Docker Swarm's orchestration functionality really shines when using stacks. Stacks allow you to easily manage complex, multi-container applications and orchestrate them within your swarm cluster. In this lesson, we will discuss Docker stacks. We will demonstrate how to create and manage Docker stacks, as well as a few of the available options for designing stacks.

Relevant Documentation

- https://docs.docker.com/get-started/part5/
- https://docs.docker.com/engine/reference/commandline/stack/

Lesson Reference

1. Create a compose file for the stack.

```
vi simple-stack.yml
```

```
version: '3'
services:
  web:
    image: nginx
  busybox:
    image: radial/busyboxplus:curl
    command: /bin/sh -c "while true; do echo Hello!; sleep 10; done"
```

2. Deploy the stack and examine it using various commands.

```
docker stack deploy -c simple-stack.yml simple
docker stack ls
docker stack ps simple
docker stack services simple
docker service logs simple_busybox
```

3. Modify the stack to use an environment variable.

```
vi simple-stack.yml
```

```
version: '3'
services:
  web:
    image: nginx
  busybox:
    image: radial/busyboxplus:curl
    command: /bin/sh -c "while true; do echo $$MESSAGE; sleep 10; done"
    environment:
    - MESSAGE=Hello!
```

```
docker stack deploy -c simple-stack.yml simple
docker service logs simple_busybox
```

4. Modify the stack to expose a port.

```
vi simple-stack.yml
```

```
version: '3'
services:
  web:
    image: nginx
    ports:
    - "8080:80"
  busybox:
    image: radial/busyboxplus:curl
    command: /bin/sh -c "while true; do echo $$MESSAGE; sleep 10; done"
    environment:
    - MESSAGE=Hello!
```

```
docker stack deploy -c simple-stack.yml simple
curl localhost:8080
```

5. Modify the stack to use the BusyBox service to communicate with the web service.

```
vi simple-stack.yml
```

```
version: '3'
services:
  web:
    image: nginx
    ports:
    - "8080:80"
  busybox:
    image: radial/busyboxplus:curl
    command: /bin/sh -c "while true; do echo $$MESSAGE; curl web:80; sleep 10; done"
    environment:
    - MESSAGE=Hello!
```

```
docker stack deploy -c simple-stack.yml simple
```

6. Delete the stack.

```
docker stack rm simple
```