

AWS Node Setup procedure

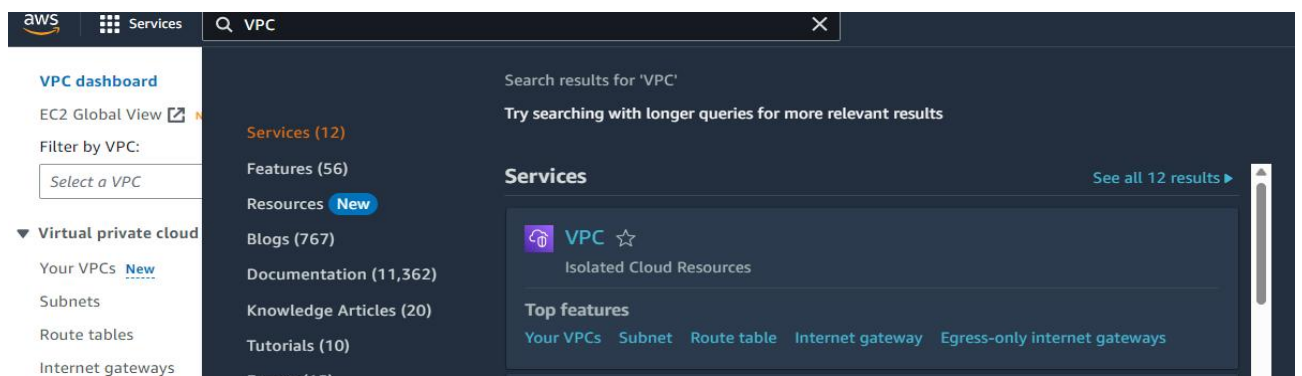
2.1 Access Rules - AWS

Select the region as eu-west-2

To set up access rules on AWS , following actions to be done.

2.1.2 Create VPC

Go to AWS Console and type VPC in the search tab.



Now click on “Your VPCs”

Click on “Create VPC”



Enter VPC details as below.

Create VPC [Info](#)

A VPC is an isolated portion of the AWS Cloud populated by AWS objects, such as Amazon EC2 instances.

VPC settings

Resources to create [Info](#)

Create only the VPC resource or the VPC and other networking resources.

☒ VPC only

☐ VPC and more

Name tag - *optional*

Creates a tag with a key of 'Name' and a value that you specify.

nms-vpc-01

IPv4 CIDR block [Info](#)

☒ IPv4 CIDR manual input

☐ IPAM-allocated IPv4 CIDR block

IPv4 CIDR

10.0.0.0/24

CIDR block size must be between /16 and /28.

IPv6 CIDR block [Info](#)

☒ No IPv6 CIDR block

☐ IPAM-allocated IPv6 CIDR block

☐ Amazon-provided IPv6 CIDR block

☐ IPv6 CIDR owned by me

Tenancy [Info](#)

Default

Tags

A tag is a label that you assign to an AWS resource. Each tag consists of a key and an optional value. You can use tags to search and filter your resources or track your AWS costs.

Key

Q Name



Value - *optional*

Q nms-vpc-01



Remove tag

Add tag

You can add 49 more tags

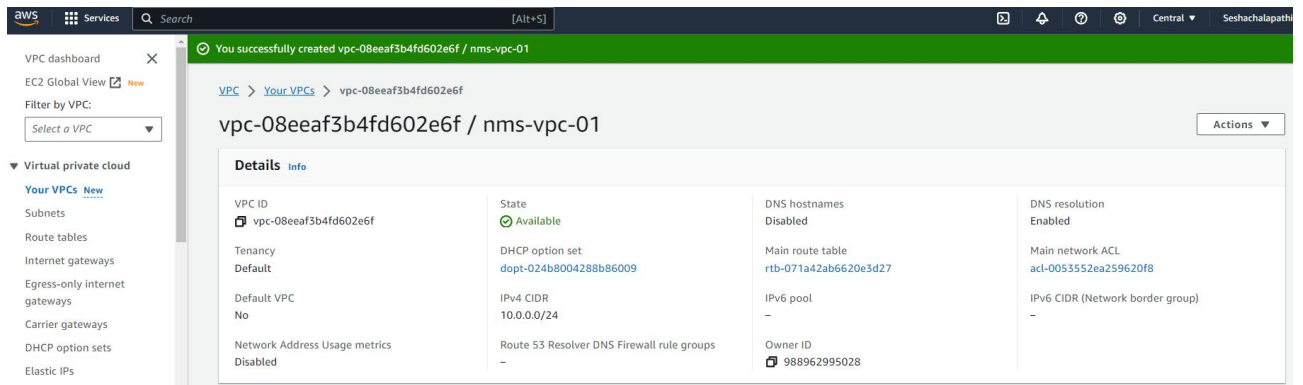
Cancel

Create VPC

you can provide a name for VPC or leave with default value.

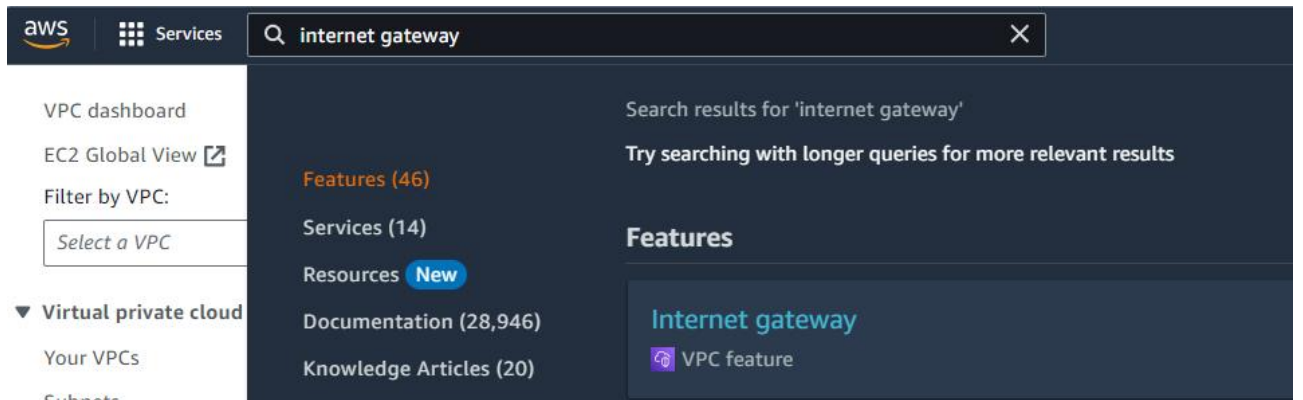
In IPv4 CIDR enter 10.0.0.0/24 or any other value which is suitable for you.

