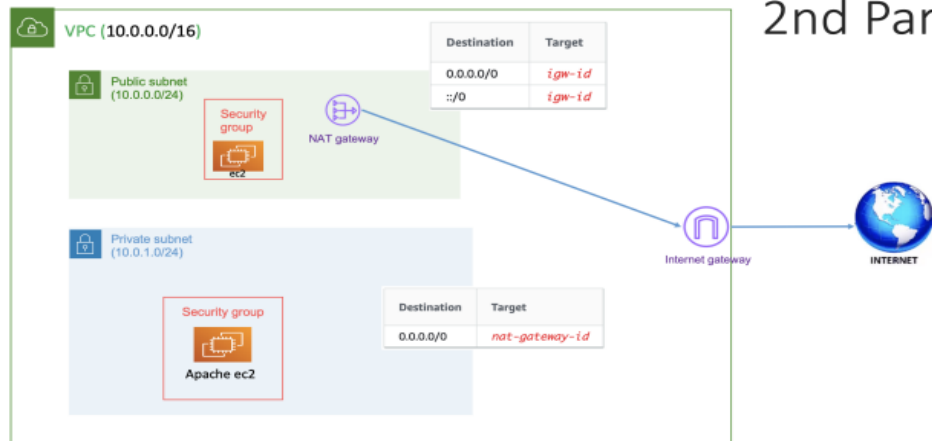


LAB2



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

(1) Create VPC 'sprints' with VPC-CIDR: 10.0.0.0/16

AWS Services Search [Alt+S]

VPC dashboard

EC2 Global View

Filter by VPC

Select a VPC

Virtual private cloud

Your VPCs

Subnets

Route tables

Internet gateways

Egress-only internet gateways

Carrier gateways

DHCP option sets

Elastic IPs

Managed prefix lists

Endpoints

Endpoint services

NAT gateways

Peering connections

Security

Network ACLs

Security groups

DNS firewall

Rule groups

Domain lists

Network Firewall

Your VPCs (1/2)

Filter VPCs

Name	VPC ID	State	IPv4 CIDR	IPv6 CIDR	DHCP option set	Main route table
sprints	vpc-0f665f33172ec0fc8	Available	10.0.0.0/16	-	dopt-02a2e66a29317c...	rtb-07053b7bd659
-	vpc-084550dbb48a015f0	Available	172.31.0.0/16	-	dopt-02a2e66a29317c...	rtb-0d3dcdfa30824

vpc-0f665f33172ec0fc8 / sprints

Details Resource map CIDRs Flow logs Tags

Resource map

VPC Show details

Your AWS virtual network

sprints

Subnets (2)

Subnets within this VPC

us-east-1a

sprints-subnet2

us-east-1b

sprints-subnet1

Route tables (2)

Route network traffic to resources

sprints-public

rtb-07053b7bd659a27b4

Network connections (2)

