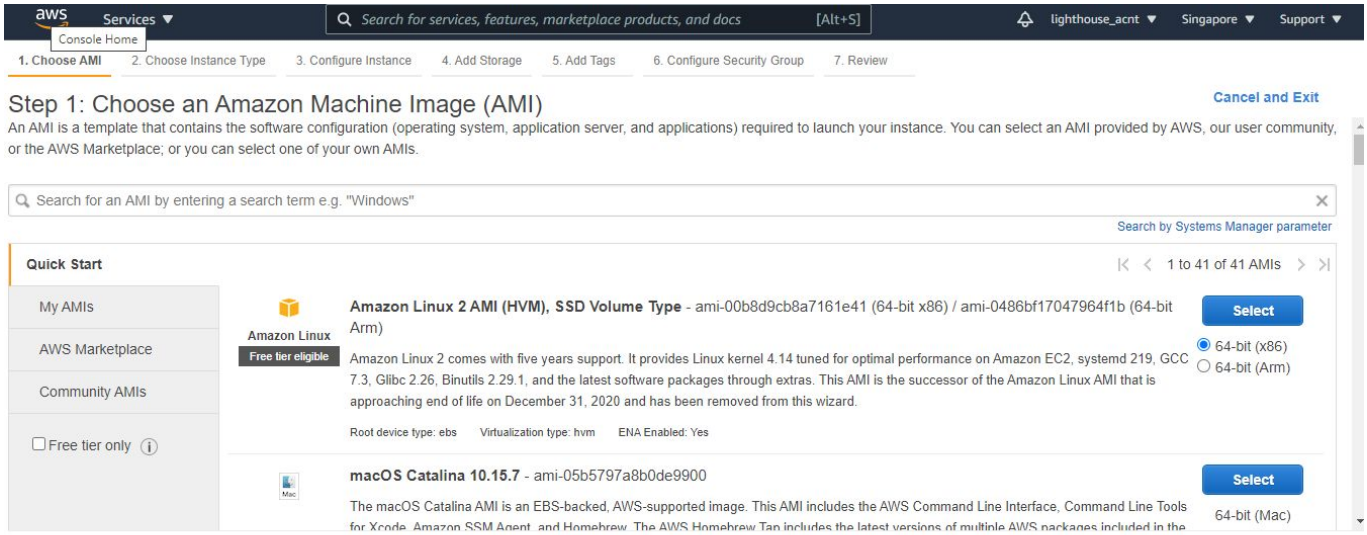
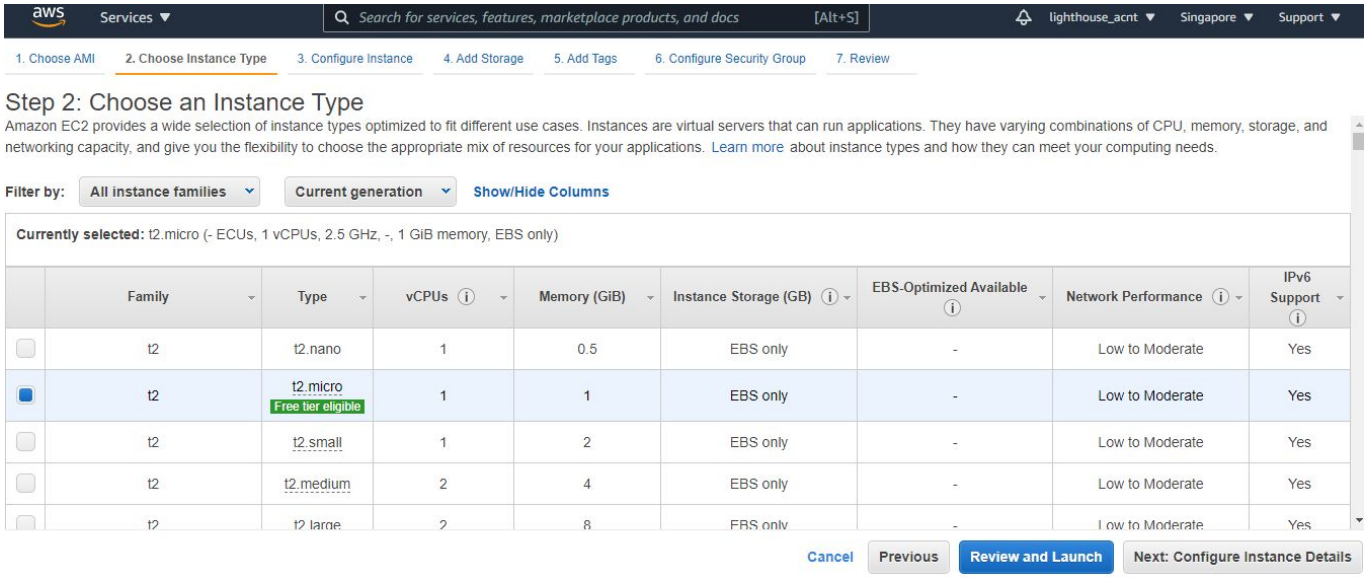
Week 1 Lab

Launch EC2 - make it web server

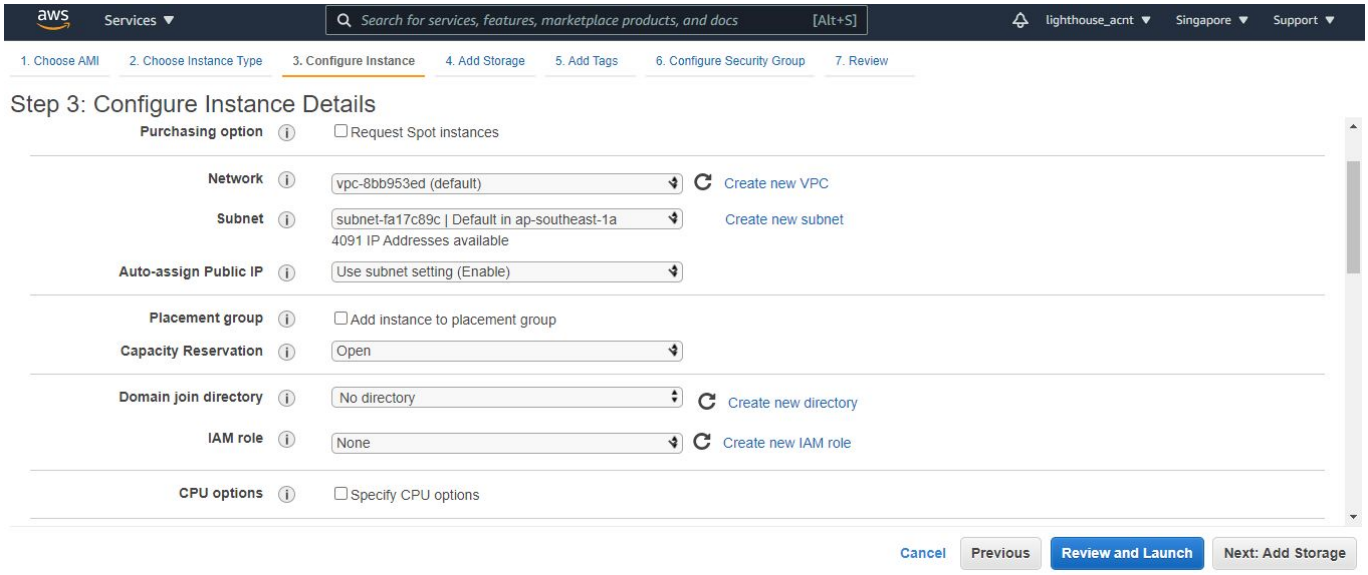
Step 1: Go to the Launch page in the console after selecting the region. Select Ubuntu AMI



