

Docker Task

Install docker on EC2 and explore the docker commands (docker images, containers, volumes, network)

1. I installed docker on ec2 ubuntu instance using apt/repository cmd lines.

Add Docker's official GPG key:

```
sudo apt-get update
```

```
sudo apt-get install ca-certificates curl
```

```
sudo install -m 0755 -d /etc/apt/keyrings
```

```
sudo curl -fsSL https://download.docker.com/linux/ubuntu/gpg -o /etc/apt/keyrings/docker.asc
```

```
sudo chmod a+r /etc/apt/keyrings/docker.asc
```

Add the repository to Apt sources:

```
echo \
```

```
"deb [arch=$(dpkg --print-architecture) signed-by=/etc/apt/keyrings/docker.asc]
```

```
https://download.docker.com/linux/ubuntu \
```

```
$(. /etc/os-release && echo "${UBUNTU_CODENAME:-$VERSION_CODENAME}") stable" | \
```

```
sudo tee /etc/apt/sources.list.d/docker.list > /dev/null
```

```
sudo apt-get update
```

#Install the Docker packages.

```
sudo apt-get install docker-ce docker-ce-cli containerd.io docker-buildx-plugin docker-compose-plugin
```

#check the status of docker

```
sudo systemctl status docker
```

#check the version

```
docker --version
```

1. docker images

docker images – shows the images present inside container, i am not have any images so i pulled nginx image

```
aws
Search [Alt+S]
Asia Pacific (Mumbai)
PRABU S R

ubuntu@ip-172-31-15-65:~$ docker ps
CONTAINER ID   IMAGE     COMMAND                  CREATED    STATUS    PORTS                               NAMES
1c35ab2aa653   nginx    "/docker-entrypoint..." 6 minutes ago Up 6 minutes 0.0.0.0:8080->80/tcp, [::]:8080->80/tcp  compassionate_keller
ubuntu@ip-172-31-15-65:~$
```

2.containers

created 2 container inside the nginx image

```
aws
Search [Alt+S]
Asia Pacific (Mumbai)
PRABU S R

ubuntu@ip-172-31-15-65:~$ docker ps
CONTAINER ID   IMAGE     COMMAND                  CREATED    STATUS    PORTS                               NAMES
1c35ab2aa653   nginx    "/docker-entrypoint..." 6 minutes ago Up 6 minutes 0.0.0.0:8080->80/tcp, [::]:8080->80/tcp  compassionate_keller
ubuntu@ip-172-31-15-65:~$ docker run -d -p 8081:80 nginx
Unable to find image 'nginx:latest' locally
docker: Error response from daemon: pull access denied for nginx, repository does not exist or may require 'docker login': denied: requested access to the resource is denied

Run 'docker run --help' for more information
ubuntu@ip-172-31-15-65:~$ docker run -d -p 8081:80 nginx
94d7e116d1e80ec796d3d526c010ea43b341ddb541914b3738098ccfefa5197
ubuntu@ip-172-31-15-65:~$ docker ps
CONTAINER ID   IMAGE     COMMAND                  CREATED    STATUS    PORTS                               NAMES
94d7e116d1e8   nginx    "/docker-entrypoint..." 9 seconds ago Up 8 seconds 0.0.0.0:8081->80/tcp, [::]:8081->80/tcp  objective_faistel
1c35ab2aa653   nginx    "/docker-entrypoint..." 30 minutes ago Up 30 minutes 0.0.0.0:8080->80/tcp, [::]:8080->80/tcp  compassionate_keller
ubuntu@ip-172-31-15-65:~$
```

i-0ff6cc3a323a2040c (testserver)

