**1) Multiple Containers with same Storage Volume**

**Dockerfile Content :**

FROM ubuntu

VOLUME [“/volume2”]

[ec2-user@ip-10-0-1-148 ~]$ **vi Dockerfile**

[ec2-user@ip-10-0-1-148 ~]$ [ec2-user@ip-10-0-1-148 ~]$ **docker build -t myimage .**

Sending build context to Docker daemon 9.216kB

Step 1/2 : FROM ubuntu

latest: Pulling from library/ubuntu

ea362f368469: Pull complete

Digest: sha256:b5a61709a9a44284d88fb12e5c48db0409cfad5b69d4ff8224077c57302df9cf

Status: Downloaded newer image for ubuntu:latest

---> d13c942271d6

Step 2/2 : VOLUME ["/volume2"]

---> Running in c15d7180d8b6

Removing intermediate container c15d7180d8b6

---> 76a102423573

Successfully built 76a102423573

Successfully tagged myimage:latest

[ec2-user@ip-10-0-1-148 ~]$ **docker run -it --name c1 myimage /bin/bash**

root@5b03a4c74c66:/# **ls**

bin dev home lib32 libx32 mnt proc run srv tmp var

boot etc lib lib64 media opt root sbin sys usr volume2

root@5b03a4c74c66:/# **cd volume2/**

root@5b03a4c74c66:/volume2# **touch file1**

root@5b03a4c74c66:/volume2# **ls**

file1

root@5b03a4c74c66:/volume2# **exit**

exit

[ec2-user@ip-10-0-1-148 ~]$ **docker run -it --name c2 --privileged=true --volumes-from c1 ubuntu /bin/bash**

root@2c8aac82067a:/# **ls**

bin dev home lib32 libx32 mnt proc run srv tmp var

boot etc lib lib64 media opt root sbin sys usr volume2

root@2c8aac82067a:/# **cd volume2**

root@2c8aac82067a:/volume2# **ls**

file1

root@2c8aac82067a:/volume2# **touch file2**

root@2c8aac82067a:/volume2# **ls**

file1 file2

root@2c8aac82067a:/volume2# **exit**

exit

[ec2-user@ip-10-0-1-148 ~]$ **docker start c1**

c1

[ec2-user@ip-10-0-1-148 ~]$ **docker attach c1**

root@5b03a4c74c66:/# **ls**

bin dev home lib32 libx32 mnt proc run srv tmp var

boot etc lib lib64 media opt root sbin sys usr volume2

root@5b03a4c74c66:/# **cd volume2/**

root@5b03a4c74c66:/volume2# **ls**

file1 file2

root@5b03a4c74c66:/volume2#

**2)**  **USER DEFINED BRIDGE NETWORK**

E:\AWS-Python>**ssh -i serverless.pem ec2-user@13.233.20.52**

Last login: Thu Jan 13 17:26:24 2022 from 124.123.175.210

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\_| ( / Amazon Linux 2 AMI

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https://aws.amazon.com/amazon-linux-2/

[ec2-user@ip-10-0-1-51 ~]$ **docker ps**

CONTAINER ID IMAGE COMMAND CREATED STATUS PORTS NAMES

[ec2-user@ip-10-0-1-51 ~]$ **docker network create --driver bridge alpine-net**

882ea5635dc47f6671d8b2e4991d6e90f74040dae727023dfde9deb8a2e99087

[ec2-user@ip-10-0-1-51 ~]$ **docker network ls**

NETWORK ID NAME DRIVER SCOPE

882ea5635dc4 alpine-net bridge local

2b3e77923fc1 bridge bridge local

fa8cd9061df5 host host local

0eba8ac9559b none null local

[ec2-user@ip-10-0-1-51 ~]$ **docker network inspect alpine-net**

[

{

"Name": "alpine-net",

"Id": "882ea5635dc47f6671d8b2e4991d6e90f74040dae727023dfde9deb8a2e99087",

"Created": "2022-01-13T17:29:26.77908347Z",

"Scope": "local",

"Driver": "bridge",

"EnableIPv6": false,

"IPAM": {

"Driver": "default",

"Options": {},

"Config": [

{

"Subnet": "172.18.0.0/16",

"Gateway": "172.18.0.1"