Now click on "Create VPC". VPC is now created.

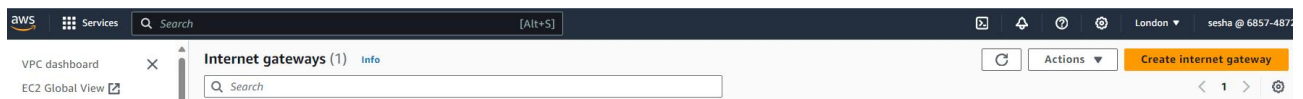


2.1.3 Create internet gateway

Now search for Internet Gateway and click on Internet Gateway



Click on Create Internet Gateway



Enter a name and click on Create internet gateway

[VPC](#) > [Internet gateways](#) > Create internet gateway

Create internet gateway [Info](#)

An internet gateway is a virtual router that connects a VPC to the internet. To create a new internet gateway specify the name for the gateway below.

Internet gateway settings

Name tag

Creates a tag with a key of 'Name' and a value that you specify.

Tags - optional

A tag is a label that you assign to an AWS resource. Each tag consists of a key and an optional value. You can use tags to search and filter your resources or track your AWS costs.

Key

Value - optional

Remove

Add new tag

You can add 49 more tags.

Cancel

Create internet gateway

Click on Attach to a VPC

🟢 The following internet gateway was created: igw-0518d5b831ca37edb - nms-internet-gateway. You can now attach to a VPC to enable the VPC to communicate with the internet.

Attach to a VPC

[VPC](#) > [Internet gateways](#) > igw-0518d5b831ca37edb

igw-0518d5b831ca37edb / nms-internet-gateway

Actions ▼

Details [Info](#)

Internet gateway ID
📄 igw-0518d5b831ca37edb

State
🔄 Detached

VPC ID
-

Owner
📄 685748726849

Select the VPC created in earlier step and click on Attach Internet gateway

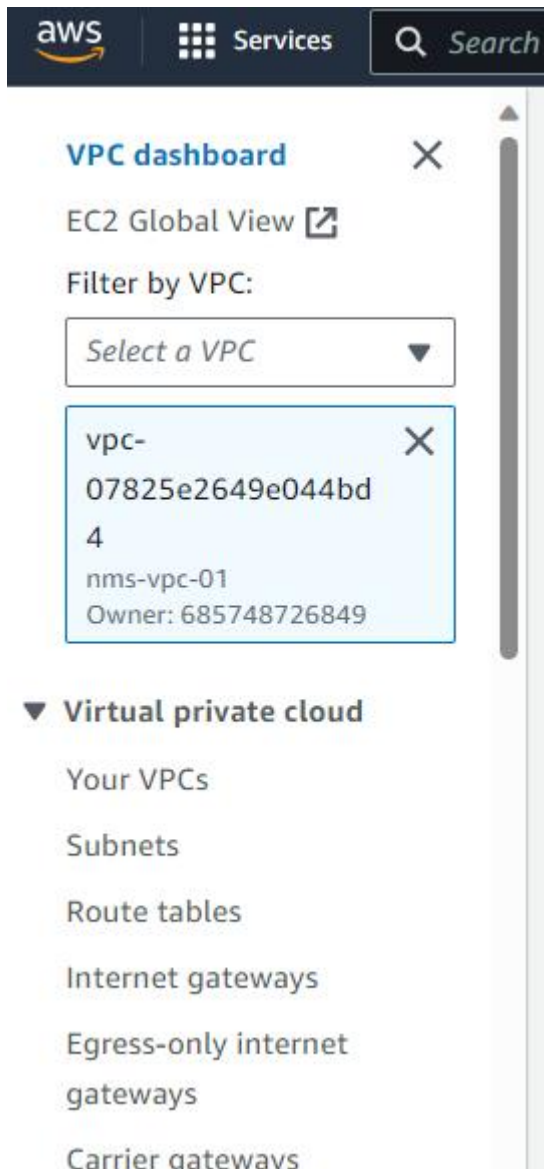
The screenshot shows the AWS Management Console interface. At the top, there's a navigation bar with the AWS logo, 'Services', a search bar, and a '[Alt+S]' button. Below the navigation bar, the breadcrumb trail reads 'VPC > Internet gateways > Attach to VPC (igw-0518d5b831ca37edb)'. The main heading is 'Attach to VPC (igw-0518d5b831ca37edb)' with an 'Info' link. A section titled 'VPC' contains the instruction: 'Attach an internet gateway to a VPC to enable the VPC to communicate with the internet. Specify the VPC to attach below.' Below this, 'Available VPCs' are listed with the instruction 'Attach the internet gateway to this VPC.' A search input field contains 'vpc-07825e2649e044bd4'. Below the search field is a link for 'AWS Command Line Interface command'. At the bottom right, there are two buttons: 'Cancel' and 'Attach internet gateway'.

The screenshot shows a green success message bar at the top: 'Internet gateway igw-0518d5b831ca37edb successfully attached to vpc-07825e2649e044bd4'. Below this, the breadcrumb trail reads 'VPC > Internet gateways > igw-0518d5b831ca37edb'. The main heading is 'igw-0518d5b831ca37edb / nms-internet-gateway'. A 'Details' section with an 'Info' link contains a table with the following information:

Internet gateway ID igw-0518d5b831ca37edb	State Attached	VPC ID vpc-07825e2649e044bd4 nms-vpc-01	Owner 685748726849
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2.1.4 Add internet gateway to Route table

Search for VPC and select the VPC created in the earlier step.



Click on Virtual private cloud->Route tables on the left navigation bar.