PublicIPs: 13.126.24.1 PrivateIPs: 172.31.15.65

```
aws
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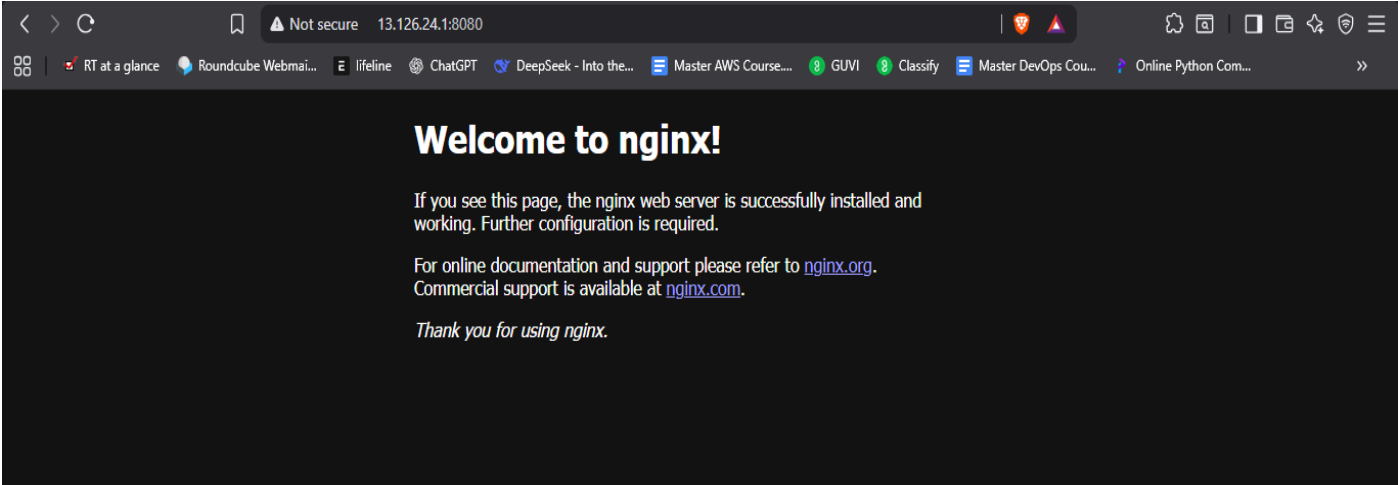
EC2 > Security Groups > sg-0dc5ccce43e3d4496 - launch-wizard-3

EC2
Dashboard
AWS Global View
Events
Instances
Instance Types
Launch Templates
Spot Requests
Savings Plans
Reserved Instances
Dedicated Hosts
Capacity Reservations
Images
AMIs
AMI Catalog
Elastic Block Store

Inbound security group rules successfully modified on security group (sg-0dc5ccce43e3d4496 | launch-wizard-3)
Details
Security group name: launch-wizard-3
Security group ID: sg-0dc5ccce43e3d4496
Description: launch-wizard-3 created 2025-10-12T07:45:51.388Z
VPC ID: vpc-0811954bf33a0cb2f
Owner: 736296213120
Inbound rules count: 3 Permission entries
Outbound rules count: 1 Permission entry

Inbound rules (3)
Search
1
Name Security group rule ID IP version Type Protocol Port range
- sgr-03cc35337daa15c49 IPv4 Custom TCP TCP 27017
- sgr-0b2a3e2a5a22e99c5 IPv4 Custom TCP TCP 8080
- sgr-014f7dc400502146a IPv4 SSH TCP 22

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```



docker ps -a (list all containers)

aws

Search

[Alt+S]

Asia Pacific (Mumbai)

Account ID: 7362-9621-3120

PRABU S R

```
ubuntu@ip-172-31-15-65:~$ docker ps
CONTAINER ID   IMAGE     COMMAND                  CREATED    STATUS    PORTS                               NAMES
1c35ab2aa653   nginx    "/docker-entrypoint..." 6 minutes ago Up 6 minutes 0.0.0.0:8080->80/tcp, [::]:8080->80/tcp  compassionate_keller

ubuntu@ip-172-31-15-65:~$ docker run -d -p 8081:80 nginx
Unable to find image 'nginx:latest' locally
docker: Error response from daemon: pull access denied for nginx, repository does not exist or may require 'docker login': denied: requested access to the resource is denied

Run 'docker run --help' for more information
ubuntu@ip-172-31-15-65:~$ docker run -d -p 8081:80 nginx
94d7e116d1e80ec796d3d526c010ea43b341ddb541914b3738098ccfefa5197

