



School of Computer Science Engineering and Application

BCA TY SEM -VI

Subject Name: Container and Orchestration

Assignment No : 4

**AIM: CREATE DOCKER LOCAL PRIVATE REGISTRY ON LOCALHOST
AND PUSH ANY IMAGE ON THAT REGISTRY**

Submitted By

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STEP -1 : CREATE SECURITY GROUP

inbound rules-

- I. ssh
- II. http
- III. https
- IV. all traffic

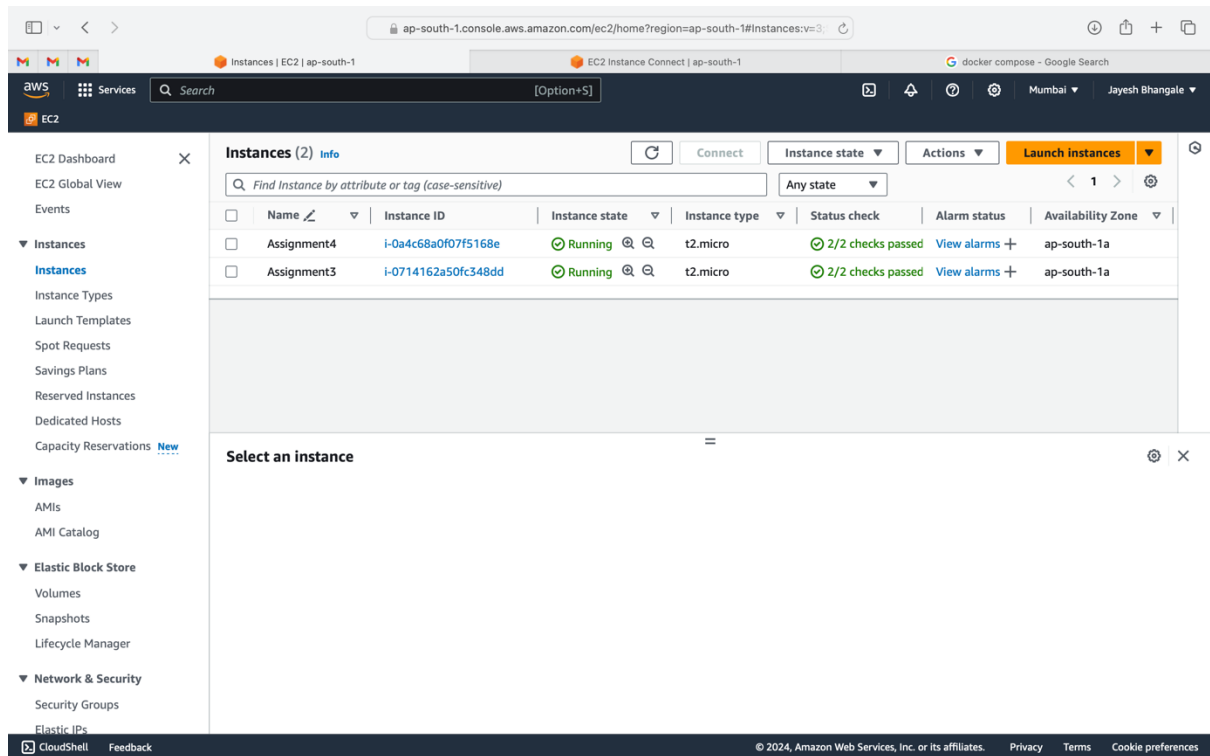
The screenshot shows the AWS Management Console interface for editing inbound rules on a security group. The breadcrumb trail indicates the path: EC2 > Security Groups > sg-089439f9ff0d7872b - launch-wizard-1 > Edit inbound rules. The page title is 'Edit inbound rules' with an 'Info' link. A note states: 'Inbound rules control the incoming traffic that's allowed to reach the instance.'

The 'Inbound rules' section contains a table with the following data:

Security group rule ID	Type	Protocol	Port range	Source	Description - optional	Action
sgr-0d76e1c0f13bea1ec	HTTPS	TCP	443	Cust... 0.0.0.0/0		Delete
sgr-069ab928a6c3c073f	Custom TCP	TCP	8080	Cust... 0.0.0.0/0		Delete
sgr-04c3736aa5f3d81f0	SSH	TCP	22	Cust... 0.0.0.0/0		Delete
sgr-0fd3ec27e7e0e0c9a	HTTP	TCP	80	Cust... 0.0.0.0/0		Delete

An 'Add rule' button is located at the bottom left of the table.