Click on Route table ID

VPC > Route tables > rtb-0eb0e47083a05c069

rtb-0eb0e47083a05c069

Actions ▼

Details Info

Route table ID rtb-0eb0e47083a05c069	Main Yes	Explicit subnet associations -	Edge associations -
VPC vpc-07825e2649e044bd4 nms-vpc-01	Owner ID 685748726849		

Routes Subnet associations Edge associations Route propagation Tags

Routes (1)

Filter routes

< 1 > ⚙

Destination	Target	Status	Propagated
10.0.0.0/24	local	Active	No

Click on Edit Routes

VPC > Route tables > rtb-0eb0e47083a05c069 > Edit routes

Edit routes

Destination	Target	Status	Propagated
10.0.0.0/24	local	Active	No

local

Add route

Click on Add Route

aws Services Search [Alt+S] London sesha @ 6857-4872-6845

VPC > Route tables > rtb-0eb0e47083a05c069 > Edit routes

Edit routes

Destination	Target	Status	Propagated
10.0.0.0/24	local	Active	No

local

0.0.0.0/0

Internet Gateway

igw-0518d5b831ca37edb

Remove

Add route

Cancel Preview Save changes

Enter details as shown above and select the internet gateway created earlier

Click on Save changes.

Updated routes for rtb-0eb0e47083a05c069 successfully
[Details](#)

VPC > Route tables > rtb-0eb0e47083a05c069

rtb-0eb0e47083a05c069

Actions

Details Info

Route table ID rtb-0eb0e47083a05c069	Main Yes	Explicit subnet associations -	Edge associations -
VPC vpc-07825e2649e044bd4 nms-vpc-01	Owner ID 685748726849		

Routes Subnet associations Edge associations Route propagation Tags

Routes (2) Both Edit routes

Filter routes

Destination	Target	Status	Propagated
0.0.0.0/0	igw-0518d5b831ca37edb	Active	No
10.0.0.0/24	local	Active	No

2.1.5 Create Subnet

Search for Subnet and click on Subnet - VPC feature

aws Services Q subnet X

Search results for 'subnet'

Try searching with longer queries for more relevant results

Features (11)

Services (1)

Resources **New**

Documentation (7,856)

Knowledge Articles (20)

Marketplace (106)

Blogs (220)

Events (1)

Tutorials (3)

Features

Subnet Groups
DynamoDB feature

Subnet groups
ElastiCache feature

Subnet
VPC feature

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

aws Services Q Search [Alt+S]

VPC dashboard X
EC2 Global View
Filter by VPC:
Select a VPC

Virtual private cloud

Subnets Info

Find resources by attribute or tag

Name	Subnet ID	State	VPC	IPv4 CIDR	IPv6 CIDR
No subnet found					

Actions Create subnet

Click on Create Subnet

Select the VPC created earlier

[VPC](#) > [Subnets](#) > Create subnet

Create subnet [Info](#)

VPC

VPC ID

Create subnets in this VPC.

vpc-05e50b971c9143e9f (nms-vpc-01) ▼

Associated VPC CIDRs

IPv4 CIDRs

10.0.0.0/24

Enter details as below and click on Create Subnet.

Subnet 1 of 1

Subnet name

Create a tag with a key of 'Name' and a value that you specify.

nms-subnet-01

The name can be up to 256 characters long.

Availability Zone [Info](#)

Choose the zone in which your subnet will reside, or let Amazon choose one for you.

Europe (London) / eu-west-2a ▼

IPv4 VPC CIDR block [Info](#)

Choose the IPv4 VPC CIDR block to create a subnet in.

10.0.0.0/24 ▼

IPv4 subnet CIDR block

10.0.0.0/28

16 IPs

< > ^ v

▼ Tags - optional

Key

Q Name

×

Value - optional

Q nms-subnet-01

×

Remove

Add new tag

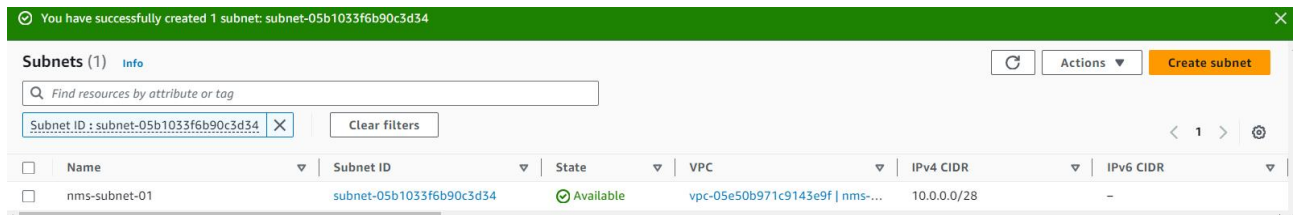
You can add 49 more tags.

