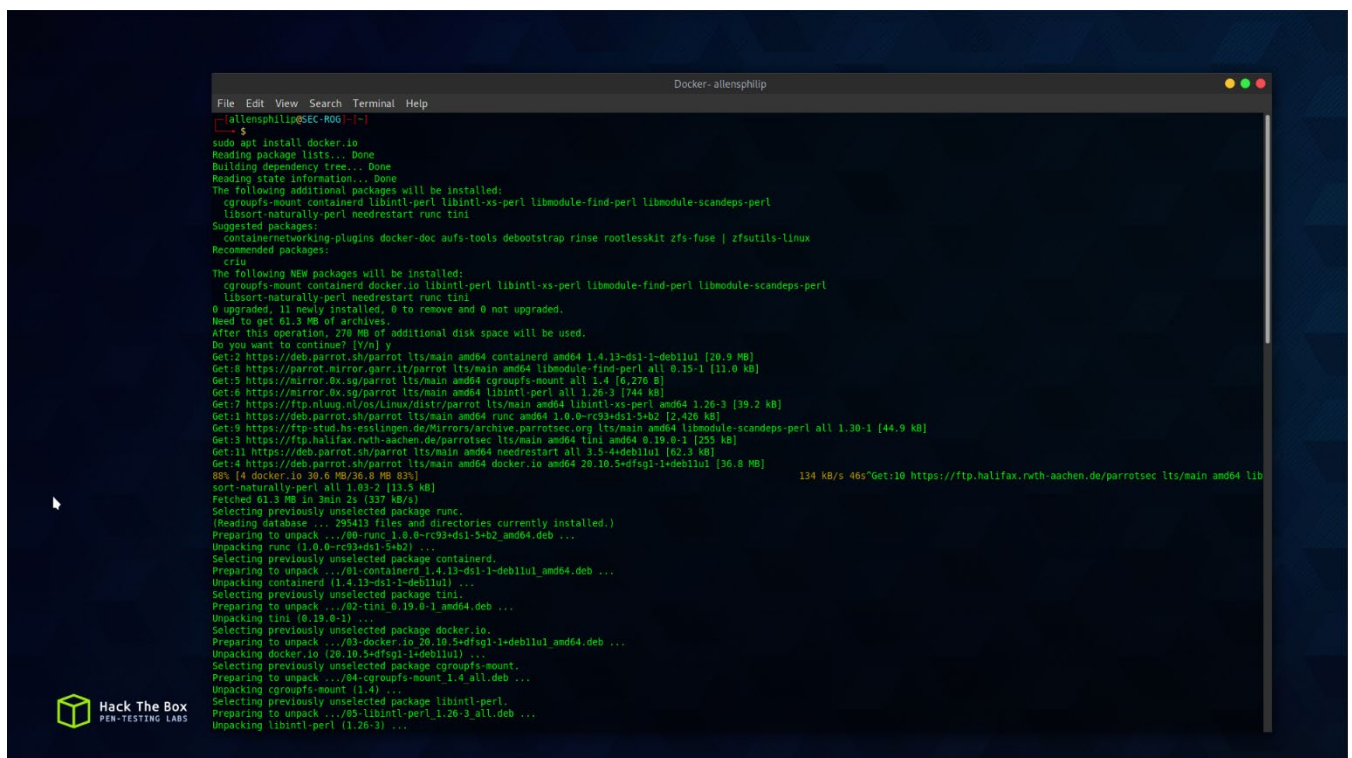
Roll No: 20

Batch: RMCA-A

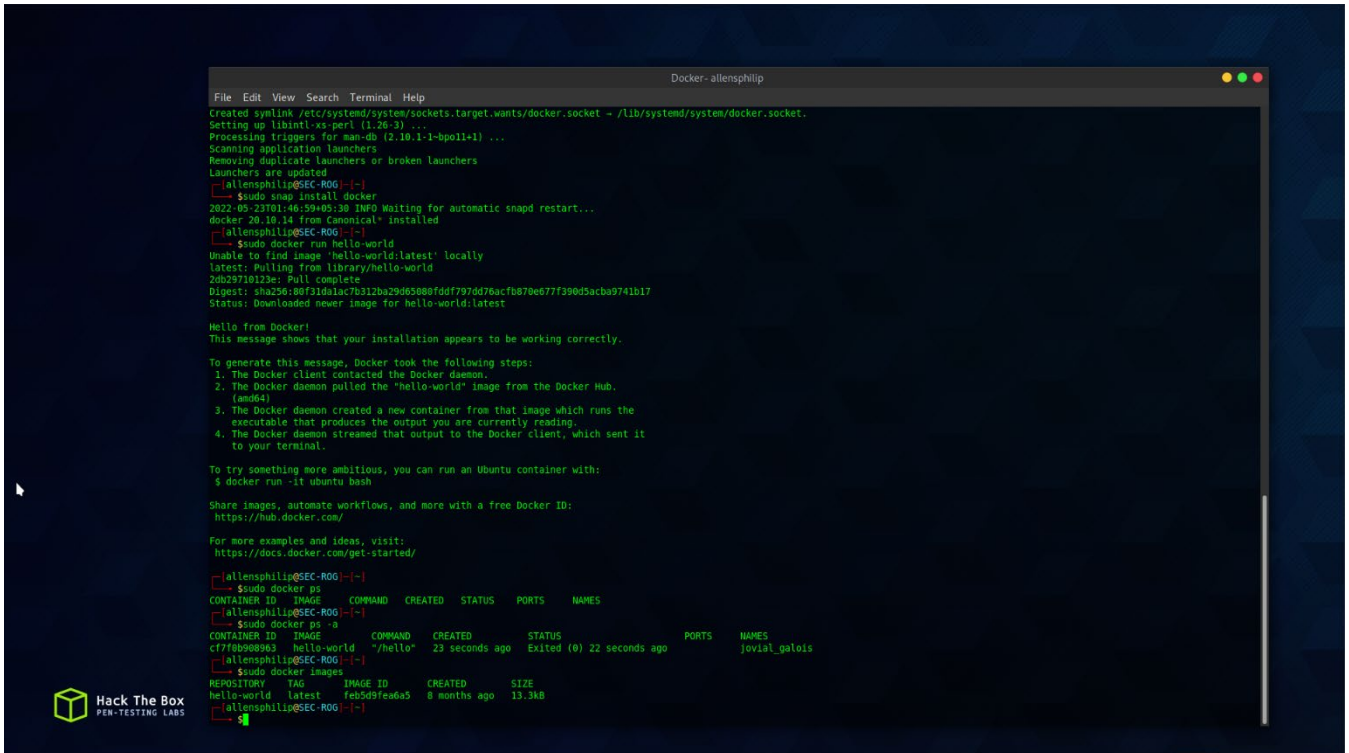
Date: 24/05/2022

PROCEDURE:

1. Installation of Docker and Container



```
File Edit View Search Terminal Help
[allensphilip@SEC-M06 ~]$
$
sudo apt install docker.io
Reading package lists... Done
Building dependency tree... Done
Reading state information... Done
The following additional packages will be installed:
  cgroupfs-mount containerd libintl-perl libintl-xs-perl libmodule-find-perl libmodule-scandeps-perl
  libsort-naturally-perl needrestart runc tini
Suggested packages:
  containernetworking-plugins docker-doc aufs-tools debootstrap rinse rootlesskit zfs-fuse | zfsutils-linux
Recommended packages:
  criu
The following NEW packages will be installed:
  cgroupfs-mount containerd docker.io libintl-perl libintl-xs-perl libmodule-find-perl libmodule-scandeps-perl
  libsort-naturally-perl needrestart runc tini
0 upgraded, 11 newly installed, 0 to remove and 0 not upgraded.
Need to get 61.3 MB of archives.
After this operation, 270 MB of additional disk space will be used.
Do you want to continue? [Y/n] y
Get:2 https://deb.parrot.sh/parrot lts/main amd64 containerd amd64 1.4.13-dsl-1-deb1lul [20.9 MB]
Get:3 https://parrot.mirror.garr.it/parrot lts/main amd64 libmodule-find-perl all 0.15-1 [11.0 kB]
