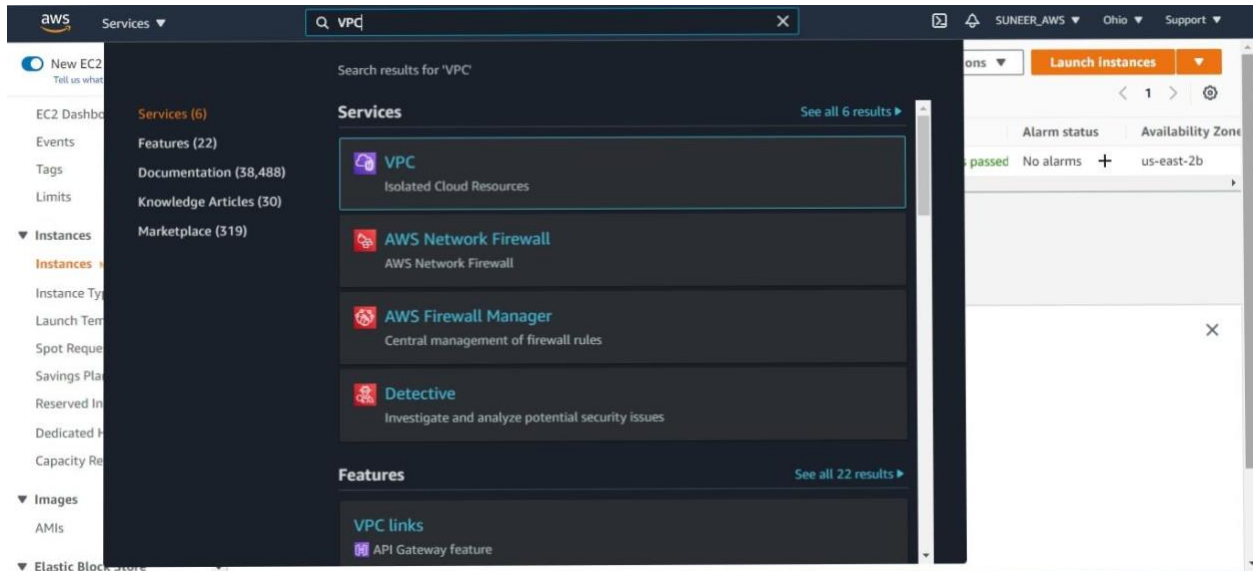


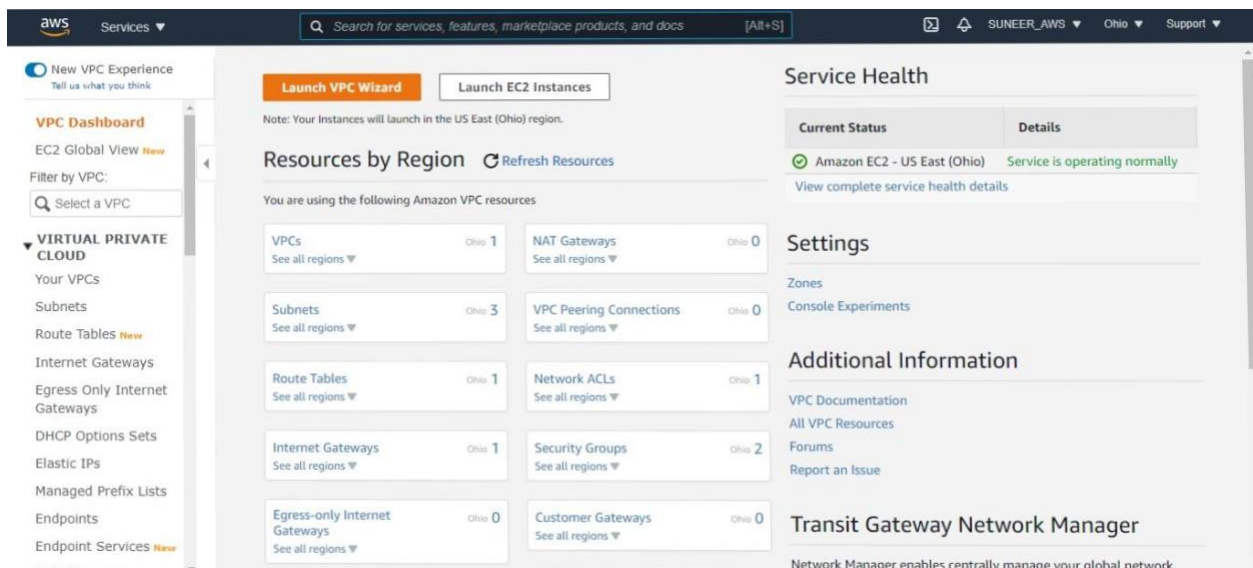
AWS Essentials Assignment - 4

Working with custom VPC by creating new Internet gateway, Subnet and Route table . Then attach these to the VPC and create a new instance with the custom VPC.

