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**2KE20CS032**

### **Assignment 32**

*Understood. To follow the provided instructions and create the files/directory using the same name and case as provided in the task steps, please provide me with the specific names and case instructions for the files/directory you want to create.*

### **AWS-1**

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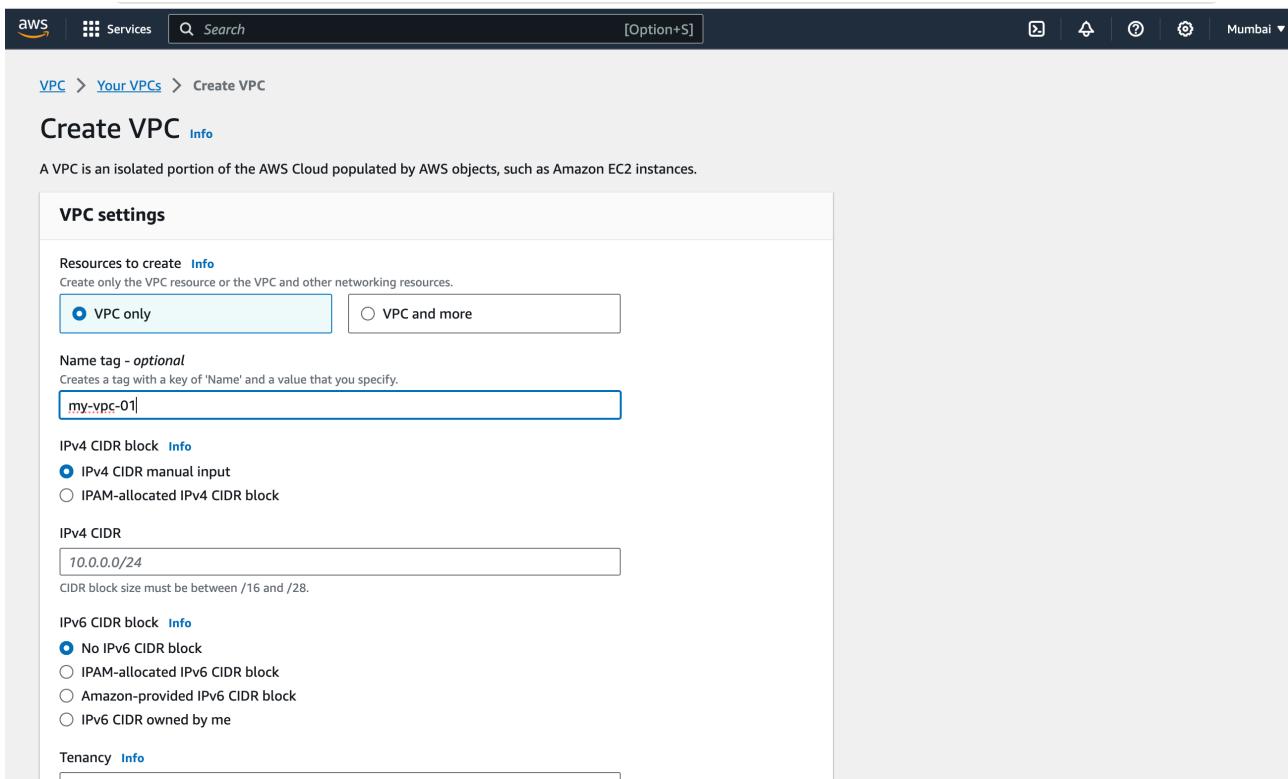
### **Assignment - 1 -Configure and Launch EC2 in Public and private subnets**

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#### **Configure and launch EC2 public instance in AWS**

1. Login to your AWS console and choose the region allocated for you from the dropdown say : Asia Pacific (Mumbai)
2. Search VPC service Create a custom VPC by selecting VPC from the services list and click on 'create VPC'



