



UNIVERSITY OF PETROLEUM & ENERGY STUDIES

Dehradun

ACO LAB

Name- Harsha Agarwal

Sap id- 500096741

Roll no- R2142211158

Batch- B-4

Course- Btech Devops

Submitted to- Dr Hitesh Kumar Sharma

EXPERIMENT-1

Performing CRUD Operation on Containers

Step 1: Pulling a Docker image

“docker pull nginx”

```
C:\Users\91983>docker pull nginx
Using default tag: latest
latest: Pulling from library/nginx
a378f10b3218: Pull complete
4dfff0708538: Pull complete
2135e49ace4b: Pull complete
c843f6b280ce: Pull complete
6f35ab6f1400: Pull complete
6c538b49fa4a: Pull complete
d57731fb9008: Pull complete
Digest: sha256:b4af4f8b6470febf45dc10f564551af682a802eda1743055a7dfc8332dffa595
Status: Downloaded newer image for nginx:latest
docker.io/library/nginx:latest

What's Next?
View a summary of image vulnerabilities and recommendations → docker scout quickview nginx
```

List all the docker images to check the newly pulled *nginx* image:

“ docker images “

```
C:\Users\91983>docker images
```

REPOSITORY	IMAGE ID	CREATED	SIZE	TAG
nginx	bc649bab30d1	12 days ago	187MB	latest
hubproxy.docker.internal:5555/docker/desktop-kubernetes	c763812a4530	4 months ago	418MB	kubernetes-v1.27.2-cni-v1.2.0-critools-v1.27.0-cri-dockerd-v0.
3.2-1-debian	c763812a4530	4 months ago	418MB	
registry.k8s.io/kube-apiserver	c5b13e4f7806	5 months ago	121MB	v1.27.2

Step 2: Creating a new container

“ docker run -dt -p 81:81 nginx “

```
C:\Users\91983>docker run -dt -p 81:80 nginx
59cd250204ed1959ef82e7fca5c39c20c0c2859aa20e30bce93abd00d9c8cf45
```

details like port of container, it's time of creation and ID.

“ docker ps ”

```
C:\Users\91983>docker ps
```

CONTAINER ID	IMAGE	COMMAND	CREATED	STATUS	PORTS
59cd250204ed	nginx	"/docker-entrypoint..."	8 seconds ago	Up 6 seconds	0.0.0.0:81->80/tcp
competent_boyd					
8dde08a8dba4	165df46c1bb9	"kube-scheduler --au..."	15 minutes ago	Up 15 minutes	
k8s_kube-scheduler_kube-scheduler-docker-desktop_kube-system_42b55bbd22a41e1e397a84692d259b1e_7					
6451c043a73b	registry.k8s.io/pause:3.9	"/pause"	15 minutes ago	Up 15 minutes	
k8s_POD_kube-scheduler-docker-desktop_kube-system_42b55bbd22a41e1e397a84692d259b1e_7					

Step 3: Stopping the container

“ docker stop CONTAINER_NAME “

```
C:\Users\91983>docker stop 59cd250204ed
59cd250204ed
```

“ docker ps “

```
C:\Users\91983>docker ps
CONTAINER ID   IMAGE                                COMMAND                  CREATED        STATUS        PORTS        NAMES
8dde08a8dba4   165df46c1bb9                       "kube-scheduler --au.." 19 minutes ago Up 19 minutes                k8s_kube-
scheduler_kube-scheduler-docker-desktop_kube-system_42b55bbd22a41e1e397a84692d259b1e_7
6451c043a73b   registry.k8s.io/pause:3.9          "/pause"                 19 minutes ago Up 19 minutes                k8s_POD_k
ube-scheduler-docker-desktop_kube-system_42b55bbd22a41e1e397a84692d259b1e_7
```

You can start the container again and check the running containers.

“ docker start CONTAINER_NAME “

```
C:\Users\91983>docker start 59cd250204ed
59cd250204ed
```

```
C:\Users\91983>docker start 59cd250204ed
59cd250204ed
```

To start the container in interactive mode, use the `-i` and `-t` options.