ubuntu@ip-172-31-15-65:~$ docker ps
CONTAINER ID   IMAGE     COMMAND                  CREATED    STATUS    PORTS                               NAMES
94d7e116d1e8   nginx    "/docker-entrypoint..." 9 seconds ago Up 8 seconds 0.0.0.0:8081->80/tcp, [::]:8081->80/tcp  objective_feistel
1c35ab2aa653   nginx    "/docker-entrypoint..." 30 minutes ago Up 30 minutes 0.0.0.0:8080->80/tcp, [::]:8080->80/tcp  compassionate_keller
ubuntu@ip-172-31-15-65:~$
```

i-Off6cc3a323a2040c (testserver)

PublicIPs: 13.126.24.1 PrivateIPs: 172.31.15.65

to stop container

CONTAINER ID IMAGE COMMAND CREATED STATUS PORTS NAMES
94d7e116d1e8 nginx "/docker-entrypoint..." 9 seconds ago Up 8 seconds 0.0.0.0:8081->80/tcp, [::]:8081->80/tcp objective_feistel
1c35ab2aa653 nginx "/docker-entrypoint..." 30 minutes ago Up 30 minutes 0.0.0.0:8080->80/tcp, [::]:8080->80/tcp compassionate_keller
ubuntu@ip-172-31-15-65:~\$ docker stop 94d
94d
ubuntu@ip-172-31-15-65:~\$ docker ps
CONTAINER ID IMAGE COMMAND CREATED STATUS PORTS NAMES
1c35ab2aa653 nginx "/docker-entrypoint..." 34 minutes ago Up 33 minutes 0.0.0.0:8080->80/tcp, [::]:8080->80/tcp compassionate_keller
ubuntu@ip-172-31-15-65:~\$

i-Off6cc3a323a2040c (testserver)

PublicIPs: 13.126.24.1 PrivateIPs: 172.31.15.65

to start container

```
aws [Search] [Alt+S] Asia Pacific (Mumbai) Account ID: 7362-9621-3120 PRABU S R

ubuntu@ip-172-31-15-65:~$ docker ps -a
CONTAINER ID   IMAGE     COMMAND                  CREATED        STATUS        PORTS                               NAMES
94d7e116d1e8   nginx    "/docker-entrypoint..." 5 minutes ago  Exited (0)   About a minute ago              objective_feistel
1c35ab2aa653   nginx    "/docker-entrypoint..." 36 minutes ago  Up 36 minutes  0.0.0.0:8080->80/tcp, [::]:8080->80/tcp  compassionate_keller

ubuntu@ip-172-31-15-65:~$ docker start 94d
94d
ubuntu@ip-172-31-15-65:~$ docker ps
CONTAINER ID   IMAGE     COMMAND                  CREATED        STATUS        PORTS                               NAMES
94d7e116d1e8   nginx    "/docker-entrypoint..." 6 minutes ago  Up 6 seconds  0.0.0.0:8081->80/tcp, [::]:8081->80/tcp  objective_feistel
1c35ab2aa653   nginx    "/docker-entrypoint..." 37 minutes ago  Up 37 minutes  0.0.0.0:8080->80/tcp, [::]:8080->80/tcp  compassionate_keller

ubuntu@ip-172-31-15-65:~$
```

to restart container

```
aws [Search] [Alt+S] Asia Pacific (Mumbai) Account ID: 7362-9621-3120 PRABU S R

ubuntu@ip-172-31-15-65:~$ docker ps -a
CONTAINER ID   IMAGE     COMMAND                  CREATED        STATUS        PORTS                               NAMES
94d7e116d1e8   nginx    "/docker-entrypoint..." 7 minutes ago  Up About a minute  0.0.0.0:8081->80/tcp, [::]:8081->80/tcp  objective_feistel
1c35ab2aa653   nginx    "/docker-entrypoint..." 38 minutes ago  Up 38 minutes  0.0.0.0:8080->80/tcp, [::]:8080->80/tcp  compassionate_keller

ubuntu@ip-172-31-15-65:~$ docker restart 94d
94d
ubuntu@ip-172-31-15-65:~$ docker ps -a
CONTAINER ID   IMAGE     COMMAND                  CREATED        STATUS        PORTS                               NAMES
94d7e116d1e8   nginx    "/docker-entrypoint..." 7 minutes ago  Up 7 seconds  0.0.0.0:8081->80/tcp, [::]:8081->80/tcp  objective_feistel
1c35ab2aa653   nginx    "/docker-entrypoint..." 38 minutes ago  Up 38 minutes  0.0.0.0:8080->80/tcp, [::]:8080->80/tcp  compassionate_keller

ubuntu@ip-172-31-15-65:~$
```

i-Off6cc3a323a2040c (testserver)
PublicIPs: 13.126.24.1 PrivateIPs: 172.31.15.65

remove container