The screenshot shows the 'Create VPC' configuration page in the AWS Management Console. The top navigation bar includes the AWS logo, a 'Services' menu, a search bar, and a 'Mumbai' region selector. The main page title is 'Create VPC' with an 'Info' link. A descriptive text states: 'A VPC is an isolated portion of the AWS Cloud populated by AWS objects, such as Amazon EC2 instances.' Below this, the 'VPC settings' section is titled 'Resources to create' with an 'Info' link. It offers two options: 'VPC only' (selected) and 'VPC and more'. A 'Name tag - optional' field contains the value 'my-vpc-01'. Under 'IPv4 CIDR block', the 'IPv4 CIDR manual input' option is selected, and the CIDR block '10.0.0.0/24' is entered. The 'IPv6 CIDR block' section shows 'No IPv6 CIDR block' selected. At the bottom, the 'Tenancy' section is partially visible.

3. Select the option "VPC only" Provide any VPC tag name and in the field of IPv4 CIDR provide 10.0.0.0/16

( you can create  $2^{16}$  that is 65,536 number of ip address) and click on create VPC

4. Your custom VPC will be created and displayed as below far

The screenshot shows the AWS VPC console at the URL [ap-south-1.console.aws.amazon.com/vpcconsole/home?region=ap-south-1#vpcs](https://ap-south-1.console.aws.amazon.com/vpcconsole/home?region=ap-south-1#vpcs). The interface includes a top navigation bar with tabs for AWS, Services, and a search bar. Below this is a main content area titled 'Your VPCs (1)'. A table displays one VPC entry:

Name	VPC ID	State	IPv4 CIDR	IPv6 CIDR
my-vpc-01	vpc-057414ec5bacb432d	Available	10.0.0.0/16	-

5. Search and navigate to 'Subnet' module from the services and click on

The screenshot shows the AWS VPC dashboard. On the left, there's a sidebar with links like 'VPC dashboard', 'EC2 Global View', 'Filter by VPC', and a 'Virtual private cloud' section containing 'Your VPCs' (with a 'New' button), 'Subnets', 'Route tables', 'Internet gateways', 'Egress-only internet gateways', 'DHCP option sets', 'Elastic IPs', 'Managed prefix lists', 'Endpoints', 'Endpoint services', 'NAT gateways', and 'Peering connections'. The 'Subnets' link is underlined in red. On the right, a larger panel shows details for a VPC named 'my-vpc-01' with the ID 'vpc-057414ec5bacb432d'. The 'Details' tab is selected.

## 'create subnet'

The screenshot shows the AWS Subnets list page. At the top right, there is a red box highlighting the 'Create subnet' button. The table below lists three existing subnets:

Name	Subnet ID	State	VPC	IPv4 CIDR
-	subnet-05fb70ddf0e856f5c	Available	vpc-0dc23b2220174a32d	172.31.32.0/20
-	subnet-0d33881b830c6997f	Available	vpc-0dc23b2220174a32d	172.31.16.0/20
-	subnet-08de88c385b7d4bba	Available	vpc-0dc23b2220174a32d	172.31.0.0/20

6. Provide the Subnet name (ex: public subnet) select the VPC that you have created Previously and navigate to the subnet settings, now select an availability zone as per your region. Provide IPv4 CIDR block (10.0.1.0/24). Click

The screenshot shows the 'Create subnet' wizard. The 'VPC' section is selected, showing the VPC ID 'vpc-057414ec5bacb432d (my-vpc-01)'. The 'Associated VPC CIDRs' section shows the IPv4 CIDR '10.0.0.0/16'. The 'Subnet settings' section is expanded, showing the 'Subnet 1 of 1' configuration. The 'Subnet name' is set to 'my-subnet-01', 'Availability Zone' is set to 'Asia Pacific (Mumbai) / ap-south-1a', 'IPv4 VPC CIDR block' is set to '10.0.0.0/16', and the 'IPv4 subnet CIDR block' is set to '10.0.1.0/24'. The 'Tags - optional' section contains a single tag 'Name: my-subnet-01'. At the bottom, there are 'Remove' and 'Add new tag' buttons, and a large 'Add new subnet' button.

