Lesson 07 Demo 04

Setting Up Docker Compose

Objective: To manage a container by establishing Docker Compose and creating a docker-compose file for better configuration

Tools required: Docker configuration

Pre-requisites: Ubuntu configuration, Docker

Steps to be followed:
1. Set up docker-compose
2. Create a docker-compose file

Step 1: Set up docker-compose

1.1 Install docker-compose using the command given below:
mkdir compose-test
cd compose-test
pip –version

```
labsuser@ip-172-31-32-225:~$ mkdir compose-test
labsuser@ip-172-31-32-225:~$ cd compose-test
labsuser@ip-172-31-32-225:~/compose-test$ pip --version
pip 22.0.2 from /usr/lib/python3/dist-packages/pip (python 3.10)
labsuser@ip-172-31-32-225:~/compose-test$ 
```

1.2 Then, type the command given below to install docker-compose:

sudo pip install docker-compose

```
labsuser@ip-172-31-32-128:~/compose-test$ sudo pip install docker-compose
Collecting docker-compose
  Downloading docker_compose-1.29.2-py2.py3-none-any.whl (114 kB)
                    ━━━━━━━━━━━━━━ 114.8/114.8 KB 2.9 MB/s eta 0:00:00
Requirement already satisfied: jsonschema<4,>=2.5.1 in /usr/lib/python3/dist-packages (from docker-compose) (3.2.0)
Collecting python-dotenv<1,>=0.13.0
  Downloading python_dotenv-0.21.1-py3-none-any.whl (19 kB)
Requirement already satisfied: distro<2,>=1.5.0 in /usr/lib/python3/dist-packages (from docker-compose) (1.7.0)
Requirement already satisfied: PyYAML<6,>=3.10 in /usr/lib/python3/dist-packages (from docker-compose) (5.4.1)
Collecting docopt<1,>=0.6.1
  Downloading docopt-0.6.2.tar.gz (25 kB)
  Preparing metadata (setup.py) ... done
Collecting dockerpty<1,>=0.4.1
  Downloading dockerpty-0.4.1.tar.gz (13 kB)
  Preparing metadata (setup.py) ... done
Collecting docker[ssh]>=5
  Downloading docker-7.0.0-py3-none-any.whl (147 kB)
                    ━━━━━━━━━━━━━━ 147.6/147.6 KB 1.9 MB/s eta 0:00:00
```

```
Requirement already satisfied: requests<3,>=2.20.0 in /usr/lib/python3/dist-packages (from docker-compose) (2.25.1)
Collecting texttable<2,>=0.9.0
  Downloading texttable-1.7.0-py2.py3-none-any.whl (10 kB)
Collecting websocket-client<1,>=0.32.0
  Downloading websocket_client-0.59.0-py2.py3-none-any.whl (67 kB)
                    ━━━━━━━━━━━━━━ 67.2/67.2 KB 808.2 kB/s eta 0:00:00
Collecting packaging>=14.0
  Downloading packaging-23.2-py3-none-any.whl (53 kB)
                    ━━━━━━━━━━━━━━ 53.0/53.0 KB 12.0 MB/s eta 0:00:00
Collecting requests<3,>=2.20.0
  Downloading requests-2.31.0-py3-none-any.whl (62 kB)
                    ━━━━━━━━━━━━━━ 62.6/62.6 KB 978.3 kB/s eta 0:00:00
Requirement already satisfied: urllib3>=1.26.0 in /usr/lib/python3/dist-packages (from docker[ssh]>=5->docker-compose) (1.26.5)
Requirement already satisfied: paramiko>=2.4.3 in /usr/lib/python3/dist-packages (from docker[ssh]>=5->docker-compose) (2.9.3)
Requirement already satisfied: six>=1.3.0 in /usr/lib/python3/dist-packages (from dockerpty<1,>=0.4.1->docker-compose) (1.16.0)
Collecting charset-normalizer<4,>=2
```

```
Requirement already satisfied: urllib3>=1.26.0 in /usr/lib/python3/dist-packages (from docker[ssh]>=5->docker-compose) (1.26.5)
Requirement already satisfied: paramiko>=2.4.3 in /usr/lib/python3/dist-packages (from docker[ssh]>=5->docker-compose) (2.9.3)
Requirement already satisfied: six>=1.3.0 in /usr/lib/python3/dist-packages (from dockerpty<1,>=0.4.1->docker-compose) (1.16.0)
Collecting charset-normalizer<4,>=2
  Downloading charset_normalizer-3.3.2-cp310-cp310-manylinux_2_17_x86_64.manylinux2014_x86_64.whl (142 kB)
                    ━━━━━━━━━━━━━━ 142.1/142.1 KB 1.3 MB/s eta 0:00:00
Requirement already satisfied: idna<4,>=2.5 in /usr/lib/python3/dist-packages (from requests<3,>=2.20.0->docker-compose) (3.3)
Requirement already satisfied: certifi>=2017.4.17 in /usr/lib/python3/dist-packages (from requests<3,>=2.20.0->docker-compose) (2020.6.20)
Building wheels for collected packages: dockerpty, docopt
  Building wheel for dockerpty (setup.py) ... done
  Created wheel for dockerpty: filename=dockerpty-0.4.1-py3-none-any.whl size=16614 sha256=cd812f3f2fc05e94328ee93eab51ca0abdb3f78d89449596a4da9ecbfd1dcf9b
  Stored in directory: /root/.cache/pip/wheels/18/00/32/f75cd03098074f988a01c59a2e3a55ae9c0773eb66acb4cb5e
  Building wheel for docopt (setup.py) ... done
  Created wheel for docopt: filename=docopt-0.6.2-py2.py3-none-any.whl size=13723 sha256=2b8477a008c0ecea42eba3855d9950139b1b54060f6cf58dcefeb5489e8a07aa
  Stored in directory: /root/.cache/pip/wheels/fc/ab/d4/5da2067ac95b36618c629a5f93f809425700506f72c9732fac
Successfully built dockerpty docopt
```

```
Installing collected packages: texttable, docopt, websocket-client, python-dotenv, packaging, dockerpty, charset-normalizer, requests, docker, docker-compose
  Attempting uninstall: requests
    Found existing installation: requests 2.25.1
    Not uninstalling requests at /usr/lib/python3/dist-packages, outside environment /usr
    Can't uninstall 'requests'. No files were found to uninstall.
Successfully installed charset-normalizer-3.3.2 docker-7.0.0 docker-compose-1.29.2 dockerpty-0.4.1 docopt-0.6.2 packaging-23.2 python-dotenv-0.21.1 requests-2.31.0 texttable-1.7.0 websocket-client-0.59.0
WARNING: Running pip as the 'root' user can result in broken permissions and conflicting behaviour with the system package manager. It is recommended to use a virtual environment instead
: https://pip.pypa.io/warnings/venv
```

