

Exercise 1: Running containers

```
docker pull ubuntu:16.04
```

```
docker pull ubuntu:16.10
```

| | | | | |
|---------------------------|-----------------|--------------|---------------|--------|
| hello-world | <none> | feb5d9fea6a5 | 6 months ago | 13.3kB |
| ubuntu | 16.04 | b6f507652425 | 6 months ago | 135MB |
| maven | 3.6.3-ibmjava-8 | ad8f5e6bed87 | 12 months ago | 368MB |
| php | 5.6 | 36c3c974e6ee | 3 years ago | 344MB |
| php | 5.6-cli | 36c3c974e6ee | 3 years ago | 344MB |
| ubuntu | 16.10 | 7d3f705d307c | 4 years ago | 107MB |
| dockersamples/static-site | latest | f589ccde7957 | 6 years ago | 191MB |
| php | 5.3 | 7f2a82c91480 | 7 years ago | 729MB |
| php | 5.3-cli | 7f2a82c91480 | 7 years ago | 729MB |

```
docker run ubuntu:16.04 /bin/bash
```

```
docker ps -a
```

```
[altyn@Altynsass-MBP ~ % docker run ubuntu:16.04 /bin/bash
```

| CONTAINER ID | IMAGE | COMMAND | CREATED | STATUS |
|--------------|--------------|--------------------------|--------------------|-------------------------------|
| a843eacb047b | ubuntu:16.04 | "/bin/bash" | 13 seconds ago | Exited (0) 12 seconds ago |
| 4257018fd4be | ubuntu:16.04 | "/bin/echo 'Hello wo..." | About a minute ago | Exited (0) About a minute ago |

```
run -d ubuntu:16.04 /bin/sleep 3600
```

```
docker ps
```

```
docker exec -it d42c /bin/bash
```

```
ps aux
```

```
[altyn@Altynsass-MBP ~ % docker exec -it d42c /bin/bash
```

| USER | PID | %CPU | %MEM | VSZ | RSS | TTY | STAT | START | TIME | COMMAND |
|------|-----|------|------|-------|------|-------|------|-------|------|-----------------|
| root | 1 | 0.0 | 0.0 | 4380 | 808 | ? | Ss | 14:11 | 0:00 | /bin/sleep 3600 |
| root | 7 | 0.3 | 0.1 | 18240 | 3384 | pts/0 | Ss | 14:14 | 0:00 | /bin/bash |
| root | 18 | 0.0 | 0.1 | 34428 | 2864 | pts/0 | R+ | 14:14 | 0:00 | ps aux |

Exercise 2: Changing images

```
docker run -it ubuntu:16.04 /bin/bash
```

```
docker commit -a 'altnurzilka' -m 'Added ping utility.' 22d041bea5f0
```

```
myrzaboi/ping
```

```
docker images
```

```
altyn@Altynsass-MBP Desktop % docker commit -a 'altnurzilka' -m 'Added ping utility.' 22d041bea5f0 myrzaboi/ping
sha256:2d8990670932c40f32de96a730bfcd5bada0b60e0d3b7ee5683119907bfbfc
altyn@Altynsass-MBP Desktop % docker images
REPOSITORY          TAG                 IMAGE ID            CREATED             SIZE
myrzaboi/ping        latest             2d8990670932       12 seconds ago     135MB
```

Exercise 3: Building images

```
docker build -t 'myrzaboi/hello-world' .
```

```
docker images
```

```
altyn@Altynsass-MBP Desktop % docker build -t 'myrzaboi/hello-world' .
[+] Building 0.1s (6/6) FINISHED
=> [internal] load build definition from Dockerfile
=> => transferring dockerfile: 369B
=> [internal] load .dockerignore
=> => transferring context: 2B
=> [internal] load metadata for docker.io/library/ubuntu:latest
=> [1/2] FROM docker.io/library/ubuntu
=> CACHED [2/2] RUN echo "Hello, docker!"
=> exporting to image
=> => exporting layers
=> => writing image sha256:8755f4ee62baac67e2341f6fa20cd51c105afd9a2bc6f4e36f59654392f20b8f
=> => naming to docker.io/myrzaboi/hello-world

Use 'docker scan' to run Snyk tests against images to find vulnerabilities and learn how to fix them
altyn@Altynsass-MBP Desktop %
```

```
FROM ubuntu
```

```
altyn@Altynsass-MBP Desktop % docker images
REPOSITORY          TAG                 IMAGE ID            CREATED             SIZE
myrzaboi/hello-world latest             8755f4ee62ba       5 minutes ago     72.8MB
```

```
LABEL author="altnurzilka"
```

```
ENV PING_TARGET "google.com"
```

```
RUN echo "Hello, docker!" \
```

```
apt-get update \
```

```
&& apt-get install -y iputils-ping \
```

```
&& apt-get clean \
```

```
&& cd /var/lib/apt/lists && rm -fr *Release* *Sources* *Packages* \
```

```
&& truncate -s 0 /var/log/*log
```

```
CMD ["sh", "-c", "ping $PING_TARGET"]
```

