

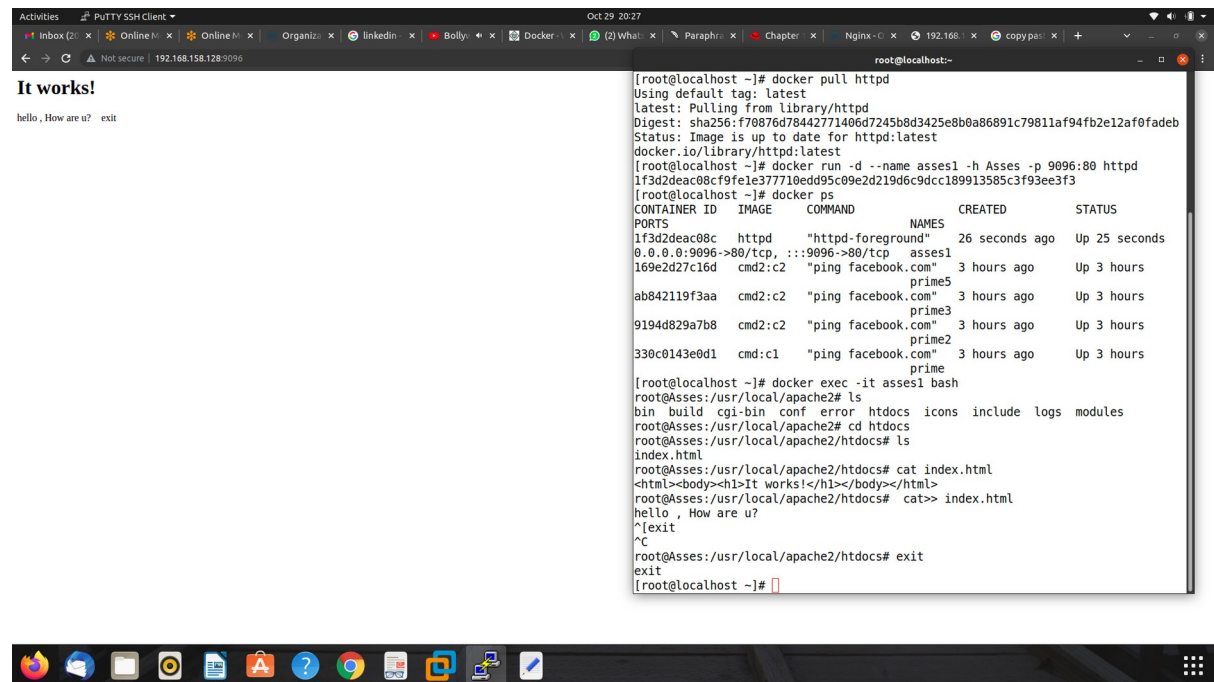
Assessment 1: devops

submitted by

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1]On VM install Docker Engg create web application containers provide port number 9095 of nginx and httpd on port number 9096

