ROYAL UNIVERSITY OF PHNOM PENH

DATABASE II

Deploy MySQL and phpmyadmin in AWS EC2 using Docker

Lecturer: Mr. Chhim Bunchhun,
chhim.bunchhun@rupp.edu.kh, 093 222 380

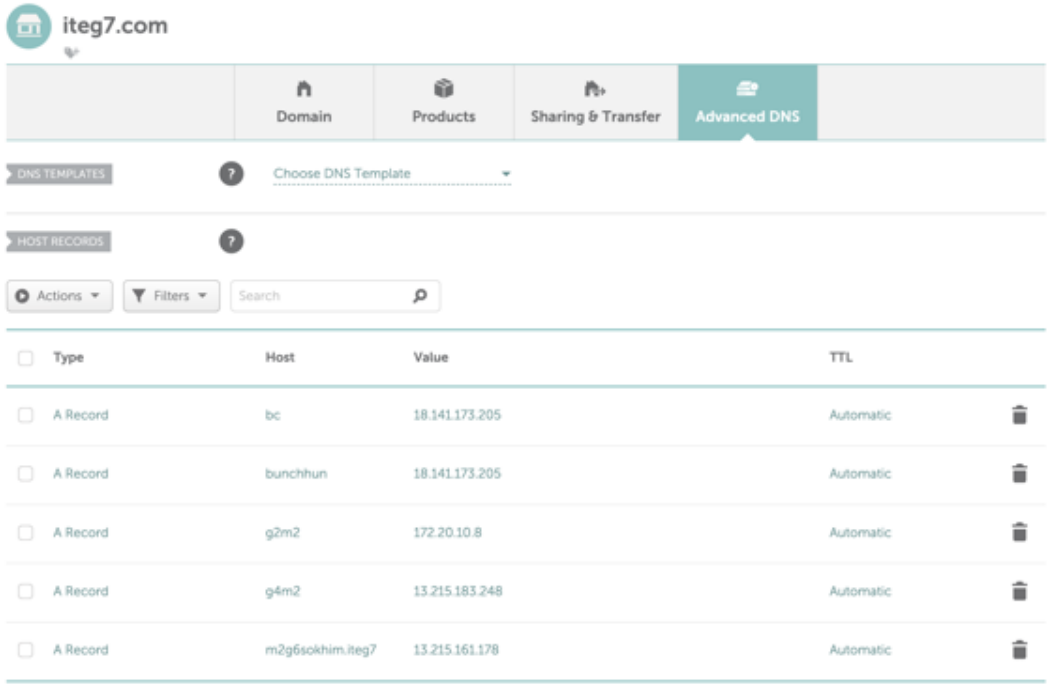
Create sub-domain

- Go to namecheap.com
- Select domain “iteg7.com” ->Advance DNS
- Creat A Record to point to AWS EC2 public IP

Format of subdomain: **m[no]g[no].[member_name]**

Example: m3g1.reaksa

=>We will get: m3g1.reaksa.iteg7.com point to that public IP



Install Docker in Server

- Remote to AWS EC2 server via SSH
- Follow guidline on: https://docs.docker.com/engine/install/debian/
- To check if docker installed:

```
docker --version
```

```
root@ip-172-31-26-131:/home/bunchhun# docker --version
Docker version 20.10.18, build b40c2f6
```