## on Create Subnet

7. Search and navigate to Route Table feature and click on 'create Route Table'

The screenshot shows the AWS VPC dashboard with a success message: "You have successfully created 1 subnet: subnet-00b33c689011ec66c". The Subnets table lists one entry:

Name	Subnet ID	State	VPC	IPv4 CIDR	IPv6 CIDR	Available IPv4 addresses	Availability Zone
my-subnet-01	subnet-00b33c689011ec66c	Available	vpc-057414ec5bacb432d   my...	10.0.1.0/24	-	251	ap-south-1a

8. Provide the name for the Route table ex: public\_rt and select the VPC that you have created and click on 'Create Route table'

The screenshot shows the AWS VPC dashboard with the sidebar expanded to show the "Route tables" section under "Virtual private cloud".

- Virtual private cloud
  - Your VPCs [New](#)
  - Subnets
  - Route tables** (selected)
  - Internet gateways
  - Egress-only internet gateways
  - DHCP option sets
  - Elastic IPs
  - Managed prefix lists
  - Endpoints
  - Endpoint services
  - NAT gateways
  - Peering connections
- Security

9. Route table will be created and displayed as below

The screenshot shows the AWS Lambda console with the title "outh-1#RouteTables:". Below the title is a search bar and a toolbar with various icons. The main area displays a table of route table associations:

BNet Association	Edge Associations	Main	VPC	Owner ID
-	Yes	vpc-057414ec5bacb432d   my-...	280005775301	
-	Yes	vpc-0dc23b2220174a32d	280005775301	

10. Now Click on subnet associations by selecting the Route Table that you have created previously

The screenshot shows the "Create route table" wizard in the AWS VPC service. The steps are: VPC > Route tables > Create route table.

**Create route table Info**

A route table specifies how packets are forwarded between the subnets within your VPC, the internet, and your VPN connection.

**Route table settings**

Name - *optional*  
Create a tag with a key of 'Name' and a value that you specify.  
my-route-table-01

VPC  
The VPC to use for this route table.  
vpc-057414ec5bacb432d (my-vpc-01)

**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	Value - <i>optional</i>
<input type="text" value="Name"/> <input type="button" value="X"/>	<input type="text" value="my-route-table-01"/> <input type="button" value="X"/> <input type="button" value="Remove"/>

Add new tag

You can add 49 more tags.

Cancel

11. Now click on "Edit subnet association" and make a check on the subnet that you have created and click on save changes (Note : In your case select the subnet that you have created)

12. Search and Navigate to the Internet Gateway and click on 'Create internet gateway'

Name	Subnet ID	IPv4 CIDR	IPv6 CIDR
sub-06d5016a6dad9350d	-	-	-

Name	Route table ID	Explicit subnet associati...	Edge associations	Main	VPC	Owner ID
rtb-0a446091bb5a6ff66	-	-	-	Yes	vpc-057414ec5bach432d   my...	280005775301
rtb-08220544a6d57ceb6	-	-	-	Yes	vpc-06d23b2220174a32d	280005775301
<b>my-route-table-01</b>	<b>rtb-06d5016a6dad9350d</b>	-	-	No	vpc-057414ec5bach432d   my...	280005775301

Route tables (1/3) Info

Name	Route table ID	Explicit subnet associati...
rtb-0a446091bb5a6ff66	rtb-0a446091bb5a6ff66	-
rtb-08220544a6d57ceb6	rtb-08220544a6d57ceb6	-
<b>my-route-table-01</b>	<b>rtb-06d5016a6dad9350d</b>	-

**Edited:public\_rt**

13. Provide any name to the Internet gateway and click on 'Create internet gateway' to get created. Initially the Internet Gateway will be in a detached state.

