Module-5: Networking and Security

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DEMO-3: Host and Macvlan Network

Note: All commands are executed as root.

Host Network

1. To start a container using the host IP address use the host network. Published ports are removed when host network is used. The --rm flag is used so the container is removed when stopped

```
$ docker run –rm -d --network host --name <containerName> <imageName>
```

```
root@docker-1:~# docker run --rm -d --network host --name nginx6 nginx
af305e3bf1587bcd3976ec3a2ec12cd2794dc7ab5cdbe5de111b2092865f9b18
root@docker-1:~# docker ps
CONTAINER ID      IMAGE            COMMAND              CREATED        STATUS          PORTS
 NAMES
af305e3bf158      nginx            "/docker-entrypoint.…"  4 seconds ago  Up 3 seconds
 nginx6
```

2. We can verify that the container was deployed on host ip at port 80 by running it in the browser
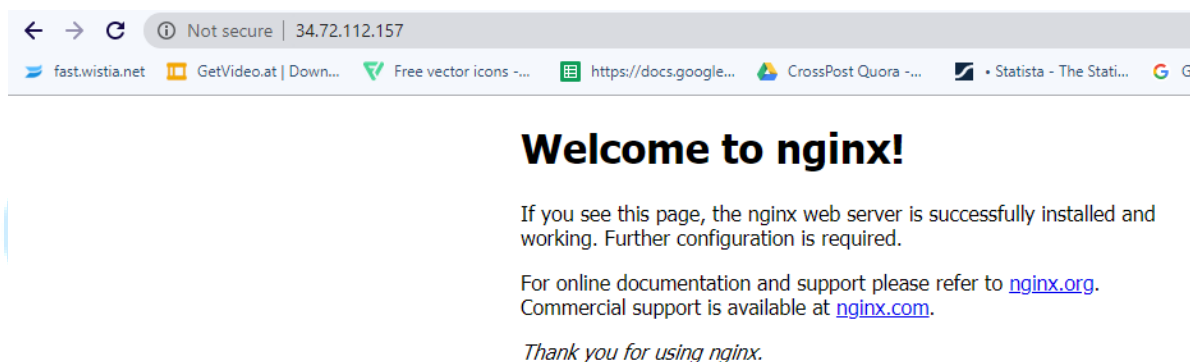
Macvlan Network

1. Create a macvlan network corresponding to your environment

```
$ docker network create -d macvlan \
  --subnet=172.19.1.0/24 \
  --gateway=172.19.1.1 \
  <networkName>
```

```
root@docker-3:~# docker network create -d macvlan \
> --subnet=172.16.1.0/24 \
> --gateway=172.16.1.1 \
> macvlan-1
0cd576f9cb9e68766dce90ce87141474f4e96c3d07ea317402292c4baa6db410
```

```
root@docker-3:~# docker network ls
NETWORK ID          NAME                DRIVER              SCOPE
5d79dc7eb30b        bridge              bridge              local
8d3b2bea7a0a        docker_gwbridge     bridge              local
ae962a7aefae        host                host                local
lnjs1ov80kho        ingress             overlay             swarm
0cd576f9cb9e        macvlan-1           macvlan             local
ba9b9f0edc46        none                null                local
```

2. Start a container using the macvlan network

```
$ docker run –rm -dit \
   --name <containerName> \
   --network  <networkName> \
   <imageName>
```

```
root@docker-3:~# docker run --rm -d \
> --name macvlannginx \
> --network macvlan-1 \
> nginx
Unable to find image 'nginx:latest' locally
latest: Pulling from library/nginx
Digest: sha256:21f32f6c08406306d822a0e6e8b7dc81f53f336570e852e25fbe1e3e3d0d0133
Status: Downloaded newer image for nginx:latest
5fe05f687c0d47eb9810c7e3398c35c9919a0d7bcc5b1eb95221977e98130d2e
root@docker-3:~# docker ps
CONTAINER ID        IMAGE               COMMAND                  CREATED             STATUS              PORTS
  NAMES
5fe05f687c0d        nginx               "/docker-entrypoint.…"   9 seconds ago       Up 7 seconds
  macvlannginx
```

3. Inspect the container to verify the network

```
"Networks": {
    "macvlan-1": {
        "IPAMConfig": null,
        "Links": null,
        "Aliases": [
            "5fe05f687c0d"
        ],
        "NetworkID": "0cd576f9cb9e68766dce90ce87141474f4e96c3d07ea317402292c4baa6db410",
        "EndpointID": "f5c49fc569252d2c7a9778229cebf7482dbd126d50d49a8907ff5afba5b2d2a6",
        "Gateway": "172.16.1.1",
        "IPAddress": "172.16.1.2",
        "IPPrefixLen": 24,
        "IPv6Gateway": "",
        "GlobalIPv6Address": "",
        "GlobalIPv6PrefixLen": 0,
        "MacAddress": "02:42:ac:10:01:02",
        "DriverOpts": null
    }
}
```