Connections to other networks

sprints-IGW

nat-086df361ea633d68b

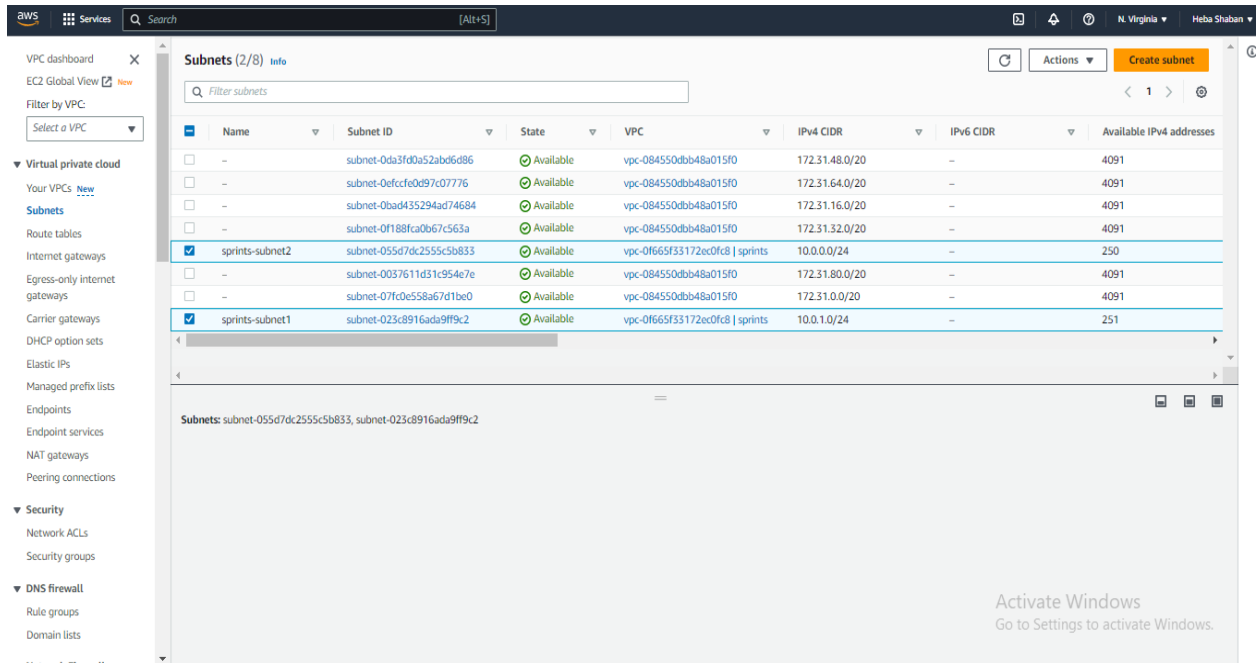
Introducing the VPC resource map

Solid lines represent relationships between resources in your VPC. Dotted lines represent network traffic.

Activate Windows

Go to Settings to activate Windows.

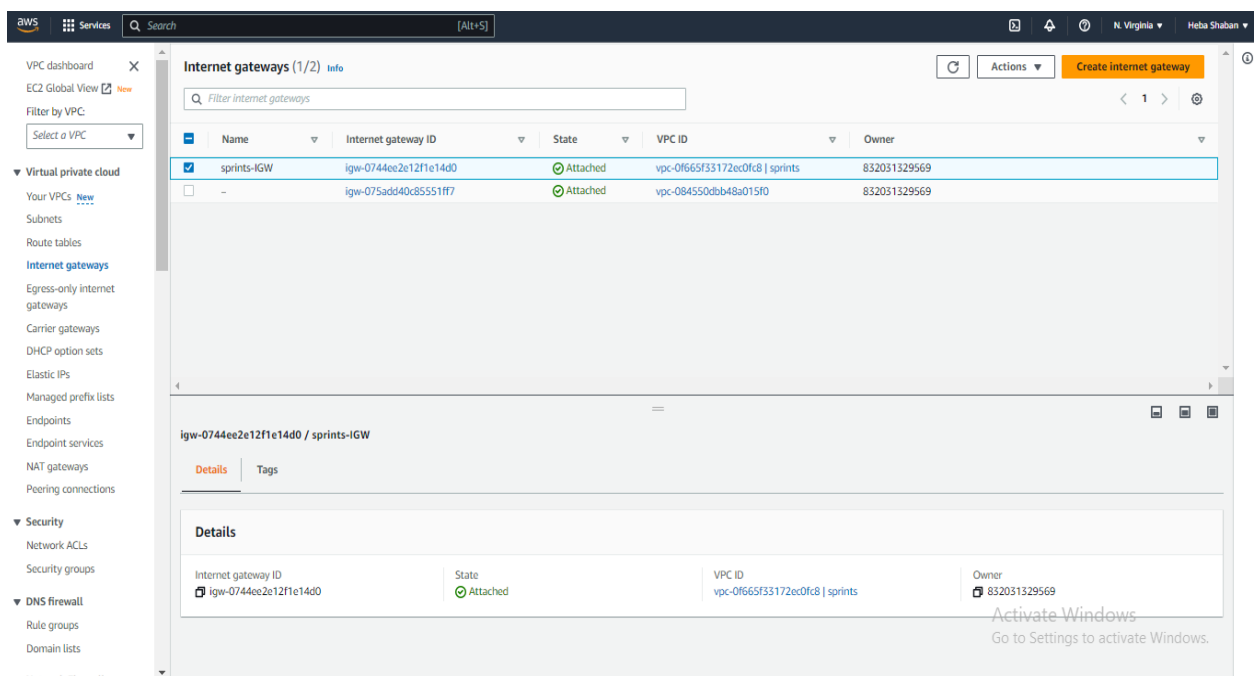
(2) Create 2 subnets: 'sprints-subnet2' with subnet-CIDR : 10.0.0.0/24 & 'sprints-subnet1' with subnet-CIDR : 10.0.1.0/24



The screenshot shows the AWS Management Console interface for the 'Subnets' page. The left sidebar contains navigation links for VPC dashboard, EC2 Global View, and various VPC services. The main content area displays a table of subnets. Two subnets are selected: 'sprints-subnet1' and 'sprints-subnet2'. Below the table, the subnets are listed as 'Subnets: subnet-055d7dc2555c5b833, subnet-023c8916ada9ff9c2'.

