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UNIVERSITY OF PETROLEUM & ENERGY STUDIES

Dehradun

**APPLICATION
CONTAINERIZATION**

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Experiment-6

Docker Linking

Step-1: Run a container in detached mode with name "db" from image "training/postgres"

```
$ docker run -it -d --name db training/postgres
```

```
rakshit@rakshit-virtual-machine:~$ docker run -it -d --name db training/postgres
Unable to find image 'training/postgres:latest' locally
latest: Pulling from training/postgres
Image docker.io/training/postgres:latest uses outdated schema1 manifest format. Please upgrade to a schema2 image for better future compatibility. More information at https://docs.docker.com/registry/spec/deprecated-schema-v1/
a3ed95caeb02: Pull complete
6e71c809542e: Pull complete
2978d9af87ba: Pull complete
e1bca35b062f: Pull complete
500b6decf741: Pull complete
74b14ef2151f: Pull complete
7afd5ed3826e: Pull complete
3c69bb244f5e: Pull complete
d86f9ec5aedef: Pull complete
010fabf20157: Pull complete
Digest: sha256:a945dc6dcfbcd009c3d972931608344b76c2870ce796da00a827bd50791907e
Status: Downloaded newer image for training/postgres:latest
9653941066ebcd98845fdb06fb547f6ac356d5d92500494267a78b2f94bee65a
```

Step-2: Run another container in detached mode with name "web" from image "training/webapp", link container "db" with alias "mydb" to this container and finally pass an inline command "python app.py" while running container.

```
$ docker run -it -d --name web --link db:mydb training/webapp
```

```
rakshit@rakshit-virtual-machine:~$ docker run -it -d --name web --link db:mydb training/webapp
Unable to find image 'training/webapp:latest' locally
latest: Pulling from training/webapp
Image docker.io/training/webapp:latest uses outdated schema1 manifest format. Please upgrade to a schema2 image for better future compatibility. More information at https://docs.docker.com/registry/spec/deprecated-schema-v1/
e190868d63f8: Pull complete
909cd34c6fd7: Pull complete
0b9bfabab7c1: Pull complete
a3ed95caeb02: Pull complete
10bbbc0fc0ff: Pull complete
fca59b508e9f: Pull complete
e7ae2541b15b: Pull complete
9dd97ef58ce9: Pull complete
a4c1b0cb7af7: Pull complete
Digest: sha256:06e9c1983bd6d5db5fba376ccd63bfa529e8d02f23d5079b8f74a616308fb11d
Status: Downloaded newer image for training/webapp:latest
d9c2cbab200f6592b9d794cb4d357bbdb2a279ac8c36795b89a93b8bf5e28ae0
```

Step-3: Take a bash terminal in "web" container and Test container linking by doing a ping to "mydb"

```
$ docker exec -it web bash
```

And then run

```
# ping mydb
```

```
rakshit@rakshit-virtual-machine:~$ docker exec -it web bash
root@d9c2cbab200f:/opt/webapp# ping mycb
ping: unknown host mycb
root@d9c2cbab200f:/opt/webapp# ping mydb
PING mydb (172.17.0.2) 56(84) bytes of data.
64 bytes from mydb (172.17.0.2): icmp_seq=1 ttl=64 time=1.32 ms
64 bytes from mydb (172.17.0.2): icmp_seq=2 ttl=64 time=0.195 ms
64 bytes from mydb (172.17.0.2): icmp_seq=3 ttl=64 time=0.088 ms
64 bytes from mydb (172.17.0.2): icmp_seq=4 ttl=64 time=0.071 ms
64 bytes from mydb (172.17.0.2): icmp_seq=5 ttl=64 time=0.096 ms
64 bytes from mydb (172.17.0.2): icmp_seq=6 ttl=64 time=0.079 ms
64 bytes from mydb (172.17.0.2): icmp_seq=7 ttl=64 time=0.097 ms
64 bytes from mydb (172.17.0.2): icmp_seq=8 ttl=64 time=0.260 ms
64 bytes from mydb (172.17.0.2): icmp_seq=9 ttl=64 time=0.090 ms
64 bytes from mydb (172.17.0.2): icmp_seq=10 ttl=64 time=0.096 ms
64 bytes from mydb (172.17.0.2): icmp_seq=11 ttl=64 time=0.089 ms
^C
--- mydb ping statistics ---
11 packets transmitted, 11 received, 0% packet loss, time 10318ms
rtt min/avg/max/mdev = 0.071/0.226/1.327/0.352 ms
root@d9c2cbab200f:/opt/webapp#
```

Docker Swarm

To add a worker to this swarm, run the following command:

```
docker swarm join --token SWMTKN-1-43q6mpi7bz0ajfgwac15lzpke6bxmkq7iqqghghwx0bosinwqf-ctw3mlsmlwvot7c46pcjn41h7 172.17.0.41:2377
```

To add a manager to this swarm, run 'docker swarm join-token manager' and follow the instructions.

```
$ docker node ls
ID                HOSTNAME          STATUS          AVAILABILITY
TY              MANAGER STATUS   ENGINE VERSION
y007xqosjsri0jffz6varsvt05 * host01           Ready          Active
Leader
uzmn0vu8niysotxmvfajywp07 host02           Ready          Active
19.03.13          19.03.13
```

```
$
```

Terminal Host 2

Your Interactive Bash Terminal.

A good starting point is executing 'docker'

```
$ docker swarm join --token SWMTKN-1-43q6mpi7bz0ajfgwac15lzpke6bxmkq7iqqghghwx0bosinwqf-ctw3mlsmlwvot7c46pcjn41h7 172.17.0.41:2377
This node joined a swarm as a worker.
```

```
$
```

```
$ docker node ls
ID                MANAGER STATUS      HOSTNAME      STATUS      AVAILABILITY
TY                ENGINE VERSION
y007xqosjsri0jfz6varsvt05 * host01      Ready      Active
Leader           19.03.13
uzmn0vu8niysotxmvfajywp07 host02      Ready      Active
                  19.03.13
```

```
$ docker swarm leave
Error response from daemon: You are attempting to leave the swarm on a node that
is participating as a manager. Removing the last manager erases all current sta
te of the swarm. Use '--force' to ignore this message.
$ docker swarm leave --force
Node left the swarm.
$ docker node ls
Error response from daemon: This node is not a swarm manager. Use "docker swarm
init" or "docker swarm join" to connect this node to swarm and try again.
$
```

Terminal Host 2

Your Interactive Bash Terminal.
A good starting point is executing 'docker'

```
$ docker swarm join --token SWMTKN-1-43q6mpi7bz0ajfgwac15lzpke6bxmkq7iqqhghwx0bosinwqf-ctw3mlsmlwvot7c46pcjn41h7 172.17.0.41:2377
This node joined a swarm as a worker.
$
```