

UE19CS352

CLOUD COMPUTING LAB

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SECTION : E

Task 1: Installing Docker Engine

[1a.jpg]

The screenshot displays the Docker Playground web interface. On the left sidebar, there's a clock showing 03:58:17, a 'CLOSE SESSION' button, and an 'Instances' section with a '+ ADD NEW INSTANCE' button. Below this, a list of instances shows '192.168.0.8 node1'. The main content area is titled 'c8csc5m_c8cshlmregp00e9ikgg' and shows container details: IP 192.168.0.8, Memory 1.09% (43.52MiB / 3.906GiB), and CPU 0.88%. An SSH button is present. Below the details, there are 'DELETE' and 'EDITOR' buttons. A terminal window at the bottom shows the command 'docker run hello-world' and its output, which includes a welcome message and a list of steps taken by Docker. At the bottom of the interface, there's a 'Docker.dmg' download link and a 'Show all' button.

```
[model] (local) root@192.168.0.8 ~
$ docker run hello-world
Unable to find image 'hello-world:latest' locally
latest: Pulling from library/hello-world
2db29710123e: Pull complete
Digest: sha256:97a379f4f88575512824f3b352bc03cd75e239179eea0fecc38e597b2209f49a
Status: Downloaded newer image for hello-world:latest

Hello from Docker!
This message shows that your installation appears to be working correctly.

To generate this message, Docker took the following steps:
1. The Docker client contacted the Docker daemon.
2. The Docker daemon pulled the "hello-world" image from the Docker Hub.
   (amd64)
3. The Docker daemon created a new container from that image which runs the
   executable that produces the output you are currently reading.
4. The Docker daemon streamed that output to the Docker client, which sent it
   to your terminal.

To try something more ambitious, you can run an Ubuntu container with:
$ docker run -it ubuntu bash

Share images, automate workflows, and more with a free Docker ID:
```

Task 2: Docker images and docker files

[2a.jpg]

The screenshot shows the Docker Playground interface. On the left, there's a sidebar with a timer at 03:49:32, a 'CLOSE SESSION' button, and a list of instances including '192.168.0.8 node1'. The main area displays details for the container 'c8csc5m_c8coshlmpg00e9ikg0', including its IP (192.168.0.8), memory usage (54.34%), CPU usage (0.81%), and an SSH command. Below this, a terminal window shows the setup process for binutils, gcc, and the execution of a program, resulting in a successful build and tag for 'task2:latest'.

```
Setting up binutils (2.30-21ubuntu1-18.04.7) ...
Setting up gcc-7 (7.5.0-3ubuntu1-18.04) ...
Setting up gcc (4:7.4.0-1ubuntu2.3) ...
Processing triggers for libc-bin (2.27-3ubuntu1.4) ...
Removing intermediate container 87e8cddf2b8
--> 96e0422d789d
--> 20c11e82941
Step 4/6 : COPY program.c program.c
--> 20c11e82941
Step 5/6 : RUN gcc program.c
--> Running in 183c303b0aa9
Removing intermediate container 183c303b0aa9
--> 4a6426baed23
Step 6/6 : CMD ["/a.out"]
--> Running in 924175c8f7b1
Removing intermediate container 924175c8f7b1
--> cdedffe775d
Successfully built cdedffe775d
Successfully tagged task2:latest
(node1) (local) root@192.168.0.8 ~
$ docker run task2
Running this inside a container !
My SRN is PES2UG19CS301
(node1) (local) root@192.168.0.8 ~
$
```

[2b.jpg]

The screenshot shows the Docker Hub interface. The top navigation bar includes the Docker Hub logo, a search bar, and links to Explore, Repositories, Organizations, and Help. The main content area displays the repository 'pes2ug19cs301 / task2', which is 'Not Scanned', has 0 stars, 0 downloads, and is 'Public'. A tip suggests switching namespaces if the repository is not found. On the right, there's a call to action to 'Create an Organization' and 'Manage Docker Hub repositories with your team'.