}

]

},

"Internal": false,

"Attachable": false,

"Ingress": false,

"ConfigFrom": {

"Network": ""

},

"ConfigOnly": false,

"Containers": {},

"Options": {},

"Labels": {}

}

]

[ec2-user@ip-10-0-1-51 ~]$ **docker run -dit --name alpine1 --network alpine-net alpine ash**

Unable to find image 'alpine:latest' locally

latest: Pulling from library/alpine

59bf1c3509f3: Pull complete

Digest: sha256:21a3deaa0d32a8057914f36584b5288d2e5ecc984380bc0118285c70fa8c9300Status: Downloaded newer image for alpine:latest

d38c6cbe4b7497b4d38d70708f23b64ea0f37a142aebce853942967451f82d9a

[ec2-user@ip-10-0-1-51 ~]$ **docker run -dit --name alpine2 --network alpine-net alpine ash**

dea0e558e7782b2bb2d30ed1b19dd936ad8835a710355854eee14f55950bf5ea

[ec2-user@ip-10-0-1-51 ~]$ **docker run -dit --name alpine3 alpine ash**

201f34dfd5a7c09e254abdc226580165e4fb4e3e728d5f85162acffb5b34b153

[ec2-user@ip-10-0-1-51 ~]$ **docker run -dit --name alpine4 --network alpine-net alpine ash**

ed9b938220092e14065fe4518296819b897f7bb1d3c124dc0375ba290f56e293

[ec2-user@ip-10-0-1-51 ~]$ **docker network connect bridge alpine4**

[ec2-user@ip-10-0-1-51 ~]$ **docker container ls**

CONTAINER ID IMAGE COMMAND CREATED STATUS PORTS NAMES

ed9b93822009 alpine "ash" 33 seconds ago Up 32 seconds alpine4

201f34dfd5a7 alpine "ash" 49 seconds ago Up 48 seconds alpine3

dea0e558e778 alpine "ash" About a minute ago Up About a minute alpine2

d38c6cbe4b74 alpine "ash" About a minute ago Up About a minute alpine1

[ec2-user@ip-10-0-1-51 ~]$ **docker network inspect bridge**

[

{

"Name": "bridge",

"Id": "2b3e77923fc17a1a488e1d10eec47d317e36f70e489552f5dbcff2cb2c58fc68",

"Created": "2022-01-13T17:10:58.477538881Z",

"Scope": "local",

"Driver": "bridge",

"EnableIPv6": false,

"IPAM": {

"Driver": "default",

"Options": null,

"Config": [

{

"Subnet": "172.17.0.0/16"

}

]

},

"Internal": false,

"Attachable": false,

"Ingress": false,

"ConfigFrom": {

"Network": ""

},

"ConfigOnly": false,

"Containers": {

"201f34dfd5a7c09e254abdc226580165e4fb4e3e728d5f85162acffb5b34b153": {

"Name": "alpine3",

"EndpointID": "879aef2c251b90adbc47fd27a0bf46f6e53db728abd697fdd71a53af79da8038",

"MacAddress": "02:42:ac:11:00:02",

"IPv4Address": "172.17.0.2/16",

"IPv6Address": ""

},

"ed9b938220092e14065fe4518296819b897f7bb1d3c124dc0375ba290f56e293": {

"Name": "alpine4",

"EndpointID": "97e61021745bb348bc181a81ed67cdd946d08b83c7b1b1e7b7c4e515454f3e27",

"MacAddress": "02:42:ac:11:00:03",

"IPv4Address": "172.17.0.3/16",

"IPv6Address": ""

}

},

"Options": {

"com.docker.network.bridge.default\_bridge": "true",

"com.docker.network.bridge.enable\_icc": "true",

"com.docker.network.bridge.enable\_ip\_masquerade": "true",

"com.docker.network.bridge.host\_binding\_ipv4": "0.0.0.0",

"com.docker.network.bridge.name": "docker0",

"com.docker.network.driver.mtu": "1500"