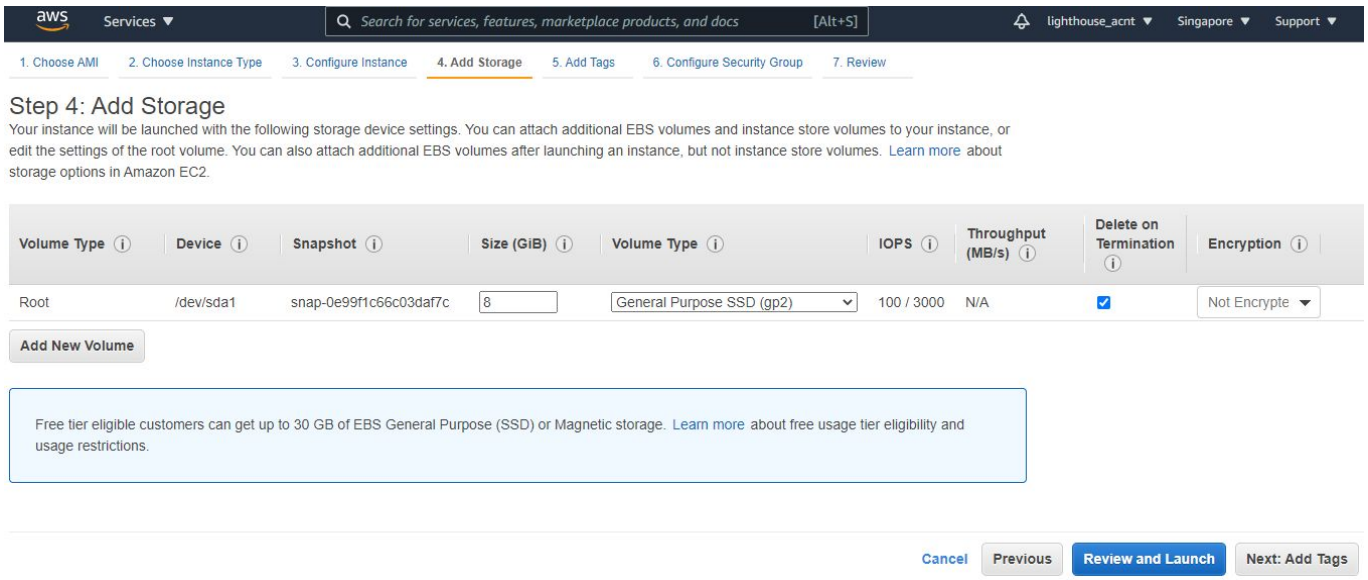
Step 2: Use the free tier instance type



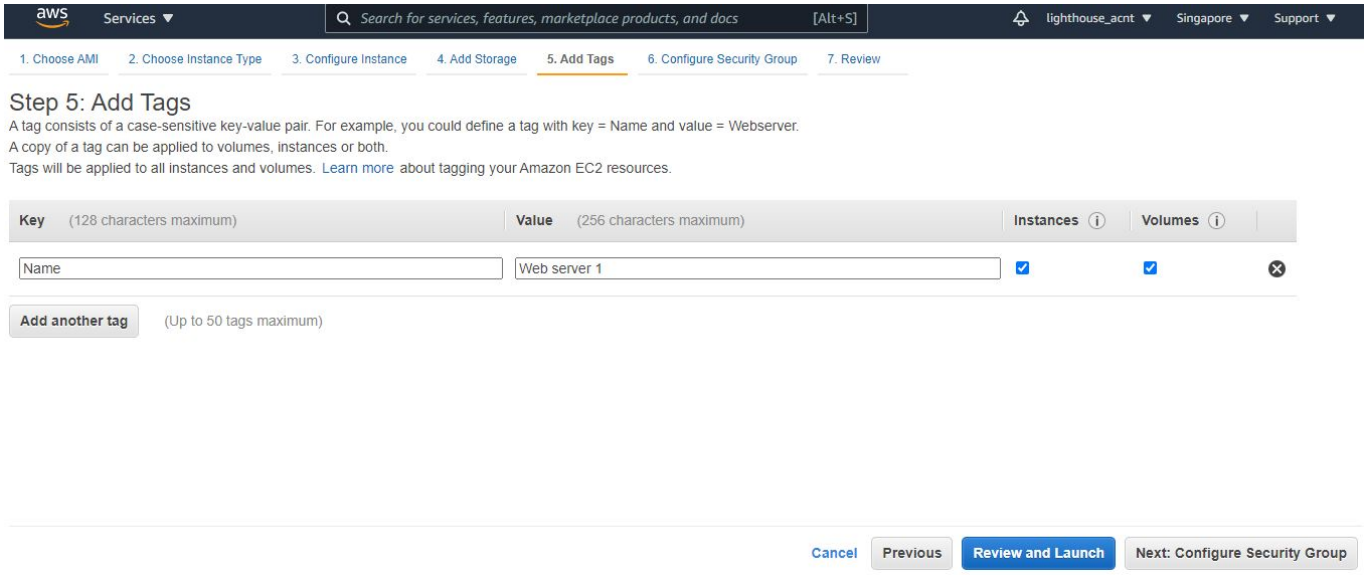
Step 3: Use the default VPC and change the subnet to **1a**. Remaining can be left as default.



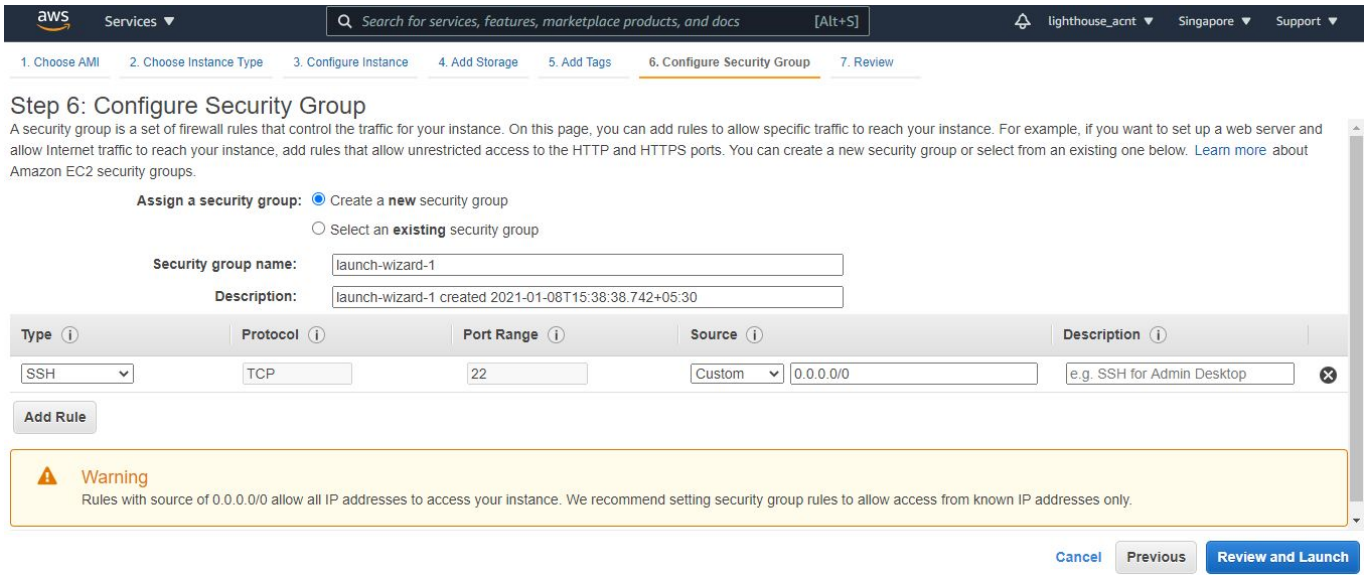
Step 4: Default EBS volume of 8GiB is sufficient.



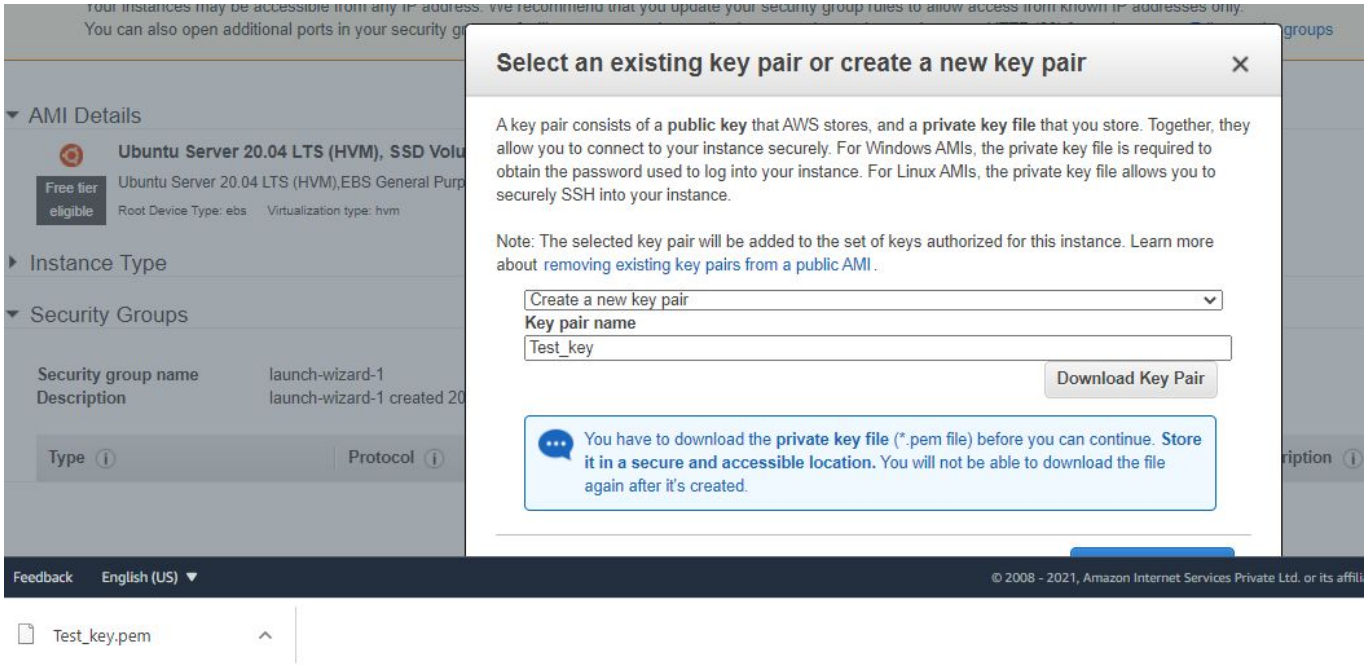
Step 5: Add the name tag for server identification



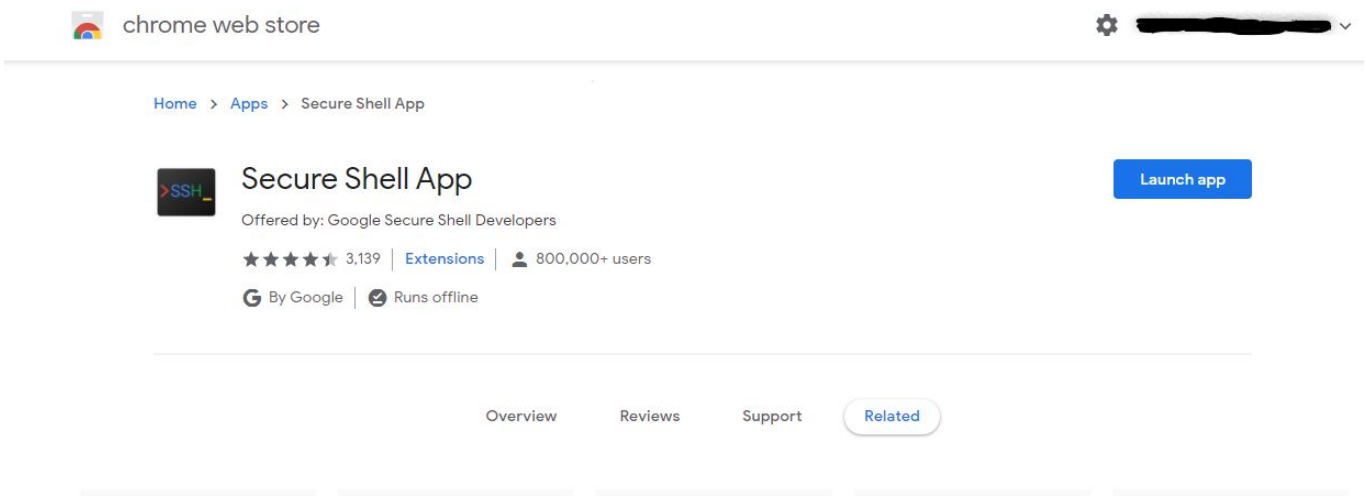
Step 6: By default a security group is created with port 22 open to the public.