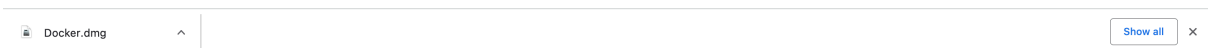
Task 3: Exposing ports,docker networks

[3a.jpg]

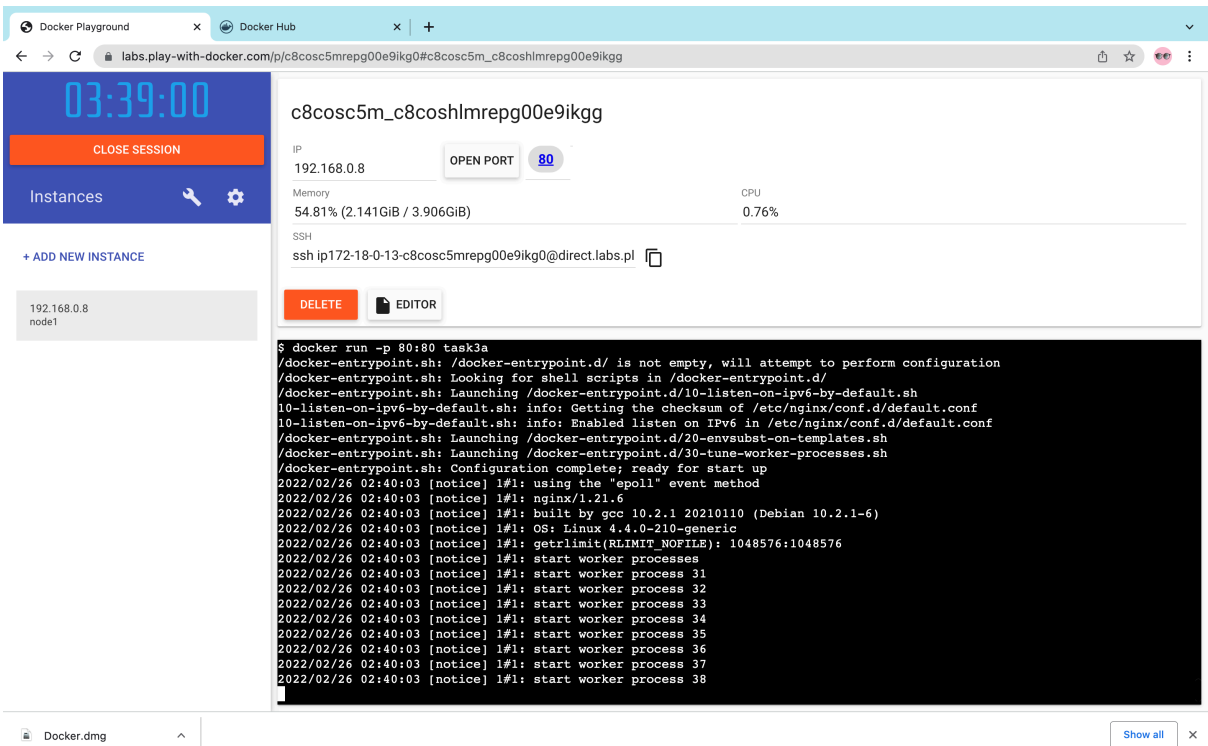


My SRN is PES2UG19CS301

I am running a nginx container!



[3b.jpg]



[3c.jpg]

03:22:44

CLOSE SESSION

Instances

+ ADD NEW INSTANCE

192.168.0.8
node1

c8csc5m_c8coshlmregpg00e9ikgg

IP
192.168.0.8

OPEN PORT
27017

Memory
57.31% (2.239GiB / 3.906GiB)

CPU
1.14%

SSH
ssh ip172-18-0-13-c8csc5mregpg00e9ikg0@direct.labs.pl

DELETE EDITOR

Sending build context to Docker daemon 47.01MB

Step 1/5 : FROM python

Step 2/5 : RUN apt-get update

Step 3/5 : RUN pip install pymongo

Step 4/5 : COPY sample.py sample.py

Step 5/5 : CMD ["python", "sample.py"]

Removing intermediate container le4390716d5a

Successfully built d358123abf9f

Successfully tagged task3b:latest

[node1] (local) root@192.168.0.8 -

\$ docker run task3b

Inserted into the MongoDB database!

Fetches from MongoDB: { '_id': ObjectId('621996e7959aa3b0cb597095'), 'Name': 'Priya Mohata', 'SRN': 'PES2UG19CS301' }

[node1] (local) root@192.168.0.8 -

\$

Docker.dmg

Show all

[3d.jpg]

03:17:53

CLOSE SESSION

Instances

+ ADD NEW INSTANCE

192.168.0.8
node1

c8csc5m_c8coshlmregpg00e9ikgg

IP
192.168.0.8

OPEN PORT
27017

Memory
57.22% (2.235GiB / 3.906GiB)

CPU
1.06%

SSH
ssh ip172-18-0-13-c8csc5mregpg00e9ikg0@direct.labs.pl

DELETE EDITOR

ac5c36ee50b7 mongo "docker-entrypoint.s..." 11 minutes ago Up 11 minutes 0.0.0.0:27017