Name	Subnet ID	State	VPC	IPv4 CIDR	IPv6 CIDR	Available IPv4 addresses
-	subnet-0da3fd0a52abd6d86	Available	vpc-084550dbb48a015f0	172.31.48.0/20	-	4091
-	subnet-0efcfe0d97c07776	Available	vpc-084550dbb48a015f0	172.31.64.0/20	-	4091
-	subnet-0ba4d43529ad74684	Available	vpc-084550dbb48a015f0	172.31.16.0/20	-	4091
-	subnet-0f188fca0b67c563a	Available	vpc-084550dbb48a015f0	172.31.32.0/20	-	4091
sprints-subnet2	subnet-055d7dc2555c5b833	Available	vpc-0f665f33172ec0fc8 sprints	10.0.0.0/24	-	250
-	subnet-0037611d31c954e7e	Available	vpc-084550dbb48a015f0	172.31.80.0/20	-	4091
sprints-subnet1	subnet-07fcd0e58a67d1be0	Available	vpc-084550dbb48a015f0	172.31.0.0/20	-	4091
-	subnet-023c8916ada9ff9c2	Available	vpc-0f665f33172ec0fc8 sprints	10.0.1.0/24	-	251

(3) Create internet gateway 'sprints-IGW'



The screenshot shows the AWS Management Console interface for the 'Internet gateways' page. The left sidebar contains navigation links for VPC dashboard, EC2 Global View, and various VPC services. The main content area displays a table of internet gateways. One internet gateway, 'sprints-IGW', is selected. Below the table, the details for 'igw-0744ee2e12f1e14d0 / sprints-IGW' are shown.

Name	Internet gateway ID	State	VPC ID	Owner
sprints-IGW	igw-0744ee2e12f1e14d0	Attached	vpc-0f665f33172ec0fc8 sprints	832031329569
-	igw-075add40c85551ff7	Attached	vpc-084550dbb48a015f0	832031329569

Details

Internet gateway ID: igw-0744ee2e12f1e14d0
State: Attached
VPC ID: vpc-0f665f33172ec0fc8 | sprints
Owner: 832031329569

(4) Create NAT 'sprints-NAT'

The screenshot shows the AWS Management Console interface for the 'sprints' VPC. The left sidebar contains navigation links for VPC dashboard, EC2 Global View, and various VPC services. The main content area displays the 'NAT gateways (1/1)' page. A table lists the NAT gateway 'nat-086df361ea633d68b' with a state of 'Available'. Below the table, the 'Details' tab is selected, showing the NAT gateway ID, ARN, connectivity type (Public), primary public IPv4 address (52.70.2.79), primary private IPv4 address (10.0.0.121), and the primary network interface ID (eni-004dddb9c9ea931dc). The VPC is identified as 'vpc-0f665f33172ec0fc8 / sprints'.

Name	NAT gateway ID	Connectivity...	State	State message	Primary public I...	Primary private ...	Primary network...
-	nat-086df361ea633d68b	Public	Available	-	52.70.2.79	10.0.0.121	eni-004dddb9c9ea...

Details

NAT gateway ID nat-086df361ea633d68b	Connectivity type Public	State Available	State message -
NAT gateway ARN arn:aws:ec2:us-east-1:832031329569:natgateway/nat-086df361ea633d68b	Primary public IPv4 address 52.70.2.79	Primary private IPv4 address 10.0.0.121	Primary network interface ID eni-004dddb9c9ea931dc
VPC vpc-0f665f33172ec0fc8 / sprints	Subnet subnet-055d7dc2555c5b833 / sprints-subnet2	Created Monday, June 5, 2023 at 09:54:13 GMT+3	Deleted -

(5) Create Route-Table for public subnet 'sprints-public'

The screenshot shows the AWS Management Console interface for the 'sprints' VPC. The left sidebar contains navigation links for VPC dashboard, EC2 Global View, and various VPC services. The main content area displays the 'Route tables (1/3)' page. A table lists three route tables, with 'sprints-public' (rtb-06b6944fe94740e29) selected. Below the table, the 'Routes' tab is selected, showing two routes: '0.0.0.0/0' with target 'igw-0744ee2e12f1e14d0' and '10.0.0.0/16' with target 'local'. Both routes are active.

Name	Route table ID	Explicit subnet associati...	Edge associations	Main	VPC	Own...
-	rtb-07053b7bd659a27b4	-	-	Yes	vpc-0f665f33172ec0fc8 sprints	832031...
-	rtb-0d3dcd3a30824e076	-	-	Yes	vpc-084550dbb48a015f0	832031...
sprints-public	rtb-06b6944fe94740e29	subnet-055d7dc2555c5b...	-	No	vpc-0f665f33172ec0fc8 sprints	832031...