Get:5 https://mirror.ox.sg/parrot lts/main amd64 cgroupfs-mount all 1.4 [6,276 B]
Get:6 https://mirror.ox.sg/parrot lts/main amd64 libintl-perl all 1.26-3 [744 kB]
Get:7 https://ftp.riken.ac.jp/os/linux/distr/parrot lts/main amd64 libintl-xs-perl amd64 1.26-3 [39.2 kB]
Get:1 https://deb.parrot.sh/parrot lts/main amd64 runc amd64 1.0.0-rc93+ds1-5+b2 [2,426 kB]
Get:9 https://ftp-stud.hs-esslingen.de/Mirrors/archive.parrotsec.org lts/main amd64 libmodule-scandeps-perl all 1.30-1 [44.9 kB]
Get:3 https://ftp.halifax.rwth-aachen.de/parrotsec lts/main amd64 tini amd64 0.19.0-1 [255 kB]
Get:11 https://deb.parrot.sh/parrot lts/main amd64 needrestart all 3.5-4-deb1lul [62.3 kB]
Get:4 https://deb.parrot.sh/parrot lts/main amd64 docker.io amd64 20.10.5+dfsg1-1-deb1lul [36.8 MB]
88% [4 docker.io 36.8 MB/36.8 MB 83%]
sort-naturally-perl all 1.43-2 [13.3 kB]
Fetched 61.3 MB in 3min 2s (337 KB/s)
Selecting previously unselected package runc.
(Reading database ... 295413 files and directories currently installed.)
Preparing to unpack .../00-runc-1.0.0-rc93+ds1-5+b2_amd64.deb ...
Unpacking runc (1.0.0-rc93+ds1-5+b2) ...
Selecting previously unselected package containerd.
Preparing to unpack .../01-containerd-1.4.13-dsl-1-deb1lul_amd64.deb ...
Unpacking containerd (1.4.13-dsl-1-deb1lul) ...
Selecting previously unselected package tini.