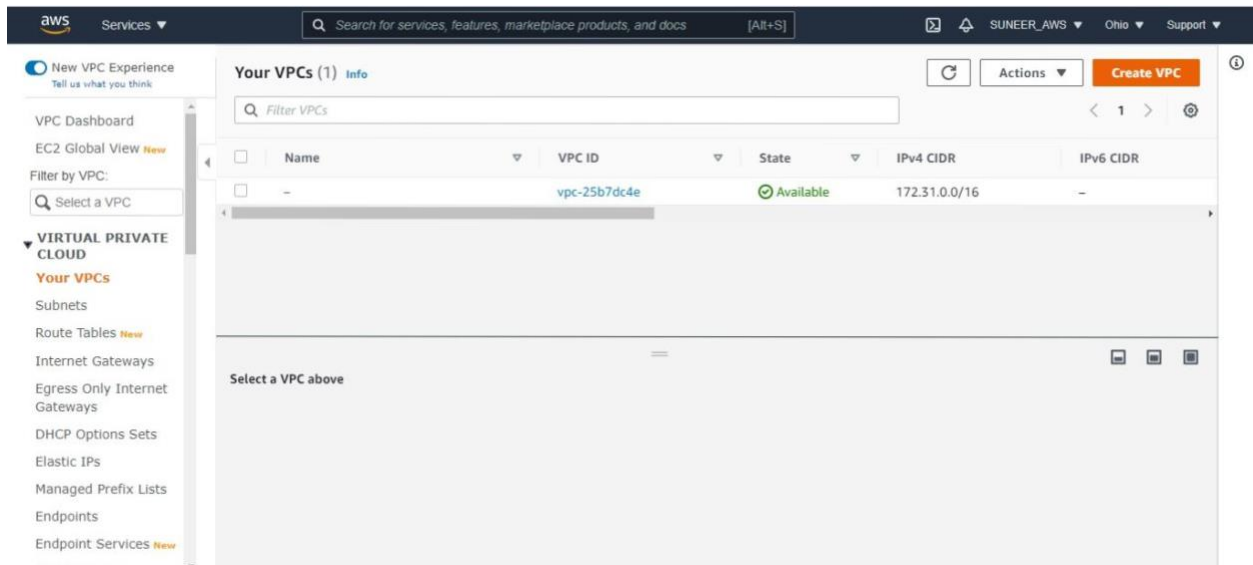
- Search open the VPC console from the AWS dashboard



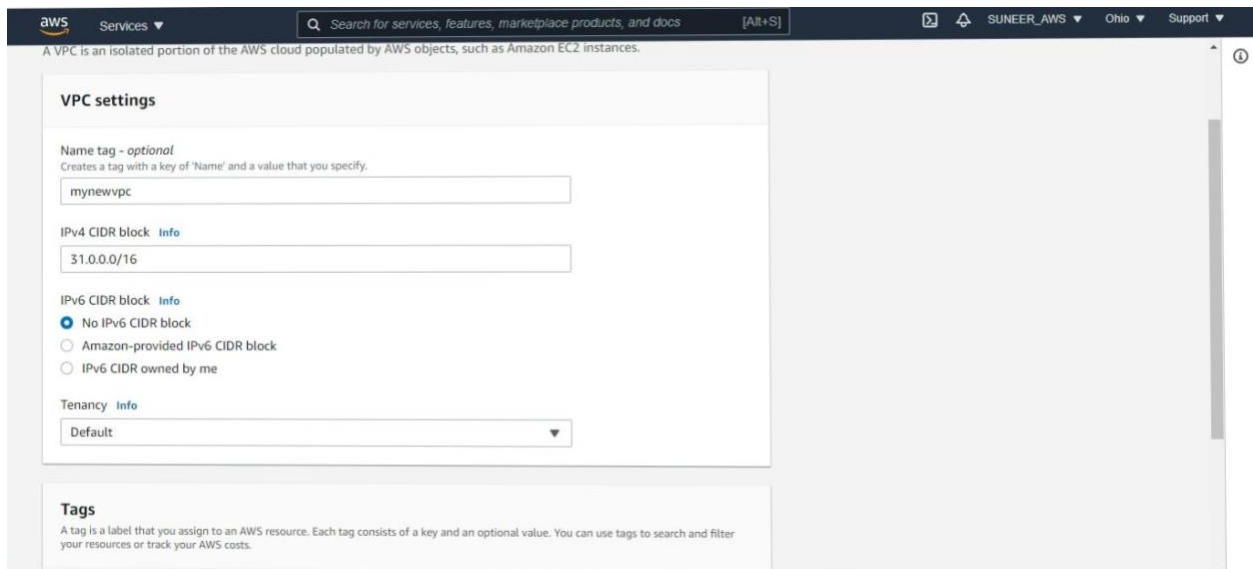
- Now select Your VPCs



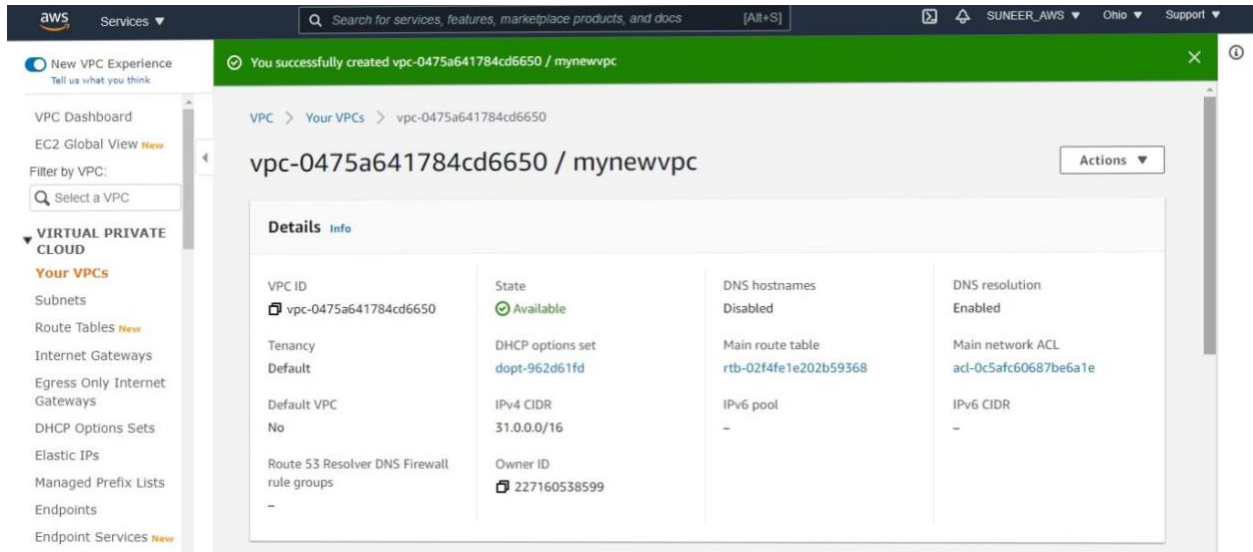
- Now click on the “Create VPC” from the top right corner to create the VPC.