Routes (2)

Destination	Target	Status	Propagated
0.0.0.0/0	igw-0744ee2e12f1e14d0	Active	No
10.0.0.0/16	local	Active	No

(6) Create Route-Table for private subnet

Route tables (1/3)

Name	Route table ID	Explicit subnet associati...	Edge associations	Main	VPC	Own...
-	rtb-07053b7bd659a27b4	-	-	Yes	vpc-0f665f33172ec0fc8 sprints	832031...
-	rtb-0d3dcdfa30824e076	-	-	Yes	vpc-084550dbb48a015f0	832031...
sprints-public	rtb-06b6944fe94740e29	subnet-055d7dc2555c5b...	-	No	vpc-0f665f33172ec0fc8 sprints	832031...

rtb-07053b7bd659a27b4

Routes (2)

Destination	Target	Status	Propagated
0.0.0.0/0	nat-086df361ea633d68b	Active	No
10.0.0.0/16	local	Active	No

(8) Write this script while creating instances to install and start apache2

User data - optional [Info](#)

Enter user data in the field.

```
#!/bin/bash

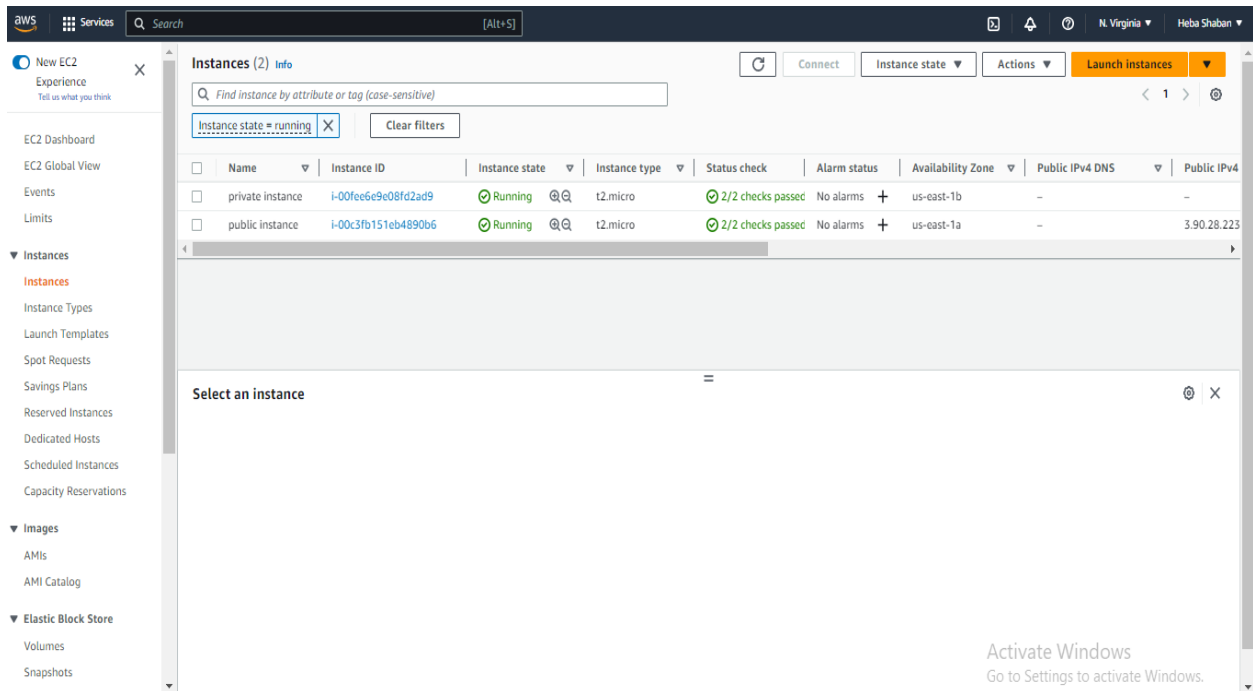
#update before install
apt-get-update -y

#install apache2
apt-get-install apache2

#start apache2
systemctl start apache2
```

☐ User data has already been base64 encoded

(9) Create 2 instances 'public instance' & 'private instance' and attache each instance to a subnet in sprints VPS