solution:



```
[root@localhost ~]# docker pull httpd
Using default tag: latest
latest: Pulling from library/httpd
Digest: sha256:f76876d78442771406d7245b8d3425e8b0a86891c79811af94fb2e12af0fadeb
Status: Image is up to date for httpd:latest
docker.io/library/httpd:latest
[root@localhost ~]# docker run -d --name asses1 -h Asses -p 9096:80 httpd
1f3d2deac08cf9fe1e377710edd95c09e2d219d6c9dcc189913585c3f93ee3f3
[root@localhost ~]# docker ps
CONTAINER ID   IMAGE     COMMAND                  CREATED        STATUS
PORTS
1f3d2deac08c   httpd     "httpd-foreground"      26 seconds ago Up 25 seconds
0.0.0.0:9096->80/tcp, :::9096->80/tcp   asses1
169e2d27c16d   cmd2:c2   "ping facebook.com"     3 hours ago   Up 3 hours
prime5
ab842119f3aa   cmd2:c2   "ping facebook.com"     3 hours ago   Up 3 hours
prime3
9194d829a7b8   cmd2:c2   "ping facebook.com"     3 hours ago   Up 3 hours
prime2
330c0143e0d1   cmd:c1    "ping facebook.com"     3 hours ago   Up 3 hours
prime

[root@localhost ~]# docker exec -it asses1 bash
root@Asses:/usr/local/apache2# ls
bin  build  cgi-bin  conf  error  htdocs  icons  include  logs  modules
root@Asses:/usr/local/apache2# cd htdocs
root@Asses:/usr/local/apache2/htdocs# ls
index.html
root@Asses:/usr/local/apache2/htdocs# cat index.html
<html><body><h1>It works!</h1></body></html>
root@Asses:/usr/local/apache2/htdocs# cat> index.html
hello , How are u?
^C
root@Asses:/usr/local/apache2/htdocs# exit
exit
[root@localhost ~]#
```

```
Activities PuTTY SSH Client Oct 29 21:08 root@localhost:~

<!DOCTYPE html>
<html>
<head>
<title>Welcome to nginx!</title>
<style>
html { color-scheme: light dark; }
body { width: 35em; margin: 0 auto;
font-family: Tahoma, Verdana, Arial, sans-serif; }
</style>
</head>
<body>
<h1>Welcome to nginx!</h1>
<p>If you see this page, the nginx web server is successfully installed and
working. Further configuration is required.</p>

<p>For online documentation and support please refer to
<a href="http://nginx.org/">nginx.org</a>.<br/>
Commercial support is available at
<a href="http://nginx.com/">nginx.com</a>.</p>

<p><em>Thank you for using nginx.</em></p>
</body>
</html>
root@Assessment1: /usr/share/nginx/html# exit
exit
[root@localhost ~]# docker ps
CONTAINER ID   IMAGE     COMMAND                  CREATED        STATUS
PORTS
e8f5b9187c77   nginx    "/docker-entrypoint..." 22 minutes ago Up 22 minutes
0.0.0.0:9097->80/tcp, :::9097->80/tcp   asses1.1
1f3d2deac08c   httpd    "httpd-foreground"       54 minutes ago Up 54 minutes
0.0.0.0:9096->80/tcp, :::9096->80/tcp   asses1
169e2d27c16d   cmd2:c2  "ping facebook.com"       4 hours ago   Up 4 hours
prime5
ab842119f3aa   cmd2:c2  "ping facebook.com"       4 hours ago   Up 4 hours
prime3
9194d829a7b8   cmd2:c2  "ping facebook.com"       4 hours ago   Up 4 hours
prime2
330c0143e0d1   cmd:c1   "ping facebook.com"       4 hours ago   Up 4 hours
prime

[root@localhost ~]#
```

```
Activities PuTTY SSH Client Oct 29 20:27
Inbox (2) Online M... Online M... Organiz... linkedin... Bolly... Docker-1 (2) What... Paraphr... Chapter... Nginx-C... 192.168... copy pas... +
root@localhost:~

It works!
hello , How are u? exit

[root@localhost ~]# docker pull httpd
Using default tag: latest
latest: Pulling from library/httpd
Digest: sha256:f70876d78442771406d7245b8d3425e8b0a86891c79811af94fb2e12af0fadeb
Status: Image is up to date for httpd:latest
docker.io/library/httpd:latest
[root@localhost ~]# docker run -d --name asses1 -h Asses -p 9096:80 httpd
1f3d2deac08cf9fe1e377710edd95c09e2d219d6c9dcc189913585c3f93ee3f3
[root@localhost ~]# docker ps
CONTAINER ID   IMAGE     COMMAND                  NAMES        CREATED        STATUS
PORTS
1f3d2deac08c   httpd     "httpd-foreground"       asses1       26 seconds ago Up 25 seconds
0.0.0.0:9096->80/tcp, :::9096->80/tcp   asses1
169e2d27c16d   cmd2:c2   "ping facebook.com"       prime5       3 hours ago    Up 3 hours
ab842119f3aa   cmd2:c2   "ping facebook.com"       prime3       3 hours ago    Up 3 hours
9194d829a7b8   cmd2:c2   "ping facebook.com"       prime2       3 hours ago    Up 3 hours
330c0143e0d1   cmd:c1    "ping facebook.com"       prime        3 hours ago    Up 3 hours

[root@localhost ~]# docker exec -it asses1 bash
root@Asses:/usr/local/apache2# ls
bin build cgi-bin conf error htdocs icons include logs modules
root@Asses:/usr/local/apache2# cd htdocs
root@Asses:/usr/local/apache2/htdocs# ls
index.html
root@Asses:/usr/local/apache2/htdocs# cat index.html
<html><body><h1>It works!</h1></body></html>
root@Asses:/usr/local/apache2/htdocs# cat> index.html
hello , How are u?
^C
root@Asses:/usr/local/apache2/htdocs# exit
exit
[root@localhost ~]#
```

2]What are the features of underlying operating system , explain type of storage that docker can provide and create container provide storage =type =volume , name vol10

solution:-

Namespaces

The kernel provides process isolation by creating separate namespaces for containers. Namespaces enable creating an abstraction of a particular global system resource and make it appear as a separated instance to processes within a namespace.

Mountpoint

With mount namespaces, the `mount()` and `umount()` system calls cease to operate on a global set of mount points (visible to all processes)

Cgroups are used by the kernel to organise processes for system resource management. Cgroups distribute CPU time, system memory, network bandwidth, or a mix of these resources among user-defined task groups.

