IP addr used

Container Name	T1_server	T1_worker01	T1_worker02	T1_worker03
IP Addr Used	172.17.0.2	172.17.0.3	172.17.0.4	172.17.0.5

Shared Storage Path

Source:/home/rajat/sheesh/DSD6231/Lab/Assignments/Assignment1/
COMP6231_assignment_1_client_server

Target:/T1_files

Server Section

1)rajat@rajat:~$ docker run --name T1_server --mount type=bind,source=/home/rajat/sheesh/DSD6231/Lab/Assignments/Assignment1/COMP6231_assignment_1_client_server,target=/T1_files --shm-size 2GB -it python bash
docker run command first creates a writeable container layer over the specified image
--name Assign a name to the container (**T1_server**)
--mount flag allows you to mount volumes, host-directories and tmpfs mounts in a container.
source is the mount point location in the host file system
target is the mount point location inside the container.(**T1_files**)
--shm-size target is the mount point location inside the container.(**2GB)**
-it instructs Docker to allocate a pseudo-TTY connected to the container's stdin; creating an interactive **bash** shell in the container

2)root@0033182c6519:/# apt-get update
apt-get update downloads the package lists from the repositories and "updates" them to get information on the newest versions of packages and their dependencies. It will do this for all repositories and PPAs.

3)root@0033182c6519:/# apt-get install nano net-tools iputils-ping
nano is a simple, modeless, WYSIWYG command-line text editor included in most Linux installations.
net-tools is the collection of base networking utilities for Linux.
iputils-ping installed so **ifconfig** can be used to find ip addr of docker containers

4)root@0033182c6519:/# cd T1_files/
Changing directory to **T1_files**

5)root@0033182c6519:/T1_files# cd server/
Changing directory to server

6)root@0033182c6519:/T1_files/server# nano server.py
Using the nano editor to changing the HOST ip addr in server.py

7)root@0033182c6519:/T1_files/server# python server.py
Running the server.py file.

Server Logs

```
Connected by ('172.17.0.3', 50518)
Connection from :  ('172.17.0.3', 50518)
Connected by ('172.17.0.4', 38214)
Connection from :  ('172.17.0.4', 38214)
Connected by ('172.17.0.5', 35756)
Connection from :  ('172.17.0.5', 35756)
```

8)root@0033182c6519:/T1_files/server# apt install tree
Installing the tree package to show the output in a tree-like hierarchical structure.

9)root@0033182c6519:/T1_files/server# tree -L 3
Displaying the tree-like hierarchical structure.

```
.
├── client01
│   └── orca.jpg
├── client02
│   └── jellyfish.jpg
├── client03
│   └── taco_bell.mp3
├── example.py
└── server.py
```

3 directories, 5 files

Client01 Section

10)rajat@rajat:~$ docker run --name T1_client01 --mount type=bind,source=/home/rajat/sheesh/DSD6231/Lab/Assignments/Assignment1/COMP6231_assignment_1_client_server,target=/T1_files --shm-size 2GB -it python bash
docker run command first creates a writeable container layer over the specified image
--name Assign a name to the container (**T1_client01**)
--mount flag allows you to mount volumes, host-directories and tmpfs mounts in a container.
source is the mount point location in the host file system
target is the mount point location inside the container.(**T1_files**)
--shm-size target is the mount point location inside the container.(**2GB)**
-it instructs Docker to allocate a pseudo-TTY connected to the container's stdin; creating an interactive **bash** shell in the container

11)root@f86009edcad8:/# apt-get update
apt-get update downloads the package lists from the repositories and "updates" them to get information on the newest versions of packages and their dependencies. It will do this for all repositories and PPAs.

12)root@f86009edcad8:/# apt-get install nano net-tools iputils-ping
nano is a simple, modeless, WYSIWYG command-line text editor included in most Linux installations.
net-tools is the collection of base networking utilities for Linux.
iputils-ping installed so **ifconfig** can be used to find ip addr of docker containers

13)root@f86009edcad8:/# cd T1_files/
Changing directory to **T1_files**

14)root@f86009edcad8:/T1_files# cd client/
Changing the directory to client.

15)root@f86009edcad8:/T1_files/client# nano client.py
Using the nano editor to changing the HOST ip addr in client.py

16)root@f86009edcad8:/T1_files/client# python client.py
Running the client.py file.

Client01 Logs

```
Connected to server at IP: 172.17.0.2 and Port: 65432
Handshake Done.Client Section01 EOF is: <yVPKpVUe>
Current Directory: /T1_files/server:
|
--
-- example.py
-- server.py
Choose a command: cd, mkdir, rm, ul, dl, exit
>>>mkdir client01
================================================================================
Current Directory: /T1_files/server:
|
-- client01
-- example.py
-- server.py
Choose a command: cd, mkdir, rm, ul, dl, exit
>>>cd client01
================================================================================
Current Directory: /T1_files/server/client01:
|
--
--
Choose a command: cd, mkdir, rm, ul, dl, exit
>>>ul orca.jpg
================================================================================
Current Directory: /T1_files/server/client01:
|
--
-- orca.jpg
Choose a command: cd, mkdir, rm, ul, dl, exit
>>>cd ..
================================================================================
Current Directory: /T1_files/server:
|
-- client03
-- client02
-- client01
-- example.py
-- server.py
Choose a command: cd, mkdir, rm, ul, dl, exit
```

```
>>>dl example.py
================================================================================
Current Directory: /T1_files/server:
|
-- client03
-- client02
-- client01
-- example.py
-- server.py
Choose a command: cd, mkdir, rm, ul, dl, exit
>>>rm example.py
================================================================================
Current Directory: /T1_files/server:
|
-- client03
-- client02
-- client01
-- server.py
Choose a command: cd, mkdir, rm, ul, dl, exit
>>>ul example.py
================================================================================
Current Directory: /T1_files/server:
|
-- client03
-- client02
-- client01
-- example.py
-- server.py
Choose a command: cd, mkdir, rm, ul, dl, exit
>>>exit
================================================================================
Exiting the application.
```