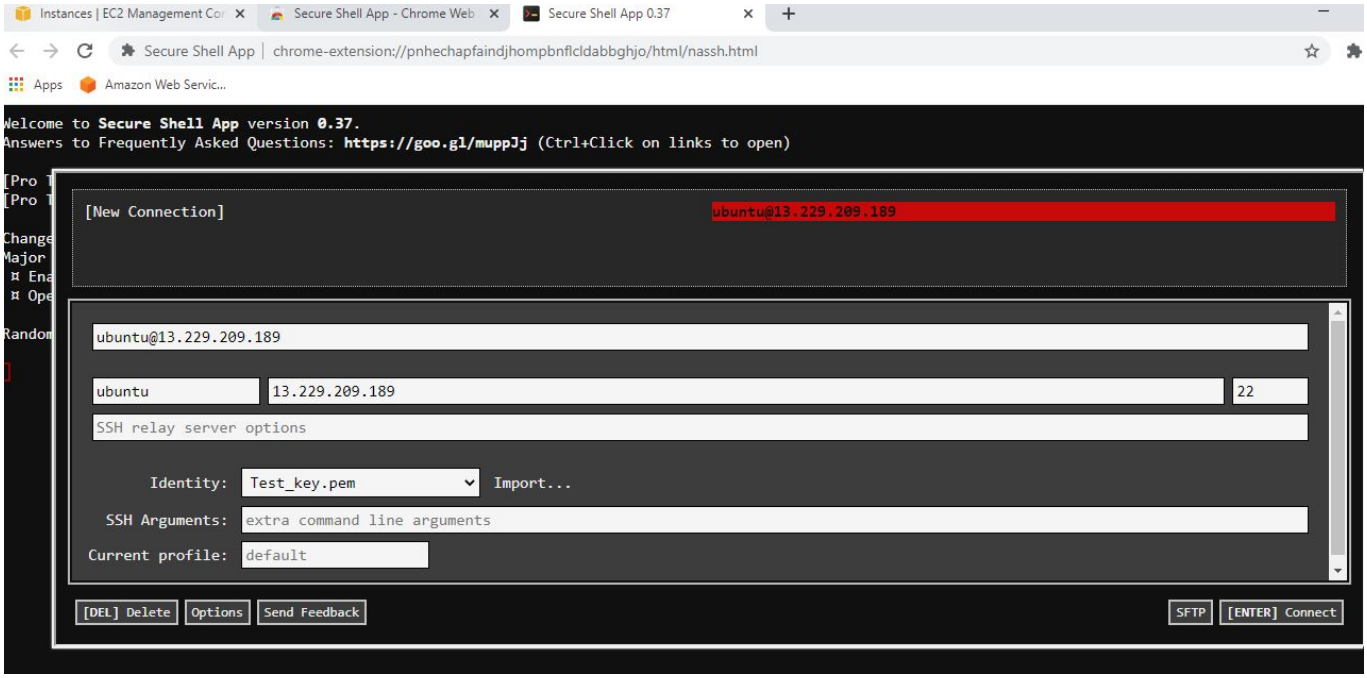
Step 7: Review the configuration - Click Launch->Create a new key-pair and download it before launching the instance.

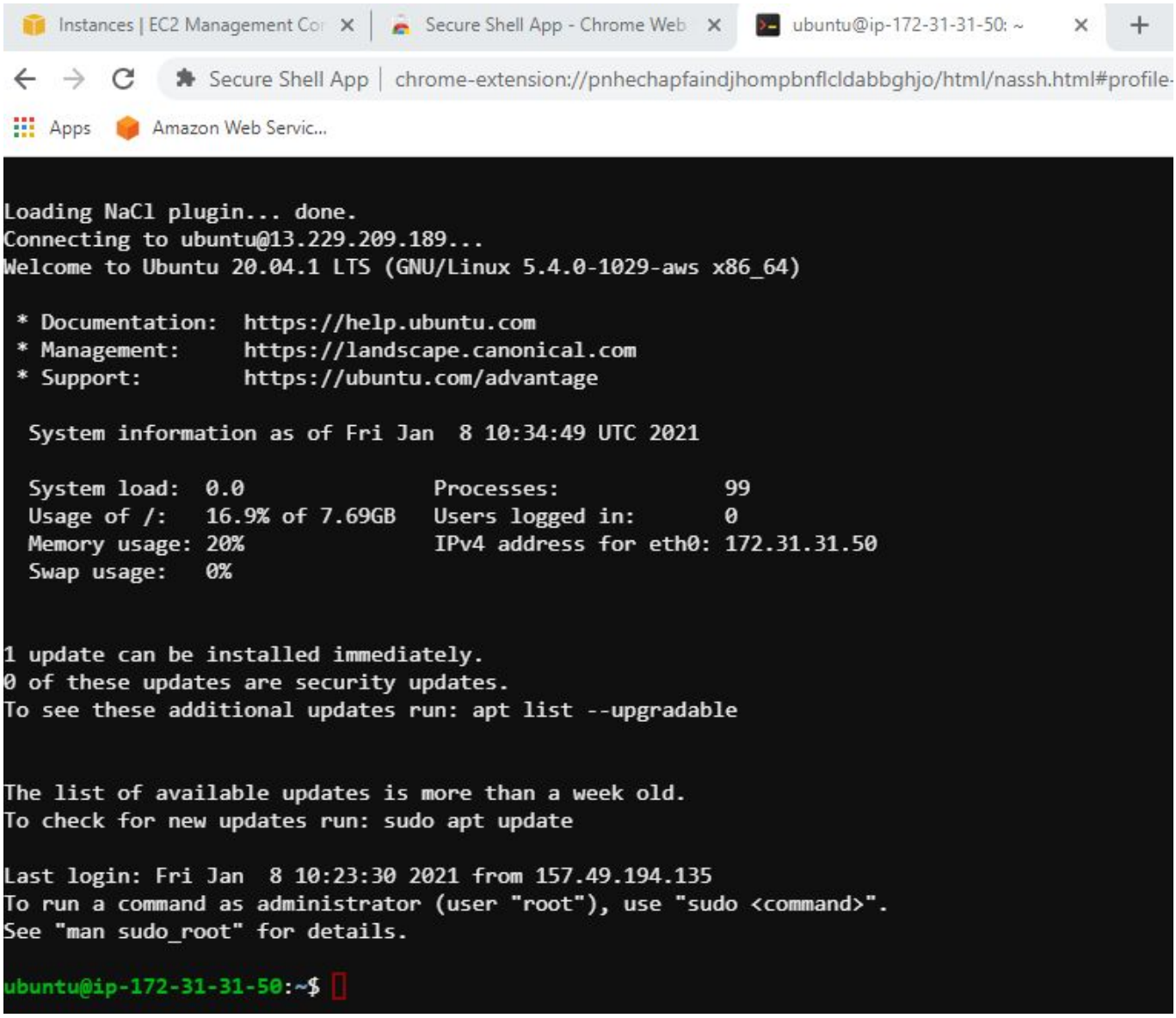


From windows system, if no other SSH client is present use the chrome extension



Input the launched EC2 server IP, username as ‘ubuntu’(Default username for ubuntu AMIs) Amazon AMI’s have ‘ec2-user’ as a username.
In identity, map the downloaded .pem file. Connect