```
aws [Search] [Alt+S] Asia Pacific (Mumbai) Account ID: 7362-9621-3120 PRABU S R

ubuntu@ip-172-31-15-65:~$ docker ps -a
CONTAINER ID   IMAGE     COMMAND                  CREATED        STATUS        PORTS                               NAMES
94d7e116d1e8   nginx    "/docker-entrypoint..." 9 minutes ago  Exited (0)   48 seconds ago              objective_feistel
1c35ab2aa653   nginx    "/docker-entrypoint..." 40 minutes ago  Up 40 minutes  0.0.0.0:8080->80/tcp, [::]:8080->80/tcp  compassionate_keller

ubuntu@ip-172-31-15-65:~$ docker rm 94d
94d
ubuntu@ip-172-31-15-65:~$ docker ps -a
CONTAINER ID   IMAGE     COMMAND                  CREATED        STATUS        PORTS                               NAMES
1c35ab2aa653   nginx    "/docker-entrypoint..." 40 minutes ago  Up 40 minutes  0.0.0.0:8080->80/tcp, [::]:8080->80/tcp  compassionate_keller

ubuntu@ip-172-31-15-65:~$
```

list container

```
aws
```

[Alt+S]

Search

Asia Pacific (Mumbai)

Account ID: 7362-9621-3120

PRABU S R

```
ubuntu@ip-172-31-15-65:~$ docker ps -a
CONTAINER ID   IMAGE     COMMAND                  CREATED      STATUS        PORTS                               NAMES
94d7e116d1e8   nginx    "/docker-entrypoint..." 9 minutes ago Exited (0) 48 seconds ago         objective_feistel
1c35ab2aa653   nginx    "/docker-entrypoint..." 40 minutes ago Up 40 minutes                0.0.0.0:8080->80/tcp, [::]:8080->80/tcp compassionate_keller

ubuntu@ip-172-31-15-65:~$ docker rm 94d
94d

ubuntu@ip-172-31-15-65:~$ docker ps -a
CONTAINER ID   IMAGE     COMMAND                  CREATED      STATUS        PORTS                               NAMES
1c35ab2aa653   nginx    "/docker-entrypoint..." 40 minutes ago Up 40 minutes                0.0.0.0:8080->80/tcp, [::]:8080->80/tcp compassionate_keller

ubuntu@ip-172-31-15-65:~$ docker stop 1c3
1c3

ubuntu@ip-172-31-15-65:~$ docker ps -a
CONTAINER ID   IMAGE     COMMAND                  CREATED      STATUS        PORTS       NAMES
1c35ab2aa653   nginx    "/docker-entrypoint..." 41 minutes ago Exited (0) 11 seconds ago         compassionate_keller

ubuntu@ip-172-31-15-65:~$ docker rm 1c3
1c3

ubuntu@ip-172-31-15-65:~$ docker ps -a
CONTAINER ID   IMAGE     COMMAND                  CREATED      STATUS        PORTS       NAMES
ubuntu@ip-172-31-15-65:~$
```

i-Off6cc3a323a2040c (testserver)

PublicIPs: 13.126.24.1 PrivateIPs: 172.31.15.65

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remove image

The screenshot shows a web browser window with a dark theme. The address bar at the top displays "i-Off6cc3a323a2040c (testserver)". Below the address bar, there's a navigation bar with various icons (home, search, etc.) and a search input field containing "Search". On the right side of the navigation bar, it says "Asia Pacific (Mumbai)" and "PRABU S R". The main content area is a terminal window with a black background and white text. The terminal shows the following commands and output:

```
ubuntu@ip-172-31-15-65:~$ docker images
```

REPOSITORY	TAG	IMAGE ID	CREATED	SIZE
nginx	latest	07ccd8783875	4 days ago	160MB

```
ubuntu@ip-172-31-15-65:~$ docker rmi 07c
```

Untagged: nginx:latest
Untagged: nginx@sha256:3b7732505933ca591ce4a6d860cb713ad96a3176b82f7979a8dfa9973486a0d6
Deleted: sha256:07ccd87838758e758a4d52a9761636c385125a327355c0c94a6acff9babfff938
Deleted: sha256:71b75b17511f67932ccf71e2046c6d1b4fe17a594134c765bf71c874dedc7027
Deleted: sha256:c76da83ebfb3e35184d1a7105d03cecfeb144d07cb4dae12378392040fbd44615
Deleted: sha256:f825da5ac2d31a2c717db4fa159b6728b33a94bc7285bd1dfecbbe23ebd185
Deleted: sha256:31333e0f1ecf5940213f8b1ed4eb3e4d78d77fa5fb59c1cd05a6672690ed133c
Deleted: sha256:e72eb931613f8c1b5baf39f864877beee0780af9f9d20c5a02790d0146f0b012
Deleted: sha256:775e3183eed457c31a0855ac7a55b6e0cb8d40554e9524cb6d503cb2351e0b10
Deleted: sha256:1d46119d249f7719e1820e24a311aa7c453f166f714969cffe89504678ea447