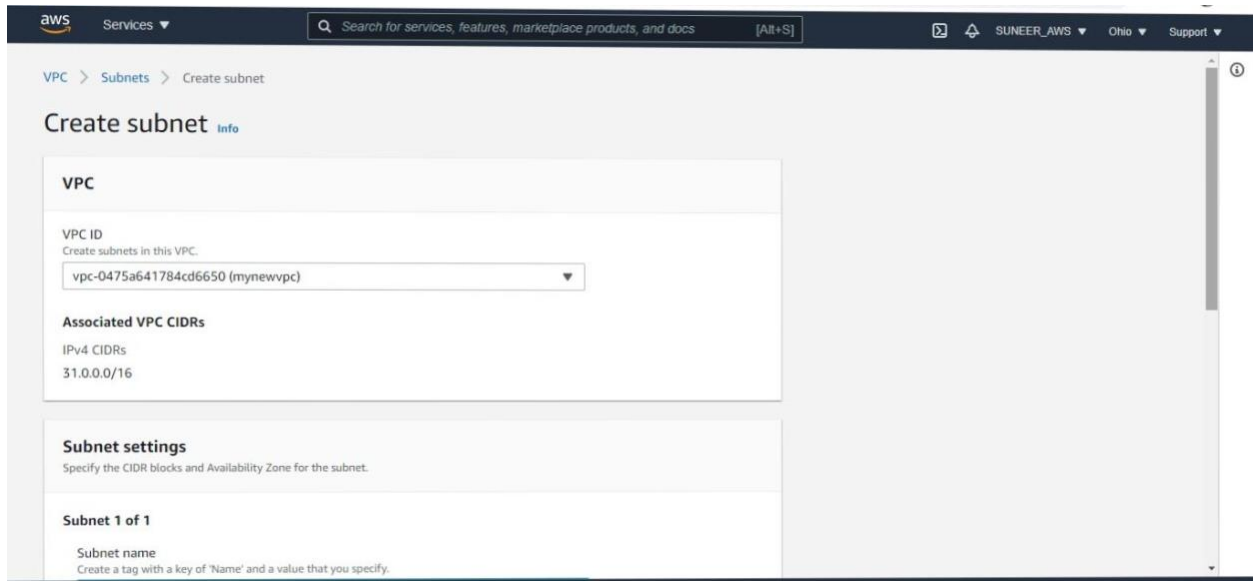
- Enter the name for VPC (mynewvpc) and IPv4 CIDR as 31.0.0.0/16



- We have created the VPC successfully



- Now create new subnet . Select the vpc and enter name for the subnet.



- Created subnet with name mynewsubnet1 and IPv4 CIDR block as 31.0.0.0/24

The screenshot shows the 'Create subnet' form in the AWS Management Console. The 'Subnet name' field is filled with 'mynewsubnet1'. The 'Availability Zone' is set to 'No preference'. The 'IPv4 CIDR block' is set to '31.0.0.0/24'. There is a tag with the key 'Name' and value 'mynewsubnet1'. The 'Add new subnet' button is at the bottom. On the right, there is a help panel with instructions on how to add a new subnet to a VPC.

Subnet name
Create a tag with a key of 'Name' and a value that you specify.
mynewsubnet1
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.
No preference

IPv4 CIDR block [Info](#)
31.0.0.0/24

Tags - optional

Key Value - optional
Name mynewsubnet1 Remove

Add new tag
You can add 49 more tags.

Remove

Add new subnet

To add a new subnet to your VPC, you must specify an IPv4 CIDR block for the subnet from the range of your VPC. You can specify the Availability Zone in which you want the subnet to reside. You can have multiple subnets in the same Availability Zone.

You can optionally specify an IPv6 CIDR block for your subnet if an IPv6 CIDR block is associated with your VPC.

To create the subnet in a Local Zone, or a Wavelength Zone, you must enable the Zone.

[Learn more](#)

[Working with VPCs and subnets](#)

[Regions and zones](#)

- We need to enable auto assign public IP . Select the subnet and click on Actions-> Modify auto-assign IP settings.

The screenshot shows the 'Subnets' page in the AWS Management Console. A green banner at the top indicates 'You have successfully created 1 subnet: subnet-0c609bafacc425ecb'. The 'Subnets (1/1)' table shows one subnet named 'mynewsubnet1' with ID 'subnet-0c609bafacc425ecb', state 'Available', and VPC 'vpc-04...'. The 'Actions' menu is open, showing options like 'View details', 'Create flow log', 'Modify auto-assign IP settings', 'Edit IPv6 CIDRs', 'Edit network ACL association', 'Edit route table association', 'Edit CIDR reservations', 'Share subnet', 'Manage tags', and 'Delete subnet'. The 'Modify auto-assign IP settings' option is highlighted.

New VPC Experience
Tell us what you think

VPC Dashboard
EC2 Global View [New](#)

Filter by VPC:
Select a VPC

VIRTUAL PRIVATE CLOUD

- Your VPCs
- Subnets**
- Route Tables [New](#)
- Internet Gateways
- Egress Only Internet Gateways
- DHCP Options Sets
- Elastic IPs
- Managed Prefix Lists
- Endpoints
- Endpoint Services [New](#)

You have successfully created 1 subnet: subnet-0c609bafacc425ecb

Subnets (1/1) [Info](#)

Filter subnets
Subnet ID: subnet-0c609bafacc425ecb Clear filters

	Name	Subnet ID	State	VPC
<input checked="" type="checkbox"/>	mynewsubnet1	subnet-0c609bafacc425ecb	Available	vpc-04...