Once connected install httpd(apache2) by using the following commands

sudo apt update

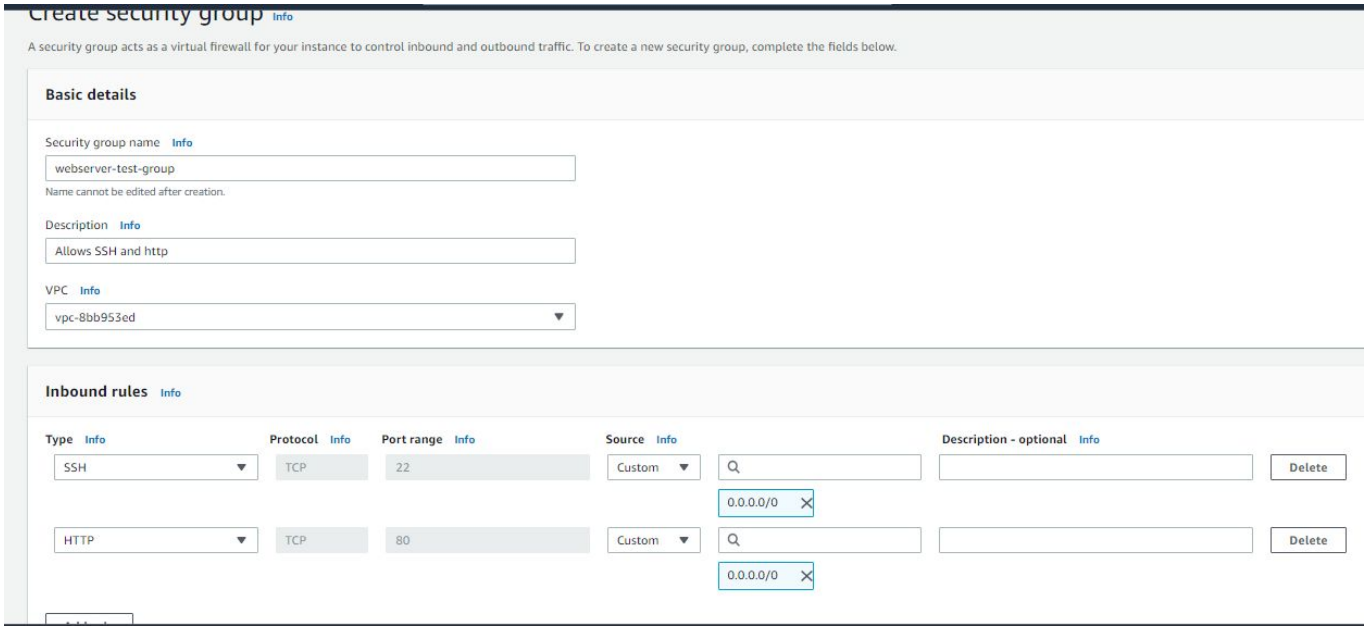
sudo apt-get install apache2

Check the status with -> **sudo service apache2 status**

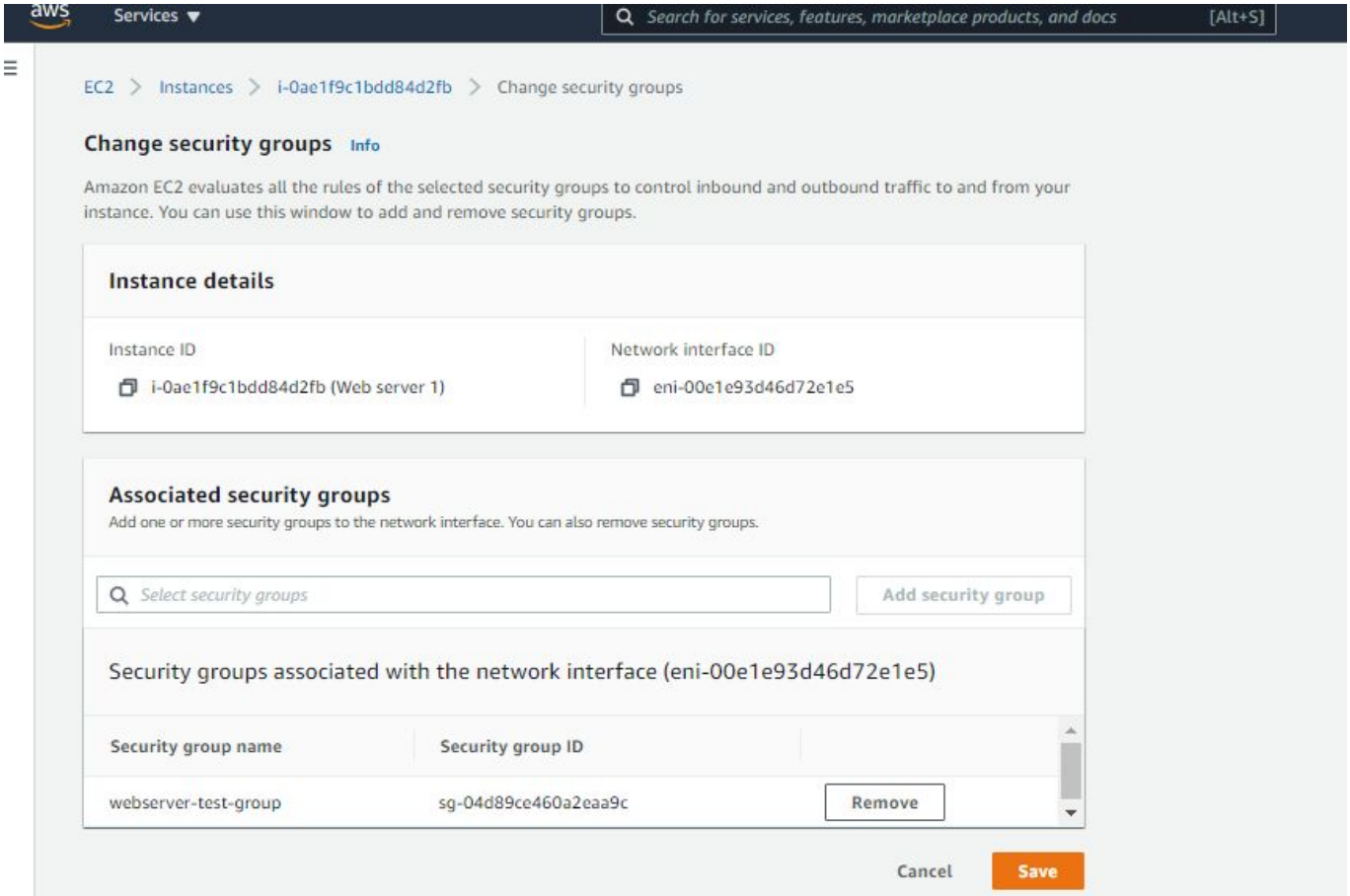
```
ubuntu@ip-172-31-31-50:~$ sudo service apache2 status
● apache2.service - The Apache HTTP Server
     Loaded: loaded (/lib/systemd/system/apache2.service; enabled; vendor preset: enabled)
     Active: active (running) since Fri 2021-01-08 10:46:24 UTC; 1min 35s ago
       Docs: https://httpd.apache.org/docs/2.4/
   Main PID: 2943 (apache2)
      Tasks: 55 (limit: 1164)
     Memory: 5.3M
     CGroup: /system.slice/apache2.service
             ├─2943 /usr/sbin/apache2 -k start
             ├─2945 /usr/sbin/apache2 -k start
             └─2946 /usr/sbin/apache2 -k start

Jan 08 10:46:24 ip-172-31-31-50 systemd[1]: Starting The Apache HTTP Server...
Jan 08 10:46:24 ip-172-31-31-50 systemd[1]: Started The Apache HTTP Server.
ubuntu@ip-172-31-31-50:~$
```

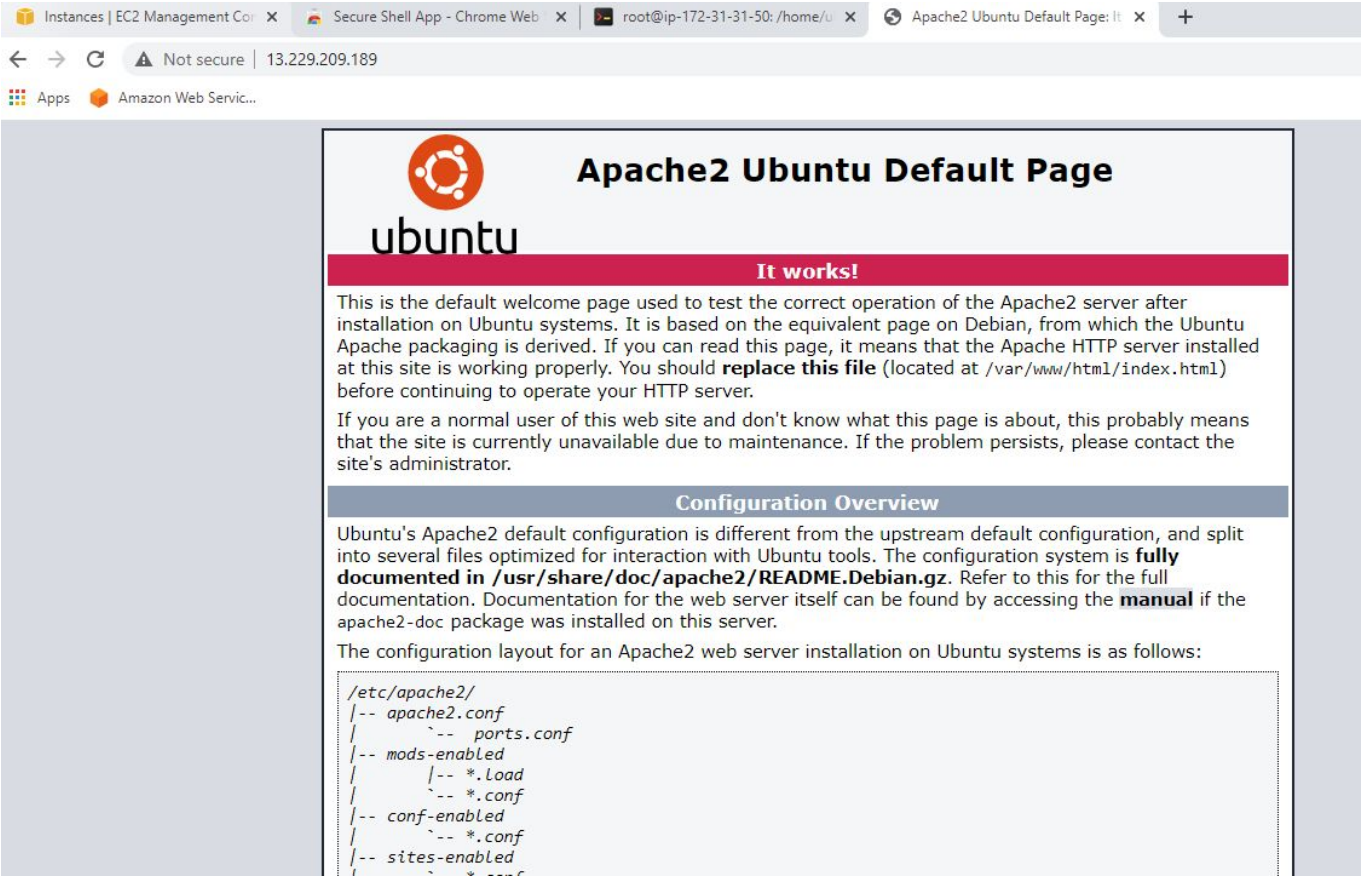
Go to the Security groups menu in the Network tab on the left pane in the console.
Create a new security group with ports 22 for SSH and port 80 for http.