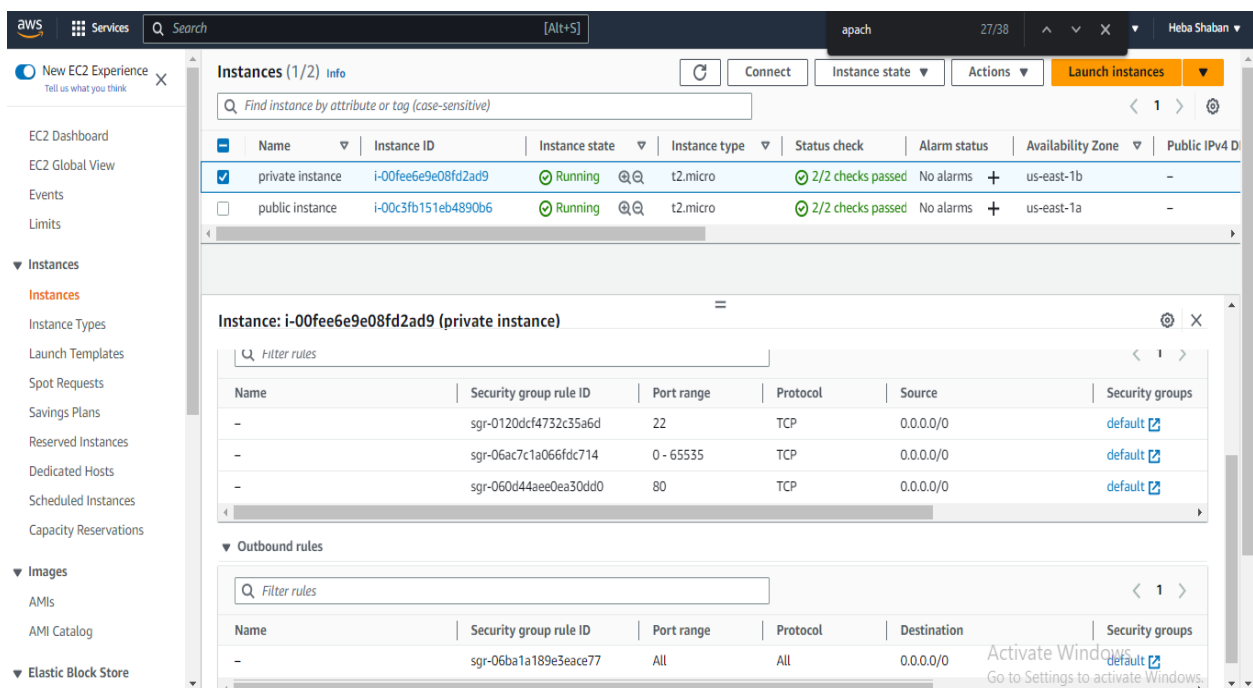


The screenshot displays the AWS Management Console's 'Instances' page. Two EC2 instances are listed:

Name	Instance ID	Instance state	Instance type	Status check	Alarm status	Availability Zone	Public IPv4 DNS	Public IPv4
private instance	i-00fee6e9e08fd2ad9	Running	t2.micro	2/2 checks passed	No alarms	us-east-1b	-	-
public instance	i-00c3fb151eb4890b6	Running	t2.micro	2/2 checks passed	No alarms	us-east-1a	-	3.90.28.223

The left sidebar shows navigation options like 'EC2 Dashboard', 'Events', 'Limits', 'Instances', 'Images', and 'Elastic Block Store'. The top navigation bar includes the AWS logo, 'Services', a search bar, and user information.

Private instance



The screenshot shows the details of the 'private instance' (i-00fee6e9e08fd2ad9). The instance is in a 'Running' state and is associated with the 't2.micro' instance type. The 'Status check' shows '2/2 checks passed'.

The 'Security group rule ID' section lists the following rules:

Name	Security group rule ID	Port range	Protocol	Source	Security groups
-	sgr-0120dcf4732c35a6d	22	TCP	0.0.0.0/0	default
-	sgr-06ac7c1a066fdc714	0 - 65535	TCP	0.0.0.0/0	default
-	sgr-060d44aee0ea30dd0	80	TCP	0.0.0.0/0	default

The 'Outbound rules' section lists the following rules:

Name	Security group rule ID	Port range	Protocol	Destination	Security groups
-	sgr-06ba1a189e3eace77	All	All	0.0.0.0/0	default

The left sidebar shows navigation options like 'EC2 Dashboard', 'Events', 'Limits', 'Instances', 'Images', and 'Elastic Block Store'. The top navigation bar includes the AWS logo, 'Services', a search bar, and user information.