Preparing to unpack .../02-tini-0.19.0-1_amd64.deb ...
Unpacking tini (0.19.0-1) ...
Selecting previously unselected package docker.io.
Preparing to unpack .../03-docker.io-20.10.5+dfsg1-1-deb1lul_amd64.deb ...
Unpacking docker.io (20.10.5+dfsg1-1-deb1lul) ...
Selecting previously unselected package cgroupfs-mount.
Preparing to unpack .../04-cgroupfs-mount-1.4_all.deb ...
Unpacking cgroupfs-mount (1.4) ...
Selecting previously unselected package libintl-perl.
Preparing to unpack .../05-libintl-perl-1.26-3_all.deb ...
Unpacking libintl-perl (1.26-3) ...
```



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File Edit View Search Terminal Help
Created symlink /etc/systemd/system/sockets.target.wants/docker.socket → /lib/systemd/system/docker.socket.
Setting up libintl-xs-perl (1.26-3) ...
Processing triggers for man-db (2.10.1-1-bpo11+1) ...
Scanning application launchers
Removing duplicate launchers or broken launchers
Launchers are updated
[allensphilip@SEC-R06 ~]$ sudo snap install docker
2022-05-23T01:46:59+05:30 INFO Waiting for automatic snapd restart...
docker 20.10.14 from Canonical* installed
[allensphilip@SEC-R06 ~]$ sudo docker run hello-world
Unable to find image 'hello-world:latest' locally
latest: Pulling from library/hello-world
20b29710123e: Pull complete
Digest: sha256:89f1d1a1c7b312ba29d85880fdd7797d476acfb870e677f390d5acba9741b17
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/

[allensphilip@SEC-R06 ~]$ sudo docker ps
CONTAINER ID   IMAGE      COMMAND                  CREATED    STATUS    PORTS    NAMES