->27017/tcp silly_zhukovsky

3e3e98c7e9bb task3a "/docker-entrypoint.s..." 18 minutes ago Exited (0) 15 minutes ago

be1e7e7b768d recursing_elbakyan task2 ". /a.out" 28 minutes ago Exited (0) 28 minutes ago

b6fe90e04e58 thirsty_colden hello-world "/hello" 37 minutes ago Exited (0) 37 minutes ago

[node1] (local) root@192.168.0.8 -

\$ docker ps

CONTAINER ID IMAGE COMMAND CREATED STATUS PORTS NAMES

ac5c36ee50b7 mongo "docker-entrypoint.s..." 11 minutes ago Up 11 minutes 0.0.0.0:27017->27017/tcp silly_zhuko

vsky

[node1] (local) root@192.168.0.8 -

\$ docker stop ac5c36ee50b7

ac5c36ee50b7

[node1] (local) root@192.168.0.8 -

\$ docker network create my-bridge-network

5bc99f32b0bb066e2d5e5021b3907fab0e3c8905calec83bb7727c70fb555a6b

[node1] (local) root@192.168.0.8 -

\$ docker run -dp 27017:27017 --network=my-bridge-network --name=mongodb mongo:latest

b359866a00991750d5126410fc23e8cdc93bb8ff9eb4690ea47f983e287755e4

[node1] (local) root@192.168.0.8 -

\$

Docker.dmg

Show all

[3e.jpg]

The screenshot shows the Docker Playground web interface. The browser tabs include 'Docker Playground', 'ip172-18-0-13-c8csc5mregpg00e9ikg0', 'Docker Hub', and 'Run Python Versions in Docker'. The address bar shows the URL: `labs.play-with-docker.com/p/c8csc5mregpg00e9ikg0#c8csc5m_c8coshlmregpg00e9ikgg`.

On the left sidebar, there is a clock showing '03:15:17', a 'CLOSE SESSION' button, an 'Instances' section with a wrench and gear icon, and a '+ ADD NEW INSTANCE' button. Below this, a list of instances shows '192.168.0.8' and 'node1'.

The main panel displays details for the container 'c8csc5m_c8coshlmregpg00e9ikgg'. It shows the IP '192.168.0.8', an 'OPEN PORT' button with '27017', memory usage '57.31% (2.239GiB / 3.906GiB)', and CPU usage '1.33%'. An SSH terminal shows the command `ssh ip172-18-0-13-c8csc5mregpg00e9ikg0@direct.labs.pl`. Below the details are 'DELETE' and 'EDITOR' buttons.

The terminal window shows the following commands and output:

```
---> 90e8b56cb19e
Step 2/5 : RUN apt-get update
---> Using cache
---> 12e1888009a0
Step 3/5 : RUN pip install pymongo
---> Using cache
---> 5d92b7528ea8
Step 4/5 : COPY sample.py sample.py
---> ca7d8894d1b0
Step 5/5 : CMD ["python", "sample.py"]
---> Running in da9230ac4bfd
Removing intermediate container da9230ac4bfd
---> 6437c6d7d151
Successfully built 6437c6d7d151
Successfully tagged task3c:latest
[node1] (local) root@192.168.0.8 -
$ docker run --network=my-bridge-network <myimage-name>
bash: syntax error near unexpected token `newline'
[node1] (local) root@192.168.0.8 -
$ docker run --network=my-bridge-network task3c
Inserted into the MongoDB database!
Fetched from MongoDB: {'_id': ObjectId('6219989c98c6d7fe86f431b4'), 'Name': 'Priya Mohata', 'SRN': 'PES2UG19CS301'}
[node1] (local) root@192.168.0.8 -
$
```

Task 4: Docker compose

[4a.jpg]

02:55:39

CLOSE SESSION

Instances

+ ADD NEW INSTANCE

192.168.0.8
node1

c8cosc5m_c8coshlmregp00e9ikgg

IP
192.168.0.8

OPEN PORT
49153 27017

Memory
59.82% (2.337GiB / 3.906GiB)