Client02 Section

17)rajat@rajat:~/Downloads/pycharm-2022.2.3/bin$ docker run --name T1_client02 --mount type=bind,source=/home/rajat/sheesh/DSD6231/Lab/Assignments/Assignment1/COMP6231_assignment_1_client_server,target=/T1_files --shm-size 2GB -it python bash

docker run command first creates a writeable container layer over the specified image
--name Assign a name to the container (**T1_client02**)
--mount flag allows you to mount volumes, host-directories and tmpfs mounts in a container.
source is the mount point location in the host file system
target is the mount point location inside the container.(**T1_files**)
--shm-size target is the mount point location inside the container.(**2GB)**
-it instructs Docker to allocate a pseudo-TTY connected to the container's stdin; creating an interactive
bash shell in the container

18)root@21dd4a2d10ab:/# apt-get update

apt-get update downloads the package lists from the repositories and "updates" them to get information on the newest versions of packages and their dependencies. It will do this for all repositories and PPAs.

19)root@21dd4a2d10ab:/# apt-get install iputils-ping nano net-tools

nano is a simple, modeless, WYSIWYG command-line text editor included in most Linux installations.
net-tools is the collection of base networking utilities for Linux.
iputils-ping installed so **ifconfig** can be used to find ip addr of docker containers

20)root@21dd4a2d10ab:/T1_files# cd client/
Changing the directory to client.

21)root@21dd4a2d10ab:/T1_files/client# nano client.py
Using the nano editor to changing the HOST ip addr in client.py

22)root@21dd4a2d10ab:/T1_files/client# python client.py
Running the client.py file.

Client01 Logs

```
Connected to server at IP: 172.17.0.2 and Port: 65432
Handshake Done. EOF is: <3ptoejT7>
Current Directory: /T1_files/server:
|
--
-- example.py
-- server.py
Choose a command: cd, mkdir, rm, ul, dl, exit
>>>mkdir client02
================================================================================
Current Directory: /T1_files/server:
|
-- client02
-- client01
-- example.py
-- server.py
Choose a command: cd, mkdir, rm, ul, dl, exit
>>>cd client02
================================================================================
Current Directory: /T1_files/server/client02:
|
--
--
Choose a command: cd, mkdir, rm, ul, dl, exit
>>>ul jellyfish.jpg
================================================================================
Current Directory: /T1_files/server/client02:
|
--
-- jellyfish.jpg
Choose a command: cd, mkdir, rm, ul, dl, exit
>>>exit
================================================================================
Exiting the application.
```

Client03 Section

23)rajat@rajat:~/Downloads/pycharm-2022.2.3/bin$ docker run --name T1_client03 --mount type=bind,source=/home/rajat/sheesh/DSD6231/Lab/Assignments/Assignment1/COMP6231_assignment_1_client_server,target=/T1_files --shm-size 2GB -it python bash
docker run command first creates a writeable container layer over the specified image
--name Assign a name to the container (**T1_client03**)
--mount flag allows you to mount volumes, host-directories and tmpfs mounts in a container.
source is the mount point location in the host file system
target is the mount point location inside the container.(**T1_files**)
--shm-size target is the mount point location inside the container.(**2GB)**
-it instructs Docker to allocate a pseudo-TTY connected to the container's stdin; creating an interactive
bash shell in the container

24)root@c0e7ed4cc396:/# apt-get update
apt-get update downloads the package lists from the repositories and "updates" them to get information on the newest versions of packages and their dependencies. It will do this for all repositories and PPAs.

25)root@c0e7ed4cc396:/# apt-get install nano net-tools iputils-ping
nano is a simple, modeless, WYSIWYG command-line text editor included in most Linux installations.
net-tools is the collection of base networking utilities for Linux.
iputils-ping installed so **ifconfig** can be used to find ip addr of docker containers

26)root@c0e7ed4cc396:/# cd T1_files/client/
Changing the directory to client.

27)root@c0e7ed4cc396:/T1_files/client# nano client.py
Using the nano editor to changing the HOST ip addr in client.py

28)root@c0e7ed4cc396:/T1_files/client# python client.py
Running the client.py file.

Client03 Logs

```
Connected to server at IP: 172.17.0.2 and Port: 65432
Handshake Done. EOF is: <NZurN0cP>
Current Directory: /T1_files/server:
|
--
-- example.py
-- server.py
Choose a command: cd, mkdir, rm, ul, dl, exit
>>>mkdir client03
================================================================================
Current Directory: /T1_files/server:
|
-- client03
-- client02
-- client01
-- example.py
-- server.py
Choose a command: cd, mkdir, rm, ul, dl, exit
>>>cd client03
================================================================================
Current Directory: /T1_files/server/client03:
|
--
--
Choose a command: cd, mkdir, rm, ul, dl, exit
>>>ul taco_bell.mp3
================================================================================
Current Directory: /T1_files/server/client03:
|
--
-- taco_bell.mp3
Choose a command: cd, mkdir, rm, ul, dl, exit
>>>exit
================================================================================
```

```
Exiting the application.
```