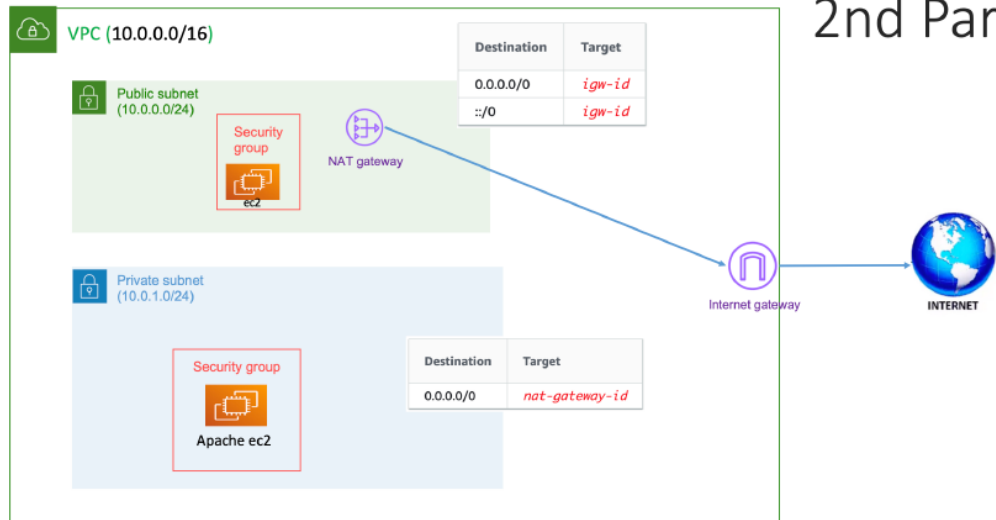


## Lab (3)

Task:



Required:

Screenshot from the instance page demonstrate that the instance is private and a screenshot from the logs of the instance demonstrate the apache2 is installed

# Steps:

## 1- Create VPC

The screenshot shows the AWS Management Console interface for VPC Management. The left sidebar contains navigation links for VPC dashboard, EC2 Global View, and various VPC resources. The main content area displays a list of VPCs. The 'sprints' VPC is selected, and its details are shown below the list.

Name	VPC ID	State	IPv4 CIDR	IPv6 CIDR	DHCP option set	MTU
sprints	vpc-043aa5fc0bdec9082	Available	10.0.0.0/16	-	dopt-0b341507be17b...	rt
default	vpc-0a21a906e6257d26c	Available	172.31.0.0/16	-	dopt-0b341507be17b...	rt

**vpc-043aa5fc0bdec9082 / sprints**

Details | Resource map | **CIDRs** | Flow logs | Tags

Address type	CIDR	Network Border Group	Pool	Status
IPv4	10.0.0.0/16	-	-	Associated

## 2- Create Subnets

The screenshot shows the AWS Management Console interface for Subnets. The left sidebar contains navigation links for VPC dashboard, EC2 Global View, and various VPC resources. The main content area displays a list of subnets. The 'private-subnet' is selected, and its details are shown below the list.

Name	Subnet ID	State	VPC	IPv4 CIDR	IPv6 CIDR	DHCP option set	MTU
-	subnet-020928ff920a8ddea	Available	vpc-0a21a906e6257d26c   def...	172.31.80.0/20	-	-	4091
-	subnet-08f1fa76dc5714bb7	Available	vpc-0a21a906e6257d26c   def...	172.31.64.0/20	-	-	4091
-	subnet-0003129c9a375441f	Available	vpc-0a21a906e6257d26c   def...	172.31.16.0/20	-	-	4091
-	subnet-0c6a185472ddcc59d	Available	vpc-0a21a906e6257d26c   def...	172.31.48.0/20	-	-	4091
-	subnet-01d4c47277e0c04b4	Available	vpc-0a21a906e6257d26c   def...	172.31.0.0/20	-	-	4091
private-subnet	subnet-02b5004cdcb53634b	Available	vpc-043aa5fc0bdec9082   spri...	10.0.1.0/24	-	-	250
public-subnet	subnet-0364db8a1c3441f7d	Available	vpc-043aa5fc0bdec9082   spri...	10.0.0.0/24	-	-	250
-	subnet-0372f25ae290f27ce	Available	vpc-0a21a906e6257d26c   def...	172.31.32.0/20	-	-	4091