Instances

Instances (1/2) Info

Find instance by attribute or tag (case-sensitive)

Name	Instance ID	Instance state	Instance type	Status check	Alarm status	Availability Zone	Public IPv4
private instance	i-00fee6e9e08fd2ad9	Running	t2.micro	2/2 checks passed	No alarms	us-east-1b	-
public instance	i-00c3fb151eb4890b6	Running	t2.micro	2/2 checks passed	No alarms	us-east-1a	-

Instance: i-00c3fb151eb4890b6 (public instance)

Filter rules

Name	Security group rule ID	Port range	Protocol	Source	Security groups
-	sgr-0120dcf4732c35a6d	22	TCP	0.0.0.0/0	default
-	sgr-06ac7c1a066fdc714	0 - 65535	TCP	0.0.0.0/0	default
-	sgr-060d44ae0ea30dd0	80	TCP	0.0.0.0/0	default

Outbound rules

Filter rules

Name	Security group rule ID	Port range	Protocol	Destination	Security groups
-	sgr-06ba1a189e3eace77	All	All	0.0.0.0/0	default

System Public log

aws

Services

Q Search

[Alt+S]

apac

27/38

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inla

Heba Shaban

New EC2 Experience

Tell us what you think

EC2 Dashboard

EC2 Global View

Events

Limits

Instances

Instances

Instance Types

Launch Templates

Spot Requests

Savings Plans

Reserved Instances

Dedicated Hosts

Scheduled Instances

Capacity Reservations

Images

AMIs

AMI Catalog

Elastic Block Store

Volumes

Snapshots

EC2 > Instances > i-00c3fb151eb4890b6 > Get system log

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-00c3fb151eb4890b6 as of Mon Jun 05 2023 12:15:53 GMT+0300 (Eastern European Summer Time)

🔄

📄 Copy log

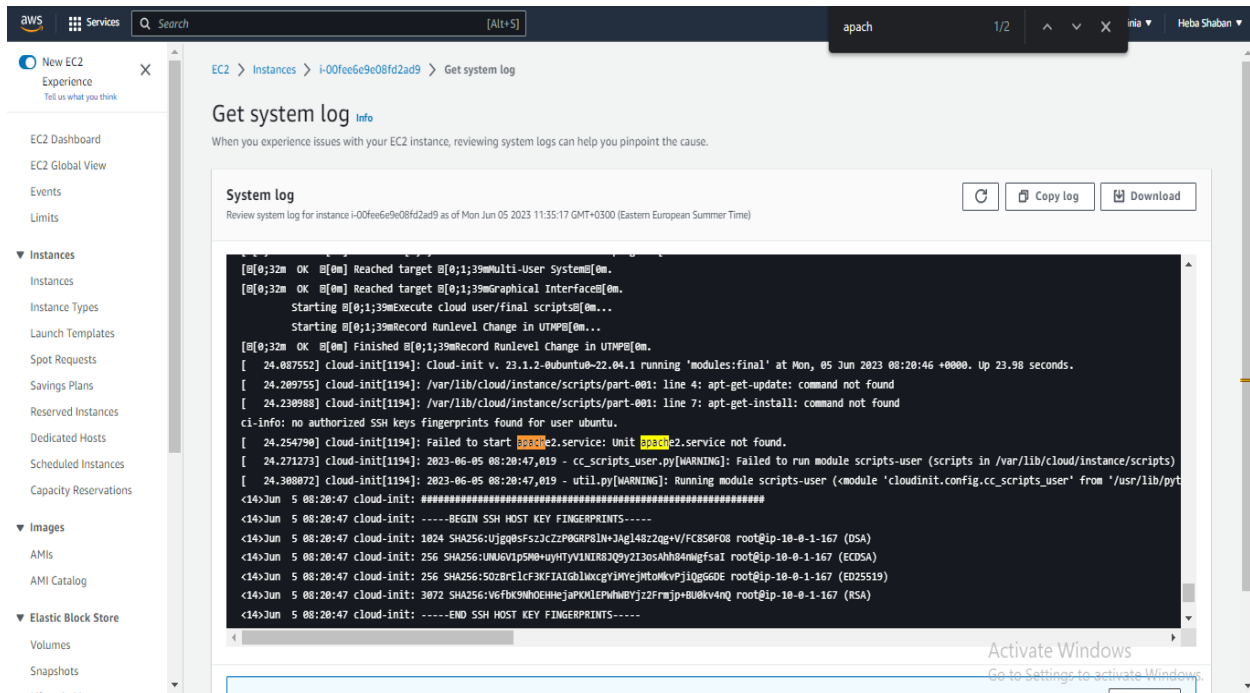
📄 Download

```
[ 73.218489] cloud-init[1190]: Preparing to unpack .../11-bzip2_1.0.8-5build1_amd64.deb ...
[ 73.233942] cloud-init[1190]: Unpacking bzip2 (1.0.8-5build1) ...
[ 73.340998] cloud-init[1190]: Selecting previously unselected package ssl-cert.
[ 73.352112] cloud-init[1190]: Preparing to unpack .../12-ssl-cert_1.1.2_all.deb ...
[ 73.367895] cloud-init[1190]: Unpacking ssl-cert (1.1.2) ...
[ 73.466817] cloud-init[1190]: Setting up libasp1:amd64 (1.7.0-8ubuntu0.22.04.1) ...
[ 73.485564] cloud-init[1190]: Setting up bzip2 (1.0.8-5build1) ...
[ 73.521992] cloud-init[1190]: Setting up ssl-cert (1.1.2) ...
[ 74.188161] cloud-init[1190]: Setting up liblwp5.3-0:amd64 (5.3.6-1build1) ...
[ 74.206607] cloud-init[1190]: Setting up python3-c2-data (2.4.52-1ubuntu4.5) ...
[ 74.226857] cloud-init[1190]: Setting up mailcap (3.70+mmuubuntu1) ...
[ 74.327308] cloud-init[1190]: Setting up libasprintf1:amd64 (1.6.1-1ubuntu4.22.04.1) ...
[ 74.347849] cloud-init[1190]: Setting up mime-support (3.66) ...
[ 74.363983] cloud-init[1190]: Setting up libasprintf1:amd64 (1.6.1-1ubuntu4.22.04.1) ...
[ 74.416739] cloud-init[1190]: Setting up libasprintf1:amd64 (1.6.1-1ubuntu4.22.04.1) ...
[ 74.435243] cloud-init[1190]: Setting up python3-c2-utils (2.4.52-1ubuntu4.5) ...
[ 74.459692] cloud-init[1190]: Setting up python3-c2-bin (2.4.52-1ubuntu4.5) ...
[ 74.508244] cloud-init[1190]: Setting up python3-c2 (2.4.52-1ubuntu4.5) ...
[ 76.095841] cloud-init[1190]: Enabling module mpm_event.
```