The screenshot shows the AWS VPC console with the 'Internet gateways' list. There is one item listed: 'igw-0f2649da269a5925b' with 'Attached' status and 'vpc-0dc23b2220174a32d' VPC ID. The 'Actions' dropdown menu has a highlighted 'Create internet gateway' option.

14. Now Select the Internet Gateway you have created and click on Actions and select 'Attach to VPC' select the VPC and click on 'Attach Internet gateway'. Now the Internet gateway state changes to 'attached'

The screenshot shows the 'Create internet gateway' wizard. It includes sections for 'Internet gateway settings' (with a 'Name tag' field containing 'IG1'), 'Tags - optional' (with a 'Key' field 'Name' and 'Value - optional' 'IG1'), and a summary section indicating 49 more tags can be added. The 'Create internet gateway' button at the bottom is highlighted with a red box.

15. Navigate to Routable, click on the route table that you have created and then click on Routes

The following internet gateway was created: igw-0899f6e955117c9a4 - IG1. You can now attach to a VPC to enable the VPC to communicate with the internet.

Name	Internet gateway ID	State	VPC ID
-	igw-0f2649da269a5925b	Attached	vpc-0dc23b2220174a32d
IG1	igw-0899f6e955117c9a4	Detached	-

The following internet gateway was created: igw-0899f6e955117c9a4 - IG1. You can now attach to a VPC to enable the VPC to communicate with the internet.

Name	Internet gateway ID
-	igw-0f2649da269a5925b
IG1	igw-0899f6e955117c9a4

16. Now click on Edit Routes and then Click on Add Route. Provide 0.0.0.0/0 in the Destination and in the Target select the Internet Gateway and select the IG that you have created previously. Click on Save changes.

aws Services Search [Option+S]

VPC > Internet gateways > Attach to VPC (igw-0899f6e955117c9a4)

### Attach to VPC (igw-0899f6e955117c9a4) Info

**VPC**  
Attach an internet gateway to a VPC to enable the VPC to communicate with the internet. Specify the VPC to attach below.

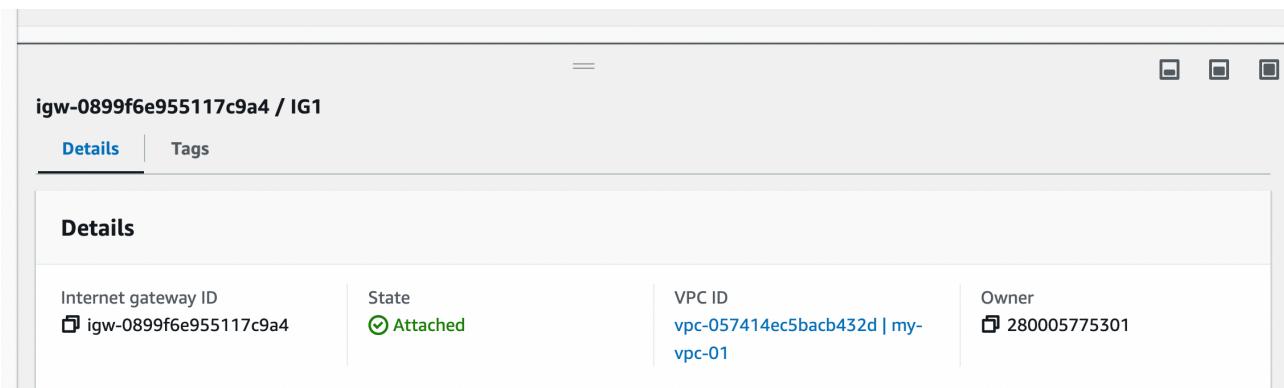
**Available VPCs**  
Attach the internet gateway to this VPC.