Register free account at DockerHub

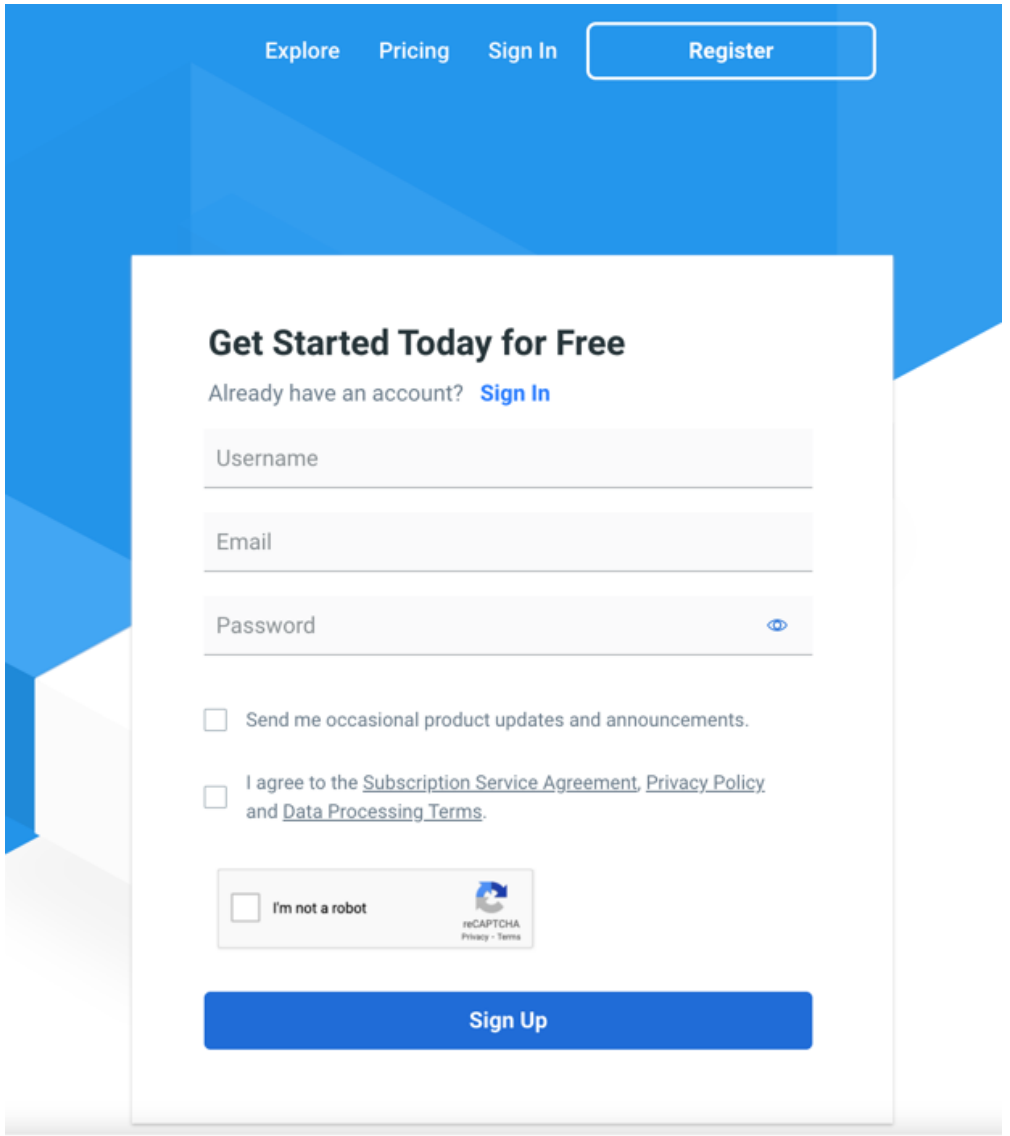
- Link: https://hub.docker.com

`Docker login`

->Provide username and password

```
root@ip-172-31-26-131:/home/bunchhun# docker login
Authenticating with existing credentials...
WARNING! Your password will be stored unencrypted in /root/.docker/config.json.
Configure a credential helper to remove this warning. See
https://docs.docker.com/engine/reference/commandline/login/#credentials-store

Login Succeeded
root@ip-172-31-26-131:/home/bunchhun#
```



Pull MySQL and phpmyadmin images from DockerHub

```
docker pull mysql
```

```
docker pull phpmyadmin
```

- To check images that exist:

```
docker image ls
```
or
```
docker images
```


```
root@ip-172-31-26-131:/home/bunchhun# docker pull mysql
Using default tag: latest
latest: Pulling from library/mysql
Digest: sha256:b9532b1edea72b6cee12d9f5a78547bd3812ea5db842566e17f8b33291ed2921
Status: Image is up to date for mysql:latest
docker.io/library/mysql:latest
```

```
root@ip-172-31-26-131:/home/bunchhun# docker pull phpmyadmin
Using default tag: latest
latest: Pulling from library/phpmyadmin
Digest: sha256:ea1339b5d1d43d4170eefeec36ab8ac40d076797072e00b1a9625c4d8acbadf5
Status: Image is up to date for phpmyadmin:latest
docker.io/library/phpmyadmin:latest
```

Create Docker Network “mynet”

```
docker network create mynet
```

- To list all existing network

```
docker netwrok ls
```

```
root@ip-172-31-26-131:/home/bunchhun# docker network ls
NETWORK ID     NAME      DRIVER    SCOPE
40b966647bfa   bridge    bridge    local
b816835d4867   host      host      local
161bd70ece68   mynet     bridge    local
1abe650b327a   none      null      local
root@ip-172-31-26-131:/home/bunchhun#
```

