

	CURSO SUPERIOR DE TECNOLOGIA EM TELEMÁTICA DISCIPLINA: Administração de Serviços de Rede
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Avaliação 06 – TRABALHANDO COM VOLUMES	

4.1 GERENCIANDO OS DADOS

Figura 1 - Utilizando a opção -v

```
sousaedvaldo@sousaedvaldo-desktop: ~/cap3
sousaedvaldo@sousaedvaldo-desktop:~/cap3$ sudo docker run -d -p 8080:8080 -v /tmp/nginx:/usr/share/nginx/html:ro nginx
44b239ad94b1c62d2560aca77da10b542ec99a5f6c864e558c6b2ab25c343926
docker: Error response from daemon: driver failed programming external connectivity on endpoint romantic_mestorf (e46c800a476896742a0cd505fe4e4e27407d06642817621691b85a95e7ed83df): Bind for 0.0.0.0:8080 failed: port is already allocated.
sousaedvaldo@sousaedvaldo-desktop:~/cap3$ sudo docker run -d -p 8081:8080 -v /tmp/nginx:/usr/share/nginx/html:ro nginx
02785ec8d063d6ec73cd48a305157ffa733491aec2d84d701d2047d0906e2e33
docker: Error response from daemon: driver failed programming external connectivity on endpoint hungry_jennings (5be693068c331bb70864cc81d09c7024e8e2ae09209434a4f297dcccc043087): Bind for 0.0.0.0:8081 failed: port is already allocated.
sousaedvaldo@sousaedvaldo-desktop:~/cap3$ sudo docker run -d -p 8083:8080 -v /tmp/nginx:/usr/share/nginx/html:ro nginx
a6eea720c218de05ae2084d533e48dfb48138ec0d7aa29caa086a57577f634d4
sousaedvaldo@sousaedvaldo-desktop:~/cap3$
```

Figura 2 - Testar o volume criado

```
sousaedvaldo@sousaedvaldo-desktop: ~/cap3
Server: nginx/1.18.0 (Ubuntu)
Date: Wed, 25 Oct 2023 23:22:59 GMT
Content-Type: text/html
Content-Length: 612
Last-Modified: Wed, 25 Oct 2023 21:51:01 GMT
Connection: keep-alive
ETag: "65398dc5-264"
Accept-Ranges: bytes

sousaedvaldo@sousaedvaldo-desktop:~/cap3$ curl -IL http://localhost:8083
HTTP/1.1 403 Forbidden
Server: nginx/1.18.0 (Ubuntu)
Date: Wed, 25 Oct 2023 23:23:06 GMT
Content-Type: text/html
Content-Length: 162
Connection: keep-alive

sousaedvaldo@sousaedvaldo-desktop:~/cap3$
```