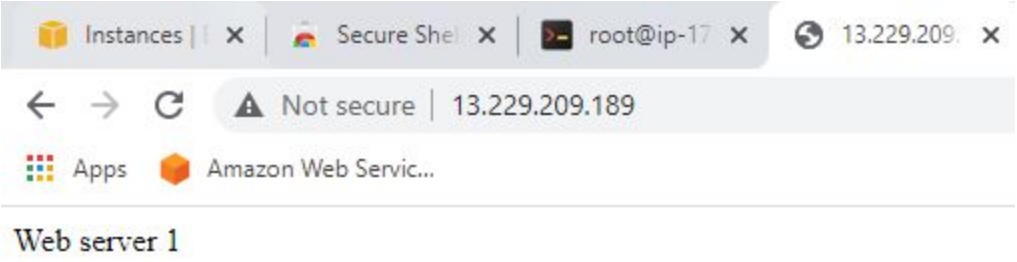
Now from EC2 console page go to Actions->Security->Change Security group
Remove the old one and add the newly created group



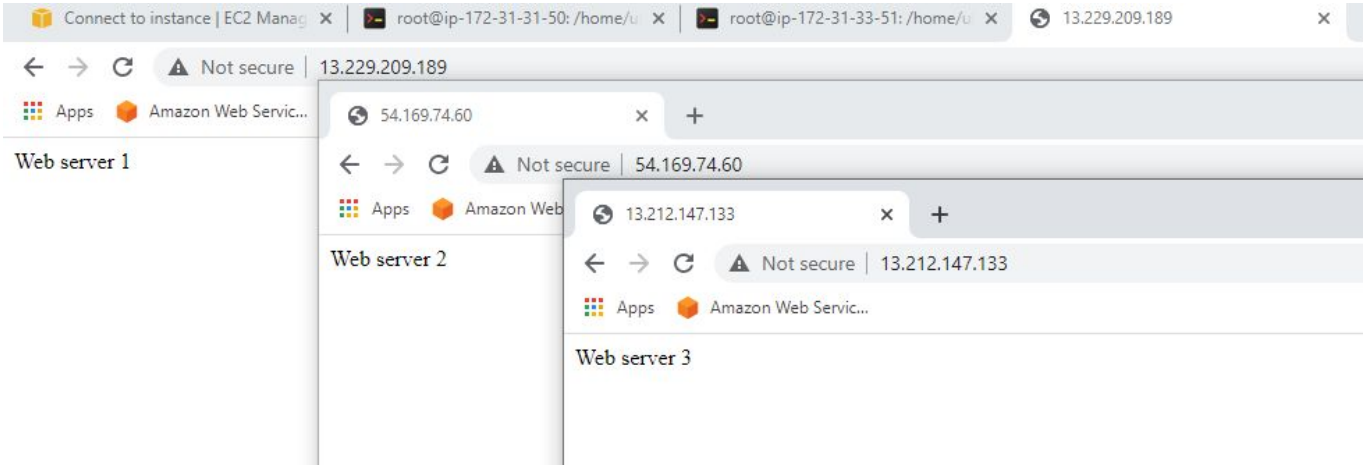
After enabling ec2 with a new security group, use the ec2 public IP on the browser tab to view the apache's default page.



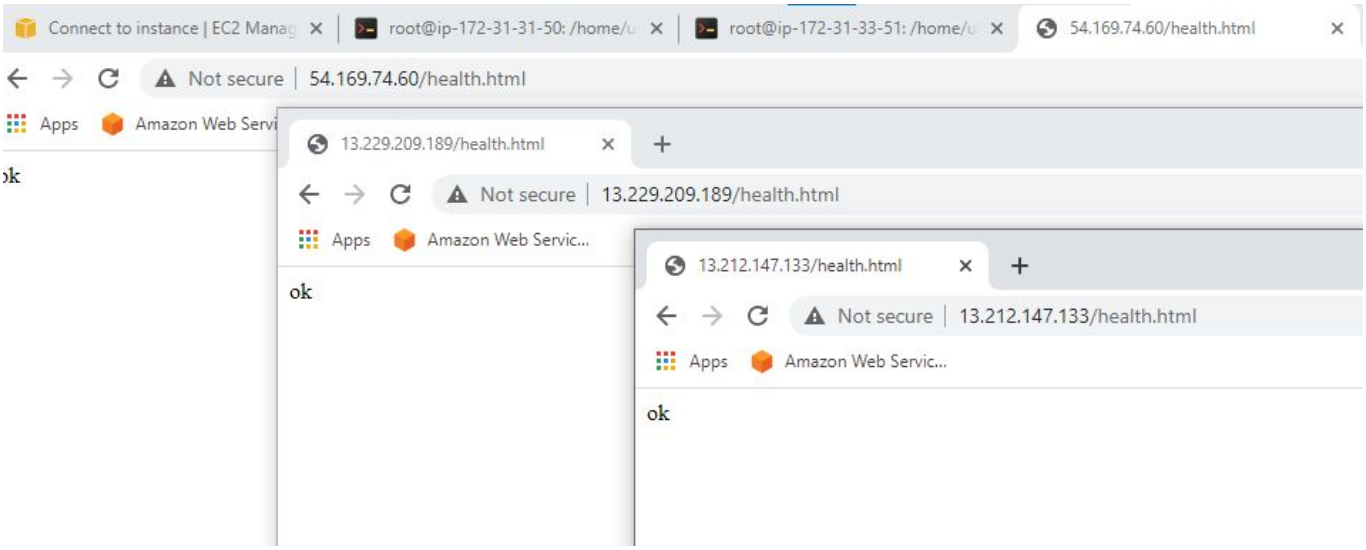
.Execute the command to change your default html page by running the following command:
sudo echo "Web server 1" > /var/www/html/index.html



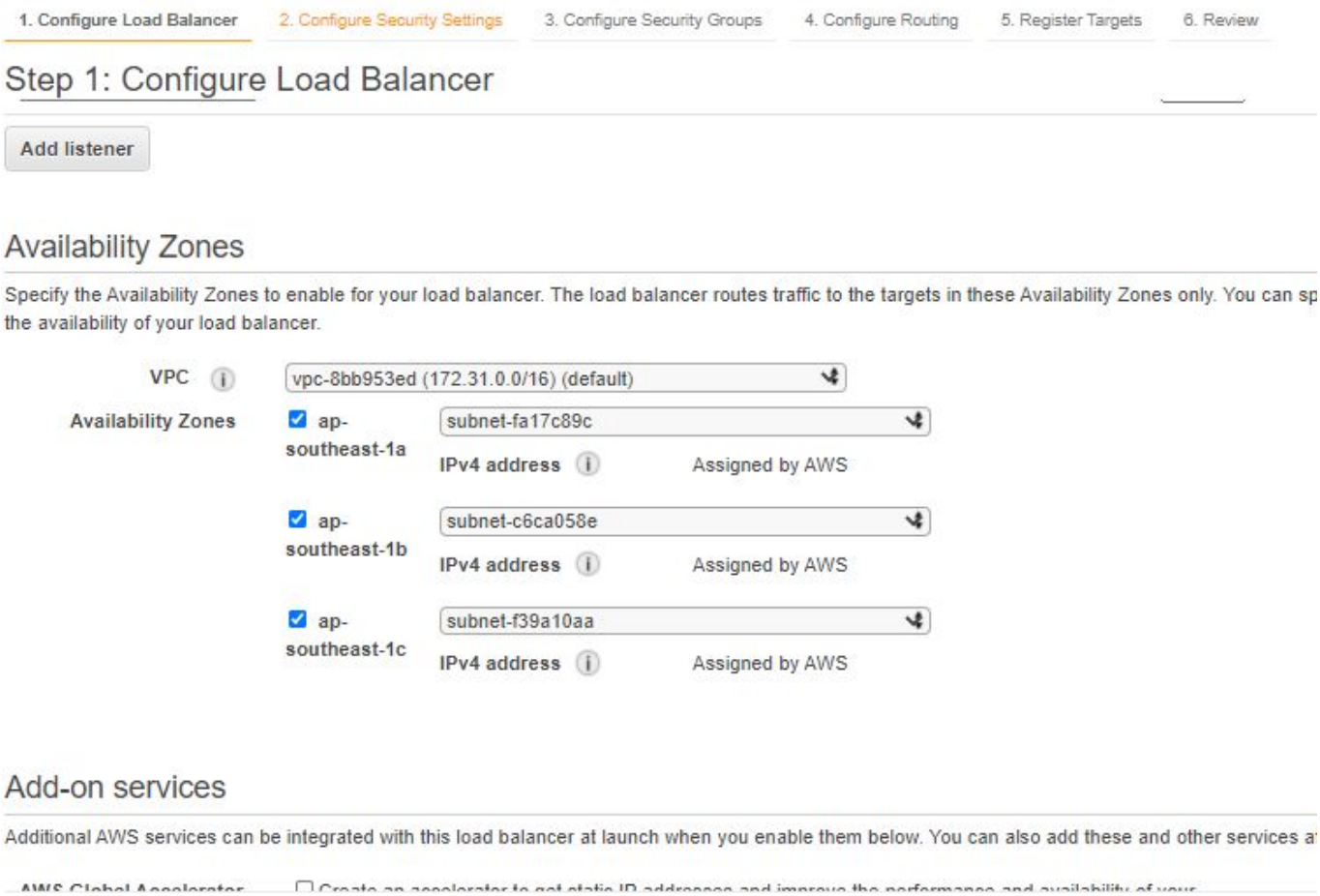
Launch web server 2,3 and setup /health.html



