

NWEN_243 Project 1

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Making a Docker Image

```
Start a build
[ec2-user@ip-172-31-85-8 ~]$ docker build -t m8b .
[+] Building 11.5s (9/9) FINISHED                                docker:default
=> [internal] load build definition from Dockerfile              0.0s
=> => transferring dockerfile: 193B                               0.0s
=> [internal] load metadata for docker.io/library/openjdk:8      0.3s
=> [internal] load .dockerignore                                  0.0s
=> => transferring context: 2B                                       0.0s
=> [internal] load build context                                  0.0s
=> => transferring context: 4.38kB                                   0.0s
=> [1/4] FROM docker.io/library/openjdk:8@sha256:86e863cc57215cfb181bd319736d0bafe625fe8f158577 9.8s
=> => resolve docker.io/library/openjdk:8@sha256:86e863cc57215cfb181bd319736d0bafe625fe8f158577 0.0s
=> => sha256:86e863cc57215cfb181bd319736d0bafe625fe8f158577f9eb58bd937f5452cb8 1.04kB / 1.04kB 0.0s
=> => sha256:3af2ac94130765b73fc8f1b42f2c04f77996ed8218c297fcfa28ca880ff0a217 1.79kB / 1.79kB 0.0s
=> => sha256:d9dd4b96be964657da49910b495173d6c4f0d9bc47b3b44273cf82fd32723d165 5.16MB / 5.16MB 0.2s
=> => sha256:2068746827ec1b043b571e4788693eab7e9b2a95301176512791f8c317a2816 10.88MB / 10.88MB 0.6s
=> => sha256:b273004037cc3af245d8e08cfbfa672b93ee7dc8289736c82d0b58936fb71702 7.81kB / 7.81kB 0.0s
=> => sha256:001c52e26ad57e3b25b439ee0052f6692e5c0f2d5d982a00a8819ace5e52145 55.00MB / 55.00MB 1.2s
=> => sha256:9dae329d35093868ef75ac8b7c6eb407fa53abbc3a264c218c2ec7bca716e 54.58MB / 54.58MB 1.4s
=> => sha256:d85151f15b6683b98f21c3827ac545188b1849efb14a1049710ebc4692de3dd5 5.42MB / 5.42MB 1.0s
=> => sha256:52a8c426d30b691c4f7e8c4b438901dde82ff80d4540d5b5bd49986376d85cc9 210B / 210B 1.1s
=> => sha256:8754a66e005039a091c5ad0319f055be393c7123717b1f6fee8647c338ff3 105.92MB / 105.92MB 2.8s
=> => extracting sha256:001c52e26ad57e3b25b439ee0052f6692e5c0f2d5d982a00a8819ace5e521452 3.1s
=> => extracting sha256:d9dd4b96be964657da49910b495173d6c4f0d9bc47b3b44273cf82fd32723d165 0.2s
=> => extracting sha256:2068746827ec1b043b571e4788693eab7e9b2a95301176512791f8c317a2816a 0.2s
=> => extracting sha256:9dae329d35093868ef75ac8b7c6eb407fa53abbc3a264c218c2ec7bca716e6 2.2s
=> => extracting sha256:d85151f15b6683b98f21c3827ac545188b1849efb14a1049710ebc4692de3dd5 0.2s
=> => extracting sha256:52a8c426d30b691c4f7e8c4b438901dde82ff80d4540d5b5bd49986376d85cc9 0.0s
=> => extracting sha256:8754a66e005039a091c5ad0319f055be393c7123717b1f6fee8647c338ff3ceb 2.1s
=> [2/4] COPY *.java /usr/src/M8B/                               0.2s
=> [3/4] WORKDIR /usr/src/M8B/                                    0.0s
=> [4/4] RUN javac Magic8BallServer.java                          1.0s
=> => exporting to image                                             0.0s
=> => exporting layers                                              0.0s
=> => writing image sha256:437dd63b4c28734f7711c87116bbaefbd14a909b12a32bfff3ac28bb3268120a 0.0s
=> => naming to docker.io/library/m8b                               0.0s
[ec2-user@ip-172-31-85-8 ~]$ docker images --file reference=m8b
unknown flag: --file
See 'docker images --help'.
[ec2-user@ip-172-31-85-8 ~]$ docker images --filter reference=m8b
REPOSITORY TAG IMAGE ID CREATED SIZE
m8b latest 437dd63b4c28 59 seconds ago 526MB
[ec2-user@ip-172-31-85-8 ~]$ docker run -t -i -p 32000:32000 m8b &
[1] 27527
[ec2-user@ip-172-31-85-8 ~]$ docker ps
CONTAINER ID IMAGE COMMAND CREATED STATUS PORTS
[ec2-user@ip-172-31-85-8 ~]$ docker ps
CONTAINER ID IMAGE COMMAND CREATED STATUS PORTS NAMES
5b3a07b5136d m8b "java Magic8BallServ..." 28 seconds ago Up 28 seconds 0.0.0.0:32000->32000/tcp, :::32000->32000/tcp confident_kowalevski
[ec2-user@ip-172-31-85-8 ~]$ |
```