CPU
1.91%

SSH
ssh ip172-18-0-13-c8cosc5mregp00e9ikg0@direct.labs.pl

DELETE EDITOR

```
client metadata,"attr":{"remote":"172.20.0.3:47320","client":"conn3","doc":{"driver":{"name":"PyMongo","version":"4.0.1"},
},os":{"type":"Linux","name":"Linux","architecture":"x86_64","version":"4.4.0-210-generic"},"platform":"CPython 3.10.2.f
inal.0"}}}
mongodb_1 | {"t":{"$date":"2022-02-26T03:20:14.615+00:00"},"s":"I", "c":"STORAGE", "id":20320, "ctx":"conn2","msg":
createCollection","attr":{"namespace":"sample_db.sample_collection","uuidDisposition":"generated","uuid":{"uid":{"$uid"
":"80f2b9f2-08b0-4ce5-89cd-372b597a4666"},"options":{}}}}
mongodb_1 | {"t":{"$date":"2022-02-26T03:20:14.622+00:00"},"s":"I", "c":"INDEX", "id":20345, "ctx":"conn2","msg":
Index build: done building","attr":{"buildUUID":null,"namespace":"sample_db.sample_collection","index":"_id","commitTime
stamp":null}}
pycode_1 | Inserted into the MongoDB database!
pycode_1 | Fetched from MongoDB: {'_id': ObjectId('62199c6e5541e070c02e6d85'), 'Name': 'Priya Mohata', 'SRN': 'PES2UG
19CS301'}
mongodb_1 | {"t":{"$date":"2022-02-26T03:20:15.114+00:00"},"s":"I", "c":"-", "id":20883, "ctx":"conn1","msg":
Interrupted operation as its client disconnected","attr":{"opId":17}}
mongodb_1 | {"t":{"$date":"2022-02-26T03:20:15.115+00:00"},"s":"I", "c":"NETWORK", "id":22944, "ctx":"conn1","msg":
Connection ended","attr":{"remote":"172.20.0.3:47316","uid":"d3d3304e-0f0f-47e0-b2b9-1e2d9084c140","connectionId":1,"con
nectionCount":2}}
mongodb_1 | {"t":{"$date":"2022-02-26T03:20:15.120+00:00"},"s":"I", "c":"NETWORK", "id":22944, "ctx":"conn2","msg":
Connection ended","attr":{"remote":"172.20.0.3:47318","uid":"e29e038f-6743-49ed-b5b5-9125df0ddca8","connectionId":2,"con
nectionCount":1}}
mongodb_1 | {"t":{"$date":"2022-02-26T03:20:15.120+00:00"},"s":"I", "c":"NETWORK", "id":22944, "ctx":"conn3","msg":
Connection ended","attr":{"remote":"172.20.0.3:47320","uid":"6ff17677-0d32-477f-b8df-615717ab87b6","connectionId":3,"con
nectionCount":0}}
root_pycode_1 exited with code 0
```

Docker.dmg Show all

[4b.jpg]

02:53:51

CLOSE SESSION

Instances

+ ADD NEW INSTANCE

192.168.0.8
node1

c8cosc5m_c8coshlmregp00e9ikgg

IP
192.168.0.8

OPEN PORT
49154 27017

Memory
62.33% (2.435GiB / 3.906GiB)

CPU
2.06%

SSH
ssh ip172-18-0-13-c8cosc5mregp00e9ikg0@direct.labs.pl

DELETE EDITOR

```
},os":{"type":"Linux","name":"Linux","architecture":"x86_64","version":"4.4.0-210-generic"},"platform":"CPython 3.10.2.f
inal.0"}}}
mongodb_1 | {"t":{"$date":"2022-02-26T03:24:54.582+00:00"},"s":"I", "c":"NETWORK", "id":22943, "ctx":"listener","msg
":"Connection accepted","attr":{"remote":"172.20.0.4:44720","uid":"2d2e8454-98e6-4a78-9f54-e1fd3e580517","connectionId":
6,"connectionCount":6}}
mongodb_1 | {"t":{"$date":"2022-02-26T03:24:54.583+00:00"},"s":"I", "c":"NETWORK", "id":51800, "ctx":"conn6","msg":
client metadata","attr":{"remote":"172.20.0.4:44720","client":"conn6","doc":{"driver":{"name":"PyMongo","version":"4.0.1"},
},os":{"type":"Linux","name":"Linux","architecture":"x86_64","version":"4.4.0-210-generic"},"platform":"CPython 3.10.2.f
inal.0"}}}
pycode_3 | Inserted into the MongoDB database!
pycode_3 | Fetched from MongoDB: {'_id': ObjectId('62199c6e5541e070c02e6d85'), 'Name': 'Priya Mohata', 'SRN': 'PES2UG
19CS301'}
pycode_2 | Inserted into the MongoDB database!
pycode_2 | Fetched from MongoDB: {'_id': ObjectId('62199c6e5541e070c02e6d85'), 'Name': 'Priya Mohata', 'SRN': 'PES2UG
19CS301'}
mongodb_1 | {"t":{"$date":"2022-02-26T03:24:54.633+00:00"},"s":"I", "c":"NETWORK", "id":22943, "ctx":"listener","msg
":"Connection accepted","attr":{"remote":"172.20.0.3:49224","uid":"4cc5413e-e23f-41aa-9db8-0a61b356a789","connectionId":
7,"connectionCount":7}}
mongodb_1 | {"t":{"$date":"2022-02-26T03:24:54.633+00:00"},"s":"I", "c":"NETWORK", "id":51800, "ctx":"conn7","msg":
client metadata","attr":{"remote":"172.20.0.3:49224","client":"conn7","doc":{"driver":{"name":"PyMongo","version":"4.0.1"},
},os":{"type":"Linux","name":"Linux","architecture":"x86_64","version":"4.4.0-210-generic"},"platform":"CPython 3.10.2.f
inal.0"}}}
mongodb_1 | {"t":{"$date":"2022-02-26T03:24:54.635+00:00"},"s":"I", "c":"NETWORK", "id":22943, "ctx":"listener","msg
":"Connection accepted","attr":{"remote":"172.20.0.3:49226","uid":"88aa771b-d7cc-4d13-b642-358406a5587b","connectionId":
8,"connectionCount":8}}
```

