

Aws Task Lab 3

The Solutions:

1 - Click on Create VPC and enter Sprints as the name and 10.0.0.0/16 as the CIDR block then click create vpc.

The screenshot shows the AWS VPC console. The 'Your VPCs' page displays a table with two VPCs. The first VPC, 'Sprints', is selected and highlighted. Its details are shown in the bottom section, including its state (Available), DHCP option set (dopt-0f44bdb3fe8f287fa), DNS settings (Enabled), and owner ID (812428914503).

Name	VPC ID	State	IPv4 CIDR	IPv6 CIDR	DHCP
-	vpc-0b2a5ccedd310ba65	Available	172.31.0.0/16	-	dopt-0
Sprints	vpc-0ee76dd70b1b7efd7	Available	10.0.0.0/16	-	dopt-0

Details for VPC vpc-0ee76dd70b1b7efd7:

- State: Available
- DHCP option set: dopt-0f44bdb3fe8f287fa
- DNS hostnames: Enabled
- DNS resolution: Enabled
- Main route table: rtb-08c43ce013bf27da8
- Main network ACL: acl-00fe2769994e574e3
- IPv6 pool: -
- IPv6 CIDR (Network border group): -
- Owner ID: 812428914503

2 - Click on "Create Subnet" and enter "Public_Sub_Sprints" as the name, "10.0.0.0/24" as the CIDR block, and select the sprints VPC.

The screenshot shows the AWS VPC console 'Subnets' page. A green banner at the top indicates 'You have successfully created 1 subnet: subnet-037c054676a8de6e3'. The subnet 'Public_Sub_Sprints' is listed with ID subnet-037c054676a8de6e3. Its details are shown in the bottom section, including its state (Available), availability zone (us-east-1e), route table (rtb-08c43ce013bf27da8), and auto-assign settings.

Name	Subnet ID	State	VPC	IPv4 CIDR	IPv6 CIDR
Public_Sub_Sprints	subnet-037c054676a8de6e3	Available	vpc-0ee76dd70b1b7efd7 Sprints	10.0.0.0/24	-

Details for Subnet subnet-037c054676a8de6e3:

- Subnet ID: subnet-037c054676a8de6e3
- Subnet ARN: arn:aws:ec2:us-east-1:812428914503:subnet/subnet-037c054676a8de6e3
- State: Available
- Availability Zone: us-east-1e
- Route table: rtb-08c43ce013bf27da8
- Network ACL: acl-00fe2769994e574e3
- Auto-assign IPv4 address: No

3 - Click on "Create Subnet" and enter "Private_Sub_Sprints" as the name, "10.0.1.0/24" as the CIDR block, and select the sprints VPC.

The screenshot shows the AWS VPC console for the us-east-1 region. The 'Subnets (1/1)' page is active, displaying a table with one subnet: 'Private_Sub_Sprints' (subnet-042a5bd41077ec959). The subnet is in an 'Available' state, associated with VPC 'vpc-0ee76dd70b1b7efd7 | Sprints', and has an IPv4 CIDR of '10.0.1.0/24'. A red arrow points to the 'Name' column header, and another points to the '10.0.1.0/24' CIDR value. The 'Details' section below the table shows various attributes: Subnet ID, Subnet ARN, State (Available), Availability Zone (us-east-1e), Route table (rtb-08c43ce013bf27da8), Network ACL (acl-00fe2769994e574e3), and Auto-assign IPv6 address (No). A red arrow points to the 'Sprints' link in the VPC field.

Name	Subnet ID	State	VPC	IPv4 CIDR	IPv6 CIDR
Private_Sub_Sprints	subnet-042a5bd41077ec959	Available	vpc-0ee76dd70b1b7efd7 Sprints	10.0.1.0/24	-

Details

Subnet ID	Subnet ARN	State	IPv4 CIDR
subnet-042a5bd41077ec959	arn:aws:ec2:us-east-1:812428914503:subnet/subnet-042a5bd41077ec959	Available	10.0.1.0/24
Available IPv4 addresses	IPv6 CIDR	Availability Zone	Availability Zone ID
251	-	us-east-1e	use1-az3
Network border group	VPC	Route table	Network ACL
us-east-1	vpc-0ee76dd70b1b7efd7 Sprints	rtb-08c43ce013bf27da8	acl-00fe2769994e574e3
Default subnet	Auto-assign public IPv4 address	Auto-assign IPv6 address	Auto-assign customer-owned IPv4 address
No	No	No	No
Customer-owned IPv4 pool		IPv4 CIDR reservations	

4 - Create Internet Gateway Then Put "Sprints-IGW" as the name and click on "Create" Then Click On Action And select "Attach to VPC". Choose Sprints click on "Attach".