Run MySQL Server Container

- To run MySQL Server Container

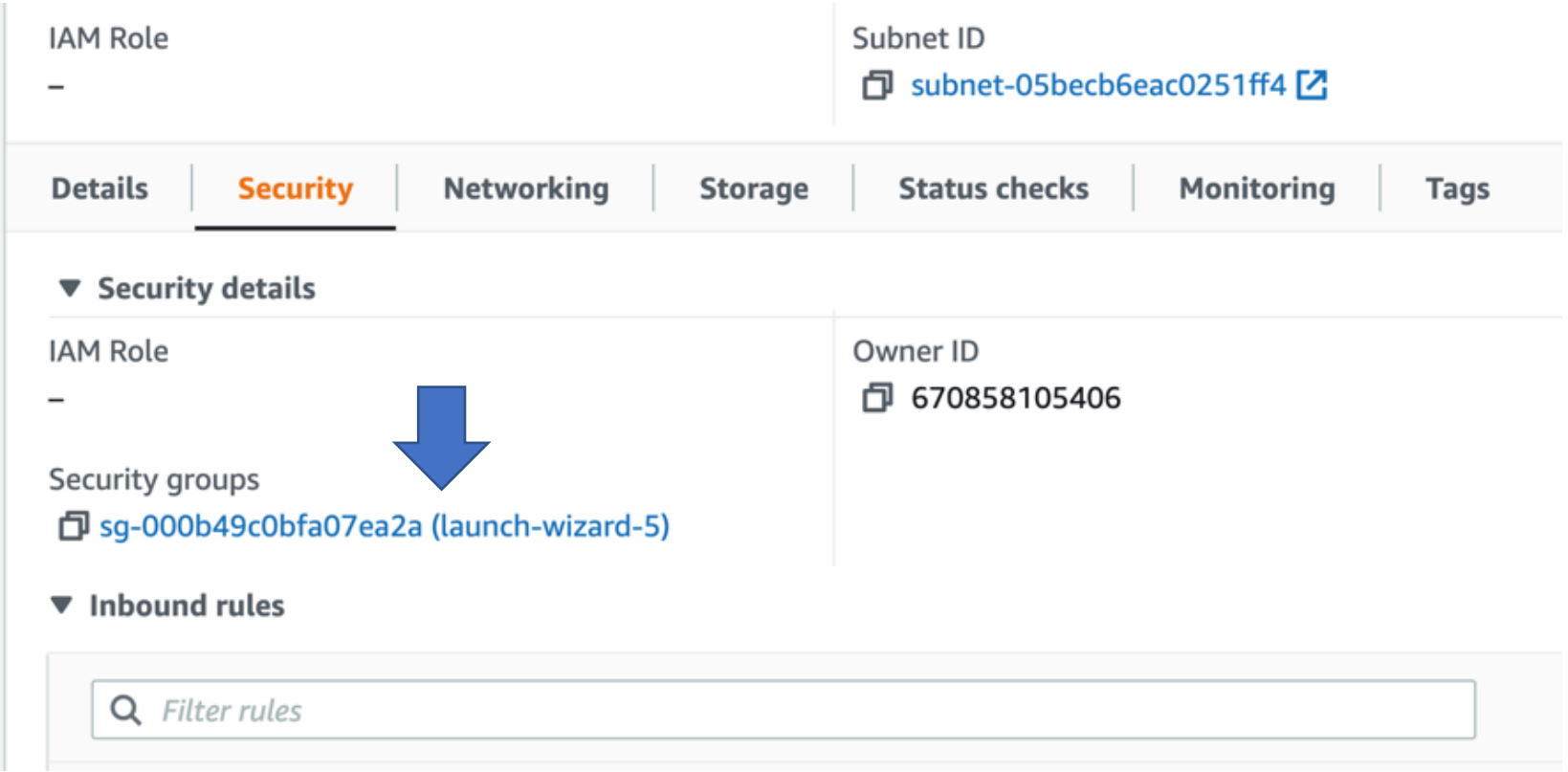
```
docker run -d \
        --name mysql \
        -p 3306:3306 \
        -e MYSQL_ROOT_PASSWORD=Rupp4ever! \
        --network mynet \
        --restart=always \
        -it mysql:latest
```

- To check running container: `docker container ls`

```
root@ip-172-31-26-131:/home/bunchhun# docker container ls
CONTAINER ID   IMAGE     COMMAND                  CREATED        STATUS        PORTS                                                  NAMES
e023ae157c54   mysql     "docker-entrypoint.s…"   10 hours ago   Up 10 hours   0.0.0.0:3306->3306/tcp, :::3306->3306/tcp, 33060/tcp   mysql
```