Activate Windows

Go to Settings to activate Windows.

System private log



Get system log [info](#)

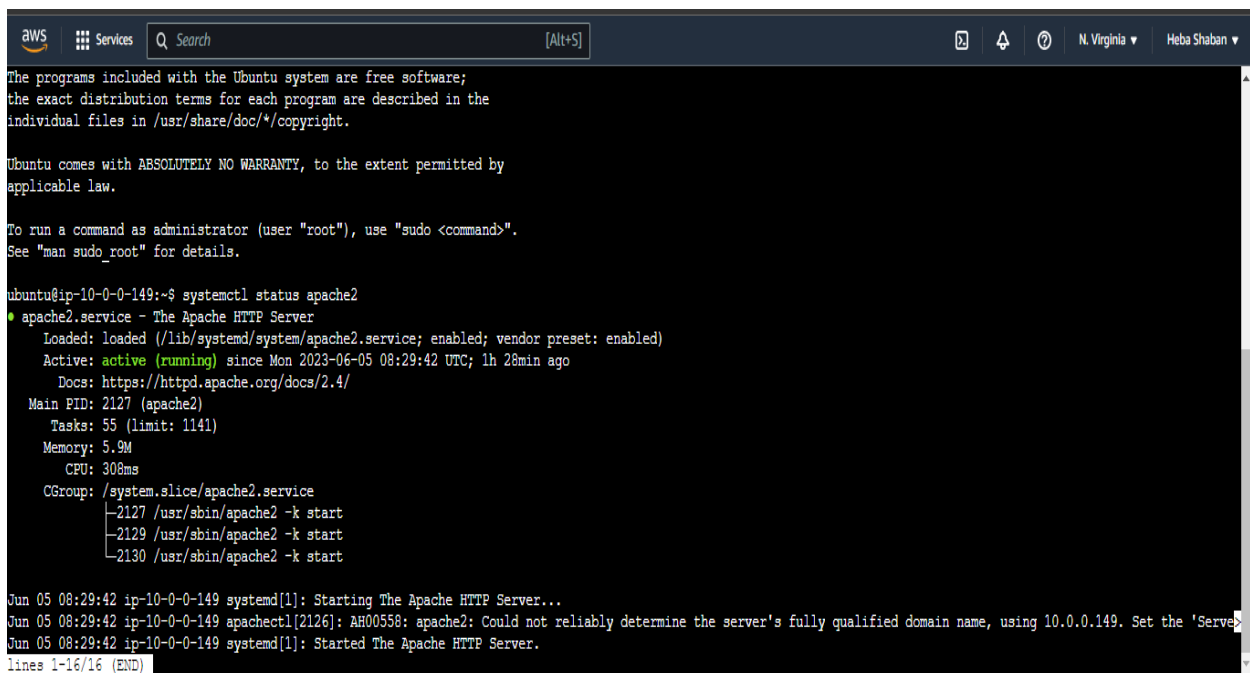
When you experience issues with your EC2 instance, reviewing system logs can help you pinpoint the cause.