The screenshot shows the AWS VPC console for the us-east-1 region. The 'Internet gateways (1/2)' page is active, displaying a table with two internet gateways. The 'Sprints-IGW' gateway (igw-0fce5565b7fd461f9) is highlighted, showing it is 'Attached' to VPC 'vpc-0ee76dd70b1b7efd7 | Sprints'. A red arrow points to the 'Sprints-IGW' name in the table. The 'Details' section below the table shows attributes: Internet gateway ID (igw-0fce5565b7fd461f9), State (Attached), VPC ID (vpc-0ee76dd70b1b7efd7 | Sprints), and Owner (812428914503).

Name	Internet gateway ID	State	VPC ID	Owner
-	igw-00ab69fc1830544d9	Attached	vpc-0b2a5ccedd310ba65	812428914503
Sprints-IGW	igw-0fce5565b7fd461f9	Attached	vpc-0ee76dd70b1b7efd7 Sprints	812428914503

igw-0fce5565b7fd461f9 / Sprints-IGW

Details

Internet gateway ID	State	VPC ID	Owner
igw-0fce5565b7fd461f9	Attached	vpc-0ee76dd70b1b7efd7 Sprints	812428914503

5 - Create NAT Gateway And Put "Sprints-NAT " as the name Then Choose Sprints-IGW as the gateway, select Public_Sub_Sprints as the subnet, and choose Allocate Elastic IP address Then Create Nat Gateway

NAT gateways (1/1) Info

Filter NAT gateways

Name	NAT gateway ID	Connectivity type	State	State message	Primary public IP address	Primary private IP address
Sprints-NAT	nat-02c7292161e3d4e18	Public	Available	-	3.222.50.67	10.0.0.99

NAT gateway ID: nat-02c7292161e3d4e18

NAT gateway ARN: arn:aws:ec2:us-east-1:812428914503:natgateway/nat-02c7292161e3d4e18

VPC: vpc-0ee76dd70b1b7efd7 / Sprints

Connectivity type: Public

Primary public IPv4 address: 3.222.50.67

Subnet: subnet-037c054676a8de6e3 / Public_Sub_Sprints

State: Available

State message: -

Primary private IPv4 address: 10.0.0.99

Primary network interface ID: eni-060aaa64d0a3f002e

Created: Tuesday, June 6, 2023 at 11:02:17 GMT+3

Deleted: -

6 - Create Route Table And Put "Public-RT" as the name, select Sprints VPC, and click on Create.

Route tables (1/7) Info

Find resources by attribute or tag

Name	Route table ID	Explicit subnet associations	Edge associations	Main	VPC	Owner ID
Public-RT	rtb-0e99a6240d9ea7a8c	subnet-037c054676a8de6e3 / Public_Sub_Sprints	-	No	vpc-0ee76dd70b1b7efd7 / Sprints	812428914503
Sprints-rtb-private1-us-east-1a	rtb-06bcc7d64c7ba18cc	-	-	No	vpc-0ee76dd70b1b7efd7 / Sprints	812428914503
Private-RT	rtb-01f344273f9ff5160	subnet-042a5bd41077e...	-	No	vpc-0ee76dd70b1b7efd7 / Sprints	812428914503
-	rtb-0376a51a926a106a5	-	-	Yes	vpc-0b2a5ccedd310ba65	812428914503
-	rtb-08c43ce013bf27da8	-	-	Yes	vpc-0ee76dd70b1b7efd7 / Sprints	812428914503
Sprints-rtb-private2-us-east-1b	rtb-0a1877eb6fb941989	-	-	No	vpc-0ee76dd70b1b7efd7 / Sprints	812428914503
Sprints-rtb-public	rtb-0d5c3ba06c0b997ef	-	-	No	vpc-0ee76dd70b1b7efd7 / Sprints	812428914503