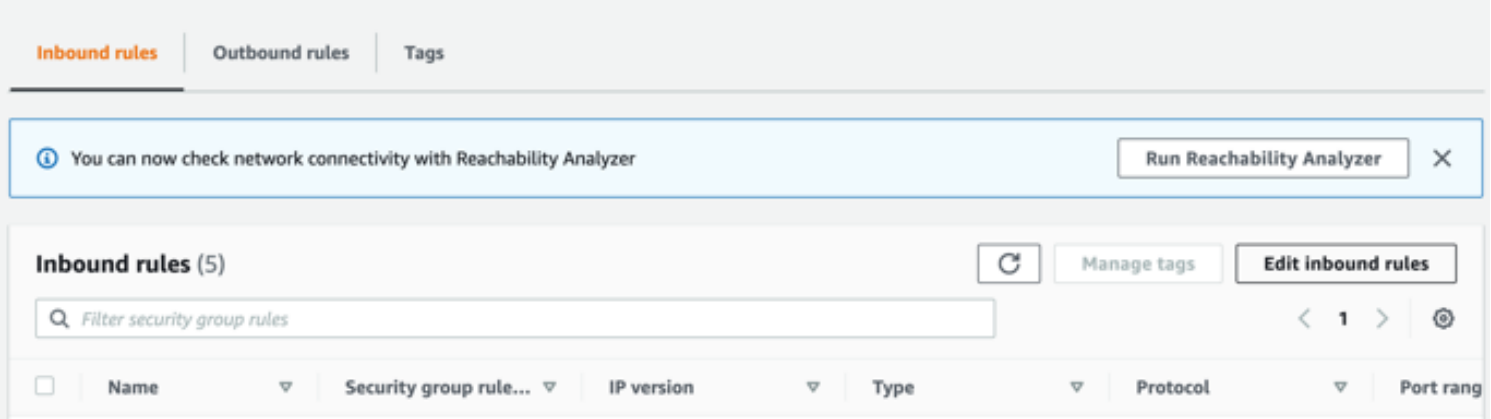
Allow port 3306 in AWS EC2 Firewall

- Go to instant->select instant->Security->Select id in Security groups

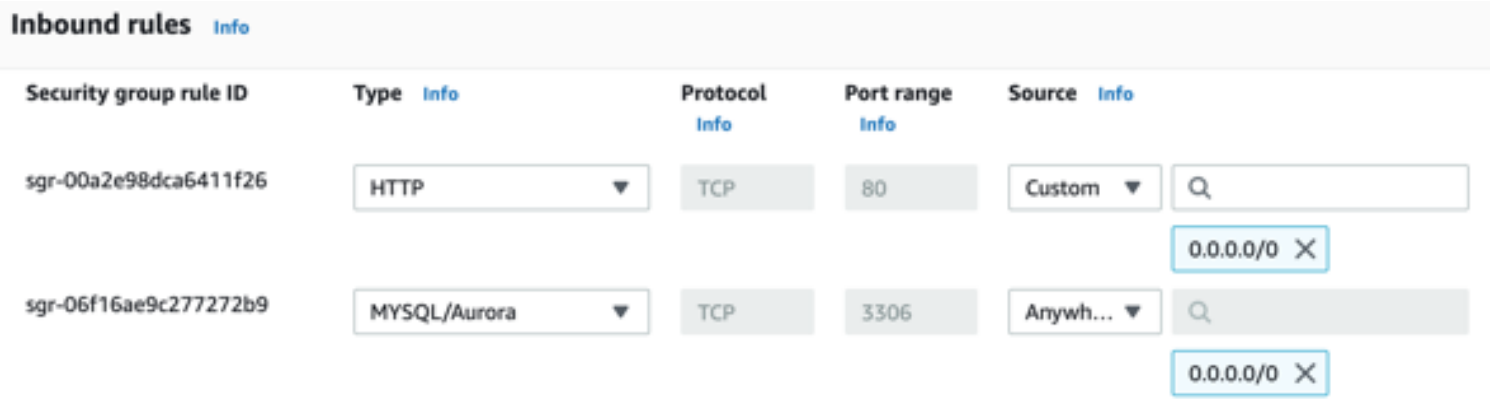


Allow port 3306 in AWS EC2 Firewall