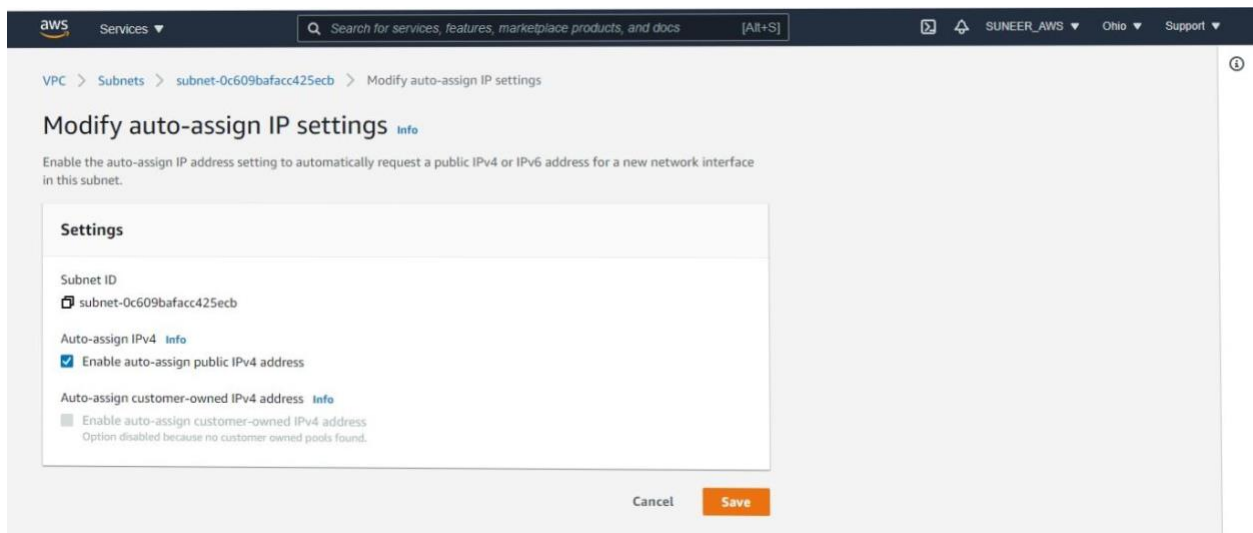
Actions

- View details
- Create flow log
- Modify auto-assign IP settings
- Edit IPv6 CIDRs
- Edit network ACL association
- Edit route table association
- Edit CIDR reservations
- Share subnet
- Manage tags
- Delete subnet

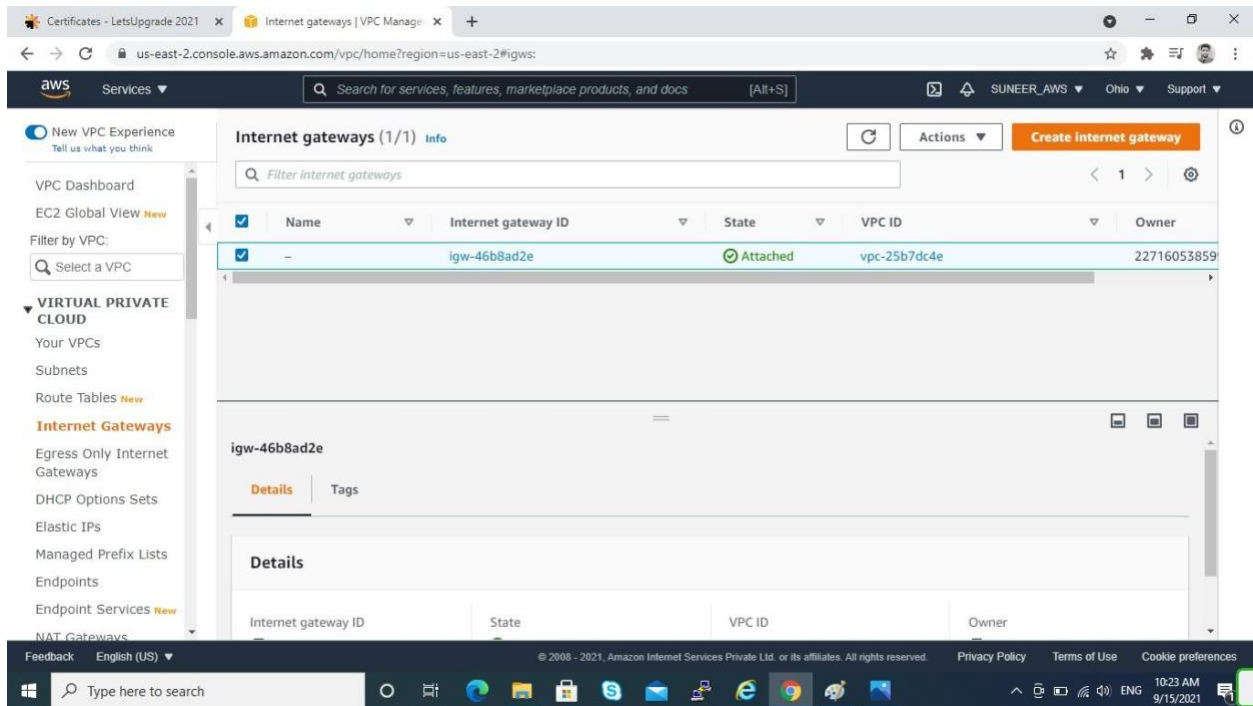
Create subnet

1

➤ Enable auto-assign public IPv4 address and save the settings



➤ Take internet gateway option and click on create internet gateway



➤ Now enter the name for the gateway and create

Certificates - LetsUpgrade 2021 x Create internet gateway | VPC M x +

us-east-2.console.aws.amazon.com/vpc/home?region=us-east-2#CreateInternetGateway:

Services Search for services, features, marketplace products, and docs [Alt+S] SUNEER_AWS Ohio Support

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.
myinternetgateway

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
Name myinternetgateway Remove
Add new tag
You can add 49 more tags.