Exercise 4: Sharing images

```
docker pull myrzaboi/ping
```

Exercise 5: Volumes

```
[altyn@Altynsass-MBP ~ % docker run --rm -d --name apache -p 80:80 httpd:2.4
Unable to find image 'httpd:2.4' locally
2.4: Pulling from library/httpd
ae13dd578326: Pull complete
fd997b74d81b: Pull complete
248a67212d22: Pull complete
60cf240b9129: Pull complete
b75bd115573c: Pull complete
Digest: sha256:5238710afda67227f805b7563455365588afd4b7d9abcddbdf76b01463c9df3
Status: Downloaded newer image for httpd:2.4
2414a027072cc848861f6598019cc3c55bda7c3d5e239b47d6d28565702fc9f4
[altyn@Altynsass-MBP ~ % curl localhost
<html><body><h1>It works!</h1></body></html>
```

```
docker cp index.html apache:/usr/local/apache2/htdocs/
```

```
[altyn@Altynsass-MBP ~ % docker cp index.html apache:/usr/local/apache2/htdocs/
[altyn@Altynsass-MBP ~ % curl localhost
<html><body><h1>It works in Docker!</h1></body></html>
```

```
[altyn@Altynsass-MBP ~ % docker run --rm -d --name apache -p 80:80 -v httpd_htdocs:/usr/local/apache2/htdocs/ httpd:2.4
a4bad82564af8f17d338babaf96f5727016ac219e76a828fbaf1cb784360afd6
[altyn@Altynsass-MBP ~ % docker cp index.html apache:/usr/local/apache2/htdocs/
[altyn@Altynsass-MBP ~ % curl localhost
<html><body><h1>It works in Docker!</h1></body></html>
[altyn@Altynsass-MBP ~ % docker stop apache
apache
[altyn@Altynsass-MBP ~ % docker run --rm -d --name apache -p 80:80 -v httpd_htdocs:/usr/local/apache2/htdocs/ httpd:2.4
bd91443b4953ae80ee3eadde938f86a3b9a60ef244dd6736bf6bffd19ffba43c
[altyn@Altynsass-MBP ~ % curl localhost
<html><body><h1>It works in Docker!</h1></body></html>
[altyn@Altynsass-MBP ~ %
```

```
$ pwd
```

```
/Users/altyn
```

```
docker run --rm -d --name apache -p 80:80 -v
```

```
/Users/altyn:/usr/local/apache2/htdocs/ httpd:2.4
```

```
curl localhost
```

```
[altyn@Altynsass-MBP ~ % pwd
/Users/altyn
[altyn@Altynsass-MBP ~ % docker run --rm -d --name apache -p 80:80 -v /Users/altyn:/usr/local/apache2/htdocs/ httpd:2.4
a444c3e4a990923c3c06465b641e2f19f62c065808f208026b67756a6d4745b1
[altyn@Altynsass-MBP ~ % curl localhost
<html><body><h1>It works in Docker!</h1></body></html>
```

With the host directory mount in place, modify the index.html file in this directory with whatever message you like, then save the file and re-run curl.

```
[altyn@Altynsass-MBP ~ % curl localhost  
Ololo!o!!!
```

Exercise 6: Networking

Unfortunately failed to run commands presented in the task in which author used his previously created container with a ping command

```
[altyn@Altynsass-MBP ~ % psql -U postgres -h localhost  
psql (14.1)  
Type "help" for help.  
  
[postgres=# \q  
altyn@Altynsass-MBP ~ % █
```