rtb-0e99a6240d9ea7a8c / Public-RT

Details Routes Subnet associations Edge associations Route propagation Tags

You can now check network connectivity with Reachability Analyzer

Run Reachability Analyzer

Details

Route table ID: rtb-0e99a6240d9ea7a8c

VPC: vpc-0ee76dd70b1b7efd7 / Sprints

Main: No

Owner ID: 812428914503

Explicit subnet associations: subnet-037c054676a8de6e3 / Public_Sub_Sprints

Edge associations: -

7 - Select Public-RT from the list of route tables, click on Edit routes, add a new route with destination 0.0.0.0/0, target Sprints-NAT gateway, save changes.

The screenshot shows the AWS Management Console interface for the 'Route tables' page. The left sidebar contains navigation links for VPC dashboard, EC2 Global View, and various VPC resources. The main content area displays a list of route tables. The 'Public-RT' route table is selected, and the 'Routes' tab is active. The 'Routes' table shows two routes: one for 0.0.0.0/0 targeting 'igw-0fca5565b7fd461f9' and another for 10.0.0.0/16 targeting 'local'. A red arrow points to the 'local' target.

Name	Route table ID	Explicit subnet associati...	Edge associations	Main	VPC	Owner ID
Public-RT	rtb-0e99a6240d9ea7a8c	subnet-037c054676a8d...	-	No	vpc-0ee76dd70b1b7efd7 Spr...	812428914503
Sprints-rtb-private1-us-east-1a	rtb-06bcc7d64c7ba18cc	-	-	No	vpc-0ee76dd70b1b7efd7 Spr...	812428914503
Private-RT	rtb-01f344273f9f5160	subnet-042a5b41077e...	-	No	vpc-0ee76dd70b1b7efd7 Spr...	812428914503
-	rtb-0376a51a926a106a5	-	-	Yes	vpc-0b2a5cceed310ba65	812428914503
-	rtb-08c43ce013bf27da8	-	-	Yes	vpc-0ee76dd70b1b7efd7 Spr...	812428914503
Sprints-rtb-private2-us-east-1b	rtb-0a1877eb5fb941989	-	-	No	vpc-0ee76dd70b1b7efd7 Spr...	812428914503
Sprints-rtb-public	rtb-0d5c3ba06c0b997ef	-	-	No	vpc-0ee76dd70b1b7efd7 Spr...	812428914503

rtb-0e99a6240d9ea7a8c / Public-RT

Details | Routes | Subnet associations | Edge associations | Route propagation | Tags

Routes (2)

Destination	Target	Status	Propagated
0.0.0.0/0	igw-0fca5565b7fd461f9	Active	No
10.0.0.0/16	local	Active	No

8 - Create Route Table And Put "Private-RT" as the name, select Sprints VPC, and click on Create

The screenshot shows the AWS Management Console interface for the 'Route tables' page. The left sidebar contains navigation links for VPC dashboard, EC2 Global View, and various VPC resources. The main content area displays a list of route tables. The 'Private-RT' route table is selected, and the 'Details' tab is active. The 'Details' section shows the route table ID, main status, explicit subnet associations, and VPC.

Name	Route table ID	Explicit subnet associati...	Edge associations	Main	VPC	Owner ID
Public-RT	rtb-0e99a6240d9ea7a8c	subnet-037c054676a8d...	-	No	vpc-0ee76dd70b1b7efd7 Spr...	812428914503
Sprints-rtb-private1-us-east-1a	rtb-06bcc7d64c7ba18cc	-	-	No	vpc-0ee76dd70b1b7efd7 Spr...	812428914503
Private-RT	rtb-01f344273f9f5160	subnet-042a5b41077e...	-	No	vpc-0ee76dd70b1b7efd7 Spr...	812428914503
-	rtb-0376a51a926a106a5	-	-	Yes	vpc-0b2a5cceed310ba65	812428914503
-	rtb-08c43ce013bf27da8	-	-	Yes	vpc-0ee76dd70b1b7efd7 Spr...	812428914503
Sprints-rtb-private2-us-east-1b	rtb-0a1877eb5fb941989	-	-	No	vpc-0ee76dd70b1b7efd7 Spr...	812428914503
Sprints-rtb-public	rtb-0d5c3ba06c0b997ef	-	-	No	vpc-0ee76dd70b1b7efd7 Spr...	812428914503

rtb-01f344273f9f5160 / Private-RT

Details | Routes | Subnet associations | Edge associations | Route propagation | Tags