### 3-Create Gateway

The screenshot shows the AWS Management Console interface for 'Internet gateways'. The left sidebar contains navigation links for VPC dashboard, EC2 Global View, and various VPC resources. The main content area shows a list of internet gateways. The 'sprints-internet-gat...' gateway is selected, and its details are displayed below the list. The details section shows the gateway's ID, state (Attached), VPC ID, and owner.

Name	Internet gateway ID	State	VPC ID	Owner
sprints-internet-gat...	igw-02f94c1fb31d15feb	Attached	vpc-043aa5fc0bdec9082   sprints	125467979341
-	igw-0ef7e2347d0b6e47a	Attached	vpc-0a21a906e6257d26c   default	125467979341

**igw-02f94c1fb31d15feb / sprints-internet-gateway**

**Details**

Internet gateway ID	State	VPC ID	Owner
igw-02f94c1fb31d15feb	Attached	vpc-043aa5fc0bdec9082   sprints	125467979341

### 4-Create Route table

#### 4.1- Public route

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 shows a list of route tables. The 'public-rt' route table is selected, and its details are displayed below the list. The details section shows the route table's ID, state (Attached), VPC ID, and owner. The 'Routes' section shows two routes: one for 0.0.0.0/0 pointing to the internet gateway and another for 10.0.0.0/16 pointing to the local network.

Name	Route table ID	Explicit subnet associati...	Edge associations	Main	VPC	Own...
-	rtb-09f7548035931e1ef	-	-	Yes	vpc-043aa5fc0bdec9082   sprints	125467...
-	rtb-0881c784713d79298	-	-	Yes	vpc-0a21a906e6257d26c   defa...	125467...
public-rt	rtb-0f0a2de7ef74484ed	subnet-0364db8a1c3441...	-	No	vpc-043aa5fc0bdec9082   sprints	125467...
private-rt	rtb-09e21b38b809cec9	subnet-02b5004cdcb536...	-	No	vpc-043aa5fc0bdec9082   sprints	125467...

**rtb-0f0a2de7ef74484ed / public-rt**

**Routes (2)**

Destination	Target	Status	Propagated
0.0.0.0/0	igw-02f94c1fb31d15feb	Active	No
10.0.0.0/16	local	Active	No

## 4.2- Private route

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 network services. The main content area displays a list of route tables under the heading 'Route tables (1/4)'. The 'private-rt' is selected, and its details are shown in the 'Routes' tab. The routes table shows two entries: one for destination 0.0.0.0/0 targeting nat-0b81f8680d30c000f, and another for destination 10.0.0.0/16 targeting local.

Name	Route table ID	Explicit subnet associati...	Edge associations	Main	VPC	Own...
-	rtb-09f7548035931e1ef	-	-	Yes	vpc-043aa5fc0bdec9082   sprints	125467...
-	rtb-0881c784713d79298	-	-	Yes	vpc-0a21a906e6257d26c   defa...	125467...
public-rt	rtb-0f0a2de7ef74484ed	subnet-0364db8a1c3441...	-	No	vpc-043aa5fc0bdec9082   sprints	125467...
private-rt	rtb-09e21b38b809cec9f	subnet-02b5004cdcb536...	-	No	vpc-043aa5fc0bdec9082   sprints	125467...

Destination	Target	Status	Propagated
0.0.0.0/0	natur-0b81f8680d30c000f	Active	No
10.0.0.0/16	local	Active	No

## 5-Create NAT

The screenshot shows the AWS Management Console interface for NAT Gateways. The left sidebar contains navigation links for VPC dashboard, EC2 Global View, and various network services. The main content area displays a list of NAT gateways under the heading 'NAT gateways (1/1)'. The 'sprints-nat' is selected, and its details are shown in the 'Details' tab. The details section provides information about the NAT gateway ID, ARN, connectivity type, state, and primary addresses.