},

"Labels": {}

}

]

[ec2-user@ip-10-0-1-51 ~]$ **docker network inspect alpine-net**

[

{

"Name": "alpine-net",

"Id": "882ea5635dc47f6671d8b2e4991d6e90f74040dae727023dfde9deb8a2e99087",

"Created": "2022-01-13T17:29:26.77908347Z",

"Scope": "local",

"Driver": "bridge",

"EnableIPv6": false,

"IPAM": {

"Driver": "default",

"Options": {},

"Config": [

{

"Subnet": "172.18.0.0/16",

"Gateway": "172.18.0.1"

}

]

},

"Internal": false,

"Attachable": false,

"Ingress": false,

"ConfigFrom": {

"Network": ""

},

"ConfigOnly": false,

"Containers": {

"d38c6cbe4b7497b4d38d70708f23b64ea0f37a142aebce853942967451f82d9a": {

"Name": "alpine1",

"EndpointID": "2991908e2c48af15e81f1b5d9b7daccc74ff4f945efb7196816bb6e35b5bc8be",

"MacAddress": "02:42:ac:12:00:02",

"IPv4Address": "172.18.0.2/16",

"IPv6Address": ""

},

"dea0e558e7782b2bb2d30ed1b19dd936ad8835a710355854eee14f55950bf5ea": {

"Name": "alpine2",

"EndpointID": "e2563e7c89641bce9ade48faf07f87acae4bbb2dc0990c9e321113841b7d4ccd",

"MacAddress": "02:42:ac:12:00:03",

"IPv4Address": "172.18.0.3/16",

"IPv6Address": ""

},

"ed9b938220092e14065fe4518296819b897f7bb1d3c124dc0375ba290f56e293": {

"Name": "alpine4",

"EndpointID": "2dd1dc39e541b434ca20b936ddff2551749af1eba0e248f2707212a91cebe800",

"MacAddress": "02:42:ac:12:00:04",

"IPv4Address": "172.18.0.4/16",

"IPv6Address": ""

}

},

"Options": {},

"Labels": {}

}

]

[ec2-user@ip-10-0-1-51 ~]$ **docker container attach alpine1**

/ # **ping -c 2 alpine2**

PING alpine2 (172.18.0.3): 56 data bytes

64 bytes from 172.18.0.3: seq=0 ttl=64 time=0.096 ms

64 bytes from 172.18.0.3: seq=1 ttl=64 time=0.080 ms

--- alpine2 ping statistics ---

2 packets transmitted, 2 packets received, 0% packet loss

round-trip min/avg/max = 0.080/0.088/0.096 ms

/ # **ping -c 2 alpine4**

PING alpine4 (172.18.0.4): 56 data bytes

64 bytes from 172.18.0.4: seq=0 ttl=64 time=0.082 ms

64 bytes from 172.18.0.4: seq=1 ttl=64 time=0.107 ms

--- alpine4 ping statistics ---

2 packets transmitted, 2 packets received, 0% packet loss

round-trip min/avg/max = 0.082/0.094/0.107 ms

/ # **ping -c 2 alpine1**

PING alpine1 (172.18.0.2): 56 data bytes

64 bytes from 172.18.0.2: seq=0 ttl=64 time=0.043 ms

64 bytes from 172.18.0.2: seq=1 ttl=64 time=0.059 ms

--- alpine1 ping statistics ---

2 packets transmitted, 2 packets received, 0% packet loss

round-trip min/avg/max = 0.043/0.051/0.059 ms

/ # **ping -c 2 alpine3**

ping: bad address 'alpine3'