STEP-2 : CREATE & LAUNCH EC2 INSTANCE



STEP-3 : INSTALL DOCKER ON EC2 MACHINE

Set Up Docker Repositories , Add GPG Key & Install Docker Engine :

COMMANDS :

1 Update System:

```
sudo apt update -y
```

2 Set Up Repository:

```
sudo apt install \
```

```
apt-transport-https \
```

```
ca-certificates \
```

curl \

gnupg-agent \

software-properties-common

3 Add Dockers Official GPG Key

curl -fsSl <https://download.docker.com/linux/ubuntu/gpg> | sudo apt-key add -

sudo add-apt-repository \

“deb [arch=amd64] <https://download.docker.com/linux/ubuntu> \

\$(lsb_release -cs) \

stable “

4 Install Docker Engine

sudo apt install docker-ce docker-ce-cli containerd.io -y

5 Check Containers Status

systemctl status docker

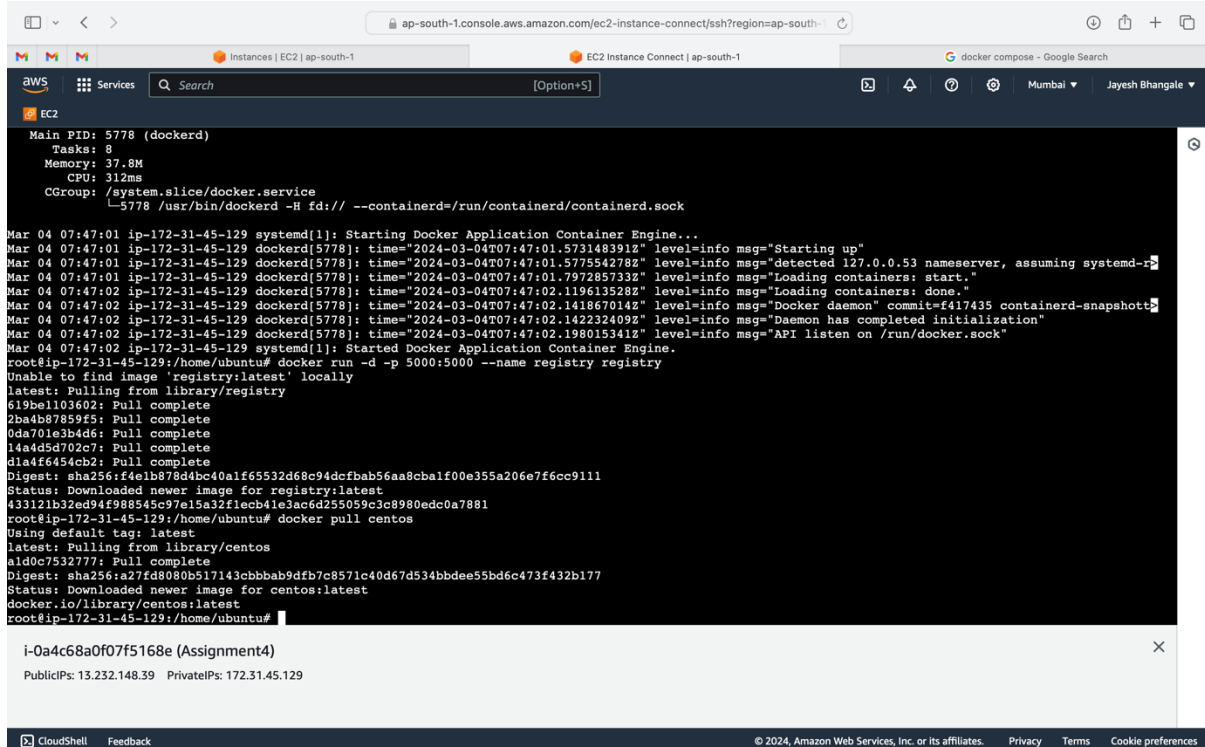
```

r= check docker status
r
● docker.service - Docker Application Container Engine
   Loaded: loaded (/lib/systemd/system/docker.service; enabled; vendor preset: enabled)
   Active: active (running) since Mon 2024-03-04 07:47:02 UTC; 23s ago
   TriggeredBy: ● docker.socket
     Docs: https://docs.docker.com
    Main PID: 5778 (dockerd)
      Tasks: 8
     Memory: 37.8M
        CPU: 312ms
    CGroup: /system.slice/docker.service
            └─5778 /usr/bin/dockerd -H fd:// --containerd=/run/containerd/containerd.sock

Mar 04 07:47:01 ip-172-31-45-129 systemd[1]: Starting Docker Application Container Engine...
Mar 04 07:47:01 ip-172-31-45-129 dockerd[5778]: time="2024-03-04T07:47:01.573148391Z" level=info msg="Starting up"
Mar 04 07:47:01 ip-172-31-45-129 dockerd[5778]: time="2024-03-04T07:47:01.577554278Z" level=info msg="detected l27.0.0.53 nameserver, assuming systemd-resolved"
Mar 04 07:47:01 ip-172-31-45-129 dockerd[5778]: time="2024-03-04T07:47:01.797285733Z" level=info msg="Loading containers: start."
Mar 04 07:47:02 ip-172-31-45-129 dockerd[5778]: time="2024-03-04T07:47:02.119613528Z" level=info msg="Loading containers: done."
Mar 04 07:47:02 ip-172-31-45-129 dockerd[5778]: time="2024-03-04T07:47:02.141867014Z" level=info msg="Docker daemon commit=f417435 containerd-snapshotter=v2.0.3"
Mar 04 07:47:02 ip-172-31-45-129 dockerd[5778]: time="2024-03-04T07:47:02.142232409Z" level=info msg="Daemon has completed initialization"
Mar 04 07:47:02 ip-172-31-45-129 dockerd[5778]: time="2024-03-04T07:47:02.198015341Z" level=info msg="API listen on /run/docker.sock"
Mar 04 07:47:02 ip-172-31-45-129 systemd[1]: Started Docker Application Container Engine.
root@ip-172-31-45-129:/home/ubuntu# docker run -d -p 5000:5000 --name registry registry
Unable to find image 'registry:latest' locally
latest: Pulling from library/registry
619be1103602: Pull complete
2ba4b87859f5: Pull complete
0da701e3b4d6: Pull complete
14a458702c7: Pull complete
41a4f6454cb2: Pull complete
Digest: sha256:f4e1b878d4bc40a1f65532d68c94dcfbab56aa8c8b1f00e355a206e7f6cc9111
Status: Downloaded newer image for registry:latest
433121b32ed94f988545c97e15a32f1ecb41e3ac6d255059c3c8980edc0a7881
root@ip-172-31-45-129:/home/ubuntu# docker pull centos
i-Oa4c68a0f07f5168e (Assignment4)
PublicIPs: 13.232.148.39 PrivateIPs: 172.31.45.129
  