X

▶ AWS Command Line Interface command

Cancel Attach internet gateway

## 16. Search and Navigate to 'Instances' option and click on launch instance



## 17. Now, you need to select the Amazon Machine image (AMI) from the list, select the default

Virtual private cloud

Your VPCs New

Subnets

Route tables 1

Internet gateways

Egress-only internet gateways

DHCP option sets

Elastic IPs

Managed prefix lists

Endpoints

Endpoint services

NAT gateways

Peering connections

Security

Network ACLs

rtb-08220544a6d57ceb6

public\_rt rtb-06d5016a6dad9350d subnet-00b33c689011ec... Yes

2

rtb-06d5016a6dad9350d / public\_rt

Details Routes 3 Subnet associations Edge associations Route propagation Tags

4

Routes (1)

Filter routes

Destination Target Status Propagated

10.0.0.0/16 local Active No

AWS Services Search [Option+S] Mumbai Kartik Hegadi

VPC > Route tables > rtb-06d5016a6dad9350d > Edit routes

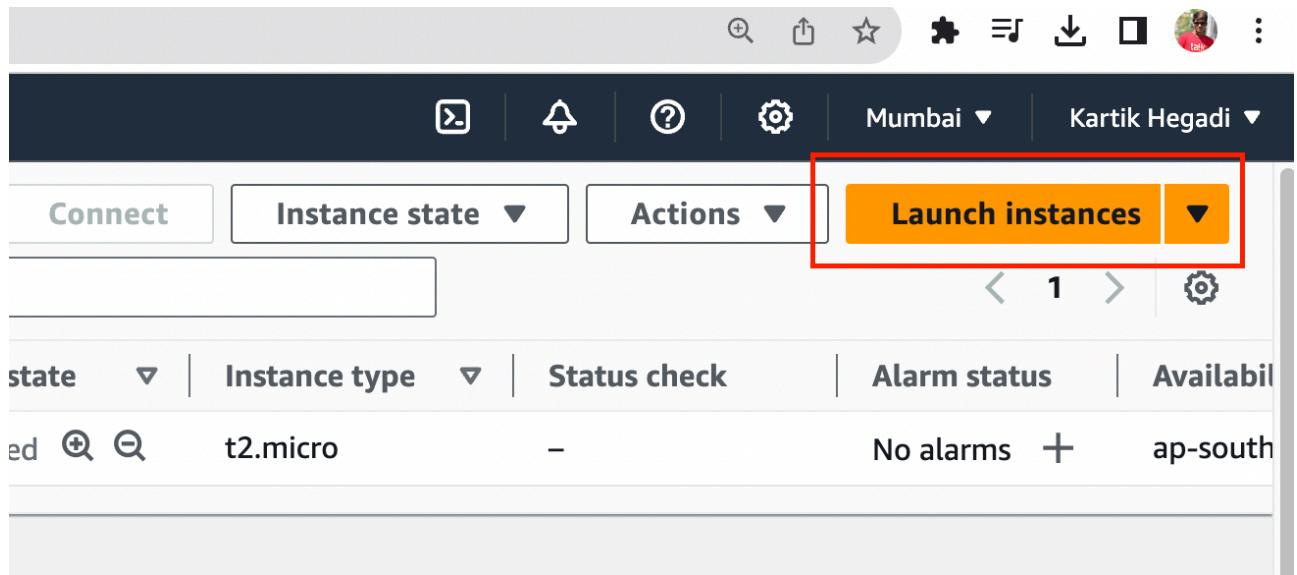
Edit routes

Destination	Target	Status	Propagated
10.0.0.0/16	local	Active	No
Q 0.0.0.0/0	Internet Gateway	Active	No
Q igw-0899f6e955117c9a4	X	X	X

Add route Cancel Preview Save changes

18. Now you need to choose the instance type, you can proceed with the default instance type that is being selected by clicking Next: Configure Instance Details

Step 2- Choose an Instance



19. In the 'configuration instance' settings select your VPC from the network dropdown, select your public subnet that you have created, enable Auto-assign public ip, select "Use subnet setting (Ip name)" from the Hostname type and leave all other as default, Click on "Next : Add storage"

20. In storage default options are selected, you can click "Next : Add Tags" provide the Name and Value as below, (it is your choice to provide any values) and click on 'configure security groups'

**Launch an instance** [Info](#)

Amazon EC2 allows you to create virtual machines, or instances, that run on the AWS Cloud. Quickly get started by following the simple steps below.