Remove

Add new subnet

Cancel

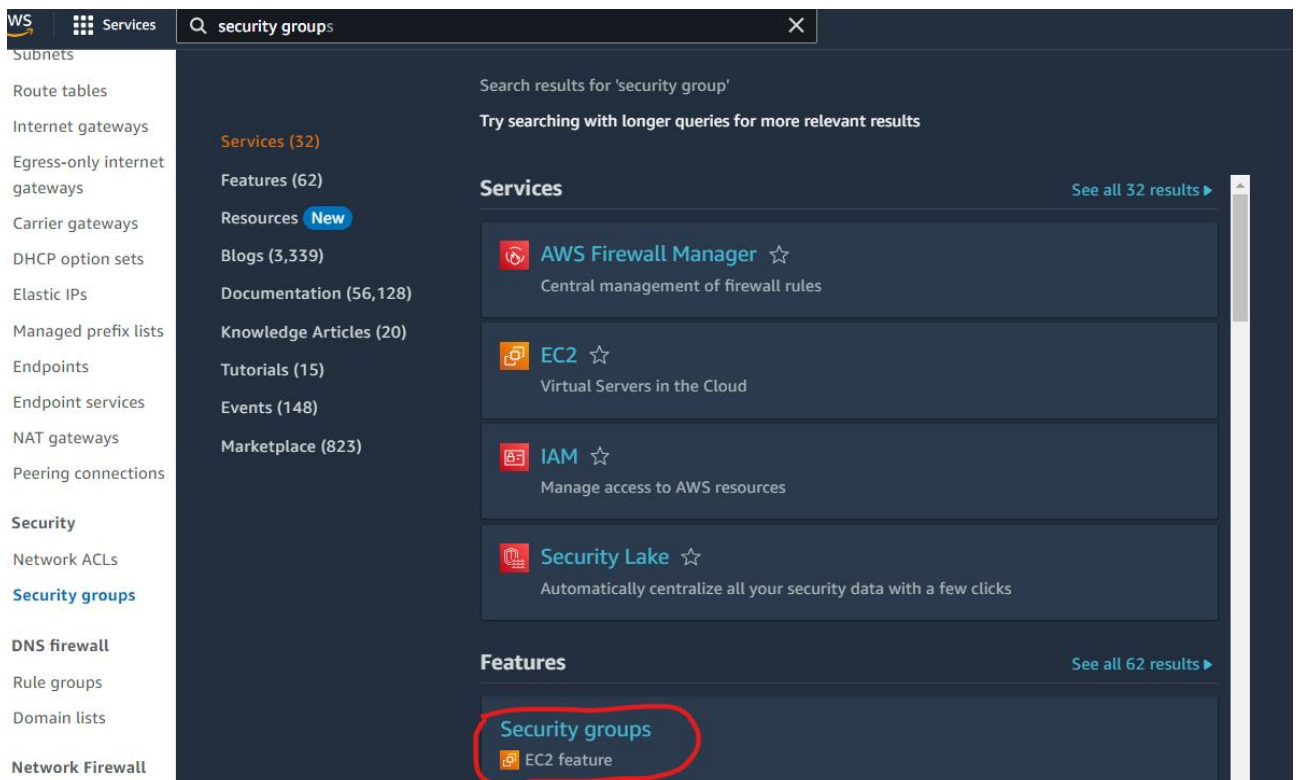
Create subnet



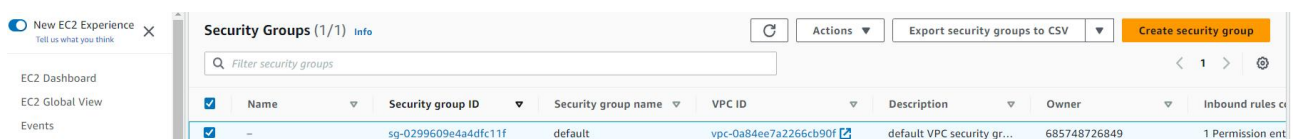
2.1.4 Create Security Group

- Create a security group with a set of rules for inbound and outbound traffic.

In service finder enter “Security Group” and click on “Security groups (EC2 feature)”



Click on “Create Security Group”



This opens up a dialog box to create a security group.

In Basic Details enter

- Security group name

- Description
- Select VPC created earlier.

[EC2](#) > [Security Groups](#) > Create security group

Create security group [Info](#)

A security group acts as a virtual firewall for your instance to control inbound and outbound traffic. To create a new security group, complete the fields below.

Basic details

Security group name [Info](#)

Name cannot be edited after creation.

Description [Info](#)

VPC [Info](#)

After entering Basic details, now add rules for inbound and outbound.

Inbound rules [Info](#)

This security group has no inbound rules.

[Add rule](#)

Outbound rules [Info](#)

This security group has no outbound rules.

[Add rule](#)

Click on Add Rule and add ports given below for a Guardian Node (For master node check next step)

Inbound rules [Info](#)

Type Info	Protocol Info	Port range Info	Source Info	Description - optional Info	
Custom TCP	TCP	8000 - 8001	Anywhere...	<input type="text" value="0.0.0.0"/>	Delete
Custom TCP	TCP	9000	Anywhere...	<input type="text" value="0.0.0.0"/>	Delete
Custom TCP	TCP	9065 - 9066	Anywhere...	<input type="text" value="0.0.0.0"/>	Delete
SSH	TCP	22	Anywhere...	<input type="text" value="0.0.0.0"/>	Delete

[Add rule](#)

Or add ports as below for a Master Node

Type	Protocol	Port range	Source	Description - optional	Action
Custom TCP	TCP	8000 - 8001	Anywhere... 0.0.0.0/0		Delete
Custom TCP	TCP	9000	Anywhere... 0.0.0.0/0		Delete
Custom TCP	TCP	19001 - 19004	Anywhere... 0.0.0.0/0		Delete
SSH	TCP	22	Anywhere... 0.0.0.0/0		Delete

[Add rule](#)

Enter value as shown above in the image.

Outbound rules tab can be left with default values as shown below

Type	Protocol	Port range	Destination	Description - optional	Action
All traffic	All	All	Custom 0.0.0.0/0		Delete

[Add rule](#)

Tags - optional
A tag is a label that you assign to an AWS resource. Each tag consists of a key and an optional value. You can use tags to search and filter your resources or track your AWS costs.

No tags associated with the resource.

[Add new tag](#)
You can add up to 50 more tags

[Cancel](#) [Create security group](#)

And click on Create Security Group to create.

Security group is now created.

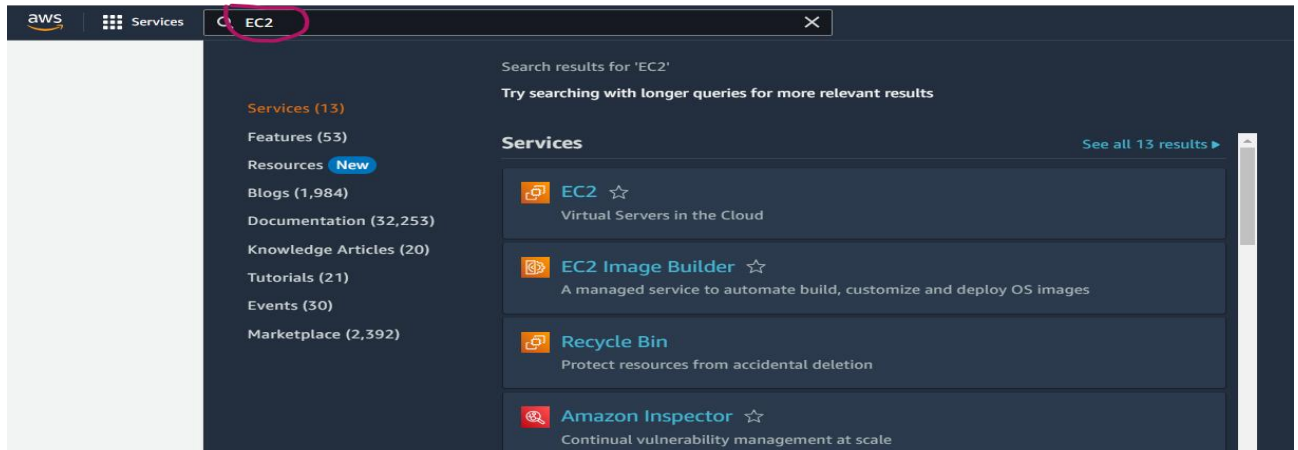
Node Setup in AWS.