Cancel Create internet gateway

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Type here to search

➤ Attach the gateway to the vpc by click and select Actions-> Attach to vpc

Certificates - LetsUpgrade 2021 x VPC Management Console x +

us-east-2.console.aws.amazon.com/vpc/home?region=us-east-2#InternetGatewayinternetGatewayId=igw-013b863b48e392035

Services Search for services, features, marketplace products, and docs [Alt+S] SUNEER_AWS Ohio Support

New VPC Experience Tell us what you think

VPC Dashboard
EC2 Global View New
Filter by VPC:
Select a VPC

VIRTUAL PRIVATE CLOUD

Your VPCs
Subnets
Route Tables New
Internet Gateways
Egress Only Internet Gateways
DHCP Options Sets
Elastic IPs
Managed Prefix Lists
Endpoints
Endpoint Services New
NAT Gateways

The following internet gateway was created: igw-013b863b48e392035. You can now attach to a VPC to enable the VPC to communicate with the internet. Attach to a VPC

VPC > Internet gateways > igw-013b863b48e392035

igw-013b863b48e392035 / myinternetgateway

Details Info

Internet gateway ID	State	VPC ID	Owner
igw-013b863b48e392035	Detached	-	227160538599

Tags

Search tags

1

Key Value
Name myinternetgateway

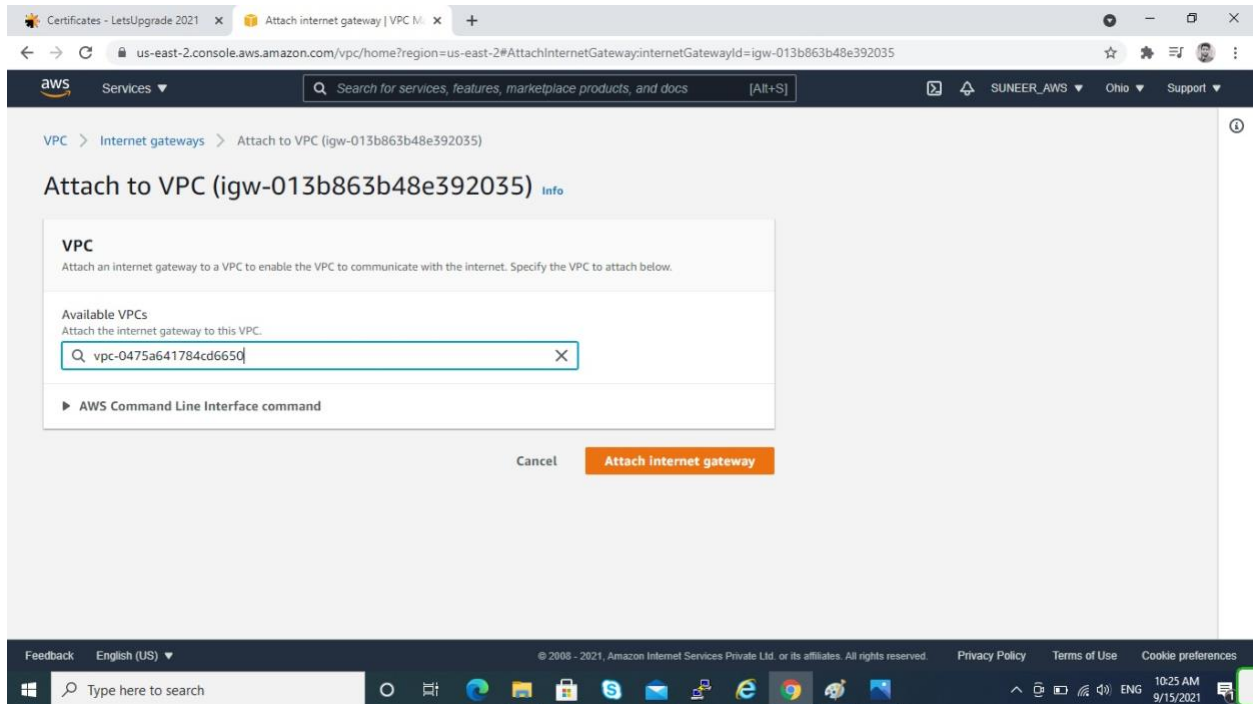
Manage tags

Actions
Attach to VPC
Detach from VPC
Manage tags
Delete

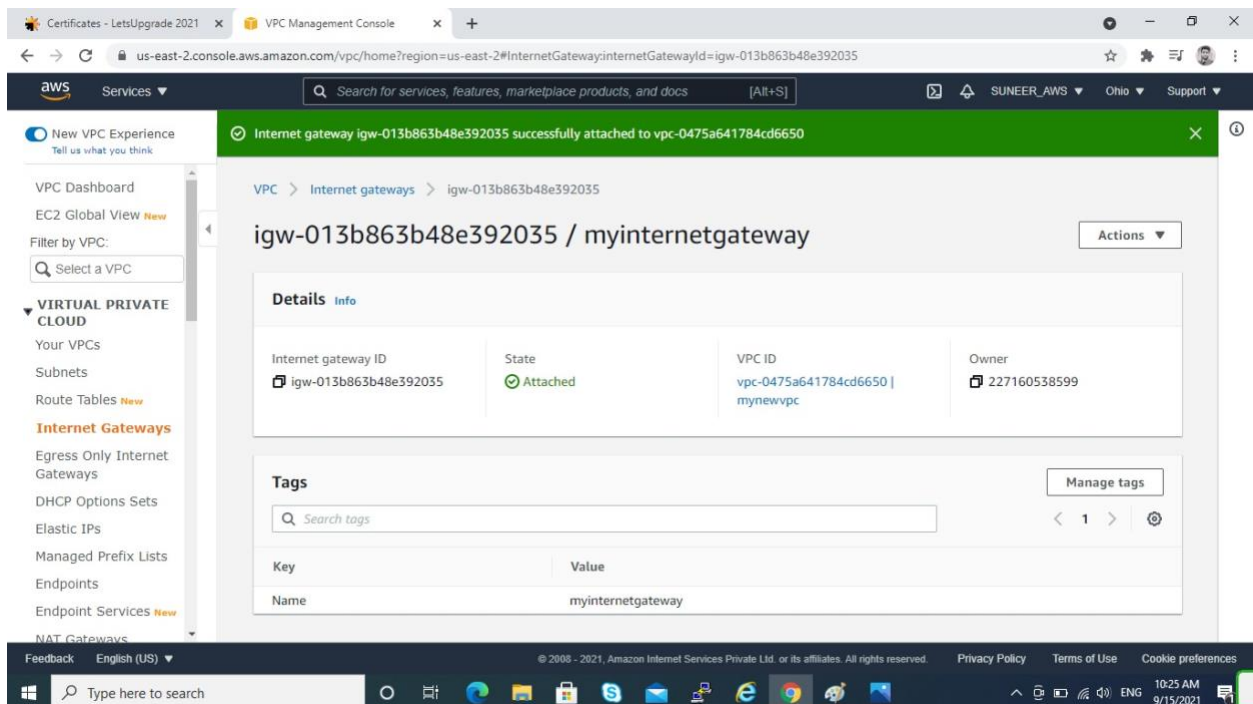
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Type here to search

➤ Now select the vpc that we need to attach and continue.



➤ Vpc attached successfully. Now we can see the vpc id that is attached to the gateway.



- Now create route table. Mentioned the name as “mynewroute” and selected the VPC and create the route table.

The screenshot shows the AWS console's 'Route table settings' page. The 'Name - optional' field contains 'mynewroute'. The 'VPC' dropdown menu is set to 'vpc-0475a641784cd6650 (mynewvpc)'. Under the 'Tags' section, a tag with key 'Name' and value 'mynewroute' is added. At the bottom, there are 'Cancel' and 'Create route table' buttons.

Route table settings

Name - optional
Create a tag with a key of 'Name' and a value that you specify:
mynewroute

VPC
The VPC to use for this route table.
vpc-0475a641784cd6650 (mynewvpc)

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: Name Value - optional: mynewroute Remove

Add new tag
You can add 49 more tags.

Cancel Create route table

- New route table is created successfully.

The screenshot shows the AWS VPC console with a green success banner at the top: 'Route table rtb-032407813c1f0cce7 | mynewroute was created successfully.' The main content area shows the details for 'rtb-032407813c1f0cce7 / mynewroute'. A 'Run Reachability Analyzer' button is visible. The 'Details' section shows the Route table ID, VPC, Main status, and Owner ID. The bottom navigation bar includes links for Routes, Subnet associations, Edge associations, Route propagation, and Tags.