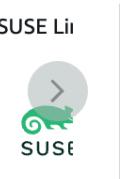
**Name and tags** [Info](#)

Name  
 [Add additional tags](#)

**▼ Application and OS Images (Amazon Machine Image)** [Info](#)

An AMI is a template that contains the software configuration (operating system, application server, and applications) required to launch your instance. Search or Browse for AMIs if you don't see what you are looking for below

**Quick Start**

 [Browse more AMIs](#)  
Including AMIs from AWS, Marketplace and the Community

**Amazon Machine Image (AMI)**

**Amazon Linux 2 AMI (HVM) - Kernel 5.10, SSD Volume Type** [Free tier eligible](#) ▾  
ami-06006e8b065b5bd46 (64-bit (x86)) / ami-059eeca93797c4ead (64-bit (Arm))  
Virtualization: hvm ENA enabled: true Root device type: ebs

**Description**

20. Now navigate to 'Configure security group' settings and add all the following rules which are marked and click "review & launch)  
(Note for SSH & ICMP-Ipv4 select source dropdown as My ip)

Description  
Amazon Linux 2 Kernel 5.10 AMI 2.0.20231020.1 x86\_64 HVM gp2

Architecture      AMI ID  
64-bit (x86)      ami-06006e8b065b5bd46      Verified provider

Services      Search      [Option+S]

Search our full catalog including 1000s of application and OS images

**t2.nano**  
Family: t2 1 vCPU 0.5 GiB Memory Current generation: true  
On-Demand SUSE base pricing: 0.0062 USD per Hour  
On-Demand Linux base pricing: 0.0062 USD per Hour  
On-Demand Windows base pricing: 0.0085 USD per Hour