You can now check network connectivity with Reachability Analyzer

Details

Route table ID	Main	Explicit subnet associations	Edge associations
rtb-01f344273f9f5160	No	subnet-042a5b41077ec959 / Private_Sub_Sprints	-
VPC	Owner ID		
vpc-0ee76dd70b1b7efd7 Sprints	812428914503		

9 - Select Private-RT from the list of route tables, click on Edit routes, add a new route with destination 0.0.0.0/0, target Sprints-NAT gateway, save changes.

The screenshot shows the AWS Management Console interface for Route Tables. The left sidebar contains navigation links for VPC dashboard, EC2 Global View, and various VPC resources. The main content area displays a list of route tables. The 'Private-RT' is selected, and the 'Routes' tab is active. The 'Routes (2)' section shows two existing routes. A new route is being added with the destination '0.0.0.0/0' and target 'igw-0fce5565b7f4461f9'.

Name	Route table ID	Explicit subnet associati...	Edge associations	Main	VPC	Owner ID
Public-RT	rtb-0e99a5240d9ea7a8c	subnet-037c054676a8d...	-	No	vpc-0ee76dd70b1b7efd7 Spr...	812428914503
Sprints-rtb-private1-us-east-1a	rtb-06bcc7d64c7ba18cc	-	-	No	vpc-0ee76dd70b1b7efd7 Spr...	812428914503
Private-RT	rtb-01f344273f9ff5160	subnet-042a5bd41077e...	-	No	vpc-0ee76dd70b1b7efd7 Spr...	812428914503
-	rtb-0376a51a926a106a5	-	-	Yes	vpc-0b2a5ccedd310ba65	812428914503
-	rtb-08c43ce013bf27da8	-	-	Yes	vpc-0ee76dd70b1b7efd7 Spr...	812428914503
Sprints-rtb-private2-us-east-1b	rtb-0a1877eb6f9941989	-	-	No	vpc-0ee76dd70b1b7efd7 Spr...	812428914503
Sprints-rtb-public	rtb-0d5c3ba06c0b997ef	-	-	No	vpc-0ee76dd70b1b7efd7 Spr...	812428914503

Destination	Target	Status	Propagated
0.0.0.0/0	igw-0fce5565b7f4461f9	Active	No
10.0.0.0/16	local	Active	No

10 – Create 1 Security Group and Put “Security_Sprints_Public” as name and add inbound rules to allow traffic to the instances.

A - Allow HTTP traffic from anywhere (0.0.0.0/0) for the public instance [Instance1_Public]

The screenshot shows the AWS Management Console interface for the Security Group 'sg-033d139437341c7a3 - Security_Sprints_Public'. The left sidebar contains navigation links for VPC dashboard, EC2 Global View, and various VPC resources. The main content area displays the details of the security group, including its name, ID, description, and VPC ID. The 'Inbound rules' tab is active, showing a single rule allowing HTTP traffic from 0.0.0.0/0.

Security group name	Security group ID	Description	VPC ID
Security_Sprints_Public	sg-033d139437341c7a3	allow traffic to the instance 1	vpc-0ee76dd70b1b7efd7

Owner	Inbound rules count	Outbound rules count
812428914503	1 Permission entry	1 Permission entry

Name	Security group rul...	IP version	Type	Protocol	Port range
-	sgr-0735030e52f402...	IPv4	HTTP	TCP	80

11 – Create 1 Security Group and Put “Security_Sprints_Private” as name and add inbound rules to allow traffic to the instances.

A - Allow SSH traffic from my IP address for the private instance. [Instance1_Public]

The screenshot shows the AWS Management Console for a Security Group. The left sidebar lists navigation options like VPC dashboard, Subnets, and Security. The main content area displays the details for the Security Group 'sg-0677ba832fc97c84c - Security_Sprints_Private'. The details include the Security group name, ID, Description (Allow SSH traffic from your IP address for the private instance.), VPC ID, Owner, Inbound rules count (1 Permission entry), and Outbound rules count (1 Permission entry). Below the details, there are tabs for Inbound rules, Outbound rules, and Tags. The Inbound rules tab is active, showing a table with one rule: a rule named '-' with ID 'sgr-0685415a39c2ec...' allowing SSH traffic on TCP port 22 from IP version 4.