Figura 3 - criando o arquivo no host e testando novamente

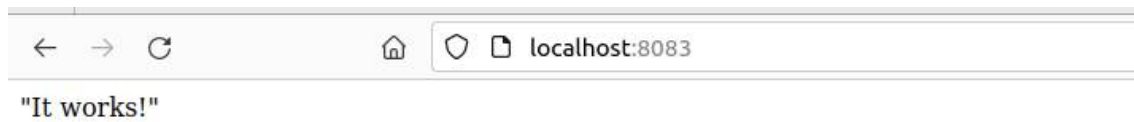


Figura 4 - Saída do comando curl -IL

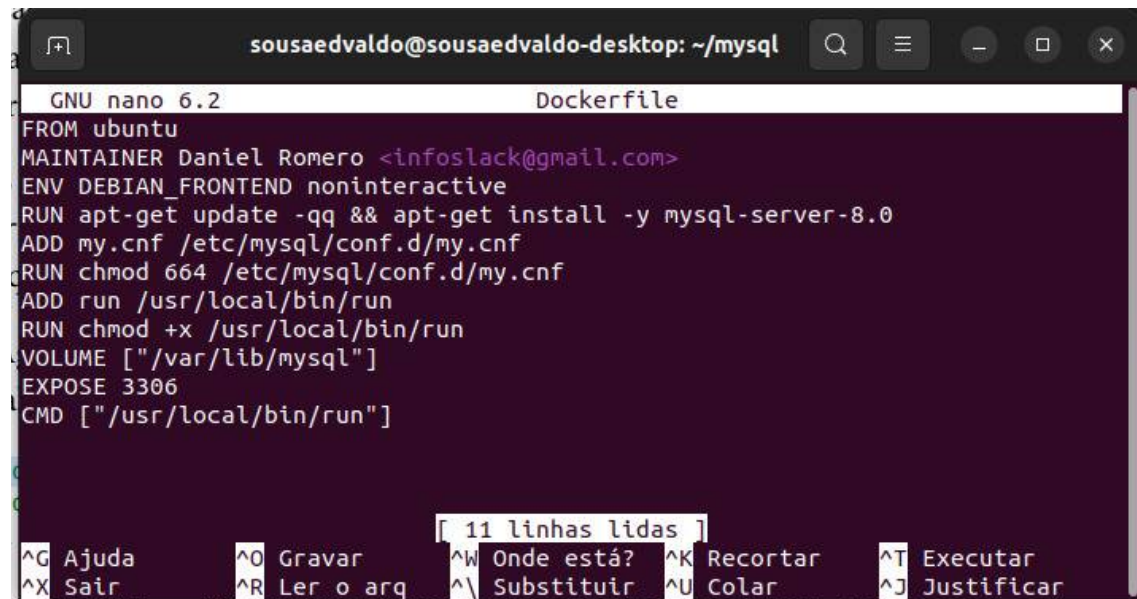
```
sousaedvaldo@sousaedvaldo-desktop: ~/cap3
Content-Type: text/html
Content-Length: 162
Connection: keep-alive

sousaedvaldo@sousaedvaldo-desktop:~/cap3$ nano /tmp/nginx/index.html
sousaedvaldo@sousaedvaldo-desktop:~/cap3$ sudo nano /tmp/nginx/index.html
sousaedvaldo@sousaedvaldo-desktop:~/cap3$ curl -IL http://localhost:8083
HTTP/1.1 200 OK
Server: nginx/1.18.0 (Ubuntu)
Date: Wed, 25 Oct 2023 23:28:30 GMT
Content-Type: text/html
Content-Length: 12
Last-Modified: Wed, 25 Oct 2023 23:28:22 GMT
Connection: keep-alive
ETag: "6539a496-c"
Accept-Ranges: bytes

sousaedvaldo@sousaedvaldo-desktop:~/cap3$
```