3.1 Node Setup.

All resources including EC2 instances need to be created in London (eu-west-2).

Log on to the AWS console with your credentials.

In the console home and find tab type “EC2” as shown below



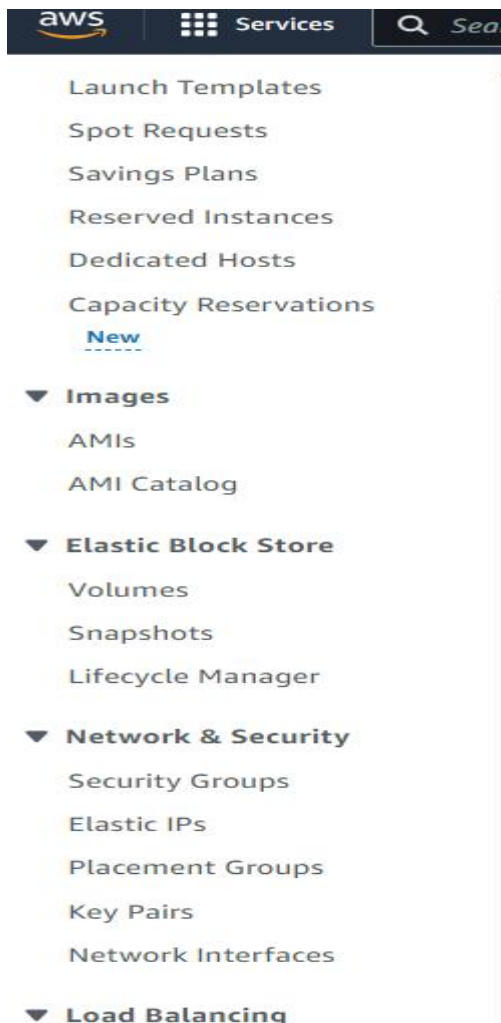
Click on “EC2” which takes you to EC2 Dashboard

3.1.1 – Creating Key Pairs

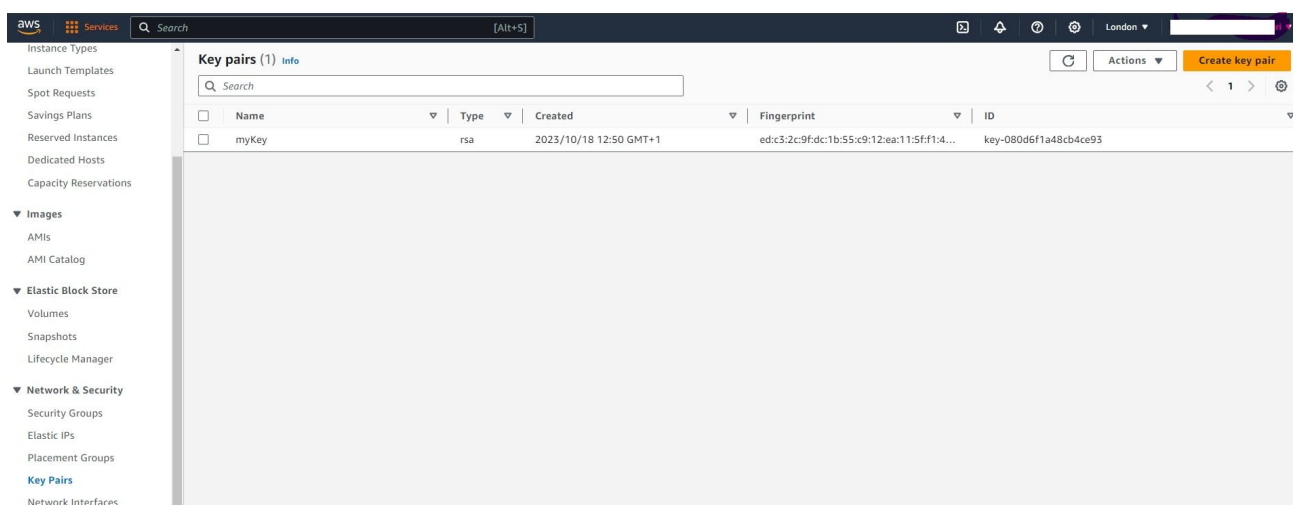
This section explains about creating a keypair which is required to access EC2 instances.

(if you already have a key pair which can be used with a new EC2 instance you can ignore this section).

In the EC2 Dashboard left panel, “Networks & Security “ section click on “Key Pairs” as shown below.



Click on “Create Key Pair” yellow button on the right hand side corner which launches a new dialog box as shown below



EC2 > Key pairs > Create key pair

Create key pair [Info](#)

Key pair
A key pair, consisting of a private key and a public key, is a set of security credentials that you use to prove your identity when connecting to an instance.

Name

The name can include up to 255 ASCII characters. It can't include leading or trailing spaces.

Key pair type [Info](#)
☒ RSA ☐ ED25519

Private key file format
☐ .pem
For use with OpenSSH
☒ .ppk
For use with PuTTY

Tags - *optional*
No tags associated with the resource.

You can add up to 50 more tags.