Figure 1: docker ps

Running and Testing Docker Image on EC2 instance

```
[+] Building 11.5s (9/9) FINISHED                                docker:default
=> [internal] load build definition from Dockerfile              0.0s
=> => transferring dockerfile: 193B                               0.0s
=> [internal] load metadata for docker.io/library/openjdk:8      0.3s
=> [internal] load .dockerignore                                  0.0s
=> => transferring context: 2B                                       0.0s
=> [internal] load build context                                  0.0s
=> => transferring context: 4.38kB                                   0.0s
=> [1/4] FROM docker.io/library/openjdk:8@sha256:86e863cc57215cfb181bd319736d0bafe625fe8f158577 9.8s
=> => resolve docker.io/library/openjdk:8@sha256:86e863cc57215cfb181bd319736d0bafe625fe8f158577 0.0s
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=> => sha256:2068746827ec1b043b571e4788693eab7e9b2a95301176512791f8c317a2816 10.88MB / 10.88MB 0.6s
=> => sha256:b273004037cc3af245d8e08cfbfa672b93ee7dc8289736c82d0b58936fb71702 7.81kB / 7.81kB 0.0s
=> => sha256:001c52e26ad57e3b25b439ee0052f6692e5c0f2d5d982a00a8819ace5e52145 55.00MB / 55.00MB 1.2s
=> => sha256:9dae329d35093868ef75ac8b7c6eb407fa53abbc3a264c218c2ec7bca716e 54.58MB / 54.58MB 1.4s
=> => sha256:d85151f15b6683b98f21c3827ac545188b1849efb14a1049710ebc4692de3dd5 5.42MB / 5.42MB 1.0s
=> => sha256:52a8c426d30b691c4f7e8c4b438901dde82ff80d4540d5b5bd49986376d85cc9 210B / 210B 1.1s
=> => sha256:8754a66e005039a091c5ad0319f055be393c7123717b1f6fee8647c338ff3 105.92MB / 105.92MB 2.8s
=> => extracting sha256:001c52e26ad57e3b25b439ee0052f6692e5c0f2d5d982a00a8819ace5e521452 3.1s
=> => extracting sha256:d9dd4b96be964657da49910b495173d6c4f0d9bc47b3b44273cf82fd32723d165 0.2s
=> => extracting sha256:2068746827ec1b043b571e4788693eab7e9b2a95301176512791f8c317a2816a 0.2s
=> => extracting sha256:9dae329d35093868ef75ac8b7c6eb407fa53abbc3a264c218c2ec7bca716e6 2.2s
=> => extracting sha256:d85151f15b6683b98f21c3827ac545188b1849efb14a1049710ebc4692de3dd5 0.2s
=> => extracting sha256:52a8c426d30b691c4f7e8c4b438901dde82ff80d4540d5b5bd49986376d85cc9 0.0s
=> => extracting sha256:8754a66e005039a091c5ad0319f055be393c7123717b1f6fee8647c338ff3ceb 2.1s
=> [2/4] COPY *.java /usr/src/M8B/                               0.2s
=> [3/4] WORKDIR /usr/src/M8B/                                    0.0s
=> [4/4] RUN javac Magic8BallServer.java                          1.0s
=> => exporting to image                                             0.0s
=> => exporting layers                                              0.0s
=> => writing image sha256:437dd63b4c28734f7711c87116bbaefbd14a909b12a32bfff3ac28bb3268120a 0.0s
=> => naming to docker.io/library/m8b                               0.0s
[ec2-user@ip-172-31-85-8 ~]$ docker images --file reference=m8b
unknown flag: --file
See 'docker images --help'.
[ec2-user@ip-172-31-85-8 ~]$ docker images --filter reference=m8b
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CONTAINER ID IMAGE COMMAND CREATED STATUS PORTS
[ec2-user@ip-172-31-85-8 ~]$ docker ps
CONTAINER ID IMAGE COMMAND CREATED STATUS PORTS NAMES
5b3a07b5136d m8b "java Magic8BallServ..." 28 seconds ago Up 28 seconds 0.0.0.0:32000->32000/tcp, :::32000->32000/tcp confident_kowalevski
[ec2-user@ip-172-31-85-8 ~]$ |
```

Figure 2: test from client

As can be seen in the Image above, the test to connect to the server running in the docker container was successful.