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

Review system log for instance i-00fee6e9c08fd2ad9 as of Mon Jun 05 2023 11:35:17 GMT+0300 (Eastern European Summer Time)

```
[0:32m OK @0m] Reached target @0:1;39mMulti-User System@0m.
[0:32m OK @0m] Reached target @0:1;39mGraphical Interface@0m.
Starting @0:1;39mExecute cloud user/final scripts@0m...
Starting @0:1;39mRecord Runlevel change in UTMPI@0m...
[0:32m OK @0m] Finished @0:1;39mRecord Runlevel change in UTMPI@0m.
[ 24.087552] cloud-init[1194]: Cloud-init v. 23.1.2-0ubuntu-22.04.1 running 'modules:final' at Mon, 05 Jun 2023 08:20:46 +0000. Up 23.98 seconds.
[ 24.209755] cloud-init[1194]: /var/lib/cloud/instance/scripts/part-001: line 4: apt-get-update: command not found
[ 24.230988] cloud-init[1194]: /var/lib/cloud/instance/scripts/part-001: line 7: apt-get-install: command not found
ci-info: no authorized SSH keys fingerprints found for user ubuntu.
[ 24.254798] cloud-init[1194]: Failed to start @0:1;39mcc2.service: Unit @0:1;39mcc2.service not found.
[ 24.271273] cloud-init[1194]: 2023-06-05 08:20:47,019 - cc_scripts_user.py[WARNING]: Failed to run module scripts-user (scripts in /var/lib/cloud/instance/scripts)
[ 24.308072] cloud-init[1194]: 2023-06-05 08:20:47,019 - util.py[WARNING]: Running module scripts-user (<module 'cloudinit.config.cc_scripts_user' from '/usr/lib/pyt
<14>Jun 5 08:20:47 cloud-init: *****
<14>Jun 5 08:20:47 cloud-init: -----BEGIN SSH HOST KEY FINGERPRINTS-----
<14>Jun 5 08:20:47 cloud-init: 1024 SHA256:Ujgq0sf3zCZP0GRP8IN+Jag148z2qg+V/FC8S0F08 root@ip-10-0-1-167 (DSA)
<14>Jun 5 08:20:47 cloud-init: 256 SHA256:UNUGvlp5M0+uyHTYVIMIR8JQ9y2I30sAhh84mgf5aI root@ip-10-0-1-167 (ECDSA)
<14>Jun 5 08:20:47 cloud-init: 256 SHA256:50zBrElcf3KFIATGblkxgcYlWyeJmtoMkvPjIqG6GE root@ip-10-0-1-167 (ED25519)
<14>Jun 5 08:20:47 cloud-init: 3072 SHA256:V6fbX9NHOEH+JaPKNLEPMWBYjz2Fmjp+BU0kv4nQ root@ip-10-0-1-167 (RSA)
<14>Jun 5 08:20:47 cloud-init: -----END SSH HOST KEY FINGERPRINTS-----
```

(11) Search with public IP of the public instance



The programs included with the Ubuntu system are free software; the exact distribution terms for each program are described in the individual files in /usr/share/doc/*/copyright.

Ubuntu comes with ABSOLUTELY NO WARRANTY, to the extent permitted by applicable law.

To run a command as administrator (user "root"), use "sudo <command>". See "man sudo_root" for details.

```
ubuntu@ip-10-0-0-149:~$ systemctl status apache2
● apache2.service - The Apache HTTP Server
   Loaded: loaded (/lib/systemd/system/apache2.service; enabled; vendor preset: enabled)
   Active: active (running) since Mon 2023-06-05 08:29:42 UTC; 1h 28min ago
     Docs: https://httpd.apache.org/docs/2.4/
   Main PID: 2127 (apache2)
    Tasks: 55 (limit: 1141)
   Memory: 5.9M
      CPU: 308ms
   CGroup: /system.slice/apache2.service
           └─2127 /usr/sbin/apache2 -k start
             └─2129 /usr/sbin/apache2 -k start
               └─2130 /usr/sbin/apache2 -k start

Jun 05 08:29:42 ip-10-0-0-149 systemd[1]: Starting The Apache HTTP Server...
Jun 05 08:29:42 ip-10-0-0-149 apachectl[2126]: AH00558: apache2: Could not reliably determine the server's fully qualified domain name, using 10.0.0.149. Set the 'ServerName' directive explicitly to avoid this.
Jun 05 08:29:42 ip-10-0-0-149 systemd[1]: Started The Apache HTTP Server.
lines 1-16/16 (END)
```

OUTPUT