4.2 UTILIZANDO VOLUMES NO DOCKERFILE

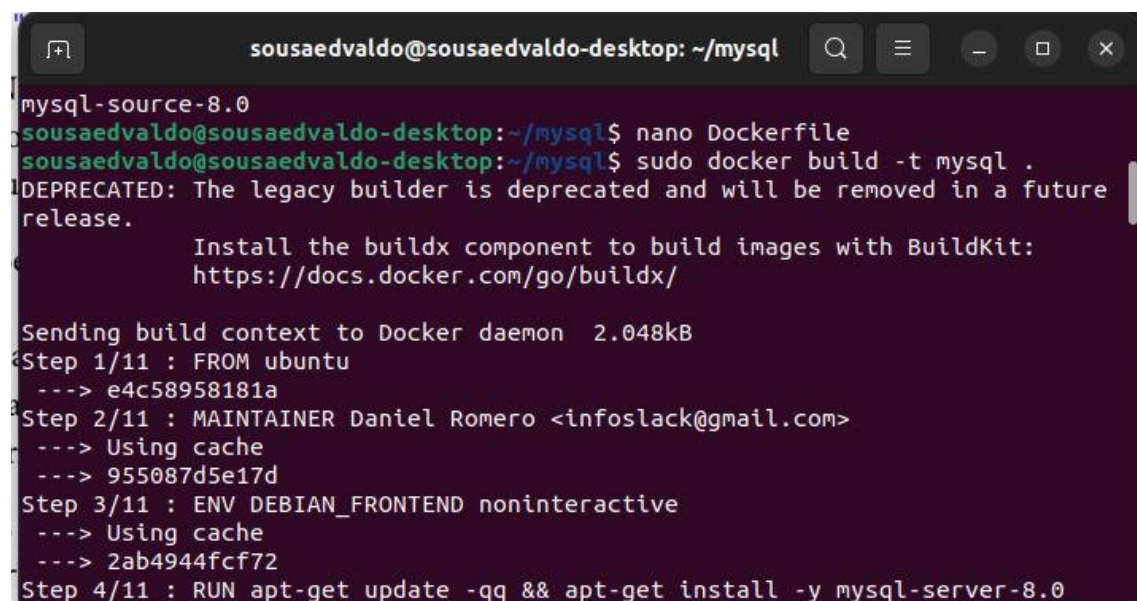
Figura 5- arquivo Dockerfile gerado



```
GNU nano 6.2 Dockerfile
FROM ubuntu
MAINTAINER Daniel Romero <infoslack@gmail.com>
ENV DEBIAN_FRONTEND noninteractive
RUN apt-get update -qq && apt-get install -y mysql-server-8.0
ADD my.cnf /etc/mysql/conf.d/my.cnf
RUN chmod 664 /etc/mysql/conf.d/my.cnf
ADD run /usr/local/bin/run
RUN chmod +x /usr/local/bin/run
VOLUME ["/var/lib/mysql"]
EXPOSE 3306
CMD ["/usr/local/bin/run"]

[ 11 linhas lidas ]
^G Ajuda      ^O Gravar     ^W Onde está? ^K Recortar   ^T Executar
^X Sair       ^R Ler o arq  ^_ Substituir ^U Colar     ^J Justificar
```

Figura 6- construção do contêiner



```
sousaedvaldo@sousaedvaldo-desktop: ~/mysql
mysql-source-8.0
sousaedvaldo@sousaedvaldo-desktop:~/mysql$ nano Dockerfile
sousaedvaldo@sousaedvaldo-desktop:~/mysql$ sudo docker build -t mysql .
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/

Sending build context to Docker daemon  2.048kB
Step 1/11 : FROM ubuntu
--> e4c58958181a
Step 2/11 : MAINTAINER Daniel Romero <infoslack@gmail.com>
--> Using cache
--> 955087d5e17d
Step 3/11 : ENV DEBIAN_FRONTEND noninteractive
--> Using cache
--> 2ab4944fcf72
Step 4/11 : RUN apt-get update -qq && apt-get install -y mysql-server-8.0
```


Figura 7- sucesso na construção do contêiner

```
sousaedvaldo@sousaedvaldo-desktop: ~/mysql
---> Running in 365a57a8080a
Removing intermediate container 365a57a8080a
---> 1869ca337c0c
Step 9/11 : VOLUME ["/var/lib/mysql"]
---> Running in 76dfce45b598
Removing intermediate container 76dfce45b598
---> 8478c92354f7
Step 10/11 : EXPOSE 3306
---> Running in d263314db9cf
Removing intermediate container d263314db9cf
---> 018c1c57adb3
Step 11/11 : CMD ["/usr/local/bin/run"]
---> Running in 9577ae2fbd71
Removing intermediate container 9577ae2fbd71
---> f601317a26e3
Successfully built f601317a26e3
Successfully tagged mysql:latest
sousaedvaldo@sousaedvaldo-desktop: ~/mysql$
```

Figura 8- inicializar um contêiner

```
sousaedvaldo@sousaedvaldo-desktop: ~/mysql
---> 1869ca337c0c
Step 9/11 : VOLUME ["/var/lib/mysql"]
---> Using cache
---> 8478c92354f7
Step 10/11 : EXPOSE 3307
---> Running in 5df4a49bb151
Removing intermediate container 5df4a49bb151
---> 13e22f886d13
Step 11/11 : CMD ["/usr/local/bin/run"]
---> Running in 52b725fb4311
Removing intermediate container 52b725fb4311
---> b9802069d3ac
Successfully built b9802069d3ac
Successfully tagged mysql:latest
sousaedvaldo@sousaedvaldo-desktop: ~/mysql$ sudo docker run -d -p 3307:3306 -
e MYSQL_ROOT_PASSWORD=xpto1234 mysql
776bf54bf14a8f4248c052a1b9b557ba3229894af6856cc7c6be456dac12cbea
sousaedvaldo@sousaedvaldo-desktop: ~/mysql$
```