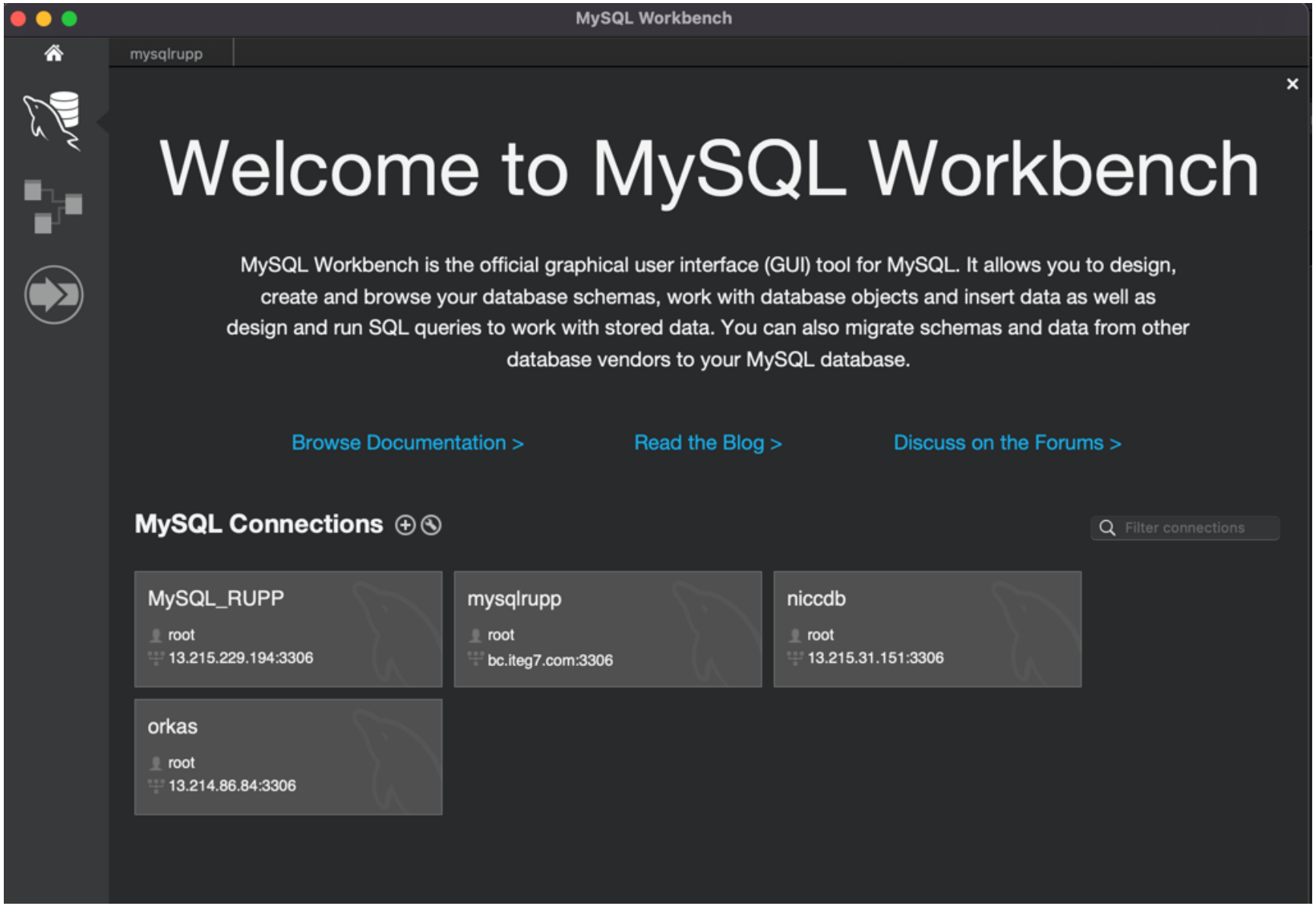
- Click “Edit inbound rules”



- Add rule to allow port 3306:



Connect MySQL WorkBench to MySQL Server in AWS EC2



Run phpmyadmin Container

- To run phpmyadmin container:

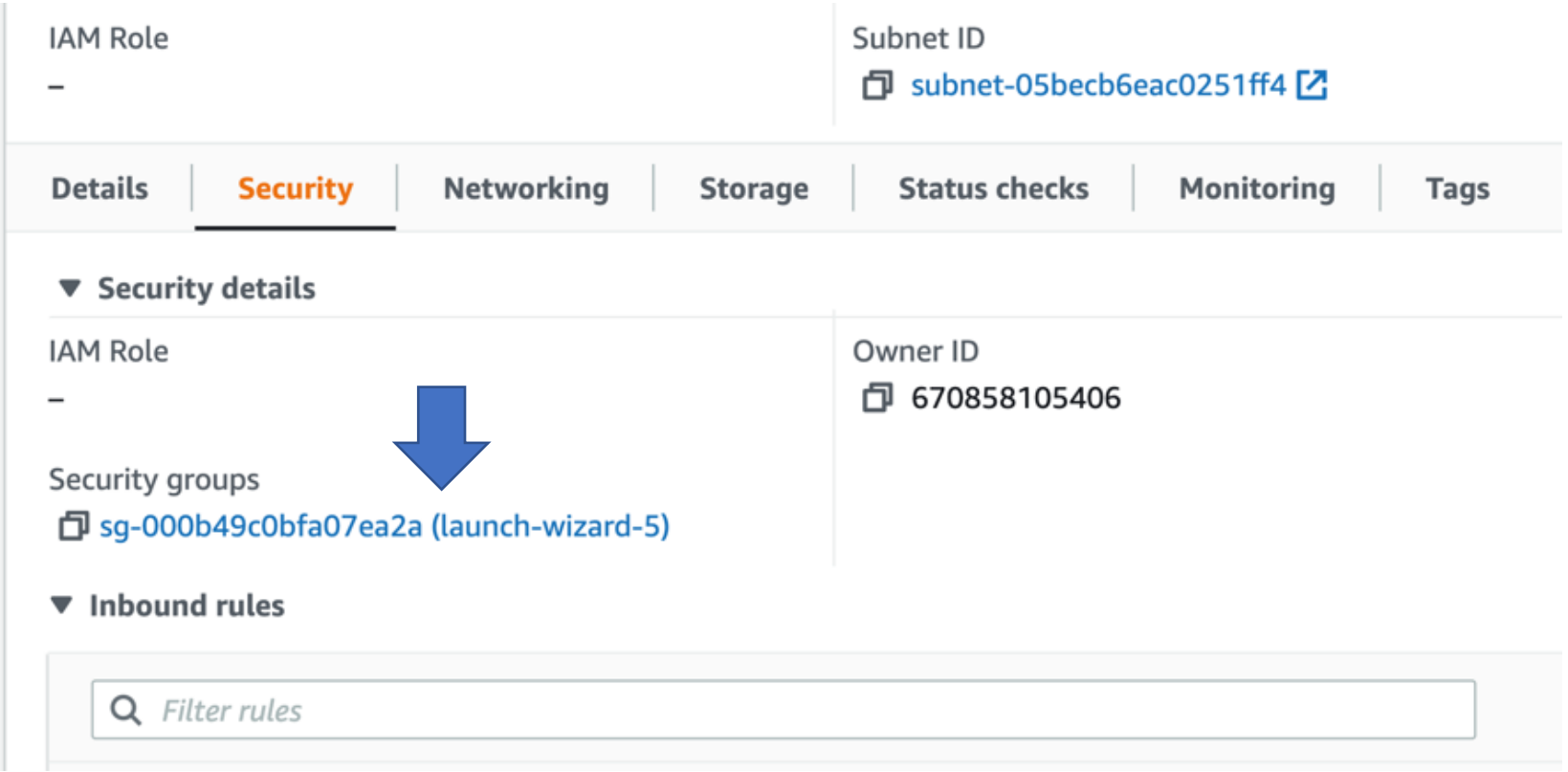
```
docker run -d \
      --name phpmyadmin \
      -p 8080:80 \
      -e PMA_HOST=mysql \
      -e PMA_USER=root \
      -e PMA_PASSWORD=Rupp4ever! \
      --network mynet \
      --restart=always \
      -it phpmyadmin:latest
```

- To check running container: `docker container ls`

```
CONTAINER ID   IMAGE              COMMAND                  CREATED          STATUS          PORTS
NAMES
53c4210b4f82   phpmyadmin:latest  "/docker-entrypoint.…"   11 seconds ago   Up 10 seconds   0.0.0.0:80->80/tcp, :::80->80/tcp
phpmyadmin
e023ae157c54   mysql              "docker-entrypoint.s…"   10 hours ago     Up 10 hours     0.0.0.0:3306->3306/tcp, :::3306->3306/tcp, 33060/tcp
mysql
root@ip-172-31-26-131:/home/bunchhun#
```