[allensphilip@SEC-R06 ~]$ sudo docker ps -a
CONTAINER ID   IMAGE      COMMAND                  CREATED    STATUS    PORTS    NAMES
c77f0b080863   hello-world   "/hello"                23 seconds ago    Exited (0) 22 seconds ago    jovial_galois
[allensphilip@SEC-R06 ~]$ sudo docker images
REPOSITORY    TAG       IMAGE ID       CREATED      SIZE
hello-world    latest    feb5d9fea6a5  8 months ago  13.3kB
[allensphilip@SEC-R06 ~]$
```



2. Deployment of Apache and MySQL in the container

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Docker- allensphilip
File Edit View Search Terminal Help
[allensphilip@SEC-ROG ~]$ sudo docker pull mysql
Using default tag: latest
latest: Pulling from library/mysql
c32ce6654453: Pull complete
415d08ee031a: Pull complete
7a38f6c2542f: Pull complete
352081eebf99: Pull complete
b8e20da291b6: Pull complete
66c2a8cc1999: Pull complete
d3a3a8e49878: Pull complete
e33a48832bec: Pull complete
410b942b8b28: Pull complete
d5323c9dd265: Pull complete
0fb8320c65f1: Pull complete
bd2a54f30bfc: Pull complete
Digest: sha256:844132a773021fc62383ba1de52f15758fbd1201bfc7b1c3e09cf6293a4ff53
Status: Downloaded newer image for mysql:latest
docker.io/library/mysql:latest
[allensphilip@SEC-ROG ~]$ sudo docker images
Got permission denied while trying to connect to the Docker daemon socket at unix:///var/run/docker.sock: Get "http://%2Fvar%2Frun%2Fdocker.sock/v1.24/images/json": dial unix /var/run/docker.sock: connect: permission denied