Name	Security group rule...	IP version	Type	Protocol	Port range
-	sgr-0685415a39c2ec...	IPv4	SSH	TCP	22

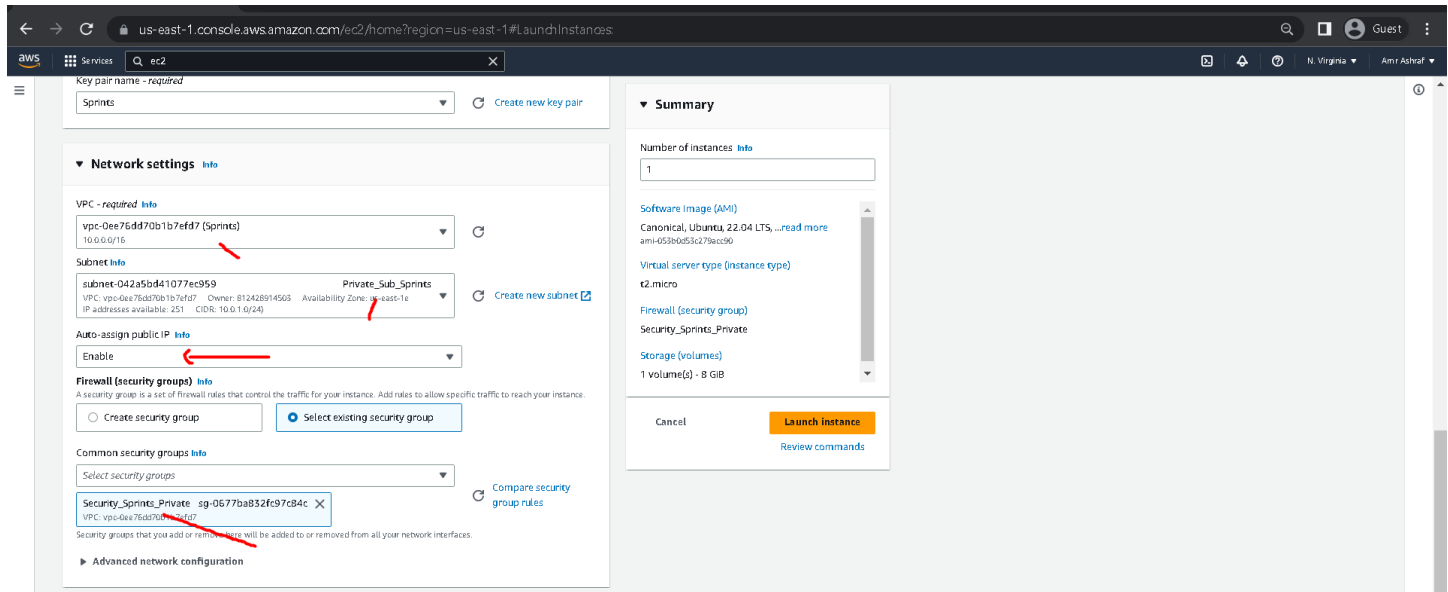
12 - Launch Instance And Put “Instance1_Public” as name of instance and choose an Ubuntu as image.

A – Choose Sprints VPC B – Choose Public_Sub_Sprint C - Choose Security_Sprints_Public

The screenshot shows the 'Launch Instance' wizard in the AWS Management Console. The 'Network settings' section is expanded, showing the VPC selection (vpc-0ee76dd70b1b7efd7), Subnet selection (Public_Sub_Sprints), and Firewall (security groups) selection (Security_Sprints_Public). The 'Auto-assign public IP' option is set to 'Enable'. The 'Summary' section on the right shows the instance configuration: 1 instance, Canonical, Ubuntu 22.04 LTS, t2.micro, Security_Sprints_Public, and 1 volume (8 GiB). The 'Launch Instance' button is highlighted in orange.

13 - Launch Instance And Put "Instance1_Private" as name of instance and choose an Ubuntu as image.