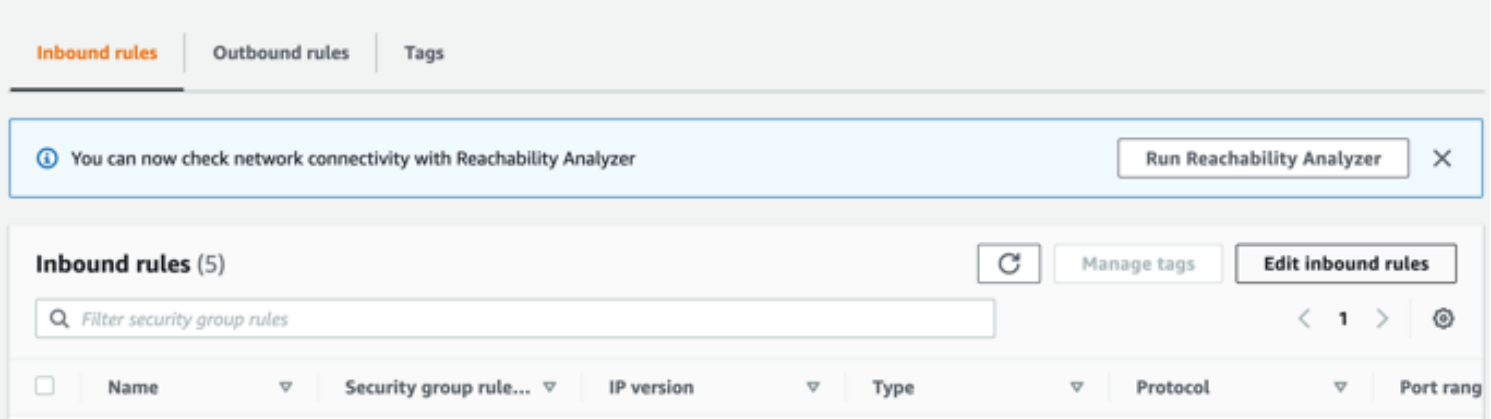
Allow port 80 and 443 in AWS EC2 Firewall

- Go to instant->select instant->Security->Select id in Security groups

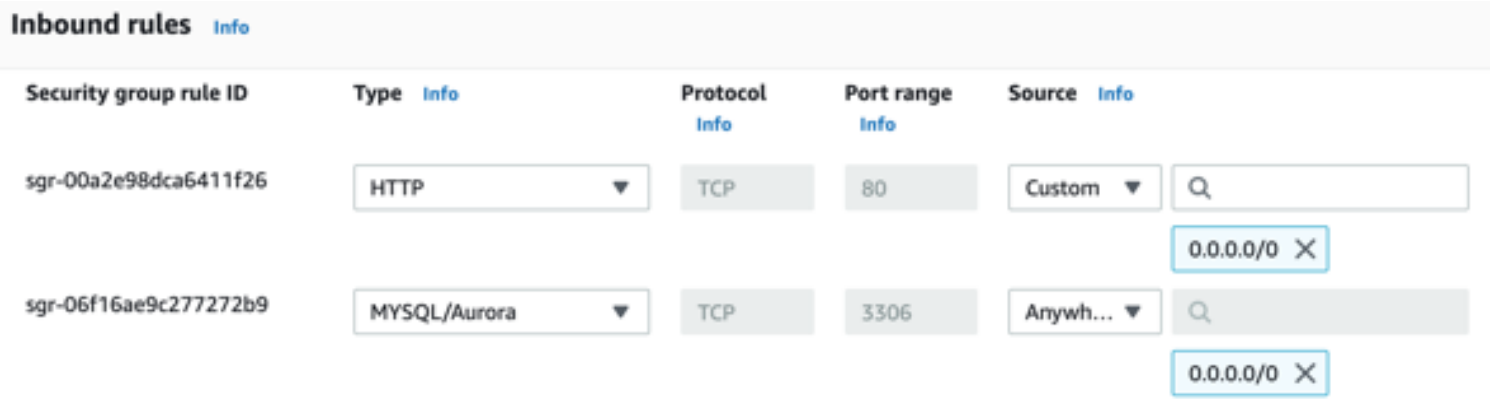


Allow port 80 and 443 in AWS EC2 Firewall

- Click “Edit inbound rules”



- Add rule to allow port 80:



Install NGINX and Let's Encrypt

- Install nginx

```
apt install nginx
```

- Install Let's Encrypt for nginx

```
apt install certbot python3-certbot-nginx
```

Configure NGINX with phpmyadmin

- Create new file in /etc/nginx/sites-available

```
nano bc.iteg7.com
```

o Add below content as on the right

```
bunchhun@ip-172-31-26-131:~$ sudo su
[sudo] password for bunchhun:
root@ip-172-31-26-131:/home/bunchhun# cd /etc/nginx/sites-available/
root@ip-172-31-26-131:/etc/nginx/sites-available# nano bc.iteg7.com
root@ip-172-31-26-131:/etc/nginx/sites-available#
```

o Activate bc.iteg7.com configuration

```
ln -s /etc/nginx/sites-available/bc.iteg7.com /etc/nginx/sites-enabled
```