[allensphilip@SEC-ROG ~]$ sudo docker images
REPOSITORY TAG IMAGE ID CREATED SIZE
mysql latest 0f0e720743f6 2 days ago 524MB
hello-world latest feb5d9fea6a5 8 months ago 13.3kB
[allensphilip@SEC-ROG ~]$ sudo docker run --name=sql -d -p 80:80 mysql
8182c7db5fa952f05fed69599abb5353b03fa0265814be1259579ac1bc18116
[allensphilip@SEC-ROG ~]$

```

```

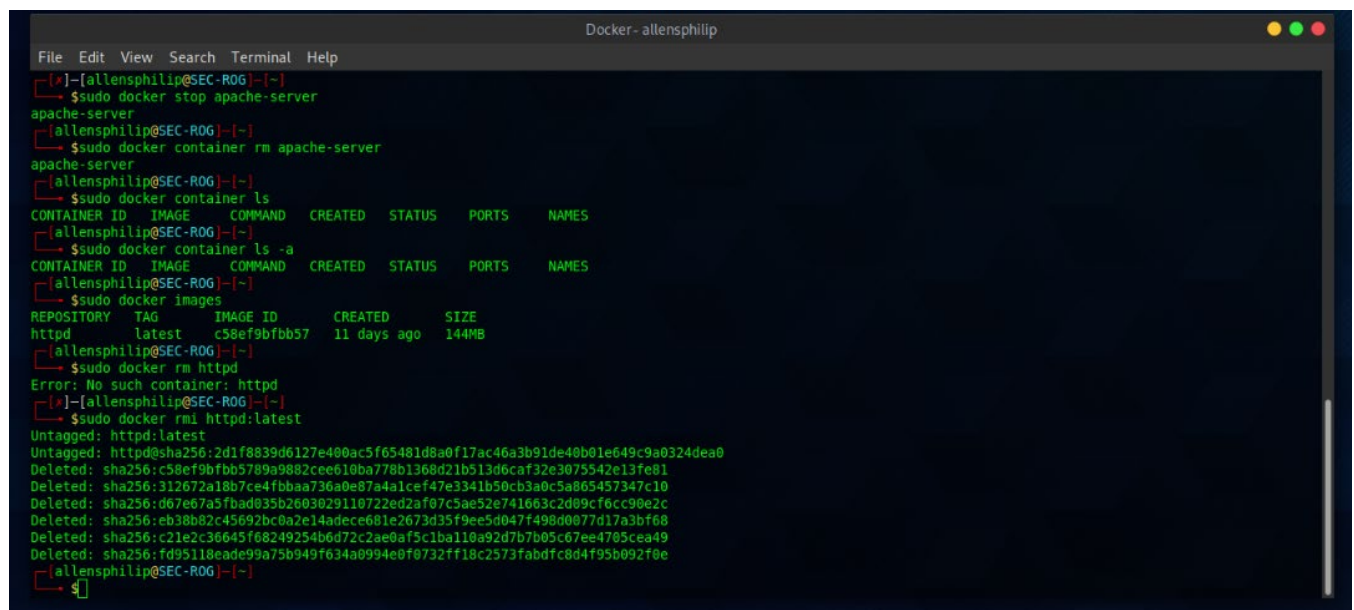
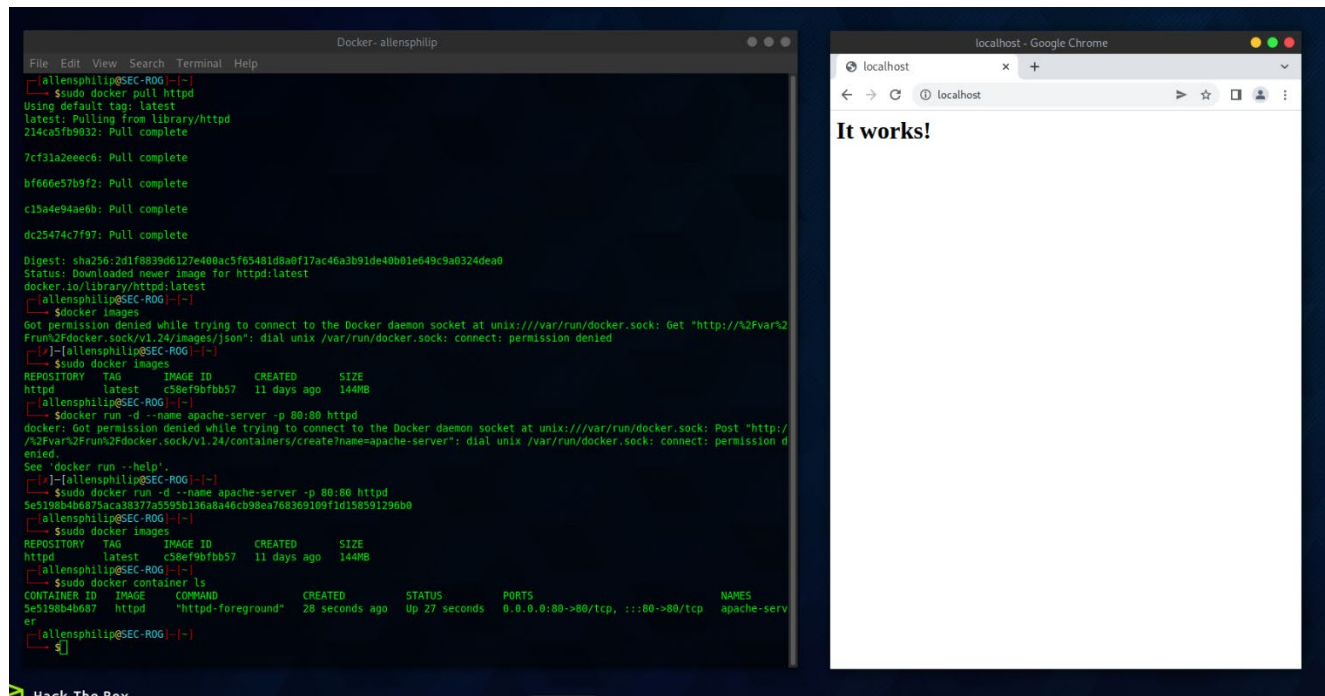
Docker- allensphilip
File Edit View Search Terminal Help
[allensphilip@SEC-ROG ~]$ sudo docker run -it --name sll mysql /bin/bash
root@d1bcc205cc98:/# exit
exit
[allensphilip@SEC-ROG ~]$ sudo docker images
REPOSITORY TAG IMAGE ID CREATED SIZE
mysql latest 0f0e720743f6 2 days ago 524MB
hello-world latest feb5d9fea6a5 8 months ago 13.3kB
[allensphilip@SEC-ROG ~]$ sudo docker start sl
sl
[allensphilip@SEC-ROG ~]$ sudo docker ps
CONTAINER ID IMAGE COMMAND CREATED STATUS PORTS NAMES
[allensphilip@SEC-ROG ~]$ sudo docker ps -a
CONTAINER ID IMAGE COMMAND CREATED STATUS PORTS NAMES
d1bcc205cc98 mysql "docker-entrypoint.s..." 55 seconds ago Exited (0) 50 seconds ago sll
a7724c9f6c14 mysql "docker-entrypoint.s..." 2 minutes ago Exited (1) 20 seconds ago sl
8182c7db5fa9 mysql "docker-entrypoint.s..." 3 minutes ago Exited (1) 3 minutes ago sql
c7f70b98963 hello-world "/hello" 15 minutes ago Exited (0) 15 minutes ago jovial_galois
[allensphilip@SEC-ROG ~]$ sudo docker stop sl
sl
[allensphilip@SEC-ROG ~]$ sudo docker stop sll sql jovial_galois
sll
sql
jovial_galois
[allensphilip@SEC-ROG ~]$

