

Урок 5. Docker Compose и Docker Swarm

Задание 1:

1. создать docker compose файл, состоящий из 2 различных контейнеров: 1 - веб, 2 - БД

```
mkdir mariadb
```

```
version: '3.8'

services:

  db:
    image: mariadb:10.10.2
    environment:
      MYSQL_ROOT_PASSWORD: GB
    volumes:
      - /home/sasha/develop/GeekBrains/Containerization/HW-5/mariadb:/var/lib/mariadb
    deploy:
      mode: replicated
      replicas: 2

  adminer:
    image: adminer:4.8.1
    restart: always
    ports:
      - 6080:8080
    volumes:
      - /home/salerat/dumps:/dumps
    deploy:
      mode: replicated
      replicas: 1
```

2. запустить docker compose файл

```
docker compose up -d
```

3. по итогу на БД контейнере должно быть 2 реплики, на админере должна быть 1 реплика. Всего должно получиться 3 контейнера

```
docker ps
```

```
HW-5 [issue-261-Docker_Compose_и_Docker_Swarm] docker ps
CONTAINER ID   IMAGE                                COMMAND                  CREATED        STATUS        PORTS                               NAMES
16946e0399d4   mariadb:10.10.2                    "docker-entrypoint.s..." 16 seconds ago Up 15 seconds 3306/tcp                               hw-5-db-2
d88836c377b2   mariadb:10.10.2                    "docker-entrypoint.s..." 16 seconds ago Up 15 seconds 3306/tcp                               hw-5-db-1
e4249d6f9dcf   adminer:4.8.1                      "entrypoint.sh php -..." 16 seconds ago Up 15 seconds 0.0.0.0:6080->8080/tcp, :::6080->8080/tcp hw-5-adminer-1
```

4. выводы зафиксировать

```
HW-5 [issue-261-Docker_Compose_и_Docker_Swarm] mkdir mariadb
HW-5 [issue-261-Docker_Compose_и_Docker_Swarm] docker compose up -d
[+] Running 17/17
  ✓ db 8 layers [#####] 0B/0B Pulled
    ✓ 10ac4908093d Pull complete
    ✓ 44779101e748 Pull complete
    ✓ a721db3e3f3d Pull complete
    ✓ 1850a929b84a Pull complete
    ✓ 397a918c7da3 Pull complete
    ✓ 806be17e856d Pull complete
    ✓ 634de6c90876 Pull complete
    ✓ cd00854cfb1a Pull complete
  ✓ adminer 7 layers [#####] 0B/0B Pulled
    ✓ 93c2d578e421 Pull complete
    ✓ 3e099cf7ea37 Pull complete
    ✓ 8d12c699384c Pull complete
    ✓ 05c66113a52b Pull complete
    ✓ 677df7ad2be6 Pull complete
    ✓ 598f6ab1ce29 Pull complete
    ✓ 41ed709cb4bc Pull complete
[+] Running 4/4
  ✓ Network hw-5_default Created
  ✓ Container hw-5-db-2 Started
  ✓ Container hw-5-db-1 Started
  ✓ Container hw-5-adminer-1 Started
HW-5 [issue-261-Docker_Compose_и_Docker_Swarm] docker ps
CONTAINER ID   IMAGE                                COMMAND                  CREATED        STATUS        PORTS                               NAMES
16946e0399d4   mariadb:10.10.2                    "docker-entrypoint.s..." 16 seconds ago Up 15 seconds 3306/tcp                               hw-5-db-2
d88836c377b2   mariadb:10.10.2                    "docker-entrypoint.s..." 16 seconds ago Up 15 seconds 3306/tcp                               hw-5-db-1
e4249d6f9dcf   adminer:4.8.1                      "entrypoint.sh php -..." 16 seconds ago Up 15 seconds 0.0.0.0:6080->8080/tcp, :::6080->8080/tcp hw-5-adminer-1
HW-5 [issue-261-Docker_Compose_и_Docker_Swarm]
```

localhost:6080/?server=db&username=root

Language: English

MySQL » db

Select database

Create database Privileges Process list Variables Status

MySQL version: 5.5.5-10.10.2-MariaDB-1:10.10.2+maria~ubu2204 through PHP extension MySQLi

Logged as: root@172.20.0.2

	Database - Refresh	Collation	Tables	Size - Compute
<input type="checkbox"/>	information_schema	utf8mb3_general_ci	?	?
<input type="checkbox"/>	mysql	utf8mb4_general_ci	?	?
<input type="checkbox"/>	performance_schema	utf8mb3_general_ci	?	?
<input type="checkbox"/>	sys	utf8mb3_general_ci	?	?