Pushing Docker image to a container registry

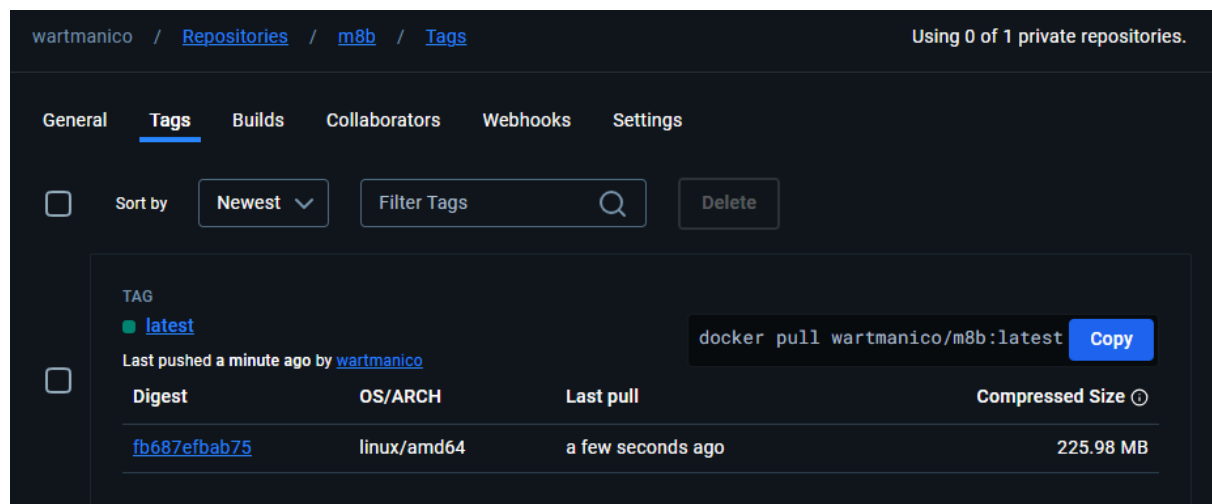


Figure 3: Docker Tag

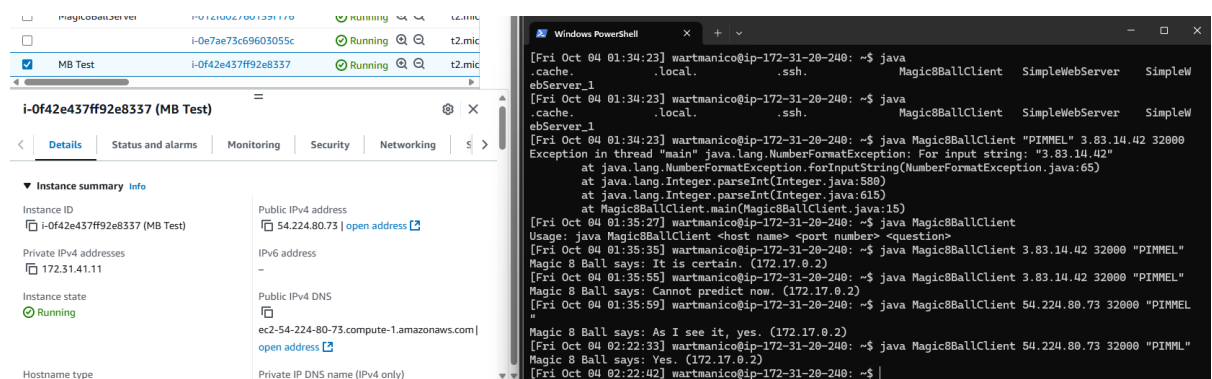


Figure 4: Testing docker image on second Instance

As can be seen above, I could successfully run the docker image on another EC2 instance.