```

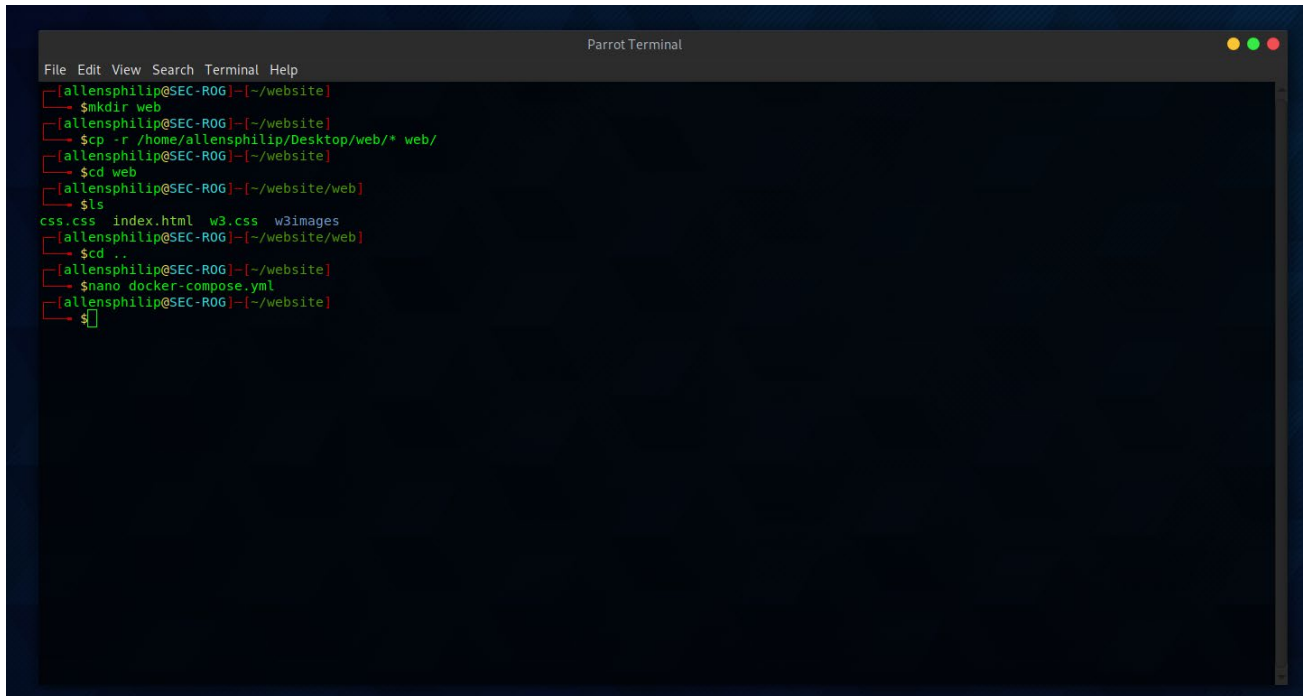
```

Docker- allensphilip
File Edit View Search Terminal Help
[allensphilip@SEC-ROG ~]$ sudo docker container rm sll sl sql jovial_galois
sll
sl
sql
jovial_galois
[allensphilip@SEC-ROG ~]$ sudo docker container ls -a
CONTAINER ID IMAGE COMMAND CREATED STATUS PORTS NAMES
[allensphilip@SEC-ROG ~]$ sudo docker image ls -a
Got permission denied while trying to connect to the Docker daemon socket at unix:///var/run/docker.sock: Get "http://%2Fvar%2Frun%2Fdocker.sock/v1.24/images/json?all=1": dial unix /var/run/docker.sock: connect: permission denied
[allensphilip@SEC-ROG ~]$ sudo docker image ls -a
REPOSITORY TAG IMAGE ID CREATED SIZE
mysql latest 0f0e720743f6 2 days ago 524MB
hello-world latest feb5d9fea6a5 8 months ago 13.3kB
[allensphilip@SEC-ROG ~]$ sudo docker rmi hello-world:latest mysql:latest
Untagged: hello-world:latest
Untagged: hello-world@sha256:80f31da1ac7b312ba29d65080fdd7f97dd76acfb070e677f390d5acba9741b17
Deleted: sha256:feb5d9fea6a5e9606aa995e879d862b825965ba48de054caab5ef356dc6b3412
Deleted: sha256:e07ee1baac5fae6a26f30cabfe54a36d3482f96afda318fe0a96cec4ca393359
Untagged: mysql:latest
Untagged: mysql@sha256:844132a773021fc62383ba1de52f15758fbd1201bfc7b1c3e09cf6293a4ff53
Deleted: sha256:0f0e720743f6e8d887a28f2838dddb9580e672e59b4607be918f123754ed45bea
Deleted: sha256:20570d2b40d4f1bb0b9a9a261a9c4b406ff076fb19ff0708fe2597a93c2a67b1
Deleted: sha256:448648a1154e525ebf791d57e322af1172412ca86b8710e0307f90f79b75804