Figura 9- teste do banco

```
sousaedvaldo@sousaedvaldo-desktop: /etc/mysql
/sys/kernel/debug/block/loop5/hctx0/run
/sys/kernel/debug/block/loop4/hctx0/run
/sys/kernel/debug/block/loop3/hctx0/run
/sys/kernel/debug/block/loop2/hctx0/run
/sys/kernel/debug/block/loop1/hctx0/run
/sys/kernel/debug/block/loop0/hctx0/run
sousaedvaldo@sousaedvaldo-desktop:/etc/mysql$ mysql -h 127.0.0.1 -u root -p
Enter password:
Welcome to the MariaDB monitor.  Commands end with ; or \g.
Your MariaDB connection id is 34
Server version: 10.6.12-MariaDB-0ubuntu0.22.04.1 Ubuntu 22.04

Copyright (c) 2000, 2018, Oracle, MariaDB Corporation Ab and others.

Type 'help;' or '\h' for help. Type '\c' to clear the current input statement.

MariaDB [(none)]>
```

Figura 10- criando imagem busybox

```
sousaedvaldo@sousaedvaldo-desktop: /etc/mysql
72ff913c1690  a5705da8cb5d  "/usr/sbin/nginx -g ..."  2 hours ago  U
p 2 hours      0.0.0.0:8081->80/tcp, :::8081->80/tcp
    laughing_cartwright
ed25cb7279f4  a5705da8cb5d  "/usr/sbin/nginx -g ..."  2 hours ago  C
reated
    silly_johnson
2e2878902ec7  ubuntu/nginx  "/usr/sbin/nginx -g ..."  2 hours ago  U
p 2 hours      0.0.0.0:8080->80/tcp, :::8080->80/tcp
    frosty_chaplygin
sousaedvaldo@sousaedvaldo-desktop:/etc/mysql$ sudo docker run -i -t --volume
s-from 776bf54bf14a busybox
Unable to find image 'busybox:latest' locally
latest: Pulling from library/busybox
3f4d90098f5b: Pull complete
Digest: sha256:3fbc632167424a6d997e74f52b878d7cc478225cfffac6bc977eedfe51c7f4
e79
Status: Downloaded newer image for busybox:latest
/ #
```

Figura 11- listando o conteúdo do var/lib/mysql

```
sousaedvaldo@sousaedvaldo-desktop: /etc/mysql
lib/  spool/  www/
/ # ls -la var/lib/mysql/
total 78288
-rw-r----- 1 101 101 196608 Oct 25 23:46 #ib_16384_0.dblwr
-rw-r----- 1 101 101 8585216 Oct 25 23:44 #ib_16384_1.dblwr
drwxr-x--- 2 101 101 4096 Oct 25 23:57 #innodb_redo
drwxr-x--- 2 101 101 4096 Oct 25 23:46 #innodb_temp
drwx----- 7 101 101 4096 Oct 25 23:57 .
drwxr-xr-x 3 root root 4096 Oct 26 00:11 ..
-rw-r----- 1 101 101 56 Oct 25 23:44 auto.cnf
-rw-r----- 1 101 101 180 Oct 25 23:46 binlog.000001
-rw-r----- 1 101 101 404 Oct 25 23:46 binlog.000002
-rw-r----- 1 101 101 32 Oct 25 23:46 binlog.index
-rw----- 1 101 101 1705 Oct 25 23:45 ca-key.pem
-rw-r--r-- 1 101 101 1112 Oct 25 23:45 ca.pem
-rw-r--r-- 1 101 101 1112 Oct 25 23:45 client-cert.pem
-rw----- 1 101 101 1701 Oct 25 23:45 client-key.pem
-rw-r--r-- 1 root root 0 Oct 25 23:46 debian-5.7.flag
-rw-r----- 1 101 101 3455 Oct 25 23:46 ib_buffer_pool
-rw-r----- 1 101 101 12582912 Oct 25 23:46 ibdata1
drwxr-x--- 2 101 101 4096 Oct 25 23:57 mysql
-rw-r----- 1 101 101 25165824 Oct 25 23:46 mysql.ibd
drwxr-x--- 2 101 101 4096 Oct 25 23:57 performance_schema
-rw----- 1 101 101 1705 Oct 25 23:45 private_key.pem
-rw-r--r-- 1 101 101 452 Oct 25 23:45 public_key.pem
-rw-r--r-- 1 101 101 1112 Oct 25 23:45 server-cert.pem
-rw----- 1 101 101 1705 Oct 25 23:45 server-key.pem
drwxr-x--- 2 101 101 4096 Oct 25 23:57 sys
-rw-r----- 1 101 101 16777216 Oct 25 23:46 undo_001
-rw-r----- 1 101 101 16777216 Oct 25 23:46 undo_002
/ #
```