[Cancel](#) [Create key pair](#)

Enter a name for key pair in “Name” tab

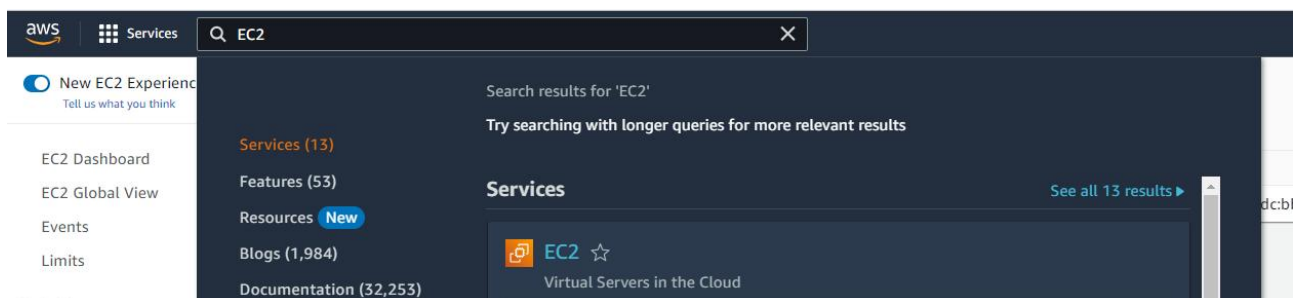
Select “RSA” and select “.pem” or “.ppk” as shown above and click on Create Key Pair.

This creates a new Key pair with the name given in the name tab.

Key pair creation is now Completed and the keypair file with name provided is downloaded automatically.

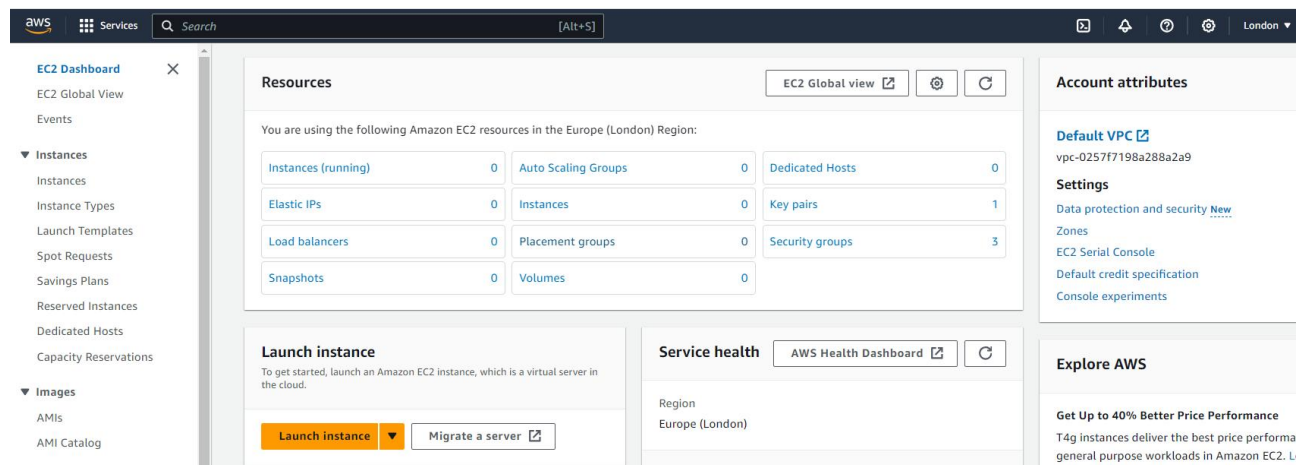
3.1.2 – Creating EC2 instance.

Continue with creating a new EC2 Instance. Type “EC2” in Services find box as below

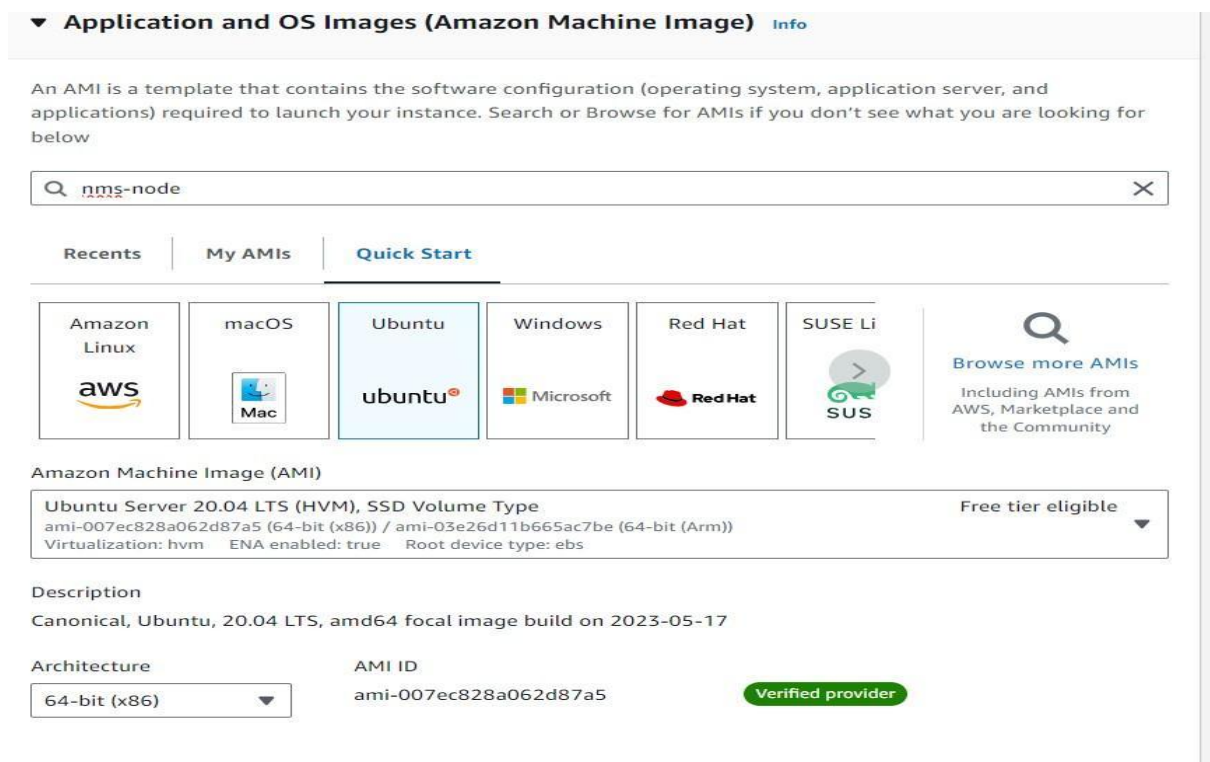


Click on EC2 to go to the EC2 Dashboard.

