

# Контейнеризация. ДЗ-5

Сапуннов А. Контейнеризация. Итоговая практическая работа.

## Docker Compose и Docker Swarm

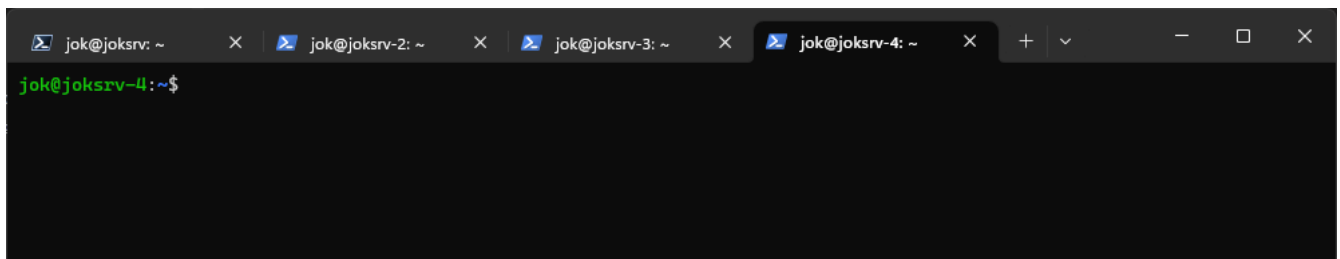
### Задание

Проделать лабораторную ( <https://bday2021.play-with-docker.com/voting-app/> ) с четырьмя нодами.  
Посмотреть `docker node ls` Изучить какие сервисы запустились на каждой нод. "Уронить"  
(выключить) одну ноду. Посмотреть `docker node ls`

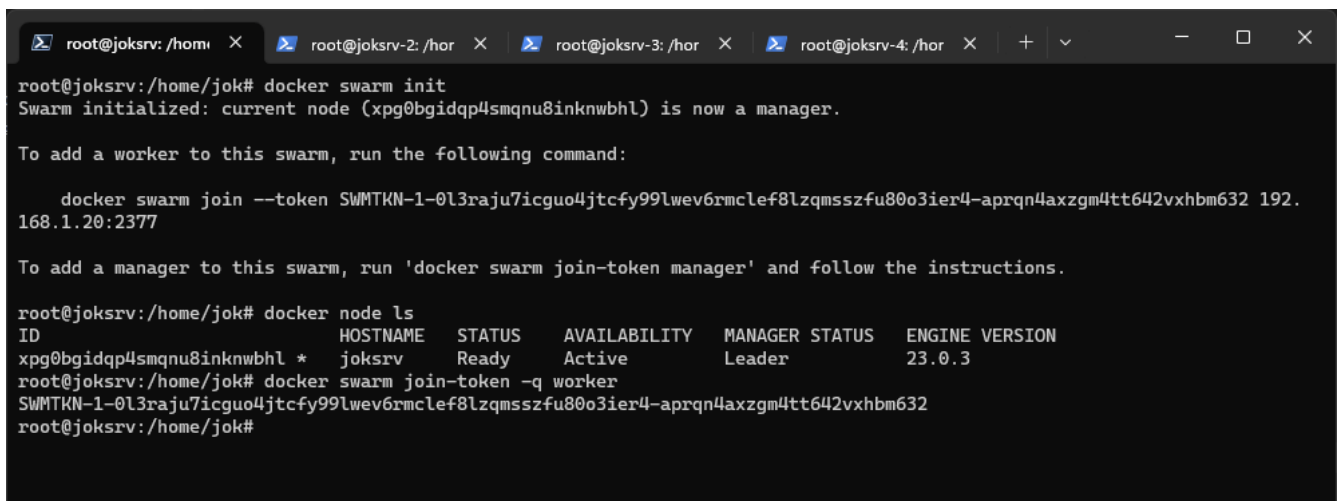
Прислать краткий отчет в pdf файле

### Ход выполнения

Подготовим четыре виртуальных сервера для организации нод.