4.3 BACKUP E RESTORE DE VOLUMES

Figura 12- gerando backup inicial

```
sousaedraldo@sousaedraldo-desktop: /etc/mysql
bash: erro de sintaxe próximo ao token inesperado `)'
sousaedraldo@sousaedraldo-desktop:/etc/mysql$ sudo docker run --volumes-from 776bf54bf14a -v \
> $(pwd):/backup ubuntu tar cvf /backup/backup.tar /var/lib/mysql
tar: Removing leading '/' from member names
/var/lib/mysql/
/var/lib/mysql/#ib_16384_1.dblwr
/var/lib/mysql/client-key.pem
/var/lib/mysql/#innodb_temp/
/var/lib/mysql/debian-5.7.flag
/var/lib/mysql/public_key.pem
/var/lib/mysql/ib_buffer_pool
/var/lib/mysql/undo_001
/var/lib/mysql/ibdata1
/var/lib/mysql/client-cert.pem
/var/lib/mysql/binlog.000001
/var/lib/mysql/binlog.000002
/var/lib/mysql/mysql.ibd
/var/lib/mysql/auto.cnf
/var/lib/mysql/performance_schema/
/var/lib/mysql/performance_schema/keyring_keys_152.sdi
/var/lib/mysql/performance_schema/mutex_instances_97.sdi
/var/lib/mysql/performance_schema/status_by_user_180.sdi
/var/lib/mysql/performance_schema/threads_110.sdi
/var/lib/mysql/performance_schema/data_lock_waits_161.sdi
/var/lib/mysql/performance_schema/events_waits_his_86.sdi
/var/lib/mysql/performance_schema/events_transacti_135.sdi
/var/lib/mysql/performance_schema/replication asyn 172.sdi
```

Figura 13- acessando o banco example, criando tabela docker e listando a tabela criada

```
sousaedraldo@sousaedraldo-desktop: /etc/mysql
drwxr-xr-x  2 root root    4096 set 14 13:20 mysql.conf.d
sousaedraldo@sousaedraldo-desktop:/etc/mysql$ mysql -h 127.0.0.1 -u root -p
Enter password:
Welcome to the MariaDB monitor.  Commands end with ; or \g.
Your MariaDB connection id is 35
Server version: 10.6.12-MariaDB-0ubuntu0.22.04.1 Ubuntu 22.04

Copyright (c) 2000, 2018, Oracle, MariaDB Corporation Ab and others.

Type 'help;' or '\h' for help. Type '\c' to clear the current input statement.

MariaDB [(none)]> create database example;
Query OK, 1 row affected (0,052 sec)

MariaDB [(none)]> use example;
Database changed
MariaDB [example]> create table docker (
  -> id int,
  -> name varchar(200)
  -> );
Query OK, 0 rows affected (0,320 sec)

MariaDB [example]>
Display all 744 possibilities? (y or n)
MariaDB [example]> show tables;
+-----+
| Tables_in_example |
+-----+
| docker             |
+-----+
1 row in set (0,001 sec)

MariaDB [example]>
```