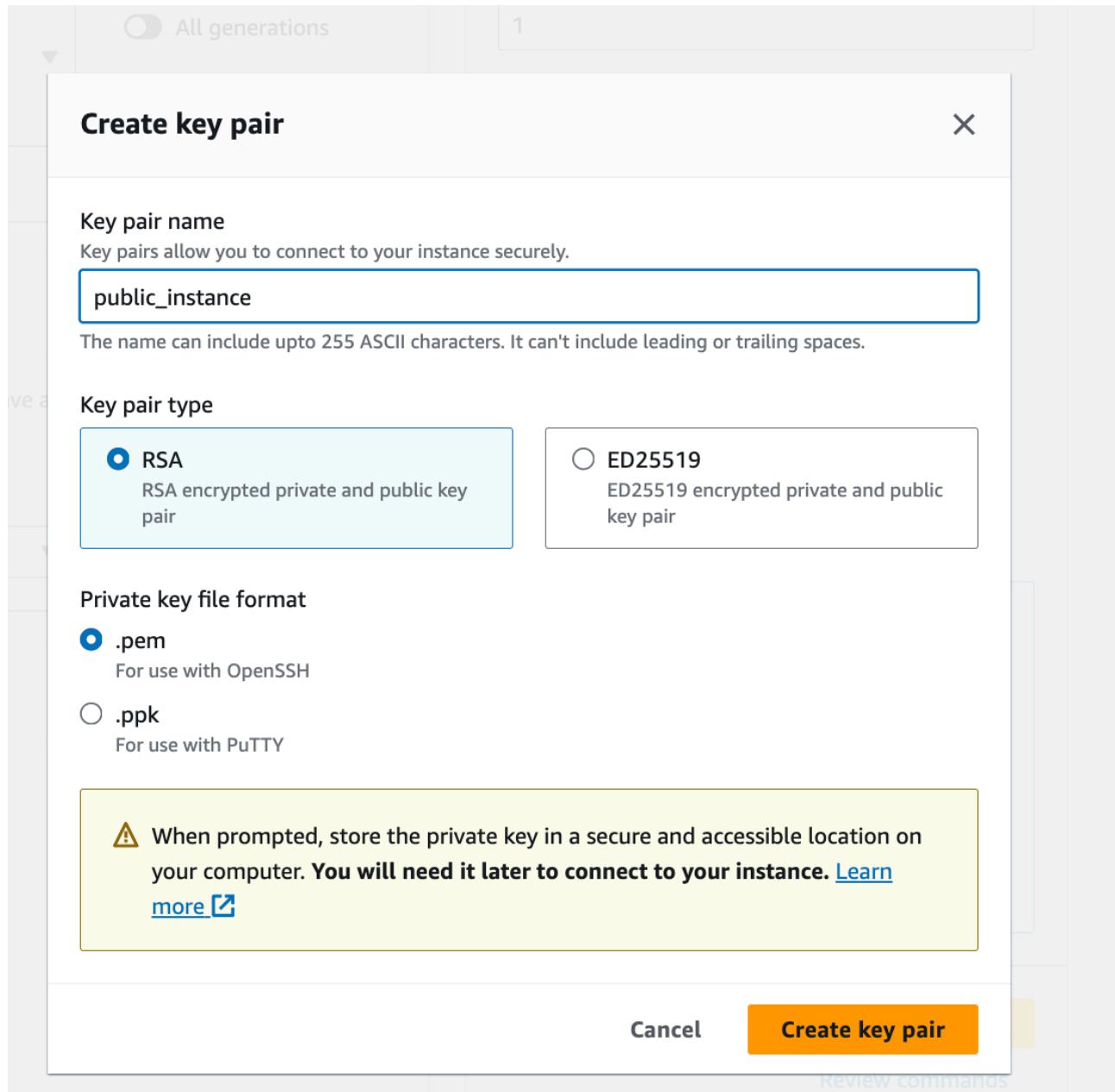
**t2.micro**      Free tier eligible  
Family: t2 1 vCPU 1 GiB Memory Current generation: true  
On-Demand Linux base pricing: 0.0124 USD per Hour  
On-Demand Windows base pricing: 0.017 USD per Hour  
On-Demand RHEL base pricing: 0.0724 USD per Hour  
On-Demand SUSE base pricing: 0.0124 USD per Hour

**t2.small**  
Family: t2 1 vCPU 2 GiB Memory Current generation: true  
On-Demand SUSE base pricing: 0.0548 USD per Hour  
On-Demand Linux base pricing: 0.0248 USD per Hour  
On-Demand RHEL base pricing: 0.0848 USD per Hour  
On-Demand Windows base pricing: 0.034 USD per Hour

**t2.medium**  
Family: t2 2 vCPU 4 GiB Memory Current generation: true  
On-Demand Linux base pricing: 0.0496 USD per Hour  
On-Demand Windows base pricing: 0.0676 USD per Hour  
On-Demand RHEL base pricing: 0.1096 USD per Hour

21. In the key pair prompt select "create a new keypair" from the dropdown, enter the key pair name of your choice and click on download key pair, the key pair will get downloaded