Name	NAT gateway ID	Connectivit...	State	State message	Primary public I...	Primary private ...	Primary ne
sprints-nat	nat-0b81f8680d30c000f	Public	Available	-	35.175.19.251	10.0.0.20	eni-029c49...

Details			
NAT gateway ID nat-0b81f8680d30c000f	Connectivity type Public	State Available	State message -
NAT gateway ARN arn:aws:ec2:us-east-1:125467979341:natgateway/nat-0b81f8680d30c000f	Primary public IPv4 address 35.175.19.251	Primary private IPv4 address 10.0.0.20	Primary network interface ID eni-029c49761d3aeb73a
VPC vpc-043aa5fc0bdec9082   sprints	Subnet subnet-0364db8a1c3441f7d   public-subnet	Created Monday, June 5, 2023, 16:45:46 GMT+3	Deleted -

## 6- Create Elastic IP

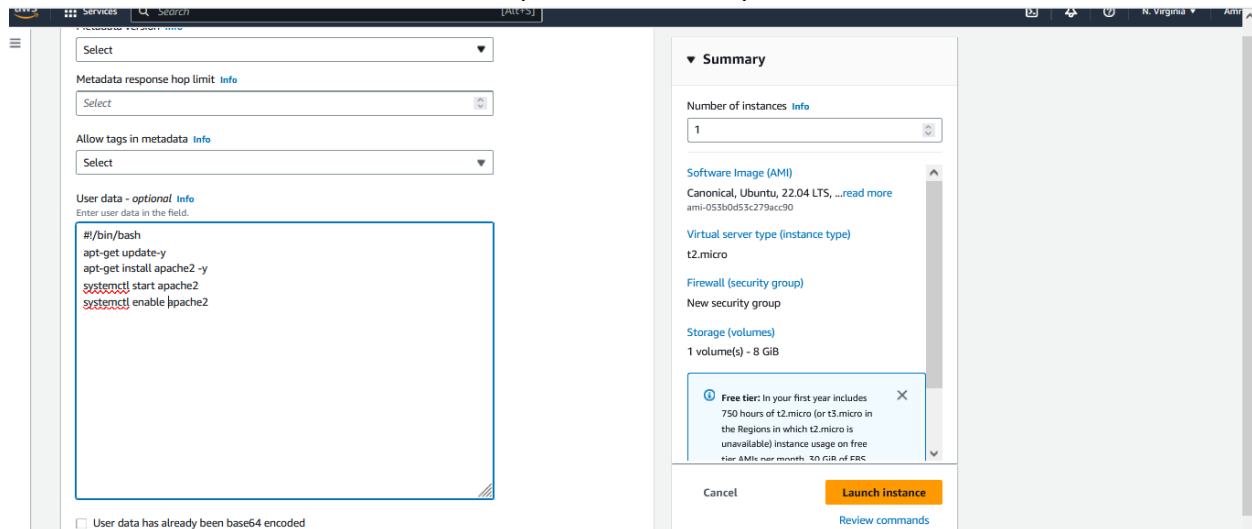
The screenshot shows the AWS Management Console for Elastic IP addresses. The left sidebar contains navigation links for VPC dashboard, EC2 Global View, and various VPC resources. The main content area shows the 'Elastic IP addresses (1/1)' page. A table lists the Elastic IP address 35.175.19.251, which is a Public IP with Allocation ID eipalloc-0bd3514131d03b456. Below the table, a 'Summary' section provides details: Allocated IPv4 address 35.175.19.251, Association ID eipassoc-01a58206c3b6f3620, Network interface ID eni-Q29c49761d3aeb73a, and Address pool Amazon. Other details include Type Public IP, Scope VPC, Network interface owner account ID 125467979341, Network Border Group us-east-1, and NAT Gateway ID nat-0b81f8680d30c00f (sprints-nat).