Step 2: Create a docker-compose file

2.1 Inside **compose-test** folder, create **docker-compose.yml** file and add the following code in it:
vi docker-compose.yml

```
labsuser@ip-172-31-32-128:~/compose-test$ vi docker-compose.yml
```

2.2 Add the following code snippet in the file:
version: '2'
services:
 compose-test:
  image: centos
  links:
   - compose-db
  command: /usr/bin/curl compose-db:6379
 compose-db:
  image: redis
  expose:
   - "6379"

```
version: '2'
services:
  compose-test:
    image: centos
    links:
      - compose-db
    command: /usr/bin/curl compose-db:6379
  compose-db:
    image: redis
    expose:
      - "6379"
```

Note: After writing the above code in the **yml** *file*, press **ESC** button and enter ":wq" to save the file and exit the editor.

2.3 Run the following command to execute the YAML file:
   sudo docker-compose up

```
labsuser@ip-172-31-32-128:~/compose-test$ sudo docker-compose up
Traceback (most recent call last):
  File "/usr/local/bin/docker-compose", line 8, in <module>
    sys.exit(main())
  File "/usr/local/lib/python3.10/dist-packages/compose/cli/main.py", line 81, in main
    command_func()
  File "/usr/local/lib/python3.10/dist-packages/compose/cli/main.py", line 200, in perform_command
    project = project_from_options('.', options)
  File "/usr/local/lib/python3.10/dist-packages/compose/cli/command.py", line 60, in project_from_options
    return get_project(
  File "/usr/local/lib/python3.10/dist-packages/compose/cli/command.py", line 152, in get_project
    client = get_client(
  File "/usr/local/lib/python3.10/dist-packages/compose/cli/docker_client.py", line 41, in get_client
    client = docker_client(
  File "/usr/local/lib/python3.10/dist-packages/compose/cli/docker_client.py", line 124, in docker_client
    kwargs = kwargs_from_env(environment=environment, ssl_version=tls_version)
TypeError: kwargs_from_env() got an unexpected keyword argument 'ssl_version'
labsuser@ip-172-31-32-128:~/compose-test$
```

By following these steps, you have successfully managed a container by establishing Docker Compose and creating a docker-compose file for better configuration.