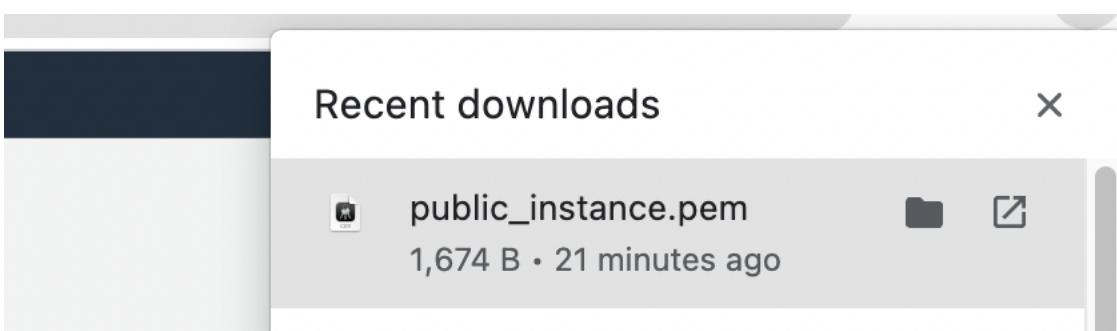
(Note: copy the keypair to any of your linux machine to connect the EC2 instance)



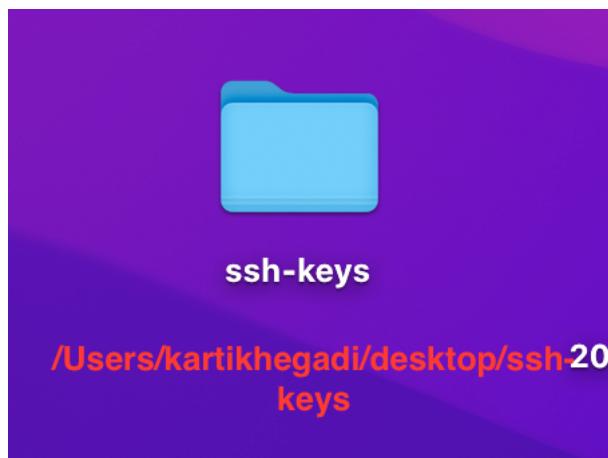
22. Then Click on Launch Instance

The screenshot shows the AWS Lambda Instances page. At the top, there is a search bar and a toolbar with options like 'Connect', 'Actions', and 'Launch instances'. Below the toolbar is a table header with columns: Name, Instance ID, Instance state, Instance type, Status check, Alarm status, Availability Zone, Public IPv4 DNS, Public IPv4 MAC, and Elastic IP. A single instance named 'test' is listed in the table. The instance details page is open for 'test', showing tabs for Details, Security, Networking, Storage, Status checks, Monitoring, and Tags. The 'Details' tab is selected, displaying information such as Instance ID (i-061fc07521f792bfe), Instance state (Stopped), Instance type (t2.micro), and Private IP address (ip-172-31-39-142.ap-south-1.compute.internal). The 'Monitoring' tab indicates 'No alarms'.

23. Now search and navigate to Instances you will be seeing the instance that is up and running state



My ssh-keys



24. Now select the particular instance and click “connect”

Give permission

25. Click "connect" to launch the Terminal

steps to Connect with the Instance using Public IP

1. Navigate to Instances page, select the public instance and click on connect
2. Click on the SSH client tab
3. Execute the above steps from your Linux server where you have copied the private key file
4. You can also use putty to connect with the public instance

```
ys % chmod 400 public_instance.pem
```

Login:-

```
ls: command not found. ec2-13-232-0-0.ap-south-1.compute.amazonaws.com
(base) kartikhegadi@Kartiks-MacBook-Air ssh-keys % ssh -i "public_instance.pem" ec2-user@ec2-13-232-0-0.ap-south-1.compute.amazonaws.com
Amazon Linux 2
AL2 End of Life is 2025-06-30.
A newer version of Amazon Linux is available!
Amazon Linux 2023, GA and supported until 2028-03-15.
https://aws.amazon.com/linux/amazon-linux-2023/
-bash: warning: setlocale: LC_CTYPE: cannot change locale (UTF-8): No such file or directory
[ec2-user@ip-172-31-14-120 ~]$ ls
[ec2-user@ip-172-31-14-120 ~]$
```