Now click on “Launch Instance” as shown below.



In “Name and Tags” enter a name for your node. And select Ubuntu Server 20.04 LTS(HVM) SSD Volume type Amazon Machine Image (AMI) as given below.



Select the instance type as given below (8 CPU , 16GB Ram)

▼ Instance type [Info](#)

Instance type

c5.2xlarge

Family: c5 8 vCPU 16 GiB Memory Current generation: true
On-Demand Linux base pricing: 0.404 USD per Hour
On-Demand SUSE base pricing: 0.504 USD per Hour
On-Demand RHEL base pricing: 0.534 USD per Hour
On-Demand Windows base pricing: 0.772 USD per Hour

All generations

[Compare instance types](#)

Additional costs apply for AMIs with pre-installed software

Once Instance type is selected, now select the KeyPair as shown below

▼ Key pair (login) [Info](#)

You can use a key pair to securely connect to your instance. Ensure that you have access to the selected key pair before you launch the instance.

Key pair name - *required*

myKey

▼

Create new key pair

pull down the key pair name box and select the key pair created earlier

Setup “Network Settings”

Click on Edit

▼ Network settings [Info](#)

Edit

Network [Info](#)

vpc-05e50b971c9143e9f | nms-vpc-01

Enter details as shown below

▼ Network settings Info

VPC - required Info

vpc-05e50b971c9143e9f (nms-vpc-01)
10.0.0.0/24

↻

Subnet Info

subnet-05b1033f6b90c3d34
VPC: vpc-05e50b971c9143e9f Owner: 988962995028
Availability Zone: eu-west-2a IP addresses available: 11 CIDR: 10.0.0.0/28

nms-subnet-01
↻ Create new subnet ↗

Auto-assign public IP Info

Enable

Firewall (security groups) Info

A security group is a set of firewall rules that control the traffic for your instance. Add rules to allow specific traffic to reach your instance.

☐ Create security group

☒ Select existing security group

Common security groups Info

Select security groups

nms-security-group sg-076dd97272f52c661 ✕
VPC: vpc-05e50b971c9143e9f

↻ Compare security group rules

Security groups that you add or remove here will be added to or removed from all your network interfaces.

▶ Advanced network configuration

Now go to “Set the Storage Size” task

Set the Storage size (320Gb) as given below

▼ Storage (volumes) Info Simple

EBS Volumes Hide details

▼ Volume 1 (AMI Root) (Custom)

Storage type Info

EBS

Device name - required Info

/dev/sda1

Snapshot Info

snap-0d487d397a4374e2a

Size (GiB) Info

320

Volume type Info

gp2 ▼

IOPS Info

960 / 3000

Delete on termination Info

Yes ▼

Encrypted Info

Not encrypted ▼

KMS key Info

Select ▼

KMS keys are only applicable when encryption is set on this volume.

Free tier eligible customers can get up to 30 GB of EBS General Purpose (SSD) or Magnetic storage X

Add new volume

The selected AMI contains more instance store volumes than the instance allows. Only the first 0 instance store volumes from the AMI will be accessible from the instance

File systems Show details

Now we are all ready to launch the instance.

▼ Summary

Number of instances [Info](#)

Software Image (AMI)

Canonical, Ubuntu, 20.04 LTS, ...[read more](#)

ami-007ec828a062d87a5

Virtual server type (instance type)



c5.2xlarge

Firewall (security group)

New security group

Storage (volumes)

1 volume(s) - 320 GiB

 **Free tier:** In your first year includes 750 hours of t2.micro (or t3.micro in the Regions in which t2.micro is unavailable) instance usage on free tier AMIs per month, 30 GiB of EBS storage, 2 million IOs, 1 GB of snapshots, and 100 GB of bandwidth to the internet. 

Cancel

Launch instance

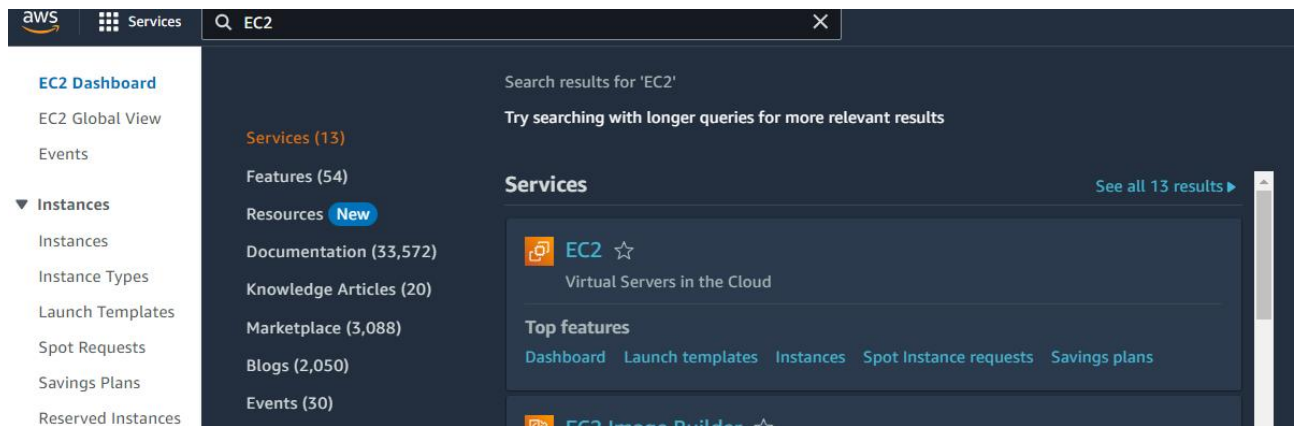
[Review commands](#)

Click on the Launch Instance and wait until the instance is created.