Инициализируем на них docker swarm. Первый - лидером, остальные - воркерами



```
root@joksrv:/home/jok# docker swarm init
Swarm initialized: current node (xpg0bgidqp4smqnu8inknbhl) is now a manager.

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

    docker swarm join --token SWMTKN-1-0l3raju7icguo4jtcfy99lwev6rmclef8lzqmsszfu80o3ier4-aprq4axzgm4tt642vxhbm632 192.168.1.20:2377

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

root@joksrv:/home/jok# docker node ls
ID                HOSTNAME        STATUS    AVAILABILITY    MANAGER STATUS    ENGINE VERSION
xpg0bgidqp4smqnu8inknbhl *   joksrv        Ready     Active           Leader             23.0.3
root@joksrv:/home/jok# docker swarm join-token -q worker
SWMTKN-1-0l3raju7icguo4jtcfy99lwev6rmclef8lzqmsszfu80o3ier4-aprq4axzgm4tt642vxhbm632
root@joksrv:/home/jok#
```

```
root@joksrv: /home X root@joksrv-2: /hor X root@joksrv-3: /hor X root@joksrv-4: /ho X + v - □ X
jok@joksrv-4:~$ sudo su
[sudo] password for jok:
root@joksrv-4:/home/jok# docker swarm init
Swarm initialized: current node (ct24oftejc9ov5uxozrr725hm) is now a manager.

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

    docker swarm join --token SWMTKN-1-5dfr909wpnnbrwkjk2pjmw0hkheferzkazc6fwyjbms5sdz3lf-av9of317fqr44pgeasiwje2dt 192.168.1.177:2377

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

root@joksrv-4:/home/jok# docker swarm leave -f
Node left the swarm.
root@joksrv-4:/home/jok# docker swarm join docker swarm join --token SWMTKN-1-0l3raju7icguo4jtcfy99lwev6rmclef8lzmsszfu80o3ier4-aprq4axzgm4tt642vxhbm632 192.168.1.20:2377
"docker swarm join" requires exactly 1 argument.
See 'docker swarm join --help'.

Usage:  docker swarm join [OPTIONS] HOST:PORT

Join a swarm as a node and/or manager
root@joksrv-4:/home/jok# docker swarm join --token SWMTKN-1-0l3raju7icguo4jtcfy99lwev6rmclef8lzmsszfu80o3ier4-aprq4axzgm4tt642vxhbm632 192.168.1.20:2377
This node joined a swarm as a worker.
root@joksrv-4:/home/jok# |
```

```
root@joksrv: /home X root@joksrv-2: /hor X root@joksrv-3: /hor X root@joksrv-4: /hor X + v - □ X
root@joksrv:/home/jok# docker swarm init
Swarm initialized: current node (xpg0bgidqp4smqnu8inknbhl) is now a manager.

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

    docker swarm join --token SWMTKN-1-0l3raju7icguo4jtcfy99lwev6rmclef8lzmsszfu80o3ier4-aprq4axzgm4tt642vxhbm632 192.168.1.20:2377

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

root@joksrv:/home/jok# docker node ls
ID                HOSTNAME        STATUS    AVAILABILITY    MANAGER STATUS    ENGINE VERSION
xpg0bgidqp4smqnu8inknbhl *   joksrv         Ready     Active           Leader             23.0.3
root@joksrv:/home/jok# docker swarm join-token -q worker
SWMTKN-1-0l3raju7icguo4jtcfy99lwev6rmclef8lzmsszfu80o3ier4-aprq4axzgm4tt642vxhbm632
root@joksrv:/home/jok# docker node ls
ID                HOSTNAME        STATUS    AVAILABILITY    MANAGER STATUS    ENGINE VERSION
xpg0bgidqp4smqnu8inknbhl *   joksrv         Ready     Active           Leader             23.0.3
qzca9edrivlu870lau4eafmay    joksrv-2       Ready     Active           Leader             23.0.3
xvumtejuu4vbsqej6q824xzls    joksrv-3       Ready     Active           Leader             23.0.3
ac4luhnwnsqwt8o7jac1qh7u2    joksrv-4       Ready     Active           Leader             23.0.3
root@joksrv:/home/jok#
```

Выполним клонирование репозитория git.

```
root@joksrv: /home/ X root@joksrv-2: /hor X root@joksrv-3: /hor X root@joksrv-4: /hor X + - □ X
root@joksrv:/home/jok# docker swarm init
Swarm initialized: current node (xpg0bgidqp4smqnu8inknwbhl) is now a manager.

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

    docker swarm join --token SWMTKN-1-0l3raju7icguo4jtcfy99lwev6rmclef8lzqmsszfu80o3ier4-aprq4axzgm4tt642vxhbm632 192.168.1.20:2377

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

root@joksrv:/home/jok# docker node ls
ID                HOSTNAME        STATUS    AVAILABILITY    MANAGER STATUS    ENGINE VERSION
xpg0bgidqp4smqnu8inknwbhl *   joksrv         Ready     Active           Leader             23.0.3
root@joksrv:/home/jok# docker swarm join-token -q worker
SWMTKN-1-0l3raju7icguo4jtcfy99lwev6rmclef8lzqmsszfu80o3ier4-aprq4axzgm4tt642vxhbm632
root@joksrv:/home/jok# docker node ls
ID                HOSTNAME        STATUS    AVAILABILITY    MANAGER STATUS    ENGINE VERSION
xpg0bgidqp4smqnu8inknwbhl *   joksrv         Ready     Active           Leader             23.0.3
qzca9edrivlu870lau4eafmay     joksrv-2       Ready     Active           23.0.3
xvumtejuu4vbsqej6q824xzls     joksrv-3       Ready     Active           23.0.3
ac4luhnwnsqwt8o7jac1qh7u2     joksrv-4       Ready     Active           23.0.3
root@joksrv:/home/jok# git clone https://github.com/dockerexamples/example-voting-app && cd example-voting-app
Cloning into 'example-voting-app'...
remote: Enumerating objects: 1084, done.
remote: Total 1084 (delta 0), reused 0 (delta 0), pack-reused 1084
Receiving objects: 100% (1084/1084), 1.14 MiB | 5.53 MiB/s, done.
Resolving deltas: 100% (408/408), done.
root@joksrv:/home/jok/example-voting-app#
```