Deleted: sha256:823dda8024627eb50c789527c36964c16914ff1061422eca9bc494be1166a96
Deleted: sha256:ac856325eabcbaf6cfe5e89df92490eac1f741a283faedd9603ed01cc27e1
Deleted: sha256:f977446a1968284a82961f2b48526ff6402725f258cbd536ce891afda4c5239
Deleted: sha256:dcf540992968905f3438e7501a12d0611838e3d3caaa2082599ed563f673ee2
Deleted: sha256:60be3170bc434f37a72650733e6aeded244cac90a3e26e861f34b2cbaa2f929
Deleted: sha256:0ff8ac4d866ce41045a88090c35add0f5970b7cb2514443cb229b0477b0
Deleted: sha256:b2bef8487a9c226ac5ef5b353969b59aac696c1bbf193cb48a93b20bc4cd343d
Deleted: sha256:b4bab32bc9b5428316c93f5e033d052b99c202fab743399fc6343cd6bbd12fe
Deleted: sha256:9bd0f848c2881cd90012b2b0333886cd94d7683bd55bc4ea4b7eb99a96efa7b
Deleted: sha256:6be90f1a2d3f1eb115203b6adb2ce1014fab9a9f81b2afa31343397063603d3
[allensphilip@SEC-ROG ~]$ sudo docker image ls -a
REPOSITORY TAG IMAGE ID CREATED SIZE
[allensphilip@SEC-ROG ~]$

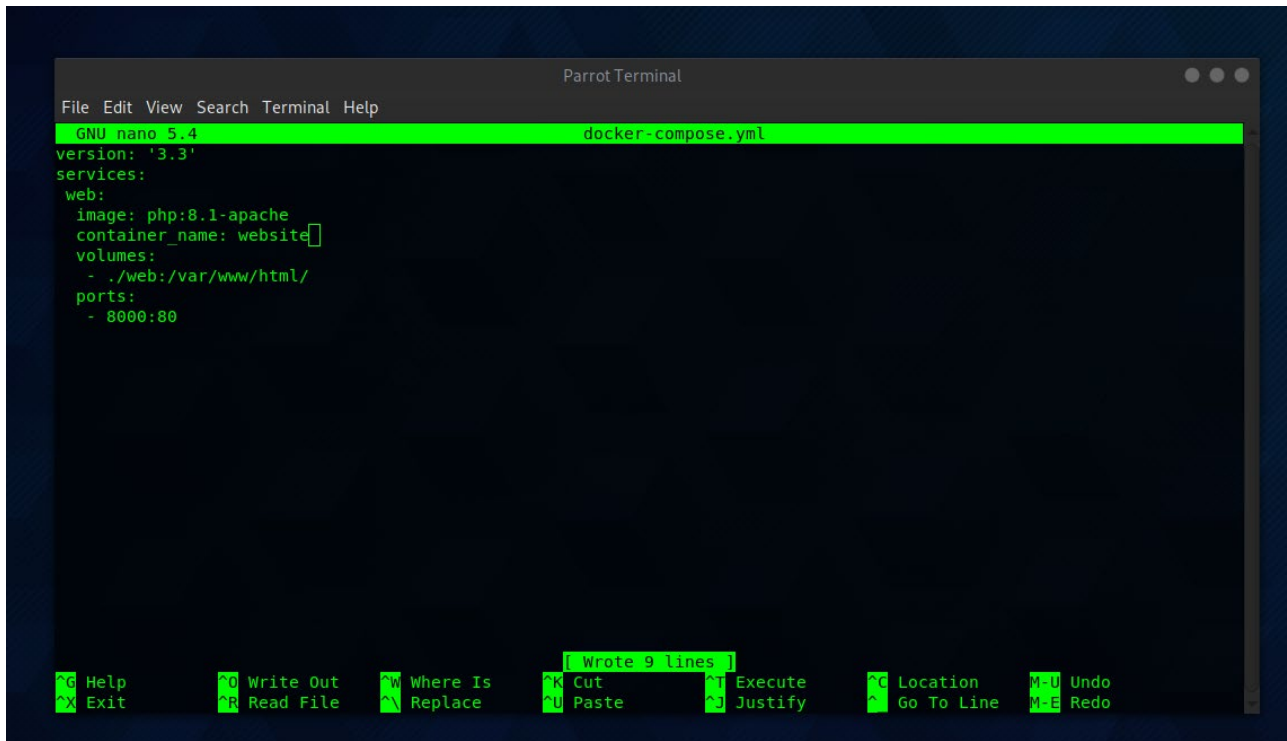
```



3. host your own simple website

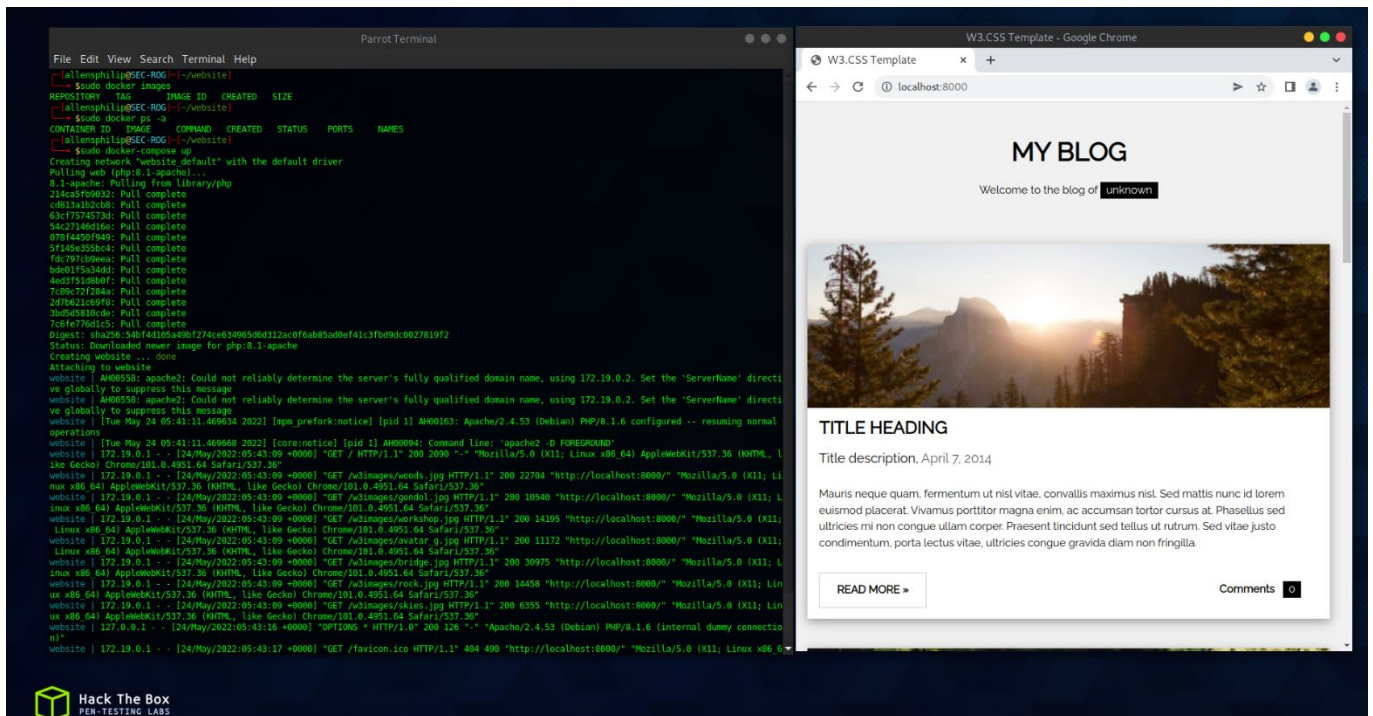


```
File Edit View Search Terminal Help
allensphilip@SEC-R0G:~/.website$
allensphilip@SEC-R0G:~/.website$ mkdir web
allensphilip@SEC-R0G:~/.website$
allensphilip@SEC-R0G:~/.website$ scp -r /home/allensphilip/Desktop/web/* web/
allensphilip@SEC-R0G:~/.website$
allensphilip@SEC-R0G:~/.website$ cd web
allensphilip@SEC-R0G:~/.website/web$
allensphilip@SEC-R0G:~/.website/web$ ls
css.css  index.html  w3.css  w3images
allensphilip@SEC-R0G:~/.website/web$
allensphilip@SEC-R0G:~/.website/web$ cd ..