## 7- Create Security group

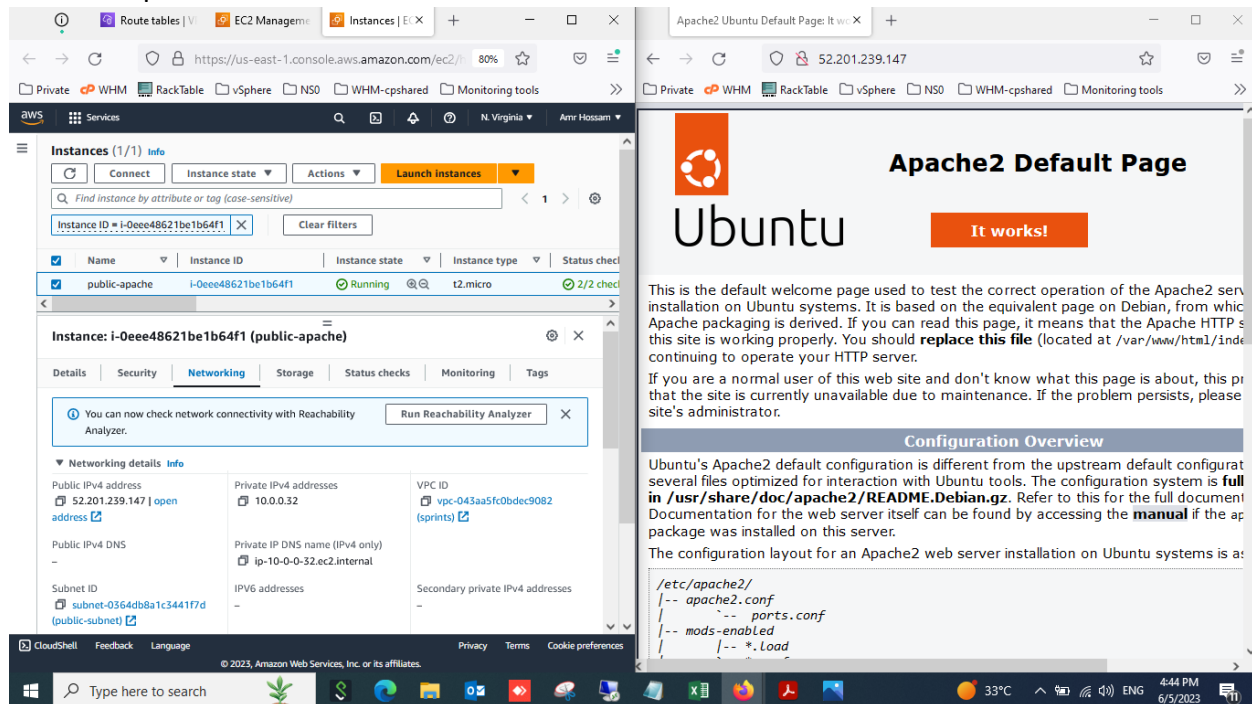
The screenshot shows the AWS Management Console for a security group named 'sg-08912228626408d6b - all-traffic'. The 'Details' section shows the security group name, ID, description (allow all), VPC ID (vpc-043aa5fc0bdec9082), owner (125467979341), inbound rules count (1 Permission entry), and outbound rules count (1 Permission entry). Below the details, there is a section for 'Inbound rules (1/1)' showing one rule named 'all-traffic' with security group rule ID sgr-0edb763e96ce99b..., IP version IPv4, type All traffic, protocol All, port range All, and source 0.0.0.0/0.