us-east-2.console.aws.amazon.com/vpc/home?region=us-east-2#RouteTableDetails:RouteTableId=rtb-032407813c1f0cce7

Route table rtb-032407813c1f0cce7 | mynewroute was created successfully.

VPC > Route tables > rtb-032407813c1f0cce7

rtb-032407813c1f0cce7 / mynewroute

You can now check network connectivity with Reachability Analyzer Run Reachability Analyzer

Details Info

Route table ID rtb-032407813c1f0cce7	Main No	Explicit subnet associations -	Edge associations -
VPC vpc-0475a641784cd6650 mynewvpc	Owner ID 227160538599		

Routes Subnet associations Edge associations Route propagation Tags

- Set the route table as main. Click on Actions -> set main route table.

The screenshot shows the AWS Management Console interface. A green notification bar at the top states: "Route table rtb-032407813c1f0cce7 | mynewroute was created successfully." The main content area displays the details for the route table "rtb-032407813c1f0cce7 / mynewroute". The details table shows:

Route table ID	Main	Explicit subnet associations	Edge
rtb-032407813c1f0cce7	No	-	-

Below the details table, there are tabs for "Routes", "Subnet associations", "Edge associations", "Route propagation", and "Tags". The "Routes" tab is selected. On the right side, the "Actions" menu is open, showing options: "Set main route table", "Edit subnet associations", "Edit edge associations", "Edit route propagation", "Edit routes", "Manage tags", and "Delete". The "Set main route table" option is highlighted.

- Changed the route table to main

The screenshot shows the AWS Management Console interface after the route table has been set as the main route table. A green notification bar at the top states: "You successfully set the route table rtb-032407813c1f0cce7 / mynewroute as main." The main content area displays the details for the route table "rtb-032407813c1f0cce7 / mynewroute". The details table shows:

Route table ID	Main	Explicit subnet associations	Edge associations
rtb-032407813c1f0cce7	Yes	-	-

Below the details table, there are tabs for "Routes", "Subnet associations", "Edge associations", "Route propagation", and "Tags". The "Routes" tab is selected. The "Routes (1)" section shows a table with one route:

Destination	Target	Status	Propagated
31.0.0.0/16	local	Active	No

- Now edit the route table and Add a new route. Provide 0.0.0.0/0 in the Destination and select the internet gateway from the target field and save changes

us-east-2.console.aws.amazon.com/vpc/home?region=us-east-2#EditRoutes:RouteTableId=rtb-032407813c1f0cce7

VPC > Route tables > rtb-032407813c1f0cce7 > Edit routes

Edit routes

Destination	Target	Status	Propagated
31.0.0.0/16	local	Active	No
0.0.0.0/0	igw-013b863b48e392035	-	No

- Route table is successfully updated.