```

STEP -4: DOCKER RUN COMMAND TO DOWNLOAD DOCKER'S LOCAL PRIVATE REGISTRY

COMMAND: `docker run -d -p 5000:5000 --name registry registry:2`



```

Main PID: 5778 (dockerd)
Tasks: 8
Memory: 37.8M
CPU: 312ms
CGroup: /system.slice/docker.service
└─5778 /usr/bin/dockerd -H fd:// --containerd=/run/containerd/containerd.sock

Mar 04 07:47:01 ip-172-31-45-129 systemd[1]: Starting Docker Application Container Engine...
Mar 04 07:47:01 ip-172-31-45-129 dockerd[5778]: time="2024-03-04T07:47:01.573148391Z" level=info msg="Starting up"
Mar 04 07:47:01 ip-172-31-45-129 dockerd[5778]: time="2024-03-04T07:47:01.577554278Z" level=info msg="detected l27.0.0.53 nameserver, assuming systemd-resolved"
Mar 04 07:47:01 ip-172-31-45-129 dockerd[5778]: time="2024-03-04T07:47:01.797285733Z" level=info msg="Loading containers: start."
Mar 04 07:47:02 ip-172-31-45-129 dockerd[5778]: time="2024-03-04T07:47:02.119613528Z" level=info msg="Loading containers: done."
Mar 04 07:47:02 ip-172-31-45-129 dockerd[5778]: time="2024-03-04T07:47:02.141867014Z" level=info msg="Docker daemon" commit=f417435 containerd-snapshotter=v2.0.3
Mar 04 07:47:02 ip-172-31-45-129 dockerd[5778]: time="2024-03-04T07:47:02.142232409Z" level=info msg="Daemon has completed initialization"
Mar 04 07:47:02 ip-172-31-45-129 dockerd[5778]: time="2024-03-04T07:47:02.198015341Z" level=info msg="API listen on /run/docker.sock"
Mar 04 07:47:02 ip-172-31-45-129 systemd[1]: Started Docker Application Container Engine.
root@ip-172-31-45-129:/home/ubuntu# docker run -d -p 5000:5000 --name registry registry:2
Unable to find image 'registry:latest' locally
latest: Pulling from library/registry
619be1103602: Pull complete
2ba4b87859f5: Pull complete
0da701e3b4d6: Pull complete
14a4d5d702c7: Pull complete
d1a4f6454cb2: Pull complete
Digest: sha256:f4e1b878d4bc40a1f65532d68c94dcfbab56aa8c8a1f00e355a206e7f6cc9111
Status: Downloaded newer image for registry:latest
433121b32ed94f988545c97e15a32f1e0b41e3ac6d255059c3c8980edc0a7881
root@ip-172-31-45-129:/home/ubuntu# docker pull centos
Using default tag: latest
latest: Pulling from library/centos
ald0c7532777: Pull complete
Digest: sha256:a27fd800b517143cbbbab9dfb7c8571c40d67d534bbdee55bd6c473f432b177
Status: Downloaded newer image for centos:latest
docker.io/library/centos:latest
root@ip-172-31-45-129:/home/ubuntu#