Сделаем деплой

```
root@joksrv: /home/ X root@joksrv-2: /hor X root@joksrv-3: /hor X root@joksrv-4: /hor X + - □ X
root@joksrv:/home/jok/example-voting-app# docker stack deploy --compose-file docker-stack.yml vote
Creating network vote_frontend
Creating network vote_backend
Creating service vote_redis
Creating service vote_db
Creating service vote_vote
Creating service vote_result
Creating service vote_worker
root@joksrv:/home/jok/example-voting-app#
```

Проверяем сервисы.

```
root@joksrv: /home/ X root@joksrv-2: /hor X root@joksrv-3: /hor X root@joksrv-4: /hor X + - □ X
root@joksrv:/home/jok/example-voting-app# docker node ls
ID                HOSTNAME        STATUS    AVAILABILITY    MANAGER STATUS    ENGINE VERSION
xpg0bgidqp4smqnu8inknwbhl *   joksrv         Ready     Active           Leader             23.0.3
qzca9edrivlu870lau4eafmay     joksrv-2       Ready     Active           23.0.3
xvumtejuu4vbsqej6q824xzls     joksrv-3       Ready     Active           23.0.3
ac4luhnwnsqwt8o7jac1qh7u2     joksrv-4       Ready     Active           23.0.3
root@joksrv:/home/jok/example-voting-app# docker service ls
ID                NAME            MODE             REPLICAS    IMAGE                                  PORTS
oxvsnlnolnvc     vote_db         replicated       1/1          postgres:15-alpine
kyw7e4391np3     vote_redis     replicated       1/1          redis:alpine
od3j3zne9y2v     vote_result    replicated       1/1          dockersamples/examplevotingapp_result:latest    *:5001->80/tcp
1p03wk77o1xg     vote_vote      replicated       2/2          dockersamples/examplevotingapp_vote:latest      *:5000->80/tcp
slbrrb6dwluh     vote_worker     replicated       2/2          dockersamples/examplevotingapp_worker:latest
```

Выключим сервер с номером 3 (joksrv-3). И проверим состояние сервисов и нод.

```
root@joksrv: /home X root@joksrv-2: /hor X Windows PowerShe X root@joksrv-4: /hor X + - □ X
root@joksrv-3:/home/jok# docker swarm join --token SWMTKN-1-0l3raju7icguo4jtcfy99lw6v6rmclef8lzmsszfu80o3ier4-aprq4axzgm4tt642vxhbm632 192.168.1.20:2377
This node joined a swarm as a worker.
root@joksrv-3:/home/jok# poweroff
root@joksrv-3:/home/jok# Connection to 192.168.1.173 closed by remote host.
Connection to 192.168.1.173 closed.
PS C:\Users\jokerjam> |
```

```
root@joksrv: /home X root@joksrv-2: /hor X Windows PowerShe X root@joksrv-4: /hor X + - □ X
root@joksrv:/home/jok/example-voting-app# docker node ls
ID                HOSTNAME        STATUS        AVAILABILITY        MANAGER STATUS        ENGINE VERSION
xpg0bgidqp4smqnu8inknbhl *   joksrv         Ready         Active               Leader                 23.0.3
qzca9edrivlu870lau4eafmay      joksrv-2       Ready         Active               23.0.3
xvumtejuu4vbsqej6q824xzls      joksrv-3       Down          Active               23.0.3
ac4luhnwsnqwt8o7jac1qh7u2      joksrv-4       Ready         Active               23.0.3
root@joksrv:/home/jok/example-voting-app# docker service ls
ID                NAME            MODE           REPLICAS            IMAGE                                     PORTS
oxvsn1nolnvc     vote_db         replicated     1/1                  postgres:15-alpine
kyw7e4391np3     vote_redis      replicated     1/1                  redis:alpine
od3j3zne9y2v     vote_result     replicated     1/1                  dockersamples/examplevotingapp_result:latest *:*:5001->80/tcp
1p03wk77o1xg     vote_vote       replicated     3/2                  dockersamples/examplevotingapp_vote:latest *:*:5000->80/tcp
slbrb6dwluh      vote_worker     replicated     3/2                  dockersamples/examplevotingapp_worker:latest
```

Как видим статус ноды jokersrv-3 стал Down. А у сервисов изменилось состояние REPLICAS. Что говорит о перераспределении задач в кластере.