A – Choose Sprints VPC B – Choose Private_Sub_Sprint C - Choose Security_Sprints_Private

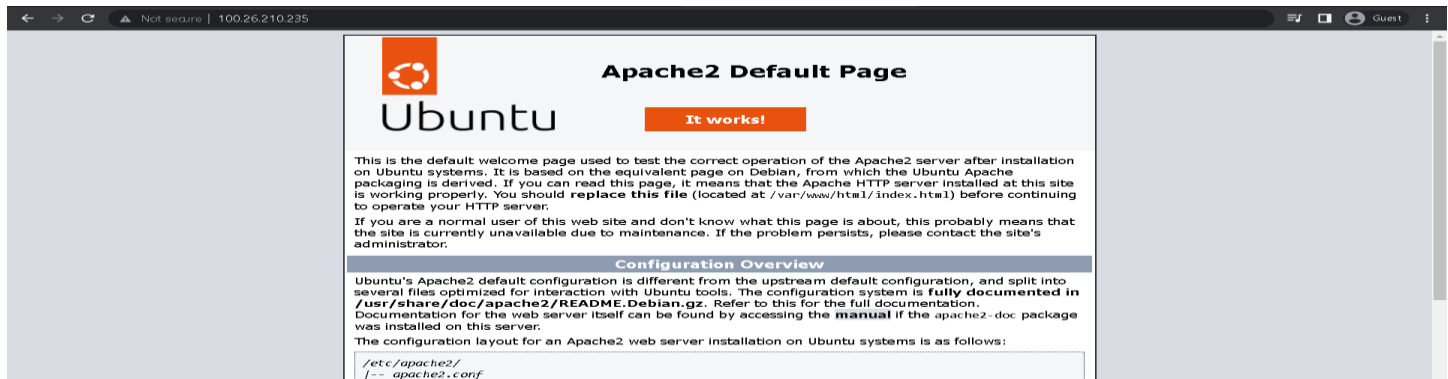


14 – Connect For First Instance [Instance1_Public]

Commands : 1 – sudo apt-get update -y
2 – sudo apt-get install apache2 -y
3 – sudo systemctl start apache2
4 – sudo systemctl status apache2