Updated routes for rtb-032407813c1f0cce7 / mynewroute successfully

Details

Route table ID	Main	Explicit subnet associations	Edge associations
rtb-032407813c1f0cce7	Yes	-	-

VPC: vpc-0475a641784cd6650 | mynewvpc
Owner ID: 227160538599

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

Routes (2)

Destination	Target	Status	Propagated
31.0.0.0/16	local	Active	No
0.0.0.0/0	igw-013b863b48e392035	Active	No

➤ Let create a new instance with Amazon Linux 2 AMI .

Certificates - LetsUpgrade 2021 x Launch instance wizard | EC2 M... x +

us-east-2.console.aws.amazon.com/ec2/v2/home?region=us-east-2#LaunchInstanceWizard:

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

1. Choose AMI 2. Choose Instance Type 3. Configure Instance 4. Add Storage 5. Add Tags 6. Configure Security Group 7. Review

Step 1: Choose an Amazon Machine Image (AMI)

Cancel and Exit

An AMI is a template that contains the software configuration (operating system, application server, and applications) required to launch your instance. You can select an AMI provided by AWS, our user community, or the AWS Marketplace; or you can select one of your own AMIs.

Search for an AMI by entering a search term e.g. "Windows"

Search by Systems Manager parameter

Quick Start

My AMIs

AWS Marketplace

Community AMIs

☐ Free tier only ⓘ

Amazon Linux

Free tier eligible

Amazon Linux 2 AMI (HVM, SSD Volume Type) - ami-00dfe2c7ce89a450b (64-bit x86) / ami-031dea1a744251b51 (64-bit Arm)

Amazon Linux 2 comes with five years support. It provides Linux kernel 4.14 tuned for optimal performance on Amazon EC2, systemd 219, GCC 7.3, Glibc 2.26, Binutils 2.29.1, and the latest software packages through extras. This AMI is the successor of the Amazon Linux AMI that is approaching end of life on December 31, 2020 and has been removed from this wizard.

Root device type: ebs Virtualization type: hvm ENA Enabled: Yes

macOS Big Sur 11.5.2 - ami-0b1674fbc9847f6d

The macOS Big Sur AMI is an EBS-backed, AWS-supported image. This AMI includes the AWS Command Line Interface, Command Line Tools for Xcode, Amazon SSM Agent, and Homebrew. The AWS Homebrew Tap includes the latest versions of multiple AWS packages included in the AMI.

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Type here to search

➤ In the configuration details , select the network and subnet from the options , select the vpc that we have created. And the remaining settings are by default. Continue the remaining steps and finish.

Certificates - LetsUpgrade 2021 x Launch instance wizard | EC2 M... x +

us-east-2.console.aws.amazon.com/ec2/v2/home?region=us-east-2#LaunchInstanceWizard:

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

1. Choose AMI 2. Choose Instance Type 3. Configure Instance 4. Add Storage 5. Add Tags 6. Configure Security Group 7. Review

Step 3: Configure Instance Details

Configure the instance to suit your requirements. You can launch multiple instances from the same AMI, request Spot instances to take advantage of the lower pricing, assign an access management role to the instance, and more.

Number of instances ⓘ 1 Launch into Auto Scaling Group ⓘ

Purchasing option ⓘ ☐ Request Spot instances

Network ⓘ vpc-0475a641784cd6650 | mynewvpc Create new VPC

Subnet ⓘ subnet-0c609bafacc425ecb | mynewsubnet1 | us-east-2 Create new subnet
251 IP Addresses available

Auto-assign Public IP ⓘ Use subnet setting (Enable)