UTS namespaces isolate two system identifiers – nodename and domainname, returned by the `uname()` system call.

IPC namespaces isolate certain interprocess communication (IPC) resources, such as System V IPC objects and POSIX message queues

PID namespaces allow processes in different containers to have the same PID, so each container can have its own `init` (PID1) process that manages various system initialization tasks as well as containers life cycle.

Network namespaces provide isolation of network controllers, system resources associated with networking, firewall and routing tables.

Security-Enhanced Linux (SELinux) is an implementation of a mandatory access control (MAC) mechanism, multi-level security (MLS), and multi-category security (MCS) in the Linux kernel.

Secure computing mode(`seccomp`) is a Linux kernel feature. You can use it to restrict the actions available within the container. The `seccomp()` system call operates on the `seccomp` state of the calling process.

3 Create docker file for httpd , build image out of that , create container , make that image publically available [upload on docker hub]

solution:

```

[root@localhost asset3]# docker run -d --name asses4 -p 9095:80 dhub:v1
0b14db708b270a14f833bc6791383fe3e4ee5fcd94926d3b9411ddd18911d4d5
[root@localhost asset3]# docker exec -it asses2 bash
root@73f7bcf6665f:/# cd
root@73f7bcf6665f:/# ls
root@73f7bcf6665f:/# exit
exit
[root@localhost asset3]# docker exec -it asses4 bash
[root@0b14db708b27 /]# cd
[root@0b14db708b27 ~]# ls
anaconda-ks.cfg anaconda-post.log original-ks.cfg
[root@0b14db708b27 ~]# cd /var/www
[root@0b14db708b27 www]# ls
cgi-bin html
[root@0b14db708b27 www]# cd html
[root@0b14db708b27 html]# ls
index.html
[root@0b14db708b27 html]# cat >> index.html
docker respository on docker hub^C
[root@0b14db708b27 html]# cat index.html
assessmets3 !!!!!wq
[root@0b14db708b27 html]# cat >> index.html
2nd docker respository ^C
[root@0b14db708b27 html]# ^C
[root@0b14db708b27 html]# cat index.html
assessmets3 !!!!!wq
[root@0b14db708b27 html]# cat >> index.html
2nd respository in docker hub[:!wq^C
[root@0b14db708b27 html]# cat index.html
assessmets3 !!!!!wq
[root@0b14db708b27 html]# cat >>index.html
2nd docker respository ^C
[root@0b14db708b27 html]# cat index.html
assessmets3 !!!!!wq
[root@0b14db708b27 html]# exit
exit
[root@localhost asset3]# docker images
REPOSITORY TAG IMAGE ID CREATED SIZE
dhub v1 3a1cf85c3c07 22 minutes ago 286MB
entry e1 da1204d548f9 5 hours ago 231MB
cmd2 c2 9646154d30d8 6 hours ago 231MB

```

```

ubuntu latest ba6accdd29 13 days ago 72.8MB
nginx latest 87a94228f133 2 weeks ago 133MB
hello-world latest feb5d9fea6a5 5 weeks ago 13.3KB
centos latest 5d0da3dc9764 6 weeks ago 231MB
[root@localhost asset3]# docker dhub:v1 senjila/senjila19
docker: 'dhub:v1' is not a docker command.
See 'docker --help'
[root@localhost asset3]# docker tag dhub:v1 senjila/senjila19
[root@localhost asset3]# docker login
Login with your Docker ID to push and pull images from Docker Hub. If you don't
have a Docker ID, head over to https://hub.docker.com to create one.
Username: senjila
Password:
WARNING! Your password will be stored unencrypted in /root/.docker/config.json.
Configure a credential helper to remove this warning. See
https://docs.docker.com/engine/reference/commandline/login/#credentials-store

Login Succeeded
[root@localhost asset3]# docker images
REPOSITORY TAG IMAGE ID CREATED SIZE
dhub v1 3a1cf85c3c07 33 minutes ago 286MB
senjila/senjila19 latest 3a1cf85c3c07 33 minutes ago 286MB
entry e1 da1204d548f9 5 hours ago 231MB
cmd2 c2 9646154d30d8 6 hours ago 231MB
cmd cs 9646154d30d8 6 hours ago 231MB
cmd c1 9646154d30d8 6 hours ago 231MB
httpd latest 1132a4fc88fa 7 days ago 72.8MB
ubuntu latest ba6accdd29 13 days ago 72.8MB
nginx latest 87a94228f133 2 weeks ago 133MB
hello-world latest feb5d9fea6a5 5 weeks ago 13.3KB
centos latest 5d0da3dc9764 6 weeks ago 231MB
[root@localhost asset3]# docker push senjila/senjila19
Using default tag: latest
The push refers to repository [docker.io/senjila/senjila19]
2fa666d23c49: Pushed
dd66dd28ad4b: Pushed
c01670b0c8f7: Pushed
74ddd0ec08fa: Mounted from library/centos
latest: digest: sha256:988c71f6ae8c8cea42fd60fe202dc54ed83e77d628acd3bb4f176d2ec586dd
3 size: 1155
[root@localhost asset3]#