- Restart nginx

```
Service nginx restart
```

```
server
{
        listen 80;
        listen [::]:80;
        server_name bc.iteg7.com;
        client_max_body_size 128M;
        access_log /var/log/nginx/access.log;
        error_log /var/log/nginx/error.log;
        location ~ /.well-known
        {
        allow all;
        }

        location /
        {
        proxy_pass http://127.0.0.1:8080/;
        proxy_http_version 1.1;
        proxy_cache_bypass $http_upgrade;

        proxy_set_header Upgrade $http_upgrade;
        proxy_set_header Connection "upgrade";
        proxy_set_header Host $host;
        proxy_set_header X-Real-IP $remote_addr;
        proxy_set_header X-Forwarded-For $proxy_add_x_forwarded_for;
        proxy_set_header X-Forwarded-Proto $scheme;
        proxy_set_header X-Forwarded-Host $host;
        proxy_set_header X-Forwarded-Port $server_port;

        proxy_set_header X-Scheme $scheme;
        }
}
```

Get SSL Certificate through Let's Encrypt

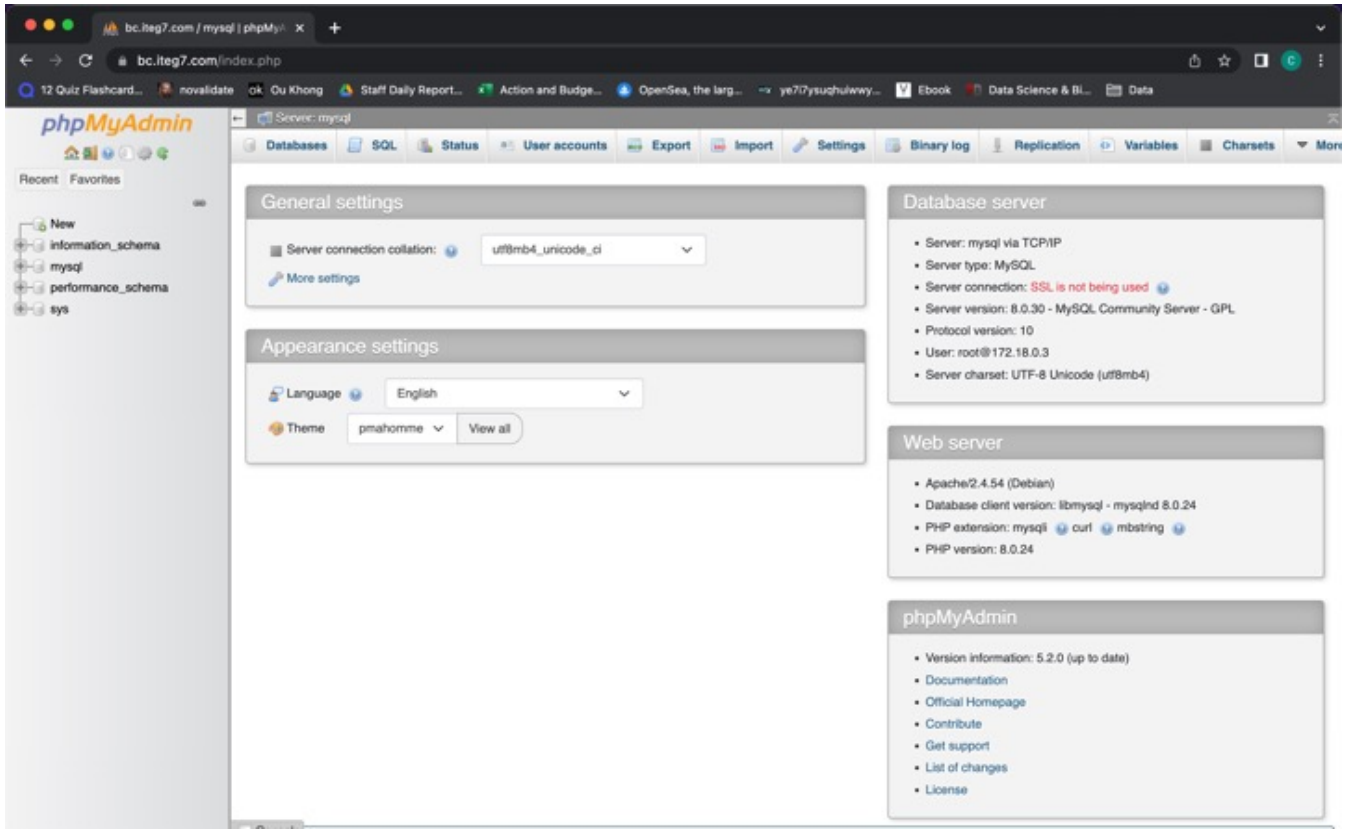
```
certbot --nginx -d bc.iteg7.com

-> enter email address like :bunchhun@iteg7.com

-> y
```

⇒ https://bc.iteg7.com

working with https



THANK YOU

for your attention !