Along with index.html
create another page health.html in all the server.
echo "ok" > /var/www/html/health.html
use ‘sudo su’ before creating html files



Load Balancer creation:



Configure a new security group with only 80 port open.
Configure health.html to health check parameter:

aws Services ▼ Search for services, features, marketplace products, and docs [Alt+S]

1. Configure Load Balancer | 2. Configure Security Settings | 3. Configure Security Groups | 4. Configure Routing | 5. Register Targets | 6. Review

Step 4: Configure Routing

Protocol version

- (●) HTTP1
  Send requests to targets using HTTP/1.1. Supported when the request protocol is HTTP/1.1 or HTTP/2.
- ( ) HTTP2
  Send requests to targets using HTTP/2. Supported when the request protocol is HTTP/2 or gRPC, but gRPC-specific features are not available.
- ( ) gRPC
  Send requests to targets using gRPC. Supported when the request protocol is gRPC.

Health checks

Protocol	HTTP
Path	/health.html

Advanced health check settings

Port	(●) traffic port ( ) override	
Healthy threshold	5	
Unhealthy threshold	2	
Timeout	5	seconds
Interval	30	seconds
Success codes	200	

Register all the targets:

aws Services ▼ Search for services, features, marketplace products, and docs [Alt+S] lighthouse_acnt

1. Configure Load Balancer | 2. Configure Security Settings | 3. Configure Security Groups | 4. Configure Routing | 5. Register Targets | 6. Review

Step 5: Register Targets

Register targets with your target group. If you register a target in an enabled Availability Zone, the load balancer starts routing requests to the targets as soon as the registration process completes and the target passes the initial health che

Registered targets

To deregister instances, select one or more registered instances and then click Remove.

Remove

Instance	Name	Port	State	Security groups	Zone
i-0ae1f9c1bdd84d2fb	Web server 1	80	running	webserver-test-group	ap-southeast-1a
i-09592ad40548c8ce8	Web server 2	80	running	webserver-test-group	ap-southeast-1b
i-089dc356bb352ce5a	Web server 3	80	running	webserver-test-group	ap-southeast-1c

Instances

To register additional instances, select one or more running instances, specify a port, and then click Add. The default port is the port specified for the target group. If the instance is already registered on the specified port, you must specify

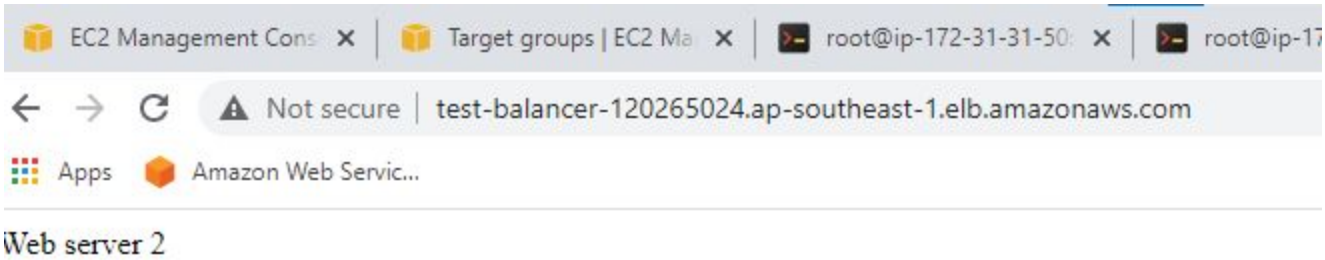
Add to registered on port 80

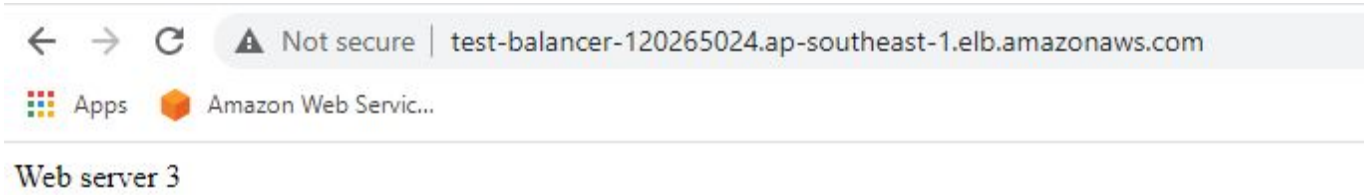
Search Instances

Instance	Name	State	Security groups	Zone	Subnet ID	Subnet CIDR
i-0ae1f9c1bdd84d2fb	Web server 1	running	webserver-test-group	ap-southeast-1a	subnet-fa17c89c	172.31.16.0/20
i-09592ad40548c8ce8	Web server 2	running	webserver-test-group	ap-southeast-1b	subnet-c6ca058e	172.31.32.0/20
i-089dc356bb352ce5a	Web server 3	running	webserver-test-group	ap-southeast-1c	subnet-f39a10aa	172.31.0.0/20

Cancel

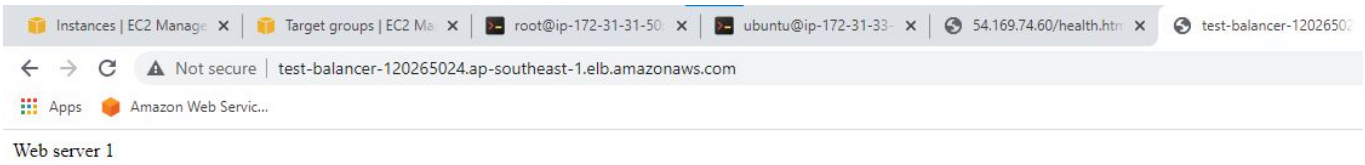
Use the DNS name of the load balancer and refresh the page. We should be able to see all 3 web servers in rotation.





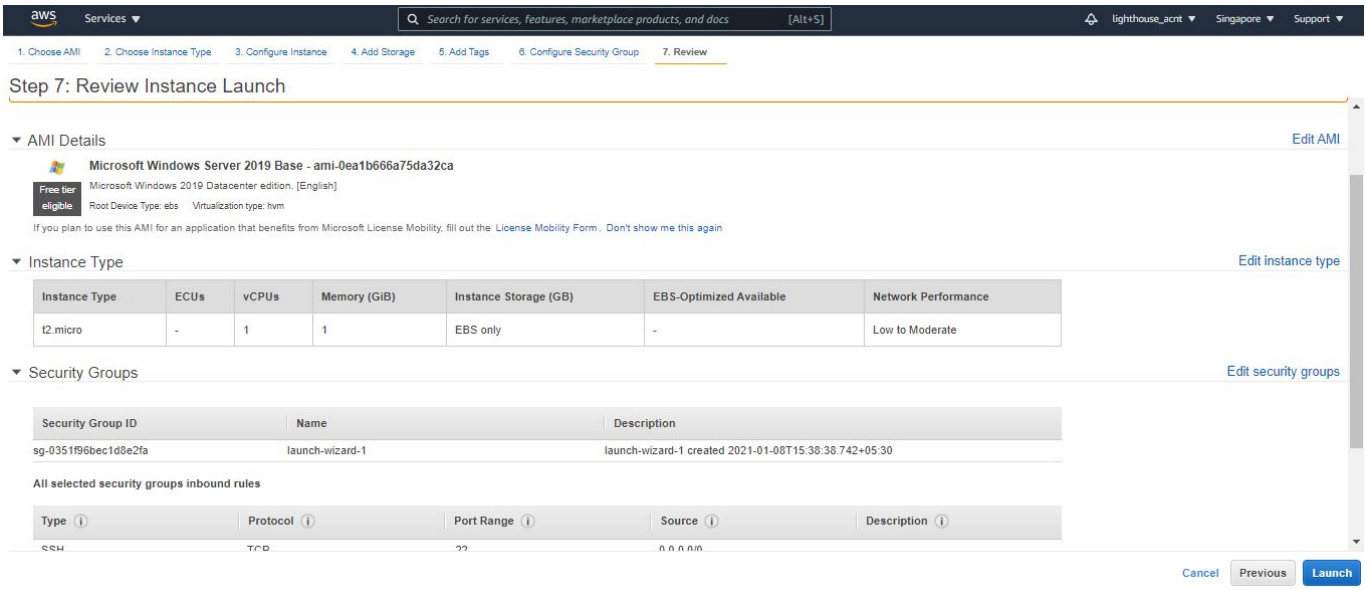
Now take down one server and try to refresh. In between times when ELB is checking the health status of the failed server it still redirects to the failed server. Showing us a bad gateway error.

