MINOR PROJECT REPORT

Amazon Web Services (AWS)

Project Title:

Implementation of EC2 Instances, Security Groups, Launch Templates, and EBS Volume Management in AWS

Submitted By:

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Department: CSE

Submitted To:

Organization: Ediglobe
Project Type: Minor Project

Project Objectives:

This project includes the following AWS implementations:

Q1: Launch a Linux EC2 instance with Security Group rules for:

- SSH (Port 22)
- HTTP (Port 80)
- HTTPS (Port 443)
  Accessible via MobaXterm

Q2: Launch a Windows EC2 instance with Security Group rules for:

- RDP (Port 3389)
- HTTP (Port 80)

- HTTPS (Port 443)
  Accessible via MobaXterm

Q3: Create a Launch Template to automatically launch 4 Linux EC2 instances with:

- SSH
- HTTP
- HTTPS security rules

Q4: Create a 5GB EBS volume and attach it to a Linux EC2 instance within the same Availability Zone.

Q5: Create a 5GB EBS volume and attach it to a Linux EC2 instance in a different region using snapshot copy method.

Tools & Platform Used:

- Amazon Web Services
- EC2 (Elastic Compute Cloud)
- EBS (Elastic Block Store)
- Security Groups
- Launch Templates
- MobaXterm

Academic Year:

2025 – 2026

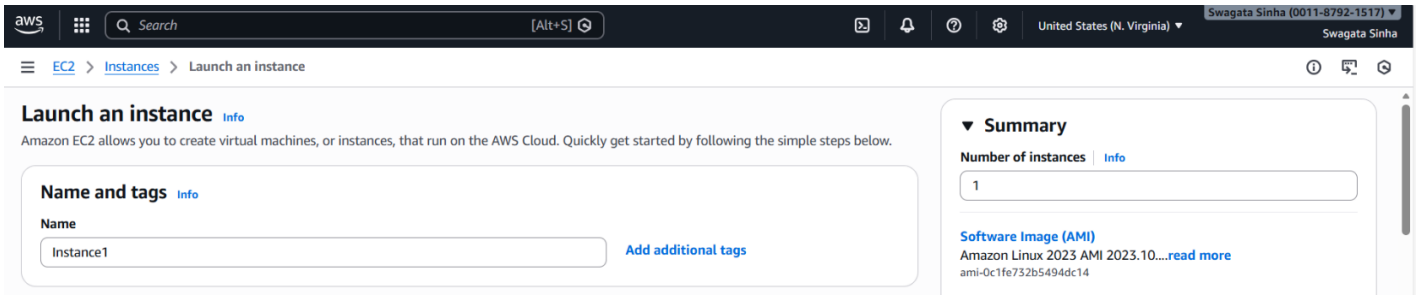
Experiment 1

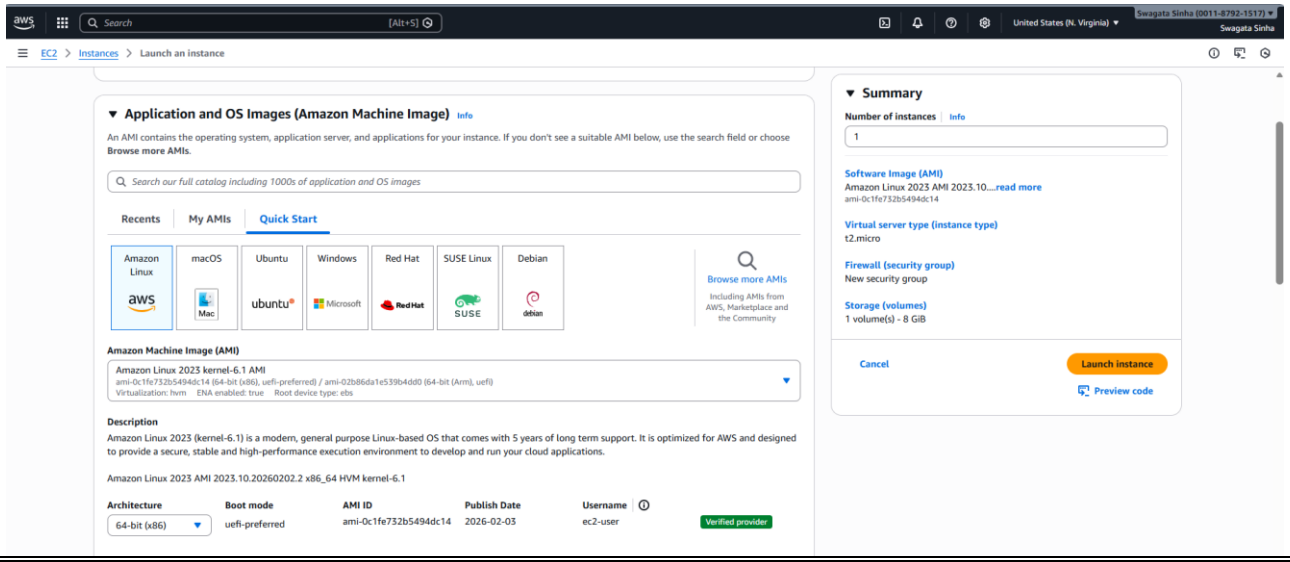
Aim: Launch a Ec2 Linux instance with adding security group rule in security group of Ssh & Http, Https and accessible by MobaXterm