## Solutions:

### 8- Create Ec2 with User data to install apache2 at start up



### 9- Public apache interface



The screenshot displays the AWS Management Console interface. At the top, the browser address bar shows the URL: `https://us-east-1.console.aws.amazon.com/ec2/home?region=us-east-1#Instances:instanceId=i-0a8ef5cd4558040e7`. The console header includes navigation links for Private, WHM, RackTable, vSphere, NSO, WHM-cphased, Monitoring tools, Tools-SMS-Service Desk, SmarterMail Dedicated, and SmarterMail Shared. The left sidebar contains the 'Instances' section, which is expanded to show 'Instances (1/1) Info'. The main content area shows a table of instances with the following data:

Name	Instance ID	Instance state	Instance type	Status check	Alarm status	Availability Zone	Public IPv4 DNS	Public IPv4
private-apache	i-0a8ef5cd4558040e7	Running	t2.micro	2/2 checks passed	No alarms	us-east-1a	-	-

Below the table, the 'Instance: i-0a8ef5cd4558040e7 (private-apache)' details are shown. The 'Networking' tab is selected, displaying the following information:

- Public IPv4 address:** 10.0.1.129
- Private IPv4 DNS name (IPv4 only):** ip-10-0-1-129.ec2.internal
- Subnet ID:** subnet-02b5004cdcb3634b (private-subnet)
- Availability zone:** us-east-1a
- VPC ID:** vpc-043aa5fc0bdec9082 (sprints)
- Secondary private IPv4 addresses:** -
- Outpost ID:** -

The bottom of the console shows the 'Elastic Block Store' section, which is currently empty.

## 12- Private apache logs

**Get system log** info

When you experience issues with your EC2 instance, reviewing system logs can help you pinpoint the cause.

**System log**  
Review system log for instance i-0a8ef5cd4558040e7 as of Mon Jun 05 2023 16:55:15 GMT+0300 (Arabian Standard Time)

[Copy log](#) [Download](#)

```
ci-info: | Keytype | Fingerprint (sha256) | Options | Comment |
[ 48.966945] cloud-init[1197]: CGroup: /system.slice/apache2.service
[ 48.978679] cloud-init[1197]:    Å2165 /usr/sbin/apache2 -k start
ci-info: +-----+
[ 48.981853] cloud-init[1197]:    Å2167 /usr/sbin/apache2 -k start
[ 48.986307] cloud-init[1197]:    Å2168 /usr/sbin/apache2 -k start
ci-info: | ssh-rsa | e3:0f:37:e4:ef:92:b6:1e:f9:c2:8c:0d:78:52:1d:35:8f:41:c8:fe:ef:f6:d3:18:fc:0d:d7:22:d5:11:1f:21 | - | my-key |
[ 48.998778] cloud-init[1197]: Jun 05 13:52:24 ip-10-0-1-129 system[1]: Starting The Apache HTTP Server...
[ 49.012185] cloud-init[1197]: Jun 05 13:52:24 ip-10-0-1-129 apache2[2164]: AH00558: apache2: Could not reliably determine the server's fully qualified domain name, us
[ 49.027129] cloud-init[1197]: Jun 05 13:52:24 ip-10-0-1-129 system[1]: Started The Apache HTTP Server.
<14>Jun 5 13:52:30 cloud-init: #####
<14>Jun 5 13:52:30 cloud-init: -----BEGIN SSH HOST KEY FINGERPRINTS-----
<14>Jun 5 13:52:30 cloud-init: 1024 SHA256:4mmLLV338r+He63rSt0GvMBY9ffgABADSwA8hs3W root@ip-10-0-1-129 (DSA)
<14>Jun 5 13:52:30 cloud-init: 256 SHA256:VMWzmk/nr2Q36jHcIT4u0hESVt6eLpmmjc+FsRtdgT root@ip-10-0-1-129 (ECDSA)
<14>Jun 5 13:52:30 cloud-init: 256 SHA256:IMyFPXWwM0e3guIGrG0P8LIqsdDppJr9U20kamuT0 root@ip-10-0-1-129 (ECDSA)
<14>Jun 5 13:52:30 cloud-init: 3072 SHA256:/z2eQ27/ccCA791t35k32uWw/b1Rn+5197YdDy/glk root@ip-10-0-1-129 (RSA)
<14>Jun 5 13:52:30 cloud-init: -----END SSH HOST KEY FINGERPRINTS-----
<14>Jun 5 13:52:30 cloud-init: #####
```

For boot or networking issues, use the EC2 serial console for troubleshooting. Choose the **Connect** button to start a session.

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