

=====

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= **Docker lab1** =

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CMD	ENTRYPOINT
Allow us to run shell commands at startup. -can be overridden by adding a command while starting the container. -execute only the last CMD command.	-Allow us to run shell commands at startup. -can't be overridden by adding a command while starting the container.

COPY	ADD
Allow us to copy dirs and files from the local work dir to the image	Also Allow us to copy dirs and files from the local work dir to the image in addition to it can fetch files from remote urls

Problem 1:

1-Run the container hello-world

```
sok ~ 15:17 sudo docker run hello-world
[sudo] password for sok:

Hello from Docker!
This message shows that your installation appears to be working.

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/
```

sok ~ 15:17

2-Check the container status &&3-Start the stopped container

```
sok ~ 15:21 docker ps -a
CONTAINER ID   IMAGE      COMMAND                  CREATED        STATUS              PORTS          NAMES
1dc5a63ded5f   hello-world "/hello"                56 seconds ago Exited (0) 55 seconds ago           magical_cannon
8da55a91e004   hello-world "/hello"                5 minutes ago  Exited (0) 5 minutes ago           boring_feynman
52c024b29f2b   hello-world "/hello"                23 minutes ago Exited (0) 23 minutes ago           focused_poitras
7dd2f3dd7092   hello-world "/hello"                3 hours ago    Exited (0) 3 hours ago             heuristic_germain
2ba12d3e19b9   hello-world "/hello"                4 hours ago    Exited (0) 4 hours ago             nifty_raman
e763b1f33929   hello-world "/hello"                4 hours ago    Exited (0) 4 hours ago             trusting_kirch

sok ~ 15:22 docker start 1dc5a63ded5f
1dc5a63ded5f

sok ~ 15:22 docker ps -a
CONTAINER ID   IMAGE      COMMAND                  CREATED        STATUS              PORTS          NAMES
1dc5a63ded5f   hello-world "/hello"                About a minute ago Exited (0) 3 seconds ago           magical_cannon
8da55a91e004   hello-world "/hello"                5 minutes ago    Exited (0) 5 minutes ago           boring_feynman
52c024b29f2b   hello-world "/hello"                24 minutes ago   Exited (0) 24 minutes ago           focused_poitras
7dd2f3dd7092   hello-world "/hello"                3 hours ago      Exited (0) 3 hours ago             heuristic_germain
2ba12d3e19b9   hello-world "/hello"                4 hours ago      Exited (0) 4 hours ago             nifty_raman
e763b1f33929   hello-world "/hello"                4 hours ago      Exited (0) 4 hours ago             trusting_kirch

sok ~ 15:22
```

4-Remove the container

```
sok ~ 15:22 docker rm 1dc5a63ded5f
1dc5a63ded5f

sok ~ 15:24 docker ps -a
CONTAINER ID   IMAGE      COMMAND                  CREATED
8da55a91e004   hello-world "/hello"                6 minutes ago
52c024b29f2b   hello-world "/hello"                25 minutes ago
7dd2f3dd7092   hello-world "/hello"                3 hours ago
2ba12d3e19b9   hello-world "/hello"                4 hours ago
e763b1f33929   hello-world "/hello"                4 hours ago

sok ~ 15:24
```

5-Remove the image

```
sok ~ 15:25 docker rmi -f hello-world
Untagged: hello-world:latest
Untagged: hello-world@sha256:4bd78111b6914a99dbc560e6a20eab57ff6655aea4a80c50b0c5491968cbc2e6
Deleted: sha256:d2c94e258dcb3c5ac2798d32e1249e42ef01cba4841c2234249495f87264ac5a

sok ~ 15:25 docker ps -a
CONTAINER ID   IMAGE      COMMAND                  CREATED        STATUS              PORTS          NAMES
8da55a91e004   d2c94e258dcb "/hello"                8 minutes ago  Exited (0) 8 minutes ago           boring_feynm
52c024b29f2b   d2c94e258dcb "/hello"                27 minutes ago Exited (0) 27 minutes ago           focused_poit
7dd2f3dd7092   d2c94e258dcb "/hello"                3 hours ago    Exited (0) 3 hours ago             heuristic_ge
2ba12d3e19b9   d2c94e258dcb "/hello"                4 hours ago    Exited (0) 4 hours ago             nifty_raman
e763b1f33929   d2c94e258dcb "/hello"                4 hours ago    Exited (0) 4 hours ago             trusting_kir
```


Problem 2:

- 1-Run container centos or ubuntu in an interactive mode
- 2-Run the following command in the container “echo docker ”
- 3-Open a bash shell in the container and touch a file named hello-docker
- 4-Stop the container and remove it. Write your comment about the file hello-docker
- 5-Remove all stopped containers

```
sok ~ 15:38 docker run -it centos
[root@c3dbe8dd45fa /]# echo docker
docker
[root@c3dbe8dd45fa /]# bash
[root@c3dbe8dd45fa /]# touch /home/hello-docker
[root@c3dbe8dd45fa /]# exit
exit
[root@c3dbe8dd45fa /]# exit
exit

sok ~ 15:40 docker st
stack start stats stop

sok ~ 15:40 docker stop 683314688ac8
683314688ac8

sok ~ 15:40 docker container prune
WARNING! This will remove all stopped containers.
Are you sure you want to continue? [y/N] y
Deleted Containers:
c3dbe8dd45fa7a8b63ac64eca89510559d7339e0553084c072640af2129afd9a
683314688ac855100ad7446a5a53048cf5c1c65c71cf942c53f24d1c2ec43764

Total reclaimed space: 52B

sok ~ 15:40
```

Problem 3:

Deploy a MySQL database called app-database. Use the mysql latest image, and use the -e flag to set MYSQL_ROOT_PASSWORD to P4sSw0rd0!. The container should run in the background.

```
sok ~ 15:46 docker run --name app-database -e MYSQL_ROOT_PASSWORD=P4sSw0rd0! -d mysql:latest
Unable to find image 'mysql:latest' locally
latest: Pulling from library/mysql
558b7d69a2e5: Pull complete
2cb5a921059e: Pull complete
b85878fb9bb2: Pull complete
d16f3fd26a82: Pull complete
afd51b5329cb: Pull complete
374d2f7f3267: Pull complete
4ea1bb2c9574: Pull complete
1c9054053605: Pull complete
d79cd2da03be: Pull complete
e3a1aa788d17: Pull complete
Digest: sha256:d7c20c5ba268c558f4fac62977f8c7125bde0630ff8946b08dde44135ef40df3
Status: Downloaded newer image for mysql:latest
b6896876f74f82c7eaea4314783565745e1a6f3a14306f6b4793954225f15c7e
```

Problem 4:

Run the image Nginx

Add html static files to the container and make sure they are accessible

Commit the container with image name IMAGE_NAME

```
Dockerfile x
Dockerfile
1 FROM nginx
2
3 run apt-get update
4
5 COPY ./html/* /usr/share/nginx/html/
6
7 |
```

- sok ~/doctest 16:19 sudo docker run --name frontz-end -d -p 8080:80 myfirst-img 500e333b58169fe5d304275f81fd35634924abceeaf2440c6e117edbc48fd84d
- sok ~/doctest 16:19 sudo docker commit frontz-end myfirst-img sha256:41fcf2b3f626bc2064ebedfa16ffd07943d43cd750429870d82d76c102c2d168

Problem 5:

Create a python simple app

Create a dockerfile to containerize the python app

Build the image and test it

Push the created image into your docker hub repo

```
pyproj > main.py
1
2
3
4 print("=====")
5
6 print("      Hello from docker python app")
7
8 print("=====")
```

```
Dockerfile
1 FROM python:3
2 run apt-get update
3
4 workdir /app
5 COPY ./pyproj/* /app
6
7 CMD ["python","main.py"]
8
9 |
```

```
• sok ~/doctest 16:31 sudo docker build -t python-img .
DEPRECATED: The legacy builder is deprecated and will be removed in a future release.
Install the buildx component to build images with BuildKit:
https://docs.docker.com/go/buildx/
```

```
• sok ~/doctest 16:34 sudo docker run --name main-py python-img
=====
      Hello from docker python app
=====
```



```
• sok ~/doctest 16:38 sudo docker tag python-img mohamedio/first:v1
○ sok ~/doctest 16:48 sudo docker push mohamedio/first:v1
The push refers to repository [docker.io/mohamedio/first]
3125e9b06a48: Pushed
166afd30b37c: Pushed
01bf9772ee09: Pushed
a88578eaba74: Pushing [=====] 10.66MB/19.36MB
caf6e413da27: Mounted from library/python
dbb7613460ed: Mounted from library/python
bec06ee1b287: Mounted from library/python
f757a77eef71: Mounted from library/python
a876dfc51caa: Mounted from library/python
5bb1de08f5af: Mounted from library/python
0dfa23fffa41: Mounted from library/python
aa904f36746c: Mounted from library/python
```