```

4 What is difference between Entrypoint and CMD

answer:

```
Activities VMware Workstation Oct 29 23:03
CentOS 7 64-bit - VMware Workstation
File Edit View VM Tabs Help
Home My Computer CentOS 7 64-bit

CONTAINER ID IMAGE COMMAND NAMES CREATED STATUS PORT
RTS 033443780b27 dhab:vd "httpd -D FOREGROUND" 36 minutes ago Up 36 minutes 0.
8.8.8.8888->0888/tcp, :::8888->0888/tcp asses4 48 minutes ago Created
847821438051 dhab:vd "httpd -D FOREGROUND" asses2.1 2 hours ago Up 2 hours 08
73f7bcf6665f nginx "/docker-entrypoint.s" asses2 2 hours ago Up 2 hours 0.
e8f593187c77 nginx "/docker-entrypoint.s" asses1.1 3 hours ago Up 3 hours 0.
1f322eac486c httpd "httpd-foreground" asses1 5 hours ago Up 5 hours
8.8.8.8888->0888/tcp, :::8888->0888/tcp asses1
169c2d27c16d cm2:c2 "ping facebook.com" prime 5 hours ago Created
7b4a79176de1 cm2:c2 "Goodbles" prime 5 hours ago Created
ab042119f3aa cm2:c2 "ping facebook.com" prime2 5 hours ago Up 5 hours
91948829a7b8 cm2:c2 "ping facebook.com" prime2 6 hours ago Up 6 hours
338c8143e841 cm2:c1 "ping facebook.com" prime2 6 hours ago Up 6 hours
45878f2f3628 centos "bin/bash" 7 hours ago Exited (255) 7 hours ago
a1489eac811d hello-world "/hello" 7 hours ago Exited (0) 7 hours ago
a5c74ca2a997 ubuntu "bash" nostalgic-galileo 32 hours ago Exited (255) 8 hours ago
8bc1d18eb445 ubuntu "cat /etc/issue" competent-curran 32 hours ago Exited (0) 32 hours ago
6946a83985ab ubuntu "cat /etc/issue" ubuntu20.04 32 hours ago Exited (0) 32 hours ago
22f8388af37e hello-world "/hello" strange_brown 32 hours ago Exited (0) 32 hours ago
ca3b47cd8fee httpd "httpd-foreground" exciting_moores 7 days ago Exited (255) 3 days ago 0.
8.8.8.8888->0888/tcp, :::8888->0888/tcp panipuri
root@localhost: senju1# _
```

```
Activities VMware Workstation Oct 29 23:04
CentOS 7 64-bit - VMware Workstation
File Edit View VM Tabs Help
Home My Computer CentOS 7 64-bit

ca3b47cd8fee httpd "httpd-foreground" 7 days ago Exited (255) 3 days ago 0.
8.8.8.8888->0888/tcp, :::8888->0888/tcp panipuri
root@localhost: senju1# docker image

Usage: docker image COMMAND

Manage images

Commands:
  build      Build an image from a Dockerfile
  history    Show the history of an image
  import     Import the contents from a tarball to create a filesystem image
  inspect    Display detailed information on one or more images
  load       Load an image from a tar archive or STDIN
  ls         List images
  prune     Remove unused images
  pull       Pull an image or a repository from a registry
  push       Push an image or a repository to a registry
  rm         Remove one or more images
  save       Save one or more images to a tar archive (streamed to STDOUT by default)
  tag        Create a tag TARGET_IMAGE that refers to SOURCE_IMAGE

Run 'docker image COMMAND --help' for more information on a command.

root@localhost: senju1# docker images
REPOSITORY TAG IMAGE ID CREATED SIZE
dhab v0 3a1cf05c3b87 57 minutes ago 286kB
senju/senju1a19 latest 3a1cf05c3b87 57 minutes ago 286kB
entry e1 4d1294d40b9 5 hours ago 231kB
cm2 c2 964615443848 7 hours ago 231kB
cm2 cs 964615443848 7 hours ago 231kB
c1 964615443848 7 hours ago 231kB
httpd latest 1132a4fc88fa 7 days ago 143kB
ubuntu latest baf6cc0d4d29 13 days ago 72.8MB
nginx latest 87a94228113 2 weeks ago 13.9MB
hello-world latest fe85a49e5af5 5 weeks ago 13.3kB
centos latest 5d8da3dc9704 6 weeks ago 231MB
root@localhost: senju1#
```