```

i-Oa4c68a0f07f5168e (Assignment4)

PublicIPs: 13.232.148.39 PrivateIPs: 172.31.45.129

STEP -5 : PULL THE CENTOS IMAGE FROM DOCKER HUB

COMMAND: `docker pull centos`

```

root@ip-172-31-35-128:/home/ubuntu# docker pull centos
Using default tag: latest
latest: Pulling from library/centos
a1d0c7532777: Pull complete
Digest: sha256:a27fd8080b517143cbbbab9dfb7c8571c40d67d534bbdee55bd6c473f432b177
Status: Downloaded newer image for centos:latest
docker.io/library/centos:latest
root@ip-172-31-35-128:/home/ubuntu#

```

i-0f55b290e704b739a (EC2-DOCKER -04)
PublicIPs: 13.127.22.230 PrivateIPs: 172.31.35.128

STEP-6 : TAG THE CENTOS IMAGE WITH YOUR DOCKER'S LOCAL PRIVATE REGISTRY ADDRESS

COMMAND: `docker tag centos localhost:5000/centos`

```

root@ip-172-31-45-129:/home/ubuntu# docker tag centos localhost:5000/centos
root@ip-172-31-45-129:/home/ubuntu# docker images
REPOSITORY          TAG         IMAGE ID      CREATED       SIZE
registry            latest     a8781fe3b7a2  5 weeks ago  25.4MB
centos               latest     5d0da3dc9764  2 years ago  231MB
localhost:5000/centos latest     5d0da3dc9764  2 years ago  231MB
root@ip-172-31-45-129:/home/ubuntu#

```

i-0a4c68a0f07f5168e (Assignment4)
PublicIPs: 13.232.148.39 PrivateIPs: 172.31.45.129

STEP -7 : PUSH THE TAGGED IMAGE TO YOUR DOCKER'S LOCAL PRIVATE REGISTRY

COMMAND: `docker push localhost:5000/centos`

```

root@ip-172-31-45-129:/home/ubuntu# docker push localhost:5000/centos
Using default tag: latest
The push refers to repository [localhost:5000/centos]
74ddd0ec08fa: Pushed
latest: digest: sha256:a1801b843b1bfaf77c501e7a6d3f709401a1e0c83863037fa3aab063a7fdb9dc size: 529
root@ip-172-31-45-129:/home/ubuntu#

```

i-Oa4c68a0f07f5168e (Assignment4)
PublicIPs: 13.232.148.39 PrivateIPs: 172.31.45.129