Placement group ⓘ ☐ Add instance to placement group

Capacity Reservation ⓘ Open

Domain join directory ⓘ No directory Create new directory

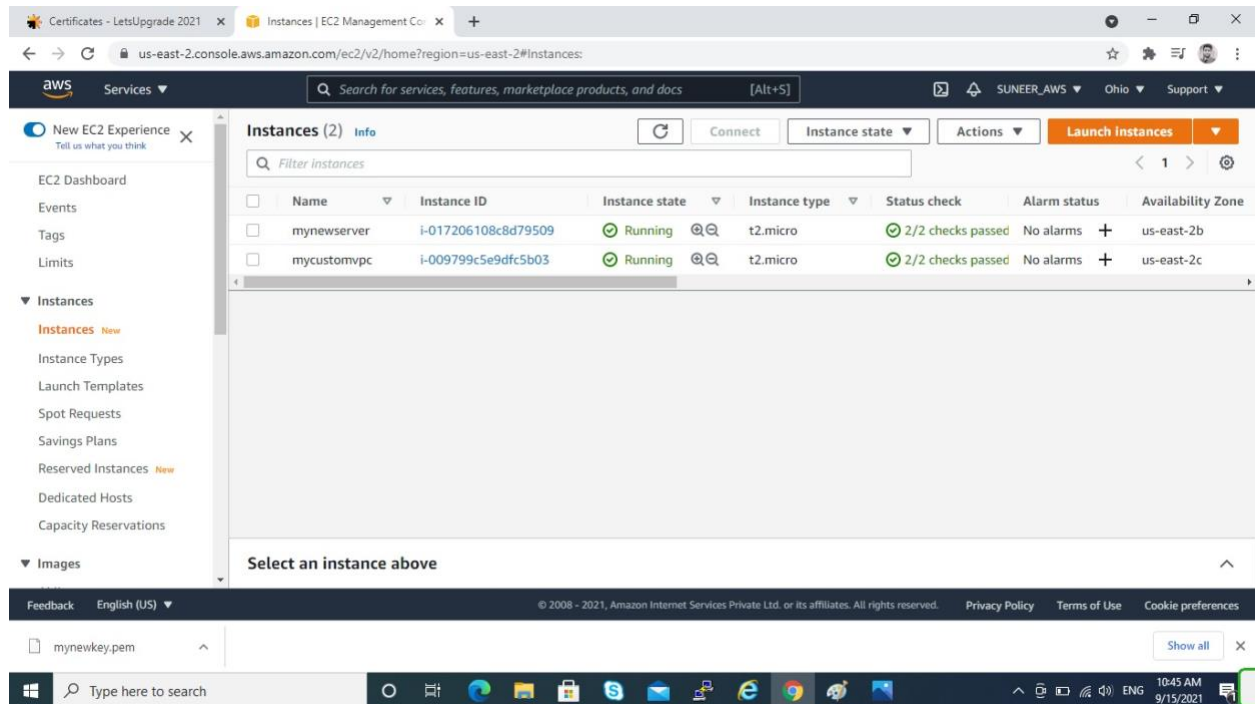
IAM role ⓘ None Create new IAM role

Cancel Previous Review and Launch Next: Add Storage

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Type here to search

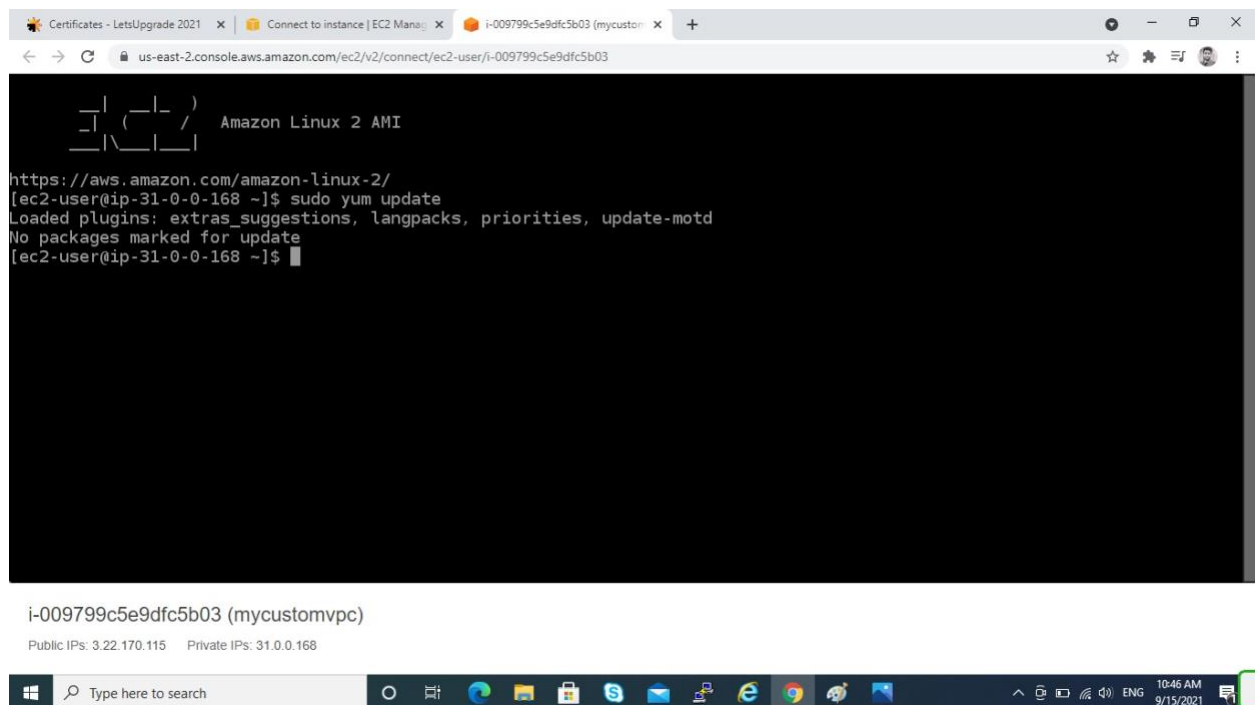
➤ Now we have created an instance with custom vpc. Now connect the instance.



The screenshot shows the AWS Management Console for the us-east-2 region. The 'Instances (2)' page is active, displaying a table of EC2 instances. The table has columns for Name, Instance ID, Instance state, Instance type, Status check, Alarm status, and Availability Zone. Two instances are listed: 'mynewserver' (Instance ID: i-017206108c8d79509) and 'mycustomvpc' (Instance ID: i-009799c5e9dfc5b03). Both instances are in a 'Running' state. The 'mycustomvpc' instance is selected, and the 'Connect' button is visible. The console also shows a sidebar with navigation options like EC2 Dashboard, Events, Tags, Limits, and a bottom status bar with system information.

Name	Instance ID	Instance state	Instance type	Status check	Alarm status	Availability Zone
mynewserver	i-017206108c8d79509	Running	t2.micro	2/2 checks passed	No alarms	us-east-2b
mycustomvpc	i-009799c5e9dfc5b03	Running	t2.micro	2/2 checks passed	No alarms	us-east-2c

➤ Connected successfully.



The screenshot shows the AWS Management Console for the us-east-2 region, specifically the 'Connect to instance' page for the 'mycustomvpc' instance. The terminal window displays the Amazon Linux 2 AMI logo and the command 'sudo yum update' being executed successfully. The output shows 'Loaded plugins: extras_suggestions, langpacks, priorities, update-motd' and 'No packages marked for update'. Below the terminal output, the instance ID 'i-009799c5e9dfc5b03 (mycustomvpc)' is displayed, along with its Public IP (3.22.170.115) and Private IP (31.0.0.168). The console also shows a sidebar with navigation options like EC2 Dashboard, Events, Tags, Limits, and a bottom status bar with system information.

```
Amazon Linux 2 AMI
https://aws.amazon.com/amazon-linux-2/
[ec2-user@ip-31-0-0-168 ~]$ sudo yum update
Loaded plugins: extras_suggestions, langpacks, priorities, update-motd
No packages marked for update
[ec2-user@ip-31-0-0-168 ~]$
```

i-009799c5e9dfc5b03 (mycustomvpc)
Public IPs: 3.22.170.115 Private IPs: 31.0.0.168