Selected (0)

Drop

Select database

Create database Privileges Process list Variables Status

Задание 2*:

1. создать кластер и мастер и слейв ноды

Master:

```
docker swarm init
docker node ls
```

Slave:

```
docker swarm join --token SWMTKN-1-  
2p63cvnjbv6btkk5mgzcofx5v5tthcvixq0ylhlrwsgaelnww3-3nz  
tme6bfg811qdggy4rdkwynv 172.17.0.3:2377
```

2. задеплоить на ноду несколько экземпляров какого-нибудь контейнера, например nginx

Master:

```
docker service create --name nginx --label slave --replicas 4 nginx:alpine  
docker ps
```

Slave:

```
docker ps
```

3. обязательно проверить и зафиксировать результаты, чтобы можно было выслать преподавателю для проверки

test : docker

```
/ # docker swarm init
Swarm initialized: current node (mfex58nyt0kea148izim8ithk) is now a manager.

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

    docker swarm join --token SWMTKN-1-496yqkni13rikymajr1k78n3o7p9qu2pi2p9w1kkch4bmk9sx-4ir
dfg8sbnb1ok2psuutzbtft 172.17.0.3:2377

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

/ # docker node ls
ID                HOSTNAME          STATUS      AVAILABILITY  MANAGER STATUS  ENGINE
VERSION
mfex58nyt0kea148izim8ithk * 5b9c6411e5cd    Ready      Active        Leader          24.0.2
2bh1t4dkxdcf4lf51tw6etd6c d70d9f2ef352    Ready      Active                24.0.2
/ #
```

test : docker

test : docker

```
/ # docker swarm join --token SWMTKN-1-496yqkni13rikymajr1k78n3o7p9qu2pi2p9w1kkch4bmk9sx-4ir
dfg8sbnb1ok2psuutzbtft 172.17.0.3:2377
This node joined a swarm as a worker.
/ #
```

test : docker

test : docker

```
CONTAINER ID   NAME                CPU %     MEM USAGE / LIMIT     MEM %     NET I/O       BLOCK I/O  PIDS
5b9c6411e5cd   test-docker-1       0.98%     65.1MiB / 39.12GiB    0.16%     626kB / 583kB  0B / 2.31MB 28
7f0d9f2ef352   test-docker-2       0.25%     52.35MiB / 39.12GiB    0.13%     605kB / 605kB  0B / 1.99MB 30
/ #
```

test : docker

test : docker

```
/ # docker node ls
ID                HOSTNAME          STATUS      AVAILABILITY  MANAGER STATUS  ENGINE
VERSION
mfex58nyt0kea148izim8ithk * 5b9c6411e5cd    Ready      Active        Leader          24.0.2
2bh1t4dkxdcf4lf51tw6etd6c d70d9f2ef352    Ready      Active                24.0.2
/ # docker node update --label-add slave 2bh1
unknown flag: --label-add
See 'docker node update --help'.
/ # docker node update --label-add slave 2bh1
2bh1
/ # docker node ls
ID                HOSTNAME          STATUS      AVAILABILITY  MANAGER STATUS  ENGINE
VERSION
mfex58nyt0kea148izim8ithk * 5b9c6411e5cd    Ready      Active        Leader          24.0.2
2bh1t4dkxdcf4lf51tw6etd6c d70d9f2ef352    Ready      Active                24.0.2
/ # docker service create --name nginx --label slave --replicas 4 nginx:alpine
overall progress: 4 out of 4 tasks
1/4: running
2/4: running
3/4: running
4/4: running
verify: Service converged
/ # docker ps
CONTAINER ID   IMAGE                COMMAND                  CREATED        STATUS        PORTS
NAMES
9e223ac7e7a6   nginx:alpine        "/docker-entrypoint..." 26 seconds ago Up 25 seconds 80/tcp
p   nginx.2.te223jy9aprhdp4uuaa7hv3y
df3aac0feb8    nginx:alpine        "/docker-entrypoint..." 26 seconds ago Up 25 seconds 80/tcp
p   nginx.4.yal1rdctr50sd3033o69esa69
/ #
```

test : docker

test : docker

```
/ # docker ps
CONTAINER ID   IMAGE                COMMAND                  CREATED        STATUS        PORTS
NAMES
b5b878d38895   nginx:alpine        "/docker-entrypoint..." 17 seconds ago Up 16 seconds 80/tcp
p   nginx.3.y20y0azo1w7ihfoyqcvf28oyk
e42a1ce0e059   nginx:alpine        "/docker-entrypoint..." 17 seconds ago Up 16 seconds 80/tcp
p   nginx.1.h6d5qypl95uzu9uf2v8s8zdh
/ #
```

test : docker

test : docker

```
CONTAINER ID   NAME                CPU %     MEM USAGE / LIMIT     MEM %     NET I/O       BLOCK I/O  PIDS
5b9c6411e5cd   test-docker-1       0.41%     125.3MiB / 39.12GiB    0.31%     19MB / 1.37MB  0B / 57.2MB 70
d70d9f2ef352   test-docker-2       0.27%     94.88MiB / 39.12GiB    0.24%     18.9MB / 1.34MB  0B / 61.8MB 71
/ #
```

test : docker

Задание со звездочкой - повышенной сложности, это нужно учесть при выполнении (но сделать его необходимо).

Формат сдачи ДЗ: предоставить доказательства выполнения задания посредством ссылки на google-документ с правами на комментирование/редактирование. Результатом работы будет: текст объяснения, логи выполнения, история команд и скриншоты (важно придерживаться такой последовательности). В названии работы должны быть указаны ФИ, номер группы и номер урока