/ # **ping -c 2 172.17.0.2**

PING 172.17.0.2 (172.17.0.2): 56 data bytes

--- 172.17.0.2 ping statistics ---

2 packets transmitted, 0 packets received, 100% packet loss

/ # read escape sequence

[ec2-user@ip-10-0-1-51 ~]$ **docker container attach alpine4**

/ # **ping -c 2 alpine1**

PING alpine1 (172.18.0.2): 56 data bytes

64 bytes from 172.18.0.2: seq=0 ttl=64 time=0.100 ms

64 bytes from 172.18.0.2: seq=1 ttl=64 time=0.091 ms

--- alpine1 ping statistics ---

2 packets transmitted, 2 packets received, 0% packet loss

round-trip min/avg/max = 0.091/0.095/0.100 ms

/ # **ping -c 2 alpine2**

PING alpine2 (172.18.0.3): 56 data bytes

64 bytes from 172.18.0.3: seq=0 ttl=64 time=0.124 ms

64 bytes from 172.18.0.3: seq=1 ttl=64 time=0.078 ms

--- alpine2 ping statistics ---

2 packets transmitted, 2 packets received, 0% packet loss

round-trip min/avg/max = 0.078/0.101/0.124 ms

/ # **ping -c 2 alpine3**

ping: bad address 'alpine3'

/ # **ping -c 2 172.17.0.2**

PING 172.17.0.2 (172.17.0.2): 56 data bytes

64 bytes from 172.17.0.2: seq=0 ttl=64 time=0.092 ms

64 bytes from 172.17.0.2: seq=1 ttl=64 time=0.079 ms

--- 172.17.0.2 ping statistics ---

2 packets transmitted, 2 packets received, 0% packet loss

round-trip min/avg/max = 0.079/0.085/0.092 ms

/ # **ping -c 2 alpine4**

PING alpine4 (172.18.0.4): 56 data bytes

64 bytes from 172.18.0.4: seq=0 ttl=64 time=0.044 ms

64 bytes from 172.18.0.4: seq=1 ttl=64 time=0.061 ms

--- alpine4 ping statistics ---

2 packets transmitted, 2 packets received, 0% packet loss

round-trip min/avg/max = 0.044/0.052/0.061 ms

/ # **ping -c 2 google.com**

PING google.com (172.217.166.174): 56 data bytes

64 bytes from 172.217.166.174: seq=0 ttl=109 time=1.680 ms

64 bytes from 172.217.166.174: seq=1 ttl=109 time=1.418 ms

--- google.com ping statistics ---

2 packets transmitted, 2 packets received, 0% packet loss

round-trip min/avg/max = 1.418/1.549/1.680 ms

/ # read escape sequence

[ec2-user@ip-10-0-1-51 ~]$ **docker container attach alpine3**

/ # **ping -c 2 google.com**

PING google.com (172.217.166.174): 56 data bytes

64 bytes from 172.217.166.174: seq=0 ttl=109 time=1.655 ms

64 bytes from 172.217.166.174: seq=1 ttl=109 time=1.458 ms

--- google.com ping statistics ---

2 packets transmitted, 2 packets received, 0% packet loss

round-trip min/avg/max = 1.458/1.556/1.655 ms

/ # read escape sequence

[ec2-user@ip-10-0-1-51 ~]$ **docker container attach alpine1**

/ # **ping -c 2 google.com**

PING google.com (172.217.166.174): 56 data bytes

64 bytes from 172.217.166.174: seq=0 ttl=109 time=1.384 ms

64 bytes from 172.217.166.174: seq=1 ttl=109 time=1.466 ms

--- google.com ping statistics ---

2 packets transmitted, 2 packets received, 0% packet loss

round-trip min/avg/max = 1.384/1.425/1.466 ms

/ # read escape sequence

[ec2-user@ip-10-0-1-51 ~]$ **docker container stop alpine1 alpine2 alpine3 alpine4**

alpine1

alpine2

alpine3

alpine4

[ec2-user@ip-10-0-1-51 ~]$ **docker container rm alpine1 alpine2 alpine3 alpine4**

alpine1

alpine2

alpine3

alpine4

[ec2-user@ip-10-0-1-51 ~]$ **docker network rm alpine-net**

alpine-net

[ec2-user@ip-10-0-1-51 ~]$