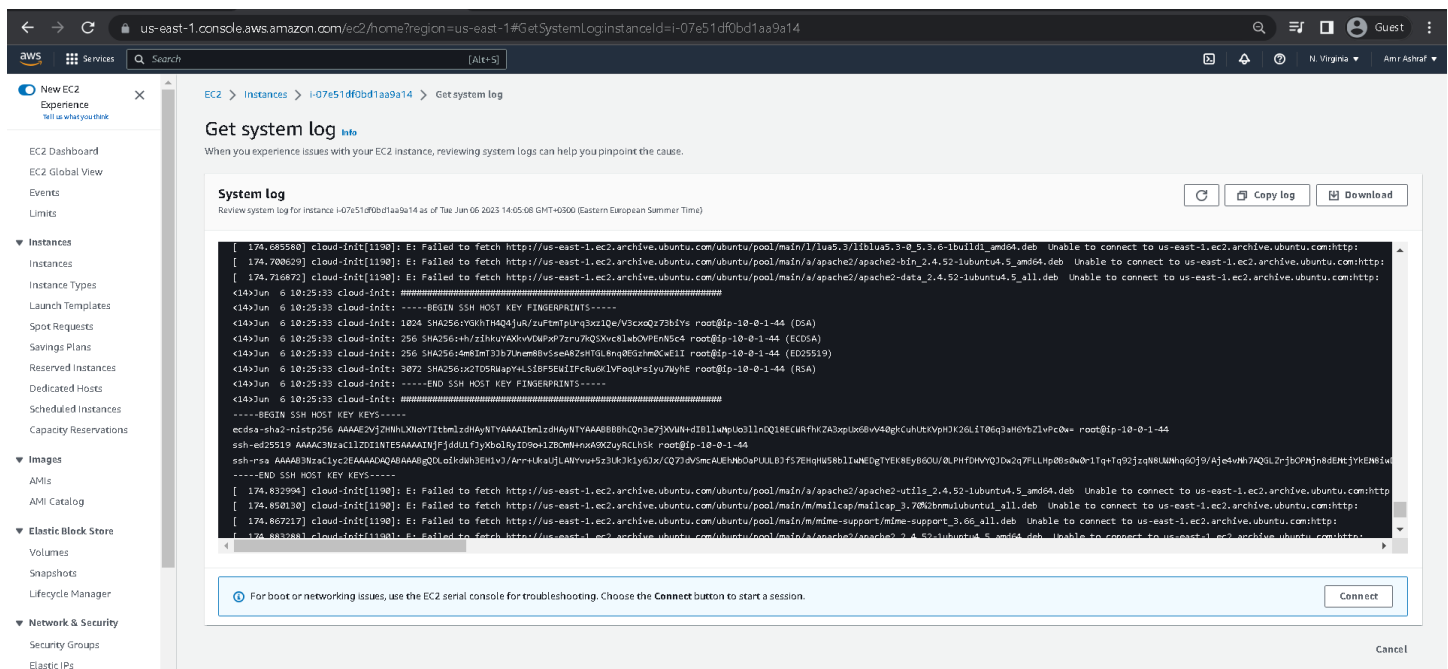
```
ubuntu@ip-10-0-0-155: ~  
  
No services need to be restarted.  
  
No containers need to be restarted.  
  
No user sessions are running outdated binaries.  
  
No VM guests are running outdated hypervisor (qemu) binaries on this host.  
ubuntu@ip-10-0-0-155:~$ sudo systemctl start apache2  
ubuntu@ip-10-0-0-155:~$ sudo systemctl status apache2  
● apache2.service - The Apache HTTP Server  
   Loaded: loaded (/lib/systemd/system/apache2.service; enabled; vendor preset: enabled)  
   Active: active (running) since Tue 2023-06-06 10:56:24 UTC; 24s ago  
     Docs: https://httpd.apache.org/docs/2.4/  
   Main PID: 2784 (apache2)  
     Tasks: 55 (limit: 1141)  
    Memory: 4.8M  
       CPU: 30ms  
   CGroup: /system.slice/apache2.service  
           └─2784 /usr/sbin/apache2 -k start  
             └─2786 /usr/sbin/apache2 -k start  
               └─2787 /usr/sbin/apache2 -k start  
  
Jun 06 10:56:24 ip-10-0-0-155 systemd[1]: Starting The Apache HTTP Server...  
Jun 06 10:56:24 ip-10-0-0-155 systemd[1]: Started The Apache HTTP Server.  
ubuntu@ip-10-0-0-155:~$
```

Check The Page Results



14 – Connect For Second Instance [Instance1_Private]

- Commands :
- 1 – sudo apt-get update -y
 - 2 – sudo apt-get install apache2 -y
 - 3 – sudo systemctl start apache2
 - 4 – sudo systemctl status apache2




```
ubuntu@ip-10-0-1-44:~$ sudo systemctl status apache2
● apache2.service - The Apache HTTP Server
   Loaded: loaded (/lib/systemd/system/apache2.service; enabled; vendor preset: enabled)
   Active: active (running) since Tue 2023-06-06 11:05:00 UTC; 1s ago
     Docs: https://httpd.apache.org/docs/2.4/
  Process: 2676 ExecStart=/usr/sbin/apachectl start (code=exited, status=0/SUCCESS)
    Main PID: 2681 (apache2)
      Tasks: 55 (limit: 1141)
     Memory: 4.8M
        CPU: 24ms
    CGroup: /system.slice/apache2.service
            └─2681 /usr/sbin/apache2 -k start
            └─2682 /usr/sbin/apache2 -k start
            └─2683 /usr/sbin/apache2 -k start

Jun 06 11:05:00 ip-10-0-1-44 systemd[1]: Starting The Apache HTTP Server...
Jun 06 11:05:00 ip-10-0-1-44 systemd[1]: Started The Apache HTTP Server.
ubuntu@ip-10-0-1-44:~$ curl localhost
<!DOCTYPE html PUBLIC "-//W3C//DTD XHTML 1.0 Transitional//EN" "http://www.w3.org/TR/xhtml1/DTD/xhtml1-transitional.d
<html xmlns="http://www.w3.org/1999/xhtml">
<!--
  Modified from the Debian original for Ubuntu
  Last updated: 2022-03-22
  See: https://launchpad.net/bugs/1966004
-->
```