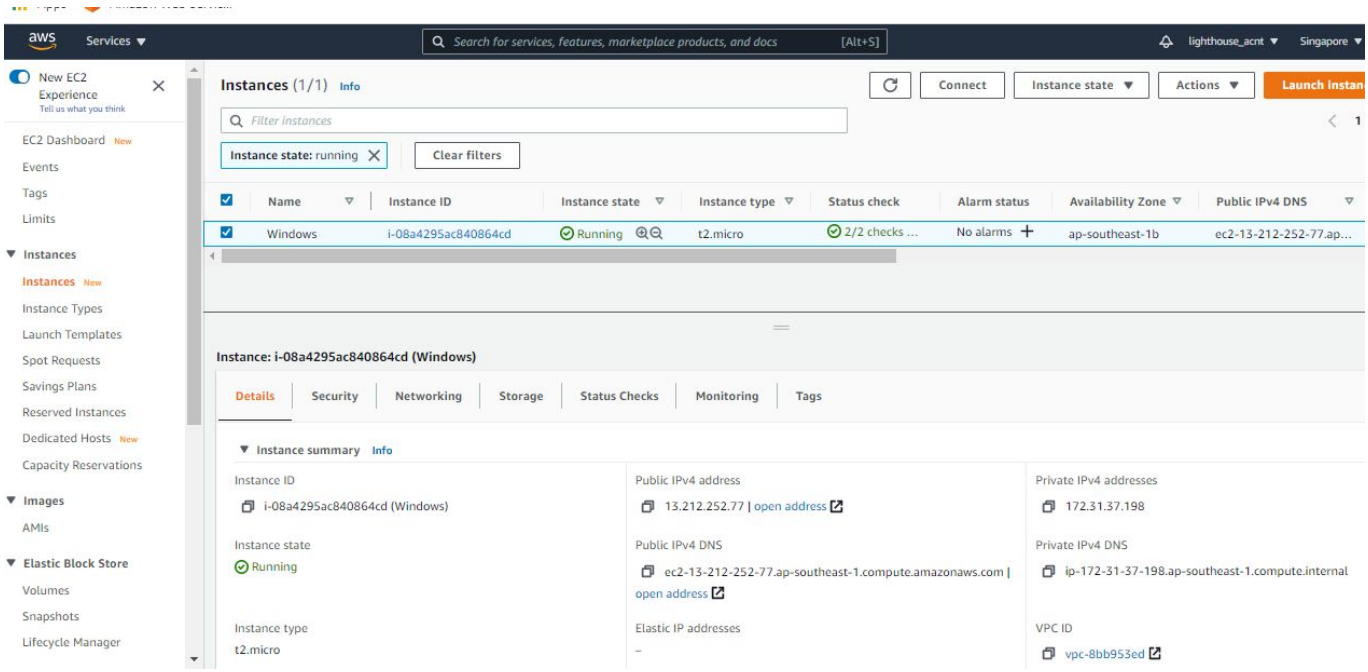
When ELD discovers the health status of one server is bad, then it redirecting to only the working instances



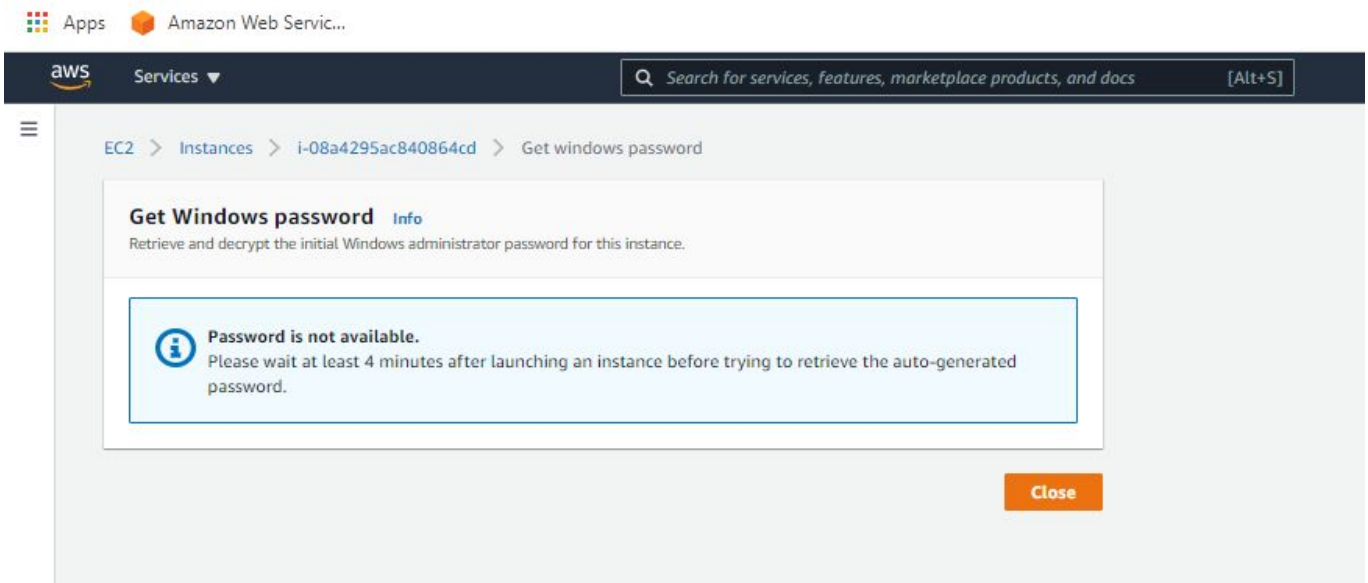
Launching a Windows instance and logging in with RDP