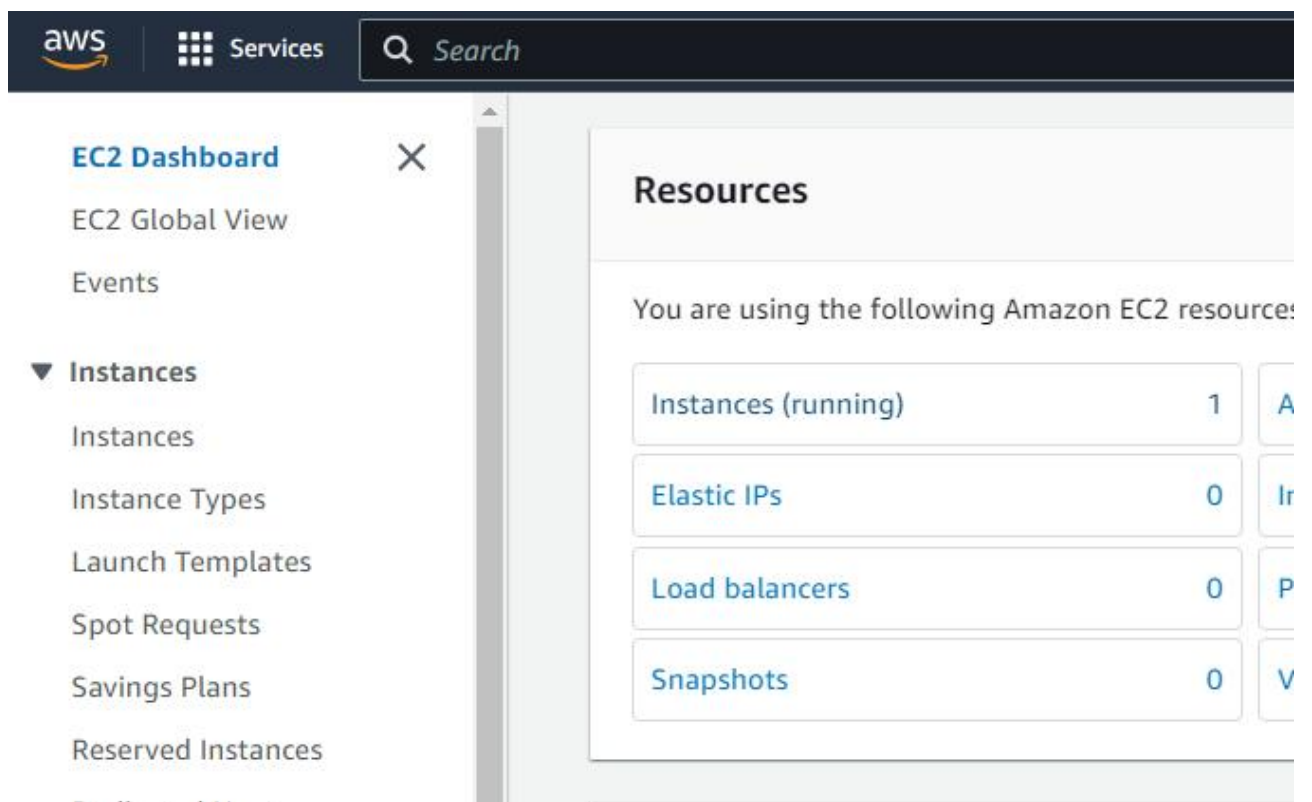
Node Registration Procedure (AWS).

Now the EC2 instance is created, it is time to connect and install NMS software.

To connect the EC2 instance search for EC2 dashboard and click on EC2 dashboard



Click on Instances (running)



Click on instance ID

aws

Services

Search

[Alt+S]

EC2 Dashboard

EC2 Global View

Events

Instances

Instances

Instance Types

Instances (1) Info

Find instance by attribute or tag (case-sensitive)

Instance state = running

Clear filters

	Name	Instance ID	Instance state	Instance type	Status
	nms-node	i-04c34859e2958d360	Running	c5.2xlarge	2/2

Click on Connect

aws

Services

Search

[Alt+S]

London

EC2 Dashboard

EC2 Global View

Events

Instances

Instances

Instance Types

Launch Templates

Spot Requests

Savings Plans

Reserved Instances

Dedicated Hosts

EC2 > Instances > i-04c34859e2958d360

Instance summary for i-04c34859e2958d360 (nms-node) Info

Updated less than a minute ago

Connect

Instance state

Instance ID	Public IPv4 address	Private IPv4 addresses
i-04c34859e2958d360 (nms-node)	3.10.211.139 open address	172.31.38.249
IPv6 address	Instance state	Public IPv4 DNS
-	Running	ec2-3-10-211-139.eu-west-2.compute.amazonaws.com address
Hostname type	Private IP DNS name (IPv4 only)	Elastic IP addresses
IP name: ip-172-31-38-249.eu-west-2.compute.internal	ip-172-31-38-249.eu-west-2.compute.internal	
Answer private resource DNS name	Instance type	

Click on Connect

aws

Services

Search

[Alt+S]

EC2 > Instances > i-04c34859e2958d360 > Connect to instance

Connect to instance [Info](#)

Connect to your instance i-04c34859e2958d360 (nms-node) using any of these options

EC2 Instance Connect

Session Manager

SSH client

EC2 serial console

Instance ID

i-04c34859e2958d360 (nms-node)

Connection Type

☒ Connect using EC2 Instance Connect
Connect using the EC2 Instance Connect browser-based client, with a public IPv4 address.

☐ Connect using EC2 Instance Connect Endpoint
Connect using the EC2 Instance Connect browser-based client, with a private IPv4 address and a VPC endpoint.

Public IP address

3.10.211.139

User name

Enter the user name defined in the AMI used to launch the instance. If you didn't define a custom user name, use the default user name, ubuntu.

ubuntu

Note: In most cases, the default user name, ubuntu, is correct. However, read your AMI usage instructions to check if the AMI owner has changed the default AMI user name.

Cancel

Connect

Now EC2 instance command line is accessible.