Figura 14- excluindo o contêiner

```
sousaedvaldo@sousaedvaldo-desktop: /etc/mysql
/var/lib/mysql/#innodb_redo/#ib_redo24_tmp
/var/lib/mysql/#innodb_redo/#ib_redo27_tmp
/var/lib/mysql/#innodb_redo/#ib_redo11_tmp
/var/lib/mysql/#innodb_redo/#ib_redo33_tmp
sousaedvaldo@sousaedvaldo-desktop:/etc/mysql$ sudo docker rm -f 776bf54bf14a
776bf54bf14a
sousaedvaldo@sousaedvaldo-desktop:/etc/mysql$ sudo docker run -d -p 3307:3306 -e MYSQL_ROOT_PASSWORD=xpto1234 mysql
13d2257a10f98c0199f6aa6a42875329d38424f7eaad62668e282aefe31c2d30
sousaedvaldo@sousaedvaldo-desktop:/etc/mysql$ mysql -h 127.0.0.1 -u root -p
```

Figura 15- recuperando backup

```
sousaedvaldo@sousaedvaldo-desktop: /etc/mysql
sousaedvaldo@sousaedvaldo-desktop:/etc/mysql$ sudo docker run --volumes-from c7190072823f -v $(pwd):/backup ubuntu tar xvf /backup/backup.tar
var/lib/mysql/
var/lib/mysql/#ib_16384.1.dblwr
var/lib/mysql/client-key.pem
var/lib/mysql/#innodb_temp/
var/lib/mysql/debian-5.7.flag
var/lib/mysql/public-key.pem
var/lib/mysql/ib_buffer_pool
var/lib/mysql/undo_001
var/lib/mysql/ibdata1
var/lib/mysql/client-cert.pem
var/lib/mysql/binlog.000001
var/lib/mysql/binlog.000002
var/lib/mysql/mysql.ibd
var/lib/mysql/auto.cnf
var/lib/mysql/performance_schema/
var/lib/mysql/performance_schema/keyring_keys_152.sdi
var/lib/mysql/performance_schema/mutex_instances_97.sdi
var/lib/mysql/performance_schema/status_by_user_180.sdi
var/lib/mysql/performance_schema/threads_110.sdi
var/lib/mysql/performance_schema/data_lock_waits_161.sdi
var/lib/mysql/performance_schema/events_waits_86.sdi
var/lib/mysql/performance_schema/events_transactions_135.sdi
var/lib/mysql/performance_schema/replication_asyn_172.sdi
var/lib/mysql/performance_schema/events_statement_125.sdi
var/lib/mysql/performance_schema/prepared_statements_175.sdi
var/lib/mysql/performance_schema/replication_conn_164.sdi
var/lib/mysql/performance_schema/replication_appl_167.sdi
var/lib/mysql/performance_schema/hosts_146.sdi
var/lib/mysql/performance_schema/events_transactions_134.sdi
var/lib/mysql/performance_schema/events_transactions_137.sdi
var/lib/mysql/performance_schema/memory_summary_b_154.sdi
```


Figura 16- mostrando banco example e tabela docker após a recuperação do backup.

```
sousaedvaldo@sousaedvaldo-desktop: /etc/mysql
sousaedvaldo@sousaedvaldo-desktop:/etc/mysql$ mysql -h 127.0.0.1 -u root -p
Enter password:
Welcome to the MariaDB monitor.  Commands end with ; or \g.
Your MariaDB connection id is 37
Server version: 10.6.12-MariaDB-0ubuntu0.22.04.1 Ubuntu 22.04

Copyright (c) 2000, 2018, Oracle, MariaDB Corporation Ab and others.

Type 'help;' or '\h' for help. Type '\c' to clear the current input statement.

MariaDB [(none)]> show databases;
+-----+
| Database |
+-----+
| example  |
| information_schema |
| mysql    |
| performance_schema |
| sys      |
| test_database |
+-----+
6 rows in set (0,001 sec)

MariaDB [(none)]> show tables;
ERROR 1046 (3D000): No database selected
MariaDB [(none)]> use example;
Reading table information for completion of table and column names
You can turn off this feature to get a quicker startup with -A

Database changed
MariaDB [example]> show tables;
+-----+
| Tables_in_example |
+-----+
| docker             |
+-----+
1 row in set (0,001 sec)
```