Same 7 step process with Windows AMI

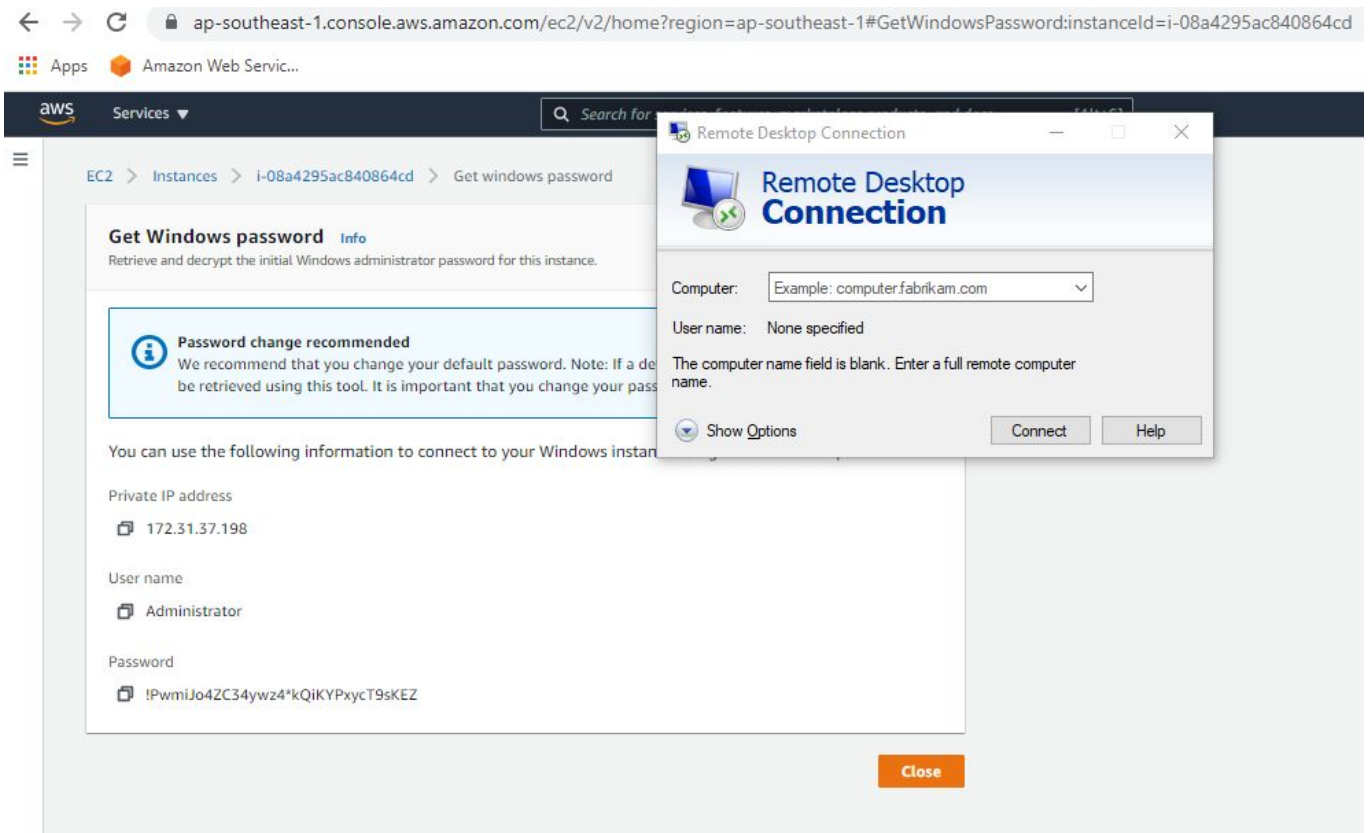




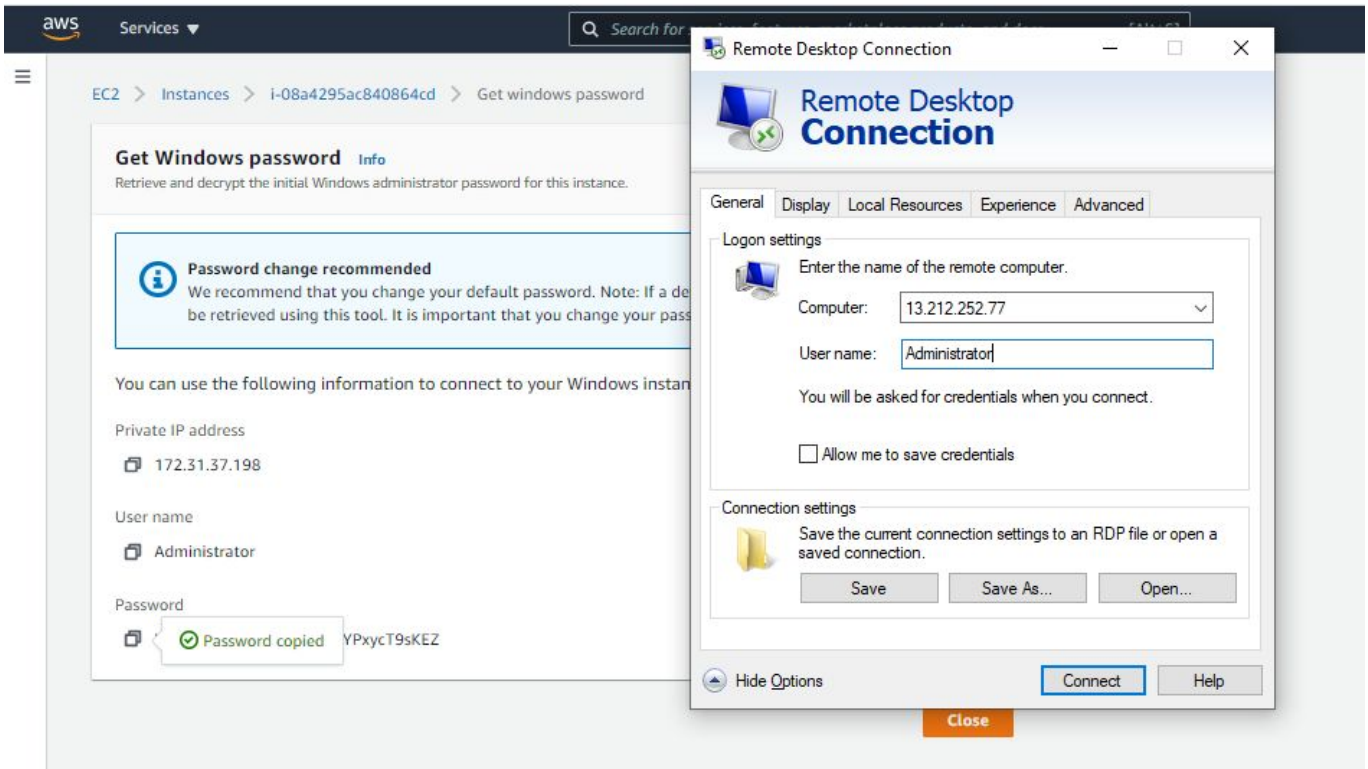
Need to wait for 4 mins after launching to get the password



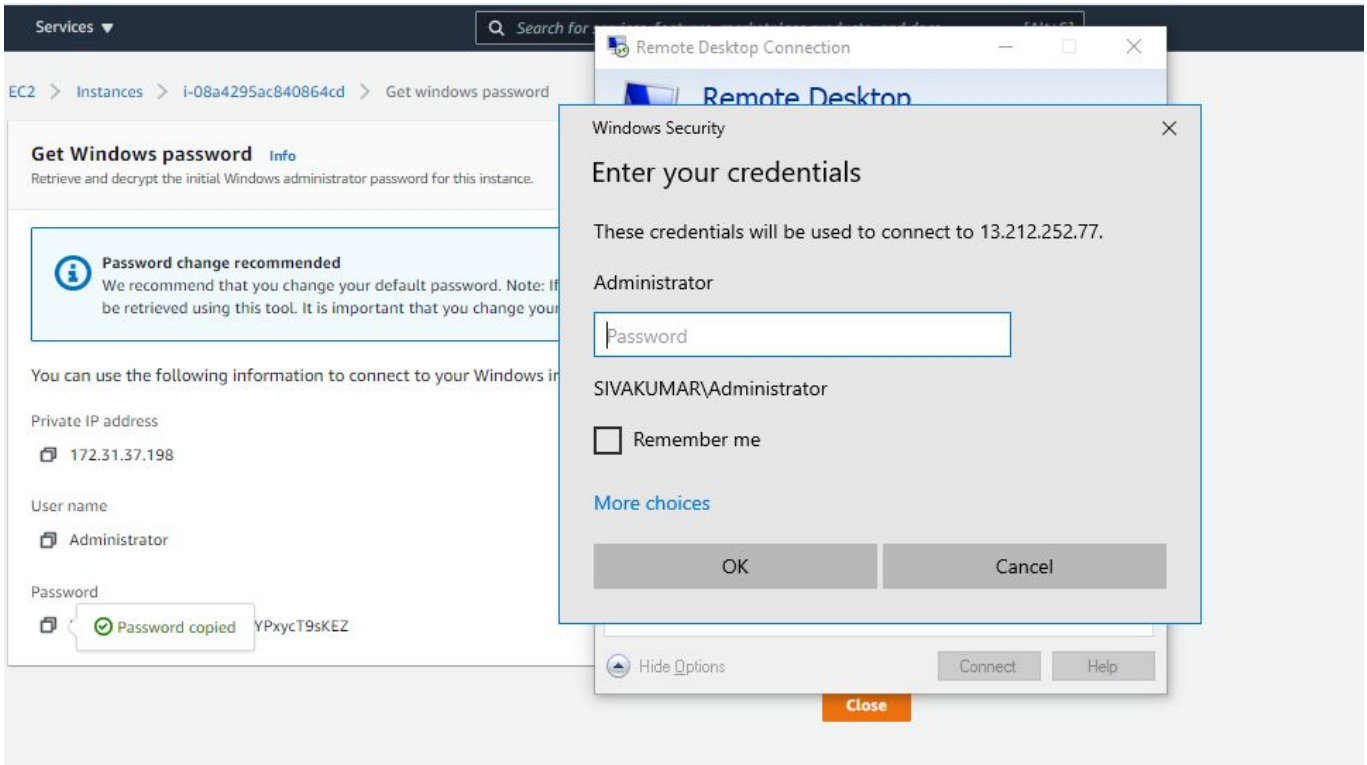
Get the password from the console with the help of the pem file.
Actions->Security->Get Windows Password
Open the “Remote desktop connection” application of windows.



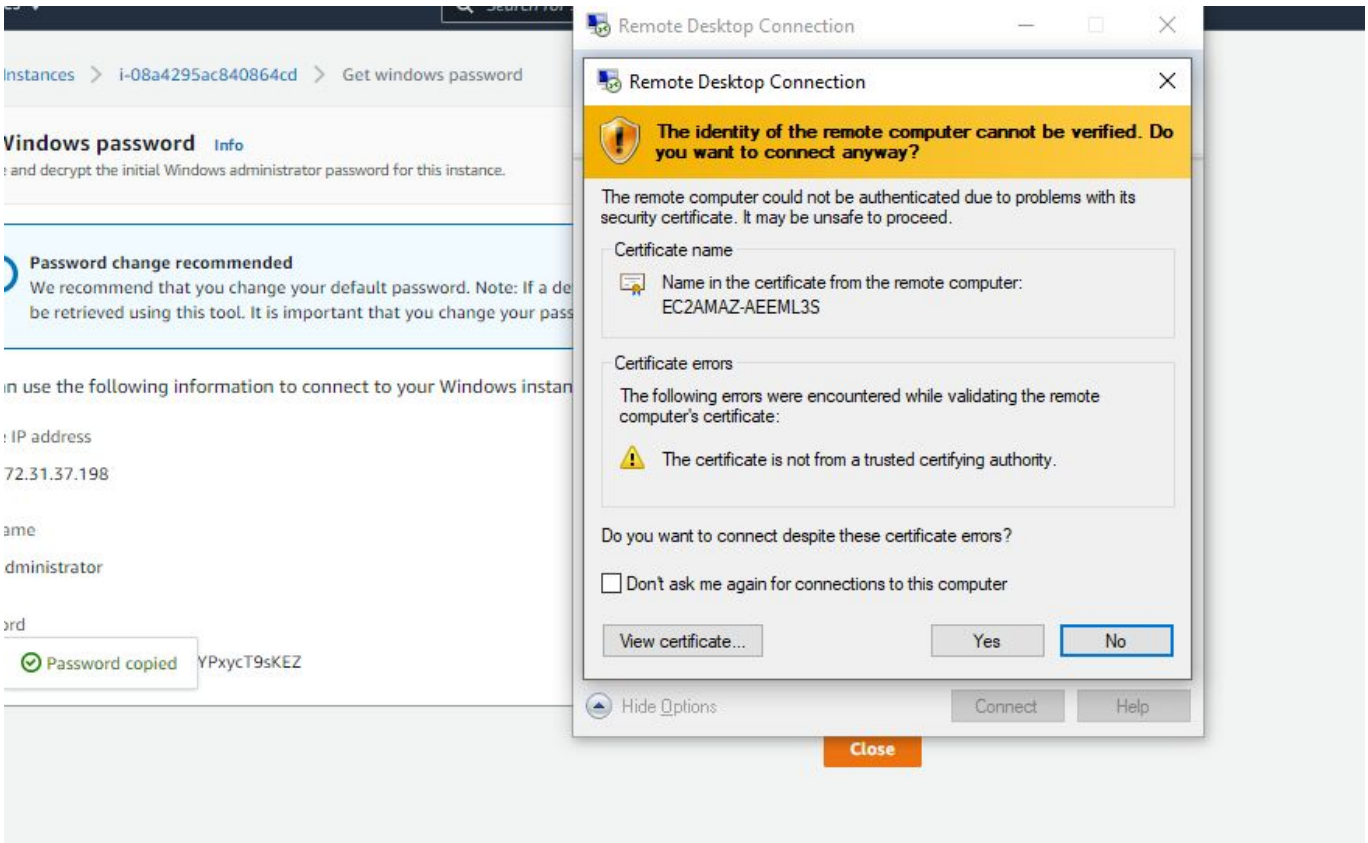
Use the public IP of the server not the private IP.



Once the server is discovered it asks for the password.



Ignore the certificate warning and connect to the server by clicking 'Yes'



After connecting to the remote Windows server.