“ docker run -it --name=Test_1 nginx “

```

C:\Users\91983>docker run -it --name=Test_1 nginx
/docker-entrypoint.sh: /docker-entrypoint.d/ is not empty, will attempt to perform configuration
/docker-entrypoint.sh: Looking for shell scripts in /docker-entrypoint.d/
/docker-entrypoint.sh: Launching /docker-entrypoint.d/10-listen-on-ipv6-by-default.sh
10-listen-on-ipv6-by-default.sh: info: Getting the checksum of /etc/nginx/conf.d/default.conf
10-listen-on-ipv6-by-default.sh: info: Enabled listen on IPv6 in /etc/nginx/conf.d/default.conf
/docker-entrypoint.sh: Sourcing /docker-entrypoint.d/15-local-resolvers.envsh
/docker-entrypoint.sh: Launching /docker-entrypoint.d/20-envsubst-on-templates.sh
/docker-entrypoint.sh: Launching /docker-entrypoint.d/30-tune-worker-processes.sh
/docker-entrypoint.sh: Configuration complete; ready for start up
2023/10/24 13:42:40 [notice] 1#1: using the "epoll" event method
2023/10/24 13:42:40 [notice] 1#1: nginx/1.25.2
2023/10/24 13:42:40 [notice] 1#1: built by gcc 12.2.0 (Debian 12.2.0-14)
2023/10/24 13:42:40 [notice] 1#1: OS: Linux 5.10.102.1-microsoft-standard-WSL2
2023/10/24 13:42:40 [notice] 1#1: getrlimit(RLIMIT_NOFILE): 1048576:1048576
2023/10/24 13:42:40 [notice] 1#1: start worker processes
2023/10/24 13:42:40 [notice] 1#1: start worker process 29
2023/10/24 13:42:40 [notice] 1#1: start worker process 30
2023/10/24 13:42:40 [notice] 1#1: start worker process 31
2023/10/24 13:42:40 [notice] 1#1: start worker process 32
2023/10/24 13:42:40 [notice] 1#1: start worker process 33
2023/10/24 13:42:40 [notice] 1#1: start worker process 34
2023/10/24 13:42:40 [notice] 1#1: start worker process 35
2023/10/24 13:42:40 [notice] 1#1: start worker process 36

```

Step 4: Listing all the containers

Use the below command to list all the containers started and the once which are stopped:

“ docker ps -a “

```

C:\Users\91983>docker ps -a
CONTAINER ID   IMAGE                                COMMAND                  CREATED        STATUS        PORTS
NAMES
2f8e93a9c8fc   dc245db8c2fa                       "kube-apiserver --ad..." 13 seconds ago Up 12 seconds
k8s_kube-apiserver_kube-apiserver-docker-desktop_kube-system_8b71cd624d40d0ffecf5822890467a47_104
83ed1b222b30   nginx                               "/docker-entrypoint..." 2 minutes ago  Up 2 minutes  80/tcp
Test_1
59cd250204ed   nginx                               "/docker-entrypoint..." 14 minutes ago Up 5 minutes  0.0.0.0:81->80/tcp
competent_boyd
8dde08a8dba4   165df46c1bb9                       "kube-scheduler --au..." 29 minutes ago Up 29 minutes
k8s_kube-scheduler_kube-scheduler-docker-desktop_kube-system_42b55bbd22a41e1e397a84692d259b1e_7
6451c043a73b   registry.k8s.io/pause:3.9          "/pause"                 29 minutes ago Up 29 minutes
k8s_POD_kube-scheduler-docker-desktop_kube-system_42b55bbd22a41e1e397a84692d259b1e_7
39cc4e421382   registry.k8s.io/pause:3.9          "/pause"                 29 minutes ago Up 29 minutes
k8s_POD_kube-controller-manager-docker-desktop_kube-system_861008677140df5bf14684241a098812_7

```

To list the containers by their ID, use the below command

“ docker ps -aq “

```
C:\Users\91983>docker ps -aq
03ed1b222b30
59cd250204ed
8dde08a8dba4
6451c043a73b
39cc4e421382
```