```
ubuntu@ip-172-31-15-65:~$ docker image
```

The terminal output lists several deleted Docker images with their SHA256 hashes. Below the terminal window, the text "list images" is written in a large, light blue font. At the bottom of the page, there's a footer with the URL "i-Off6cc3a323a2040c (testserver)" and a small icon.

3. volume







list volumes

```

aws  [5] Q Search [Alt+S] [2] [3] [4] [5] Asia Pacific (Mumbai) ACCOUNT ID: 7362-3621-5120 PRABU S R
ubuntu@ip-172-31-15-65:~$ docker ps -a
CONTAINER ID   IMAGE     COMMAND                  CREATED      STATUS      PORTS                               NAMES
e275f83e1efc   mongo    "docker-entrypoint.s..." 36 minutes ago Up 36 minutes    0.0.0.0:27017->27017/tcp, [::]:27017->27017/tcp   my-mongo
ubuntu@ip-172-31-15-65:~$ docker volume ls
DRIVER          VOLUME NAME
local          3883813beb1e1589738a818e016c2744671a2a5add0350892a969139db59d17
local          c5dbe00415ca778196dfd5e6dec548a28bbac03c2090960a2e39166fcd52125
ubuntu@ip-172-31-15-65:~$

```

create volume

  [Alt+S]     Asia Pacific (Mumbai) Account ID: 7362-9621-3120 PRABU S R

```
ubuntu@ip-172-31-15-65:~$ docker ps -a
CONTAINER ID   IMAGE     COMMAND                  CREATED        STATUS        PORTS                               NAMES
8b4af33dbf23   nginx    "/docker-entrypoint..." About a minute ago Up About a minute    0.0.0.0:8080->80/tcp, [::]:8080->80/tcp    boring_lamport
e275f83e1efe   mongo    "docker-entrypoint.s..." 44 minutes ago Up 44 minutes    0.0.0.0:27017->27017/tcp, [::]:27017->27017/tcp    my-mongo

ubuntu@ip-172-31-15-65:~$ docker volume ls
DRIVER      VOLUME NAME
local       3883813bebf1e1589738a818e016c2744671a2a5add0350892a969139db59d17
local       c5dbe00415ca778196dfd5e6dec548a28bbac03c2090960a2e39166fcd2125

ubuntu@ip-172-31-15-65:~$ docker volume create mydata
mydata







ubuntu@ip-172-31-15-65:~$ docker volume ls
DRIVER      VOLUME NAME
local       3883813bebf1e1589738a818e016c2744671a2a5add0350892a969139db59d17
local       c5dbe00415ca778196dfd5e6dec548a28bbac03c2090960a2e39166fcd2125
local       mydata

ubuntu@ip-172-31-15-65:~$
```

i-Off6cc3a323a2040c (testserver)
PublicIPs: 13.126.24.1 PrivateIPs: 172.31.15.65

create volume in a container and inspect and remove

docker volume rm mydata

  [Alt+S]     Asia Pacific (Mumbai) Account ID: 7362-9621-3120 PRABU S R

```
DRIVER      VOLUME NAME
local       3883813bebf1e1589738a818e016c2744671a2a5add0350892a969139db59d17
local       c5dbe00415ca778196dfd5e6dec548a28bbac03c2090960a2e39166fcd2125

ubuntu@ip-172-31-15-65:~$ docker volume create mydata
mydata

ubuntu@ip-172-31-15-65:~$ docker volume ls
DRIVER      VOLUME NAME
local       3883813bebf1e1589738a818e016c2744671a2a5add0350892a969139db59d17
local       c5dbe00415ca778196dfd5e6dec548a28bbac03c2090960a2e39166fcd2125
local       mydata

ubuntu@ip-172-31-15-65:~$ docker run -d -v mydata:/app/data nginx
064030f74687fef040d198447143b3a3f351766511bab43c09b7d06b47b2785c