STEP-8: DELETE THE DOWNLOADED CENTOS IMAGE FROM DOCKER HUB

COMMAND: `docker rmi -f image_id`

COMMAND: `docker rmi -f 5d0da3dc9764`

```

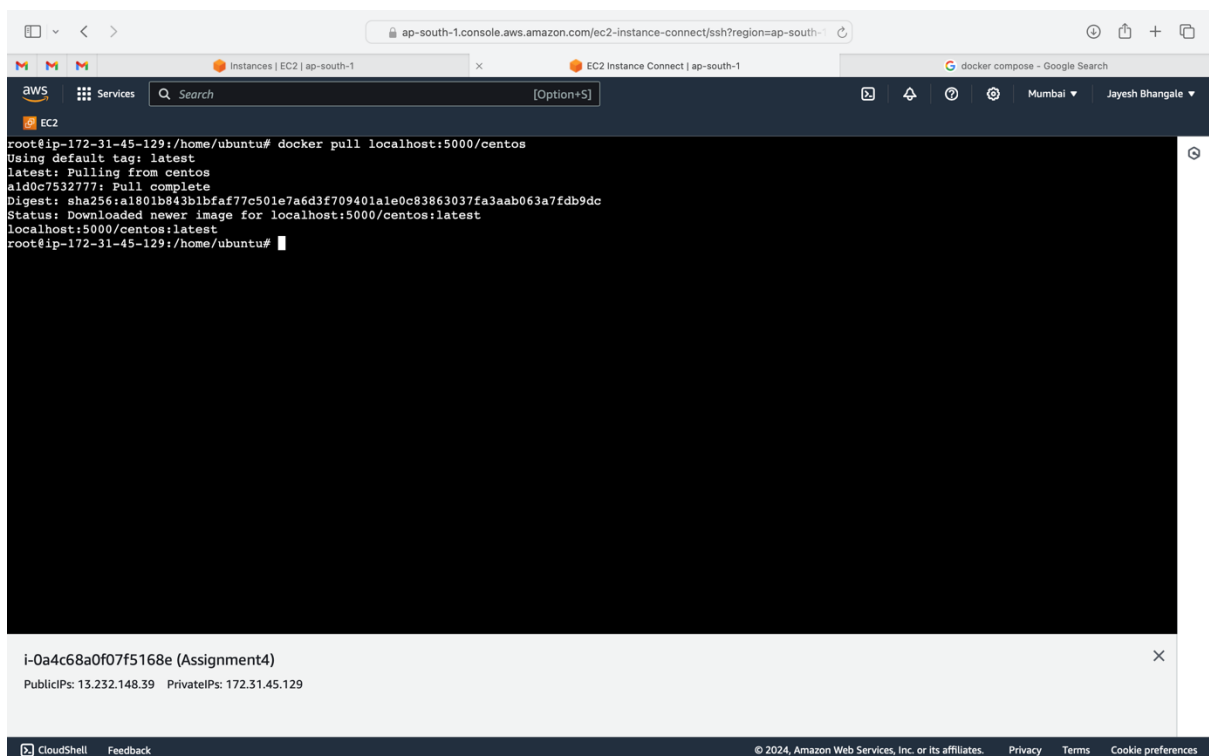
root@ip-172-31-45-129:/home/ubuntu# docker images
REPOSITORY          TAG         IMAGE ID      CREATED        SIZE
registry            latest      a8781fe3b7a2  5 weeks ago   25.4MB
centos              latest      5d0da3dc9764  2 years ago   231MB
localhost:5000/centos latest      5d0da3dc9764  2 years ago   231MB
root@ip-172-31-45-129:/home/ubuntu# docker rmi -f 5d0da3dc9764
Untagged: centos:latest
Untagged: centos@sha256:a27fd8080b517143cbbab9dfb7c8571c40d67d534bbdee55bd6c473f432b177
Untagged: localhost:5000/centos:latest
Untagged: localhost:5000/centos@sha256:a1801b843b1bfaf77c501e7a6d3f709401a1e0c83863037fa3aab063a7fdb9dc
Deleted: sha256:5d0da3dc976460b72c77d94c8a1ad043720b0416bfc16c52c45d4847e53fadbb6
Deleted: sha256:74ddd0ec08fa43d09f32636ba91a0a3053b02cb4627c35051aff89f853606b59
root@ip-172-31-45-129:/home/ubuntu#

```

i-Oa4c68a0f07f5168e (Assignment4)
PublicIPs: 13.232.148.39 PrivateIPs: 172.31.45.129

STEP -9 : PULL THE CENTOS IMAGE FROM DOCKERS LOCAL PRIVATE REGISTRY

COMMAND: docker pull localhost:5000/centos



```
root@ip-172-31-45-129:/home/ubuntu# docker pull localhost:5000/centos
Using default tag: latest
latest: Pulling from centos
a1d0c7532777: Pull complete
Digest: sha256:a1801b843blbfaf77c501e7a6d3f709401ale0c83863037fa3aab063a7fdb9dc
Status: Downloaded newer image for localhost:5000/centos:latest
localhost:5000/centos:latest
root@ip-172-31-45-129:/home/ubuntu#
```

i-0a4c68a0f07f5168e (Assignment4)
PublicIPs: 13.232.148.39 PrivateIPs: 172.31.45.129

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