To list the total file size of each container, use the below command:

“ docker ps -s “

```
C:\Users\91983>docker ps -s
```

CONTAINER ID	IMAGE	COMMAND	CREATED	STATUS	PORTS	SIZE
03ed1b222b30	nginx	"/docker-entrypoint..."	5 minutes ago	Up 5 minutes	80/tcp	1.09kB (virtual 187MB)
59cd250204ed	nginx	"/docker-entrypoint..."	16 minutes ago	Up 7 minutes	0.0.0.0:81->80/tcp	1.09kB (virtual 187MB)
8dde08a8dba4	165df46c1bb9	"kube-scheduler --au..."	32 minutes ago	Up 32 minutes		0B (virtual 50.7MB)
6451c043a73b	registry.k8s.io/pause:3.9	"/pause"	32 minutes ago	Up 32 minutes		0B (virtual 744kB)
39cc4e421382	registry.k8s.io/pause:3.9	"/pause"	32 minutes ago	Up 32 minutes		0B (virtual 744kB)

To list the latest created containers, use the following command:

“ docker ps -l “

```
C:\Users\91983>docker ps -l
```

CONTAINER ID	IMAGE	COMMAND	CREATED	STATUS	PORTS	NAMES
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Step 5: Deleting the container

Stop the running container and remove it using the commands:

“ docker stop CONTAINER_NAME “

```
C:\Users\91983>docker stop Test_1
Test_1

C:\Users\91983>docker ps
```

CONTAINER ID	IMAGE	COMMAND	CREATED	STATUS	PORTS
59cd250204ed	nginx	"/docker-entrypoint..."	20 minutes ago	Up 11 minutes	0.0.0.0:81->80/tcp
competent_boyd					
8dde08a8dba4	165df46c1bb9	"kube-scheduler --au..."	36 minutes ago	Up 36 minutes	
k8s_kube-scheduler_kube-scheduler-docker-desktop_kube-system_42b55bbd22a41e1e397a84692d259b1e_7					
6451c043a73b	registry.k8s.io/pause:3.9	"/pause"	36 minutes ago	Up 36 minutes	
k8s_POD_kube-scheduler-docker-desktop_kube-system_42b55bbd22a41e1e397a84692d259b1e_7					
39cc4e421382	registry.k8s.io/pause:3.9	"/pause"	36 minutes ago	Up 36 minutes	
k8s_POD_kube-controller-manager-docker-desktop_kube-system_861008677140df5bf14684241a098812_7					

“ docker container rm CONTAINER_NAME “

```
C:\Users\91983>docker container rm Test_1
Test_1
```

Step 6: Removing the image

Remove the image using the command:

“ docker image rm nginx “

```
C:\Users\91983>docker image rm nginx
Untagged: nginx:latest
Untagged: nginx@sha256:b4af4f8b6470febf45dc10f564551af682a802eda1743055a7dfc8332dffa595
Deleted: sha256:bc649bab30d150c10a84031a7f54c99a8c31069c7bc324a7899d7125d59cc973
Deleted: sha256:c6f480996a203ed077606cce624f944b041449833e2db3f7d19fe22974fb965b
Deleted: sha256:e4347a01432c5f4350b041632f5703c3dd47de2ec68547b9339d11ea44708389
Deleted: sha256:9d40098fc19fdfff9c74fd3c2c0ff49bfda7d9d04b5d7806d0843d32055d769a
Deleted: sha256:165ae0ef2ddd33b6d5a7f206633b9b0c30cd94ff18a4ed5c3aeb59bf28388526
Deleted: sha256:06dabb44ac4d1f0b5544255e944f15a939178d77aff60a5b296e38bd8743efeb
Deleted: sha256:ee220599571f649e0fb74b40db1615a4c9c1355ac912f9e70087b695617af352
Deleted: sha256:cb4596cc145400fb1f2aa56d41516b39a366ecdee7bf3f9191116444aacd8c90
```