ubuntu@ip-172-31-15-65:~$ docker volume inspect mydata
[
  {
    "CreatedAt": "2025-10-12T11:15:20Z",
    "Driver": "local",
    "Labels": null,
    "Mountpoint": "/var/lib/docker/volumes/mydata/_data",
    "Name": "mydata",
    "Options": null,
    "Scope": "local"
  }
]

ubuntu@ip-172-31-15-65:~$
```

i-Off6cc3a323a2040c (testserver)
PublicIPs: 13.126.24.1 PrivateIPs: 172.31.15.65

4.network

```
ubuntu@ip-172-31-15-65:~$ docker network ls
NETWORK ID      NAME      DRIVER      SCOPE
cb0215120c37    bridge   bridge      local
e738eb27626d    host     host         local
4b33c2cef650    none     null         local

ubuntu@ip-172-31-15-65:~$
```

i-Off6cc3a323a2040c (testserver)

PublicIPs: 13.126.24.1 PrivateIPs: 172.31.15.65

create network for container

```
aws [Search] [Alt+S] Asia Pacific (Mumbai) Account ID: 7362-9621-3120 PRABU S R

ubuntu@ip-172-31-15-65:~$ docker network ls
NETWORK ID      NAME      DRIVER  SCOPE
cb0215120c37    bridge   bridge  local
e738eb27626d    host     host    local
4b33c2cef650    none     null     local
ubuntu@ip-172-31-15-65:~$ docker network create mynet
a36e6aecea008c0e51948842911afc92fa64f7c17a1ca9b8ad64a367739cd40c
ubuntu@ip-172-31-15-65:~$
```

communicate network between container and inspect and

docker network rm mynet (remove)

```
aws [Search] [Alt+S] Asia Pacific (Mumbai) Account ID: 7362-9621-3120 PRABU S R

ubuntu@ip-172-31-15-65:~$ docker network ls
NETWORK ID      NAME      DRIVER  SCOPE
cb0215120c37    bridge   bridge  local
e738eb27626d    host     host    local
4b33c2cef650    none     null     local
ubuntu@ip-172-31-15-65:~$ docker network create mynet
a36e6aecea008c0e51948842911afc92fa64f7c17a1ca9b8ad64a367739cd40c
ubuntu@ip-172-31-15-65:~$ docker run -d --name web --network mynet nginx
98c21e869f588e15b9c30b85b9e875cbf4683cc9a7b95149bbd599da32cef3ce
ubuntu@ip-172-31-15-65:~$ docker run -d --name app --network mynet busybox
Unable to find image 'busybox:latest' locally
latest: Pulling from library/busybox
80bffb8a41a2: Pull complete
Digest: sha256:d82f458899c9696cb26a7c02d5568f81c8c8223f8661bb2a7988b269c8b9051e
Status: Downloaded newer image for busybox:latest
005cd6f4361eae5ee7a028e619c3b182b1e33ec1c47f2e66d915a46da8dcb84c
ubuntu@ip-172-31-15-65:~$ docker network inspect mynet
[
  {
    "Name": "mynet",
    "Id": "a36e6aecea008c0e51948842911afc92fa64f7c17a1ca9b8ad64a367739cd40c",
    "Created": "2025-10-12T11:23:20.948587786Z",
    "Scope": "local",
    "Driver": "bridge",
    "EnableIPv4": true,
    "IPAM": {
      "Driver": "default",
      "Options": {}
    },
    "Containers": {
      "98c21e869f588e15b9c30b85b9e875cbf4683cc9a7b95149bbd599da32cef3ce": {
        "Name": "web",
        "EndpointID": "e738eb27626d",
        "MacAddress": "02:00:00:00:00:00",
        "IPv4Address": "172.17.0.2",
        "IPv6Address": ""
      },
      "005cd6f4361eae5ee7a028e619c3b182b1e33ec1c47f2e66d915a46da8dcb84c": {
        "Name": "app",
        "EndpointID": "e738eb27626d",
        "MacAddress": "02:00:00:00:00:00",
        "IPv4Address": "172.17.0.3",
        "IPv6Address": ""
      }
    },
    "Options": {}
  }
]
```

i-Off6cc3a323a2040c (testserver)

PublicIPs: 13.126.24.1 PrivateIPs: 172.31.15.65