Steps performed:

- Login to AWS Console and navigate to EC2 Dashboard.
- Click on 'Launch Instance' and select Amazon Linux AMI.
- Choose instance type as t2.micro (Free tier eligible).
- Create a new RSA key pair (.pem format) and download it.
- Configure Security Group with inbound rules: SSH (22), HTTP (80), HTTPS (443).
- Launch the instance and wait until it reaches 'Running' state.
- Copy the Public IPv4 address of the instance.
- Open MobaXterm → Session → SSH. • Enter Public IP, Username as 'ec2-user', and Port 22.
- Go to Advanced SSH Settings → Tick 'Use private key' → Select downloaded .pem file.
- Click OK and type 'yes' if fingerprint confirmation appears.
- Successful login displays: [ec2-user@ip-xxx-xxx-xxx ~]$

Screenshots:





Instance type Info | Get advice

Instance type

t2.micro
Family: t2 1 vCPU 1 GiB Memory Current generation: true On-Demand Linux base pricing: 0.0116 USD per Hour
On-Demand Windows base pricing: 0.0162 USD per Hour On-Demand Ubuntu Pro base pricing: 0.0134 USD per Hour
On-Demand SUSE base pricing: 0.0116 USD per Hour On-Demand RHEL base pricing: 0.026 USD per Hour

All generations

Compare instance types

Additional costs apply for AMIs with pre-installed software

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*

Sonai#

Create new key pair

Create key pair

Key pair name
Key pairs allow you to connect to your instance securely.

Sonai#

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

Key pair type

- RSA — RSA encrypted private and public key pair
- ED25519 — ED25519 encrypted private and public key pair

Private key file format

- .pem — For use with OpenSSH
- .ppk — For use with PuTTY

⚠ When prompted, store the private key in a secure and accessible location on your computer. **You will need it later to connect to your instance.** Learn more

Cancel | Create key pair

Network settings Info

VPC - *required* | Info

vpc-02492443d8bcb7b0e (default)
172.31.0.0/16

Subnet | Info

No preference — Create new subnet

Availability Zone | Info

No preference — Enable additional zones

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

Security group name - *required*

launch-wizard-4

This security group will be added to all network interfaces. The name can't be edited after the security group is created. Max length is 255 characters. Valid characters: a-z, A-Z, 0-9, spaces, and ._-:/()#,@[]+=&;{}!$*

Description - *required* | Info

launch-wizard-4 created 2026-02-14T16:15:37.523Z

Inbound Security Group Rules

▼ Security group rule 1 (TCP, 22, 114.142.165.94/32) — Remove

Type	Protocol	Port range
ssh	TCP	22

Source type	Name	Description - *optional*
My IP	114.142.165.94/32	e.g. SSH for admin desktop

▼ Security group rule 2 (TCP, 443, 0.0.0.0/0) — Remove

Type	Protocol	Port range
HTTPS	TCP	443

Source type	Source	Description - *optional*
Anywhere	0.0.0.0/0	e.g. SSH for admin desktop

▼ Security group rule 3 (TCP, 80, 0.0.0.0/0) — Remove

Type	Protocol	Port range
HTTP	TCP	80

Source type	Source	Description - *optional*
Anywhere	0.0.0.0/0	e.g. SSH for admin desktop

Configure storage Info

Advanced

1x 8 GiB gp3 Root volume, 3000 IOPS, Not encrypted

Add new volume

Click refresh to view backup information

The tags that you assign determine whether the instance will be backed up by any Data Lifecycle Manager policies.

0 x File systems Edit

Summary

Number of instances Info

1

Software Image (AMI)
Amazon Linux 2023 AMI 2023.10....read more
ami-0c1fe732b5494dc14

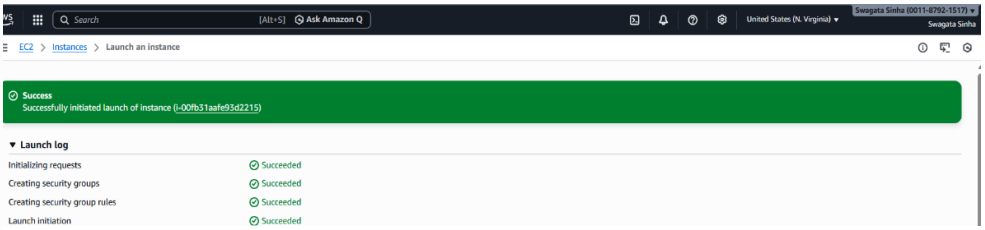
Virtual server type (instance type)
t3.micro