Docker.dmg Show all

02:52:21

CLOSE SESSION

Instances

+ ADD NEW INSTANCE

192.168.0.8
node1

c8csc5m_c8coshlmregpg00e9ikgg

IP
192.168.0.8

OPEN PORT
49154 27017

Memory
62.31% (2.434GiB / 3.906GiB)

CPU
2.02%

SSH
ssh ip172-18-0-13-c8csc5mregpg00e9ikg0@direct.labs.pl

DELETE EDITOR

```
mongodb_1 | {"t":{"$date":"2022-02-26T03:24:54.635+00:00"},"s":"I", "c":"NETWORK", "id":22943, "ctx":"listener","msg":"Connection accepted","attr":{"remote":"172.20.0.3:49226","uid":"88aa771b-d7cc-4d13-b642-358406a5587b","connectionId":8,"connectionCount":8}}
mongodb_1 | {"t":{"$date":"2022-02-26T03:24:54.636+00:00"},"s":"I", "c":"NETWORK", "id":22943, "ctx":"listener","msg":"Connection accepted","attr":{"remote":"172.20.0.3:49228","uid":"811c6a60-bda8-4fe6-b551-f8f14d51a75e","connectionId":9,"connectionCount":9}}
mongodb_1 | {"t":{"$date":"2022-02-26T03:24:54.636+00:00"},"s":"I", "c":"NETWORK", "id":51800, "ctx":"conn8","msg":"client metadata","attr":{"remote":"172.20.0.3:49226","client":"conn8","doc":{"driver":{"name":"PyMongo","version":"4.0.1"},"os":{"type":"Linux","name":"Linux","architecture":"x86_64","version":"4.4.0-210-generic"},"platform":"CPython 3.10.2.final.0"}}}}
mongodb_1 | {"t":{"$date":"2022-02-26T03:24:54.636+00:00"},"s":"I", "c":"NETWORK", "id":51800, "ctx":"conn9","msg":"client metadata","attr":{"remote":"172.20.0.3:49228","client":"conn9","doc":{"driver":{"name":"PyMongo","version":"4.0.1"},"os":{"type":"Linux","name":"Linux","architecture":"x86_64","version":"4.4.0-210-generic"},"platform":"CPython 3.10.2.final.0"}}}}
pycode_1 | Inserted into the MongoDB database!
pycode_1 | Fetched from MongoDB: {'_id': ObjectId('62199c6e5541e070c02e6d85'), 'Name': 'Priya Mohata', 'SRN': 'PES2UG19CS301'}
mongodb_1 | {"t":{"$date":"2022-02-26T03:24:55.073+00:00"},"s":"I", "c":"-", "id":20883, "ctx":"conn1","msg":"Interrupted operation as its client disconnected","attr":{"opId":15}}
mongodb_1 | {"t":{"$date":"2022-02-26T03:24:55.074+00:00"},"s":"I", "c":"NETWORK", "id":22944, "ctx":"conn1","msg":"Connection ended","attr":{"remote":"172.20.0.5:47238","uid":"0472c146-2baa-40bb-a0cb-lef24d6982ed","connectionId":1,"connectionCount":8}}
mongodb_1 | {"t":{"$date":"2022-02-26T03:24:55.081+00:00"},"s":"I", "c":"-", "id":20883, "ctx":"conn2","msg":"Interrupted operation as its client disconnected","attr":{"opId":22}}
```

Docker.dmg Show all