Distributing the container – AWS ECS and Fargate

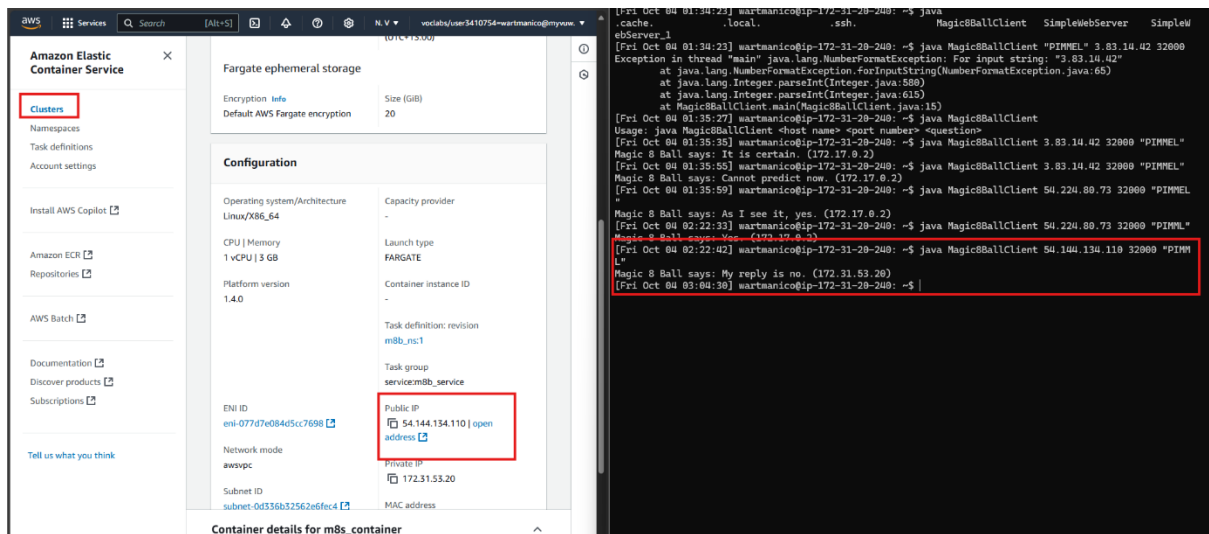


Figure 5: Test serverless setup from client

The screenshot above proves that the task is running and working. Therefore I succeeded creating the service in a serverless setup.

Questions

65.

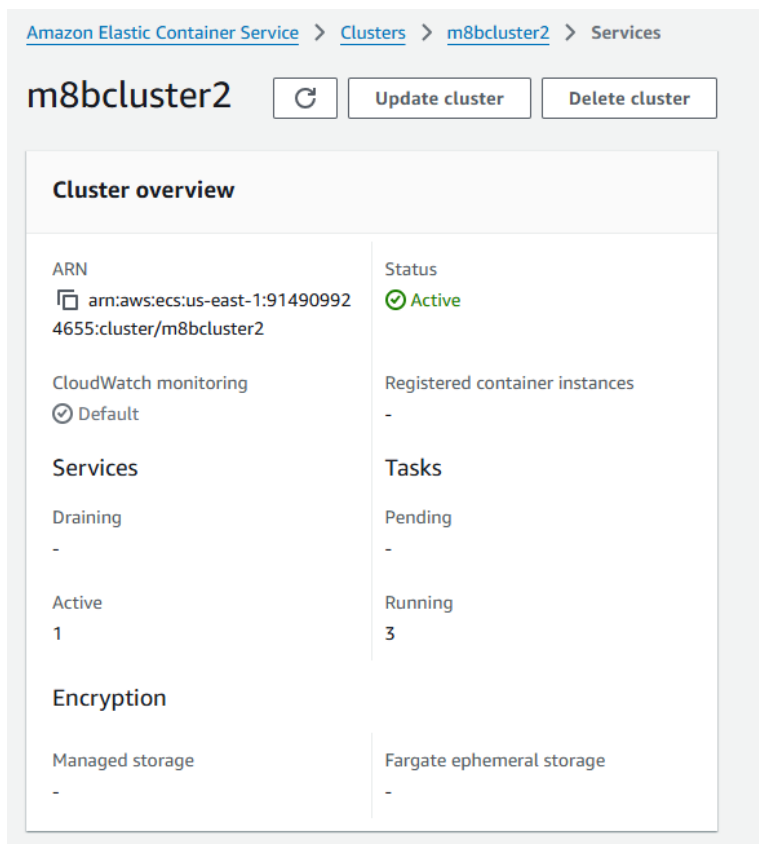


Figure 6: new cluster with 3 Tasks

```
[Sat Oct 05 00:17:10] wartmanico@ip-172-31-20-240: ~$ java Magic8BallClient 18.232.180.204 32000 "PIMML"
Magic 8 Ball says: You may rely on it. (172.31.29.35)
[Sat Oct 05 02:36:22] wartmanico@ip-172-31-20-240: ~$ java Magic8BallClient 44.197.229.251 32000 "PIMML"
Magic 8 Ball says: It is certain. (172.31.8.2)
[Sat Oct 05 02:36:40] wartmanico@ip-172-31-20-240: ~$ java Magic8BallClient 3.84.89.99 32000 "PIMML"
Magic 8 Ball says: Very doubtful. (172.31.87.38)
[Sat Oct 05 02:36:59] wartmanico@ip-172-31-20-240: ~$ |
```

Figure 7: tests from client to all Tasks

66. The Public IP of each task is different

67. A Load Balancer