Firewall (security group)
New security group

Storage (volumes)
1 volume(s) - 8 GiB

Cancel Launch instance

Preview code



i-0acbfea872884beae

Instance summary for i-0acbfea872884beae (Instance1) Info

Updated less than a minute ago

Connect Instance state Actions

Instance ID i-0acbfea872884beae	**Public IPv4 address** 54.158.47.208 | open address	**Private IPv4 addresses** 172.31.26.197
IPv6 address –	**Instance state** Running	**Public DNS** ec2-54-158-47-208.compute-1.amazonaws.com | open address
Hostname type IP name: ip-172-31-26-197.ec2.internal	**Private IP DNS name (IPv4 only)** ip-172-31-26-197.ec2.internal	
Answer private resource DNS name IPv4 (A)	**Instance type** t2.micro	**Elastic IP addresses** –
Auto-assigned IP address 54.158.47.208 [Public IP]	**VPC ID** vpc-02492443d8bcb7b0e	**AWS Compute Optimizer finding** Opt-in to AWS Compute Optimizer for recommendations. | Learn more
IAM role –	**Subnet ID** subnet-0b1657fa09eff134b	**Auto Scaling Group name** –
IMDSv2 Required	**Instance ARN** arn:aws:ec2:us-east-1:001187921517:instance/i-0acbfea872884beae	**Managed** false
