

Course > Chapter 3: M... > Guided Exer... > Guided Exer...

Guided Exercise: Managing a MySQL Container

In this exercise, you will create and manage multiple MySQL server containers.

Resources	
Image:	RHSCL MySQL 5.6 container image (rhscl/mysql-56-rhel7)

Outcomes

You should be able to create and manage multiple MySQL database containers.

Before You Begin

You need to have CDK 3 installed and configured to start this exercise. Check the **Lab Set-up Instructions** to learn how to install and configure the CDK 3.

Check if your Minishift VM is running with the command:

\$ minishift status Running

If the Minishift VM is not running, start the VM using the command:



\$ minishift start

Steps

Open a shell inside the Minishift VM. All Docker commands will be 1. run inside the VM:

```
$ minishift ssh
[docker@minishift ~]$
```

The shell prompt should change to indicate that you are now inside the Minishift VM.

Start the first MySQL server container using the following command: 2.

[docker@minishift ~]\$ docker run --name mysql-1st r hscl/mysql-56-rhel7

This command downloads the MySQL database container image from Red Hat and tries to start it, but it does not start. The reason for this is the image requires a few environment variables to be provided.

Note

If you try to run the container as a daemon (-d), the error message about the required variables is not displayed. However, this message is included as part of the container logs, which can be viewed using the following command:

[docker@minishift ~]\$ docker logs mysql-1st

3. Check that the container exited:

```
[docker@minishift ~]$ docker ps -a | grep mysql
b2b8a74502f9 rhscl/mysql-56-rhel7 "container-e
ntrypoint"
            4 seconds ago Exited (1) 3 seconds a
     mysql-1st
go
```

4. Start a second MySQL server container, providing the required environment variables. Specify each variable using the **-e** option.

```
[docker@minishift ~]$ docker run --name mysql-2nd \
   -e MYSQL USER=user1 -e MYSQL PASSWORD=mypa55 \
   -e MYSQL_DATABASE=items -e MYSQL_ROOT_PASSWORD=
r00tpa55 \
   -d rhscl/mysql-56-rhel7
```

5. Verify that the container was started correctly. Run the following command:

```
[docker@minishift ~]$ docker ps | grep mysql
CONTAINER ID
               IMAGE
                                      COMMAND
CREATED
                   STATUS
                               PORTS
NAMES
5cd89eca81dd
               rhscl/mysql-56-rhel7
                                      "container-e
ntrypoint" 9 seconds ago Up 8 seconds
                                            3306/t
ср
mysql-2nd
```

6. Inspect the container metadata to obtain the IP address from the MySQL database server container:

```
[docker@minishift ~]$ docker inspect -f '{{ .Networ
kSettings.IPAddress }}' mysql-2nd
172.17.0.2
```

Make a note with the IP address because you will need it for the next steps.

7. Create a third container to run a MySQL client to connect to the database server running on the second container.

Use the MySQL server container image, but without running its default entry point. Execute the Bash shell instead:

```
[docker@minishift ~]$ docker run --name mysql-3rd -
it rhscl/mysql-56-rhel7 bash
bash-4.2$
```

Notice that this container image displays a Bash prompt for a regular user. Different from the MySQL image from the Docker Hub, the image provided by Red Hat does not run as the **root** user.

8. Try to connect to the local MySQL database:

```
bash-4.2$ mysql
```

The following error is displayed:

```
ERROR 2002 (HY000): Can't connect to local MySQL se
rver through socket '/var/lib/mysql/mysql.sock' (2)
```

This error is expected because the MySQL database server was not started in the third container.

9. Connect to the remote MySQL server in the second container, from the third container. Notice the IP address should be the one you got from Step 6. It might be different from 172.17.0.2.

```
bash-4.2$ mysql -uuser1 -h 172.17.0.2 -pmypa55 item
```

10. You are connected to the **items** remote database. Create a new table:

```
MySQL [items] > CREATE TABLE Courses (id int NOT NUL
L, name varchar(255) NOT NULL,
    PRIMARY KEY (id));
```

Insert a row into the table by running the following command:

```
MySQL [items]> insert into Courses (id, name) value
s (1,'D0081x');
```

12. Exit from the MySQL prompt:

```
MySQL [items]> exit
```

13. Exit from the **bash** shell:

```
bash-4.2$ exit
```

14. When you exit the **bash** shell, the third container was stopped. Verify that the container **mysql-3rd** is not running, but the second container is still up:

```
[docker@minishift ~]$ docker ps | grep mysql
CONTAINER ID
                    IMAGE
                                           COMMAND
CREATED
                    STATUS
PORTS
                    NAMES
8b2c0ee86419
                    rhscl/mysql-56-rhel7 "contain
er-entrypoint"
                 4 minutes ago
                                     Up 4 minutes
3306/tcp
                    mysql-2nd
```

- Delete the containers and resources created by this exercise.
 - 15.1 Stop the second container by running the following command:

```
[docker@minishift ~]$ docker stop mysql-2nd
```

15.2 Remove the containers ephemeral data by running the following commands:

```
[docker@minishift ~]$ docker rm mysql-1st
[docker@minishift ~]$ docker rm mysql-2nd
[docker@minishift ~]$ docker rm mysql-3rd
```

15.3 Remove the container image by running the following command:

```
[docker@minishift ~]$ docker rmi rhscl/mysql-
56-rhel7
```

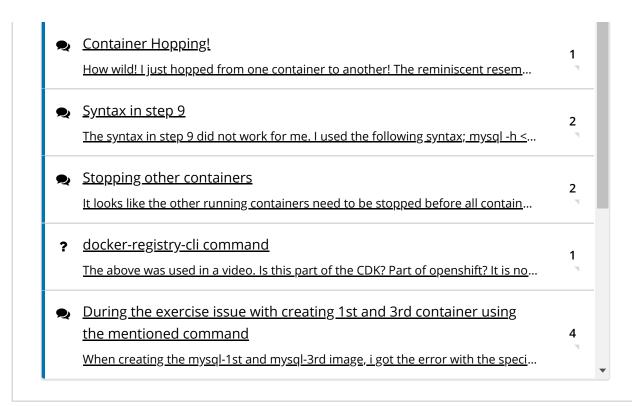
15.4 Leave the Minishift VM:

[docker@minishift ~]\$ exit logout \$

Notice you should be back to your operating system prompt.

This concludes the guided exercise.

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