allensphilip@SEC-R0G:~/.website$
allensphilip@SEC-R0G:~/.website$ nano docker-compose.yml
allensphilip@SEC-R0G:~/.website$
$
```



```
File Edit View Search Terminal Help
GNU nano 5.4 docker-compose.yml
version: '3.3'
services:
  web:
    image: php:8.1-apache
    container_name: website
    volumes:
      - ./web:/var/www/html/
    ports:
      - 8000:80

Wrote 9 lines
^G Help      ^O Write Out  ^W Where Is   ^K Cut        ^T Execute    ^C Location   M-U Undo
^X Exit      ^R Read File  ^_ Replace    ^U Paste      ^J Justify    ^_ Go To Line M-E Redo
```



The image shows a Parrot Terminal window on the left and a Google Chrome browser window on the right. The terminal displays the output of the 'docker-compose up' command, showing the creation and pulling of images for a web application. The browser window shows a web page titled 'MY BLOG' with a welcome message 'Welcome to the blog of unknown' and a large image of a sunset over a mountain range. Below the image is a section titled 'TITLE HEADING' with a description 'Title description, April 7, 2014' and a paragraph of Lorem Ipsum text. A 'READ MORE' button is visible at the bottom of the text area. The terminal output includes details about the Docker Compose configuration, image pulling progress, and the start of the Apache web server.

```
File Edit View Search Terminal Help
[allensphilip@SEC-RDG ~]$ docker-compose up
REPOSITORY TAG IMAGE ID CREATED SIZE
[allensphilip@SEC-RDG ~]$ docker-compose up
CONTAINER ID IMAGE COMMAND CREATED STATUS PORTS NAMES
[allensphilip@SEC-RDG ~]$ docker-compose up
Creating network 'website_default' with the default driver
Pulling web (php:8.1-apache)...
8.1-apache: Pulling from library/php
214ca5f08032: Pull complete
c081313d2c08: Pull complete
63a1737473d1: Pull complete
54c27146d16e: Pull complete
078f4450f949: Pull complete
5f4d40205d8c: Pull complete
7dc797c09eaa: Pull complete
bde01f5c34dd: Pull complete
4ed3f1080ff: Pull complete
7c89c72f284a: Pull complete
2d70621c69f8: Pull complete
3b5d0818de4: Pull complete
7c5f6776d1c5: Pull complete
Digest: sha256:54bf4d105a40b7274ce63490508d312ac0f6ab85d0ef41c3fb09d0027819f2
Status: Downloaded newer image for php:8.1-apache
Creating website ... done
Attaching to website
website_1 | AH00558: apache2: Could not reliably determine the server's fully qualified domain name, using 172.19.0.2. Set the 'ServerName' directi
website_1 | AH00558: apache2: Could not reliably determine the server's fully qualified domain name, using 172.19.0.2. Set the 'ServerName' directi
website_1 | [Thu May 24 05:41:11.460636 2022] [mpm_prefork:notice] [pid 1] AH00163: Apache/2.4.53 (Debian) PHP/8.1.6 configured -- resuming normal
website_1 | [Thu May 24 05:41:11.460636 2022] [core:notice] [pid 1] AH00004: Command line: 'apache2 -D FOREGROUND'
website_1 | 172.19.0.1 - - [24/May/2022:05:43:09 +0000] "GET / HTTP/1.1" 200 2090 "-" "Mozilla/5.0 (X11; Linux x86_64) AppleWebKit/537.36 (KHTML, l
website_1 | 172.19.0.1 - - [24/May/2022:05:43:09 +0000] "GET /wpimages/ends.jpg HTTP/1.1" 200 22784 "http://localhost:8000/" "Mozilla/5.0 (X11; Lin
website_1 | 172.19.0.1 - - [24/May/2022:05:43:09 +0000] "GET /wpimages/gondol.jpg HTTP/1.1" 200 10540 "http://localhost:8000/" "Mozilla/5.0 (X11; L
website_1 | 172.19.0.1 - - [24/May/2022:05:43:09 +0000] "GET /wpimages/earkshop.jpg HTTP/1.1" 200 14195 "http://localhost:8000/" "Mozilla/5.0 (X11; L
website_1 | 172.19.0.1 - - [24/May/2022:05:43:09 +0000] "GET /wpimages/avator-g.jpg HTTP/1.1" 200 11172 "http://localhost:8000/" "Mozilla/5.0 (X11; L
website_1 | 172.19.0.1 - - [24/May/2022:05:43:09 +0000] "GET /wpimages/rook.jpg HTTP/1.1" 200 14458 "http://localhost:8000/" "Mozilla/5.0 (X11; Lin
website_1 | 172.19.0.1 - - [24/May/2022:05:43:09 +0000] "GET /wpimages/skies.jpg HTTP/1.1" 200 6355 "http://localhost:8000/" "Mozilla/5.0 (X11; Lin
website_1 | 172.19.0.1 - - [24/May/2022:05:43:16 +0000] "OPTIONS * HTTP/1.0" 200 126 "-" "Apache/2.4.53 (Debian) PHP/8.1.6 (internal dummy connectio
website_1 | 172.19.0.1 - - [24/May/2022:05:43:17 +0000] "GET /favicon.ico HTTP/1.1" 404 400 "http://localhost:8000/" "Mozilla/5.0 (X11; Linux x86_64) AppleWebKit/537.36 (KHTML, like Gecko) Chrome/101.0.4951.64 Safari/537.36"
```