Operator –		

Connect Info

Connect to an instance using the browser-based client.

Instance ID	VPC ID	Security groups	IAM role
i-0acbfea872884beae (Instance1)	vpc-02492443d8bcb7b0e	sg-0635c26e14d1543f4 (launch-wizard-4)	–

EC2 Instance Connect | SSM Session Manager | SSH client | EC2 serial console

Instance ID
i-0acbfea872884beae (Instance1)

Connection type

- Connect using a Public IP — Connect using a public IPv4 or IPv6 address
- Connect using a Private IP — Connect using a private IP address and a VPC endpoint

Public IPv4 address
54.158.47.208

IPv6 address
–

Username
Enter the username defined in the AMI used to launch the instance. If you didn't define a custom username, use the default username, ec2-user.

ec2-user

Note: In most cases, the default username, ec2-user, is correct. However, read your AMI usage instructions to check if the AMI owner has changed the default AMI username.

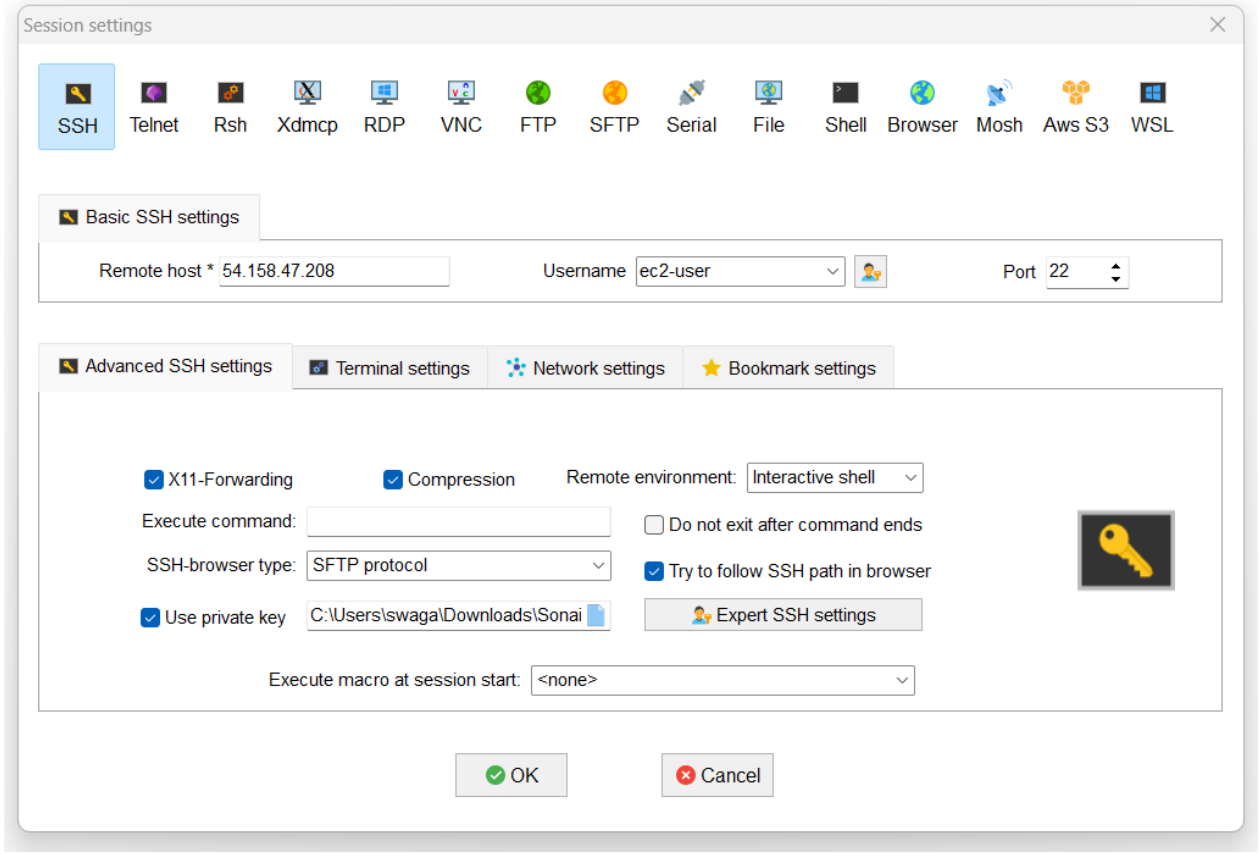
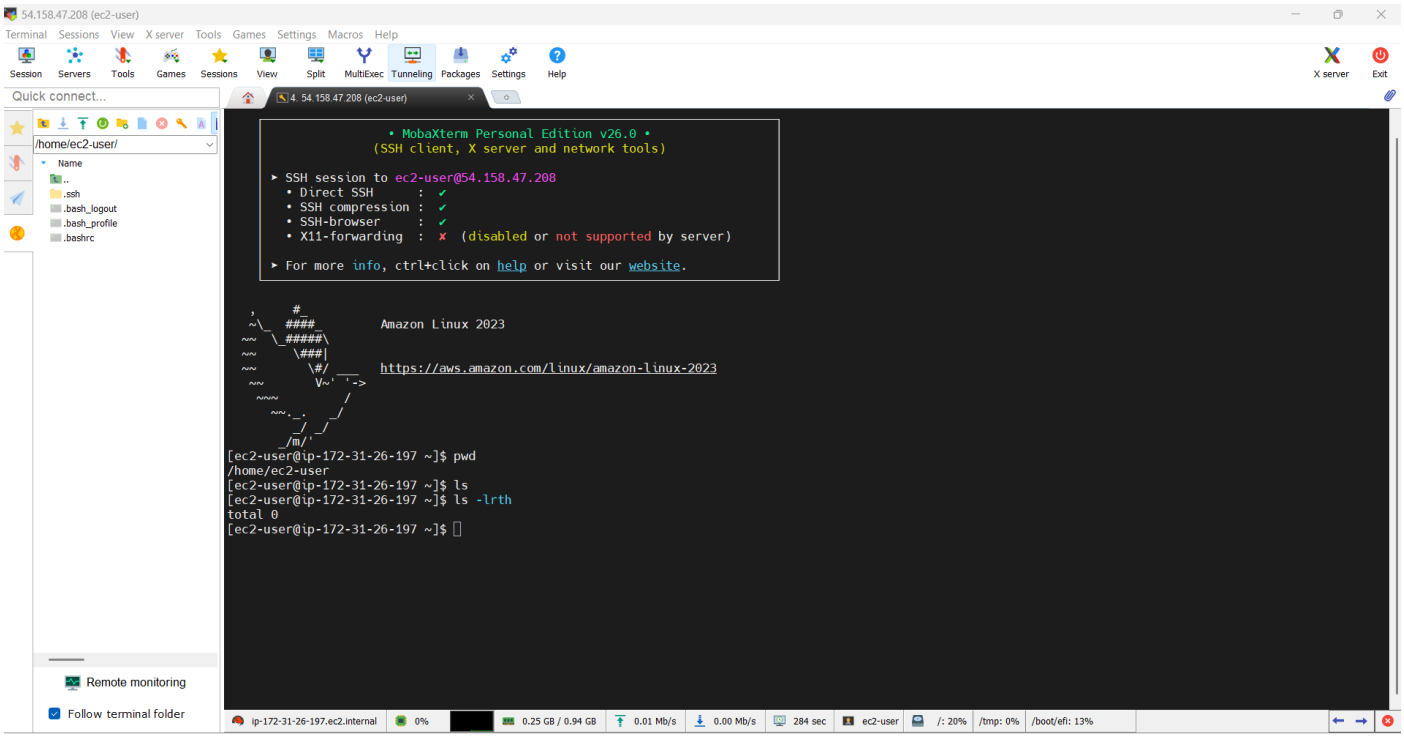


Figure: Linux EC2 instance successfully connected via MobaXterm.



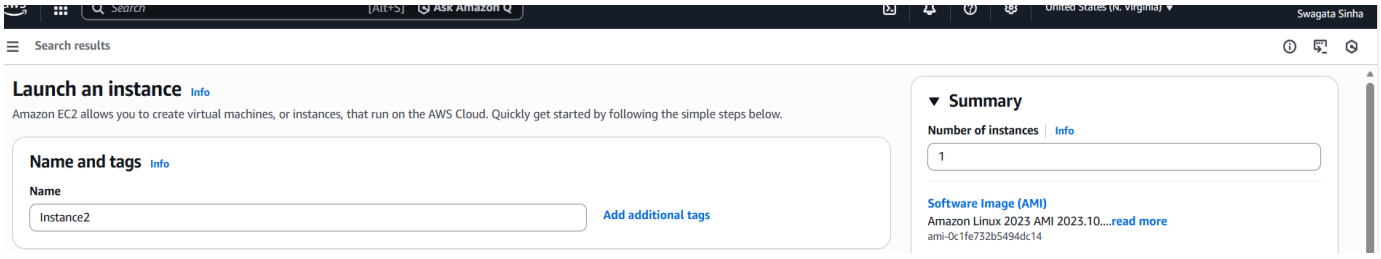
Experiment 2

Aim: Launch a Ec2 Linux instance with adding security group rule in security group of Ssh & Http, Https and accessible by MobaXterm

Steps performed:

- Login to AWS Console and navigate to EC2 Dashboard.
- Click on 'Launch Instance' and select Microsoft Windows Server 2022 AMI.
- Choose instance type as t2.micro (Free tier eligible).
- Select existing RSA key pair (.pem format).
- Configure Security Group with inbound rules:
  - RDP (3389)
  - HTTP (80)
  - HTTPS (443)
- Set RDP source as My IP for security.
- Launch the instance and wait until it reaches 'Running' state.
- Copy the Public IPv4 address of the instance.
- Select the instance → Click Connect → Go to RDP Client tab.
- Click Get Password → Upload the downloaded .pem file → Click Decrypt Password.
- Copy the decrypted password (Username is Administrator).
- Open MobaXterm → Session → RDP.
- Enter Public IP, Username as Administrator, and paste the decrypted password.
- Click OK to connect.
- Successful login displays the Windows Desktop screen.

Screenshots:



Microsoft Windows Server 2022 Base

Microsoft

Amazon Web Services

0 AWS reviews

Free Tier

Overview | Product details | Pricing | Usage | Support

Amazon EC2 running Microsoft Windows Server is a fast and dependable environment for deploying applications using the Microsoft Web Platform. Amazon EC2 enables you to run compatible Windows-based solutions on AWS' high-performance, reliable, cost-effective, cloud computing platform.

Typical total price

$0.384/Hr

Total pricing per instance for services hosted on m4.xlarge in us-east-1.

See additional pricing information.

Latest version
2025.12.10
Delivery methods
Amazon Machine Image
Operating systems
WIN2022 10

Categories
Operating Systems

A subscription to this AMI is required before you can launch an instance. Check the pricing details in the pricing tab before continuing.
You can subscribe to this AMI now or we will automatically subscribe for you when you launch this instance. We recommend that you 'Subscribe now' if you are sure this is the AMI you want to use to launch as it will reduce wait time on launch. Choose 'Subscribe on instance launch' if you are still choosing an AMI and don't want to commit to a subscription yet. By subscribing to this AMI you agree that your use of this software is subject to the pricing terms and the seller's End User License Agreement

Cancel | Subscribe on instance launch | Subscribe now

Application and OS Images (Amazon Machine Image) Info

An AMI contains the operating system, application server, and applications for your instance. If you don't see a suitable AMI below, use the search field or choose **Browse more AMIs**.

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

AMI from catalog | Recents | My AMIs | Quick Start

Name
Windows_Server-2022-English-Full-Base-2025.12.10

Verified provider

Description
Microsoft Windows Server 2022 Full Locale English AMI provided by Amazon

Image ID
ami-0fc8a85749a35ce56

Username
Administrator

Browse more AMIs
Including AMIs from AWS, Marketplace and the Community

Catalog	Published	Architecture	Virtualization	Root device type	ENA Enabled
AWS Marketplace AMIs	2025-12-10T22:32:59.000Z	x86_64	hvm	ebs	Yes

If you have an existing license entitlement to use this software, then you can launch this software without creating a new subscription. If you do not have an existing entitlement, then by launching this software, you will be subscribed to this software and agree that your use of this software is subject to the pricing terms and the seller's End User License Agreement

Instance type Info | Get advice

Instance type

t3.micro
Family: t3 2 vCPU 1 GiB Memory Current generation: true

All generations

Compare instance types

The AMI vendor recommends using a m4.xlarge instance (or larger) for the best experience with this product.

Key pair (login) Info

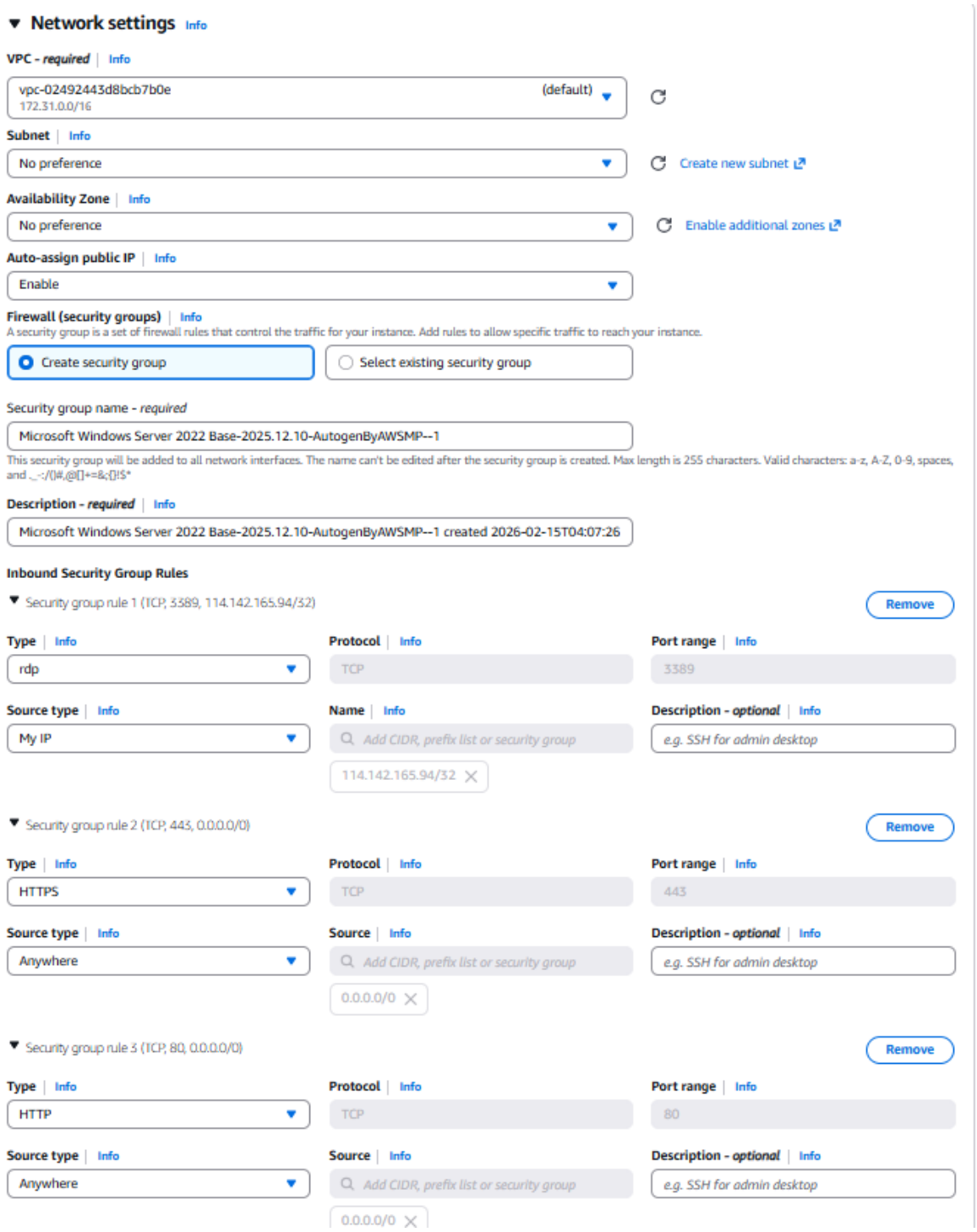
You can use a key pair to securely connect to your instance. Ensure that you have access to the selected key pair before you launch the instance.

Key pair name - *required*

Sonai#

Create new key pair

For Windows instances, you use a key pair to decrypt the administrator password. You then use the decrypted password to connect to your instance.



Configure storage Info

Advanced

1x 30 GiB gp2 Root volume, Not encrypted

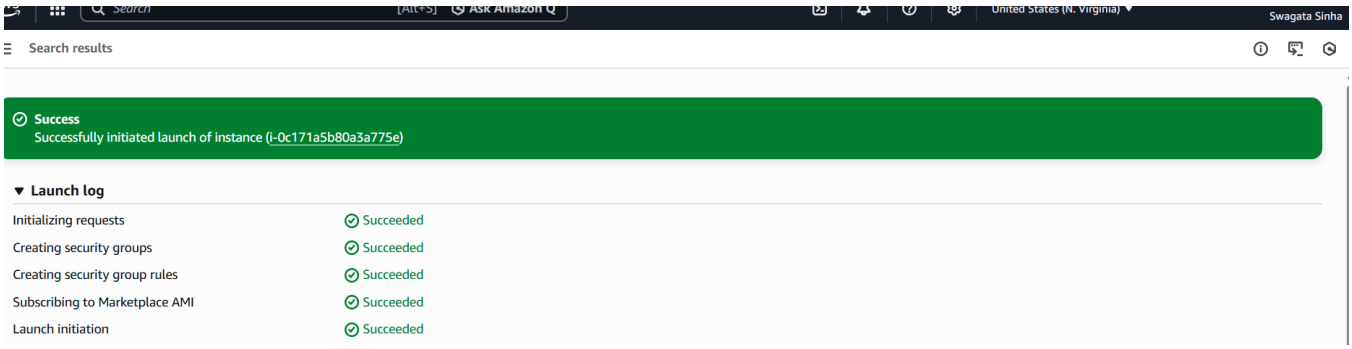
Add new volume

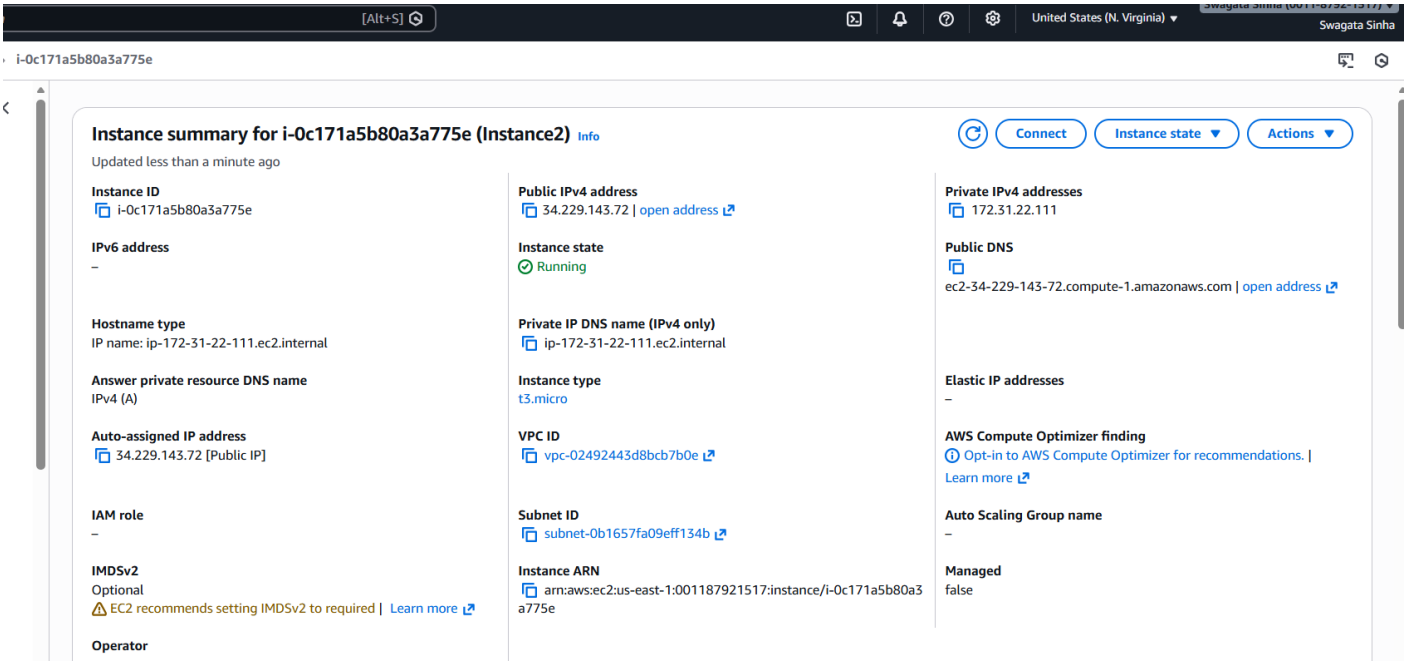
The selected AMI contains instance store volumes, however the instance does not allow any instance store volumes. None of the instance store volumes from the AMI will be accessible from the instance

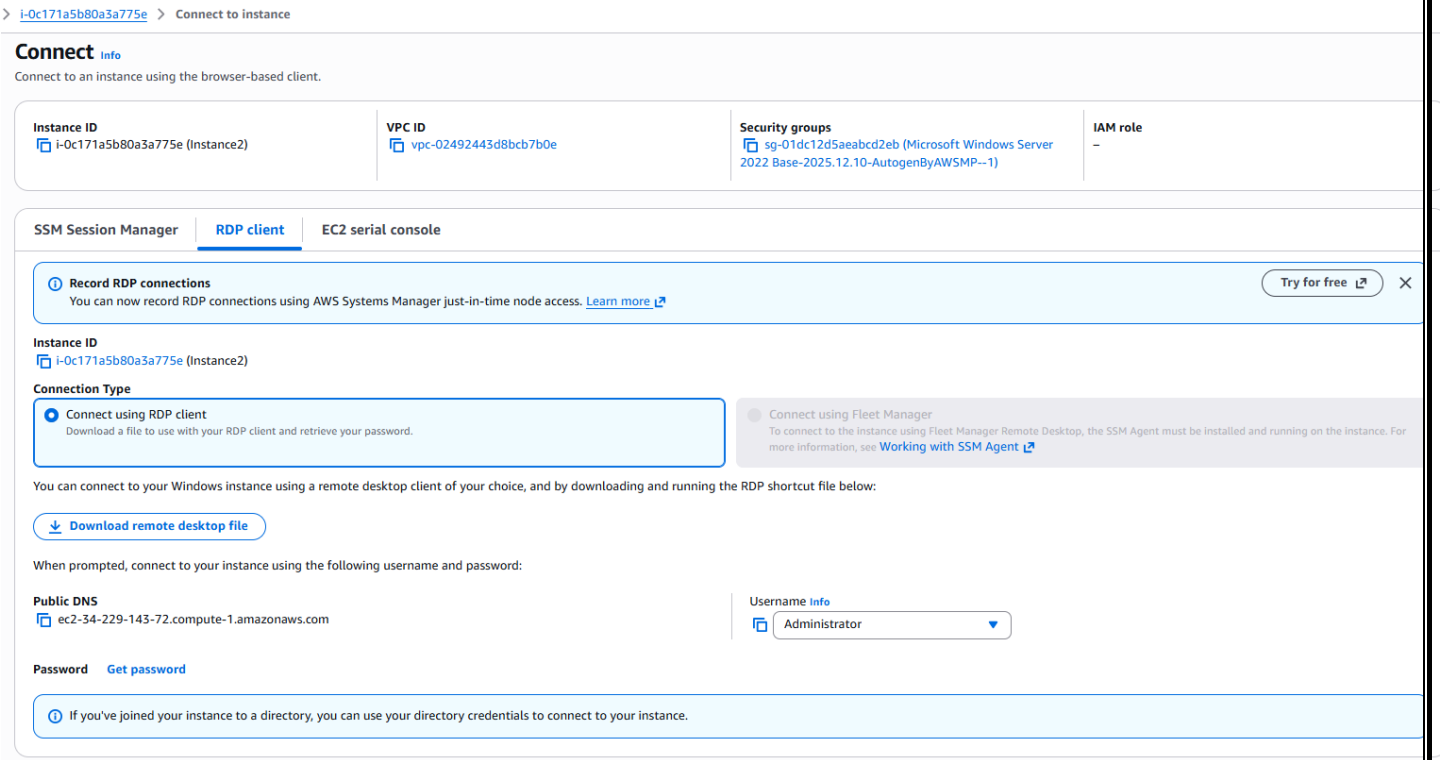
Click refresh to view backup information

The tags that you assign determine whether the instance will be backed up by any Data Lifecycle Manager policies.

0 x File systems Edit


Search results
Success
Successfully initiated launch of instance (i-0c171a5b80a3a775e)
Launch log
Initializing requests Succeeded
Creating security groups Succeeded
Creating security group rules Succeeded
Subscribing to Marketplace AMI Succeeded
Launch initiation Succeeded


i-0c171a5b80a3a775e
Instance summary for i-0c171a5b80a3a775e (Instance2) Info
Updated less than a minute ago
Connect
Instance state
Actions
Instance ID
i-0c171a5b80a3a775e
Public IPv4 address
34.229.143.72 | open address
Private IPv4 addresses
172.31.22.111
IPv6 address
–
Instance state
Running
Public DNS
ec2-34-229-143-72.compute-1.amazonaws.com | open address
Hostname type
IP name: ip-172-31-22-111.ec2.internal
Private IP DNS name (IPv4 only)
ip-172-31-22-111.ec2.internal
Answer private resource DNS name
IPv4 (A)
Instance type
t3.micro
Elastic IP addresses
–
Auto-assigned IP address
34.229.143.72 [Public IP]
VPC ID
vpc-02492443d8bcb7b0e
AWS Compute Optimizer finding
Opt-in to AWS Compute Optimizer for recommendations. | Learn more
IAM role
–
Subnet ID
subnet-0b1657fa09eff134b
Auto Scaling Group name
–
IMDSv2
Optional
EC2 recommends setting IMDSv2 to required | Learn more
Instance ARN
arn:aws:ec2:us-east-1:001187921517:instance/i-0c171a5b80a3a775e
Managed
false
Operator


i-0c171a5b80a3a775e > Connect to instance
Connect Info
Connect to an instance using the browser-based client.
Instance ID
i-0c171a5b80a3a775e (Instance2)
VPC ID
vpc-02492443d8bcb7b0e
Security groups
sg-01dc12d5aeabcd2eb (Microsoft Windows Server 2022 Base-2025.12.10-AutogenByAWSMP--1)
IAM role
–
SSM Session Manager
RDP client
EC2 serial console
Record RDP connections
You can now record RDP connections using AWS Systems Manager just-in-time node access. Learn more
Try for free
Instance ID
i-0c171a5b80a3a775e (Instance2)
Connection Type
Connect using RDP client
Download a file to use with your RDP client and retrieve your password.
Connect using Fleet Manager
To connect to the instance using Fleet Manager Remote Desktop, the SSM Agent must be installed and running on the instance. For more information, see Working with SSM Agent
You can connect to your Windows instance using a remote desktop client of your choice, and by downloading and running the RDP shortcut file below:
Download remote desktop file
When prompted, connect to your instance using the following username and password:
Public DNS
ec2-34-229-143-72.compute-1.amazonaws.com
Username Info
Administrator
Password
Get password
If you've joined your instance to a directory, you can use your directory credentials to connect to your instance.

i-0c171a5b80a3a775e > Get Windows password

Get Windows password Info

Use your private key to retrieve and decrypt the initial Windows administrator password for this instance.

Instance ID
i-0c171a5b80a3a775e (Instance2)

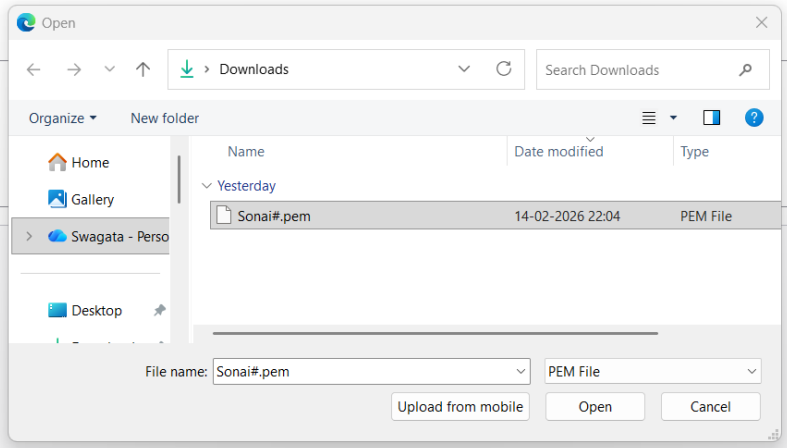
Key pair associated with this instance
Sonai#

Private key
Either upload your private key file or copy and paste its contents into the field below.

Upload private key file

Private key contents

Private key contents



Cancel | Decrypt password

Get Windows password Info

Use your private key to retrieve and decrypt the initial Windows administrator password for this instance.

Instance ID
i-0c171a5b80a3a775e (Instance2)

Key pair associated with this instance
Sonai#

Private key
Either upload your private key file or copy and paste its contents into the field below.

Upload private key file

Sonai#.pem
1.68 KB

Private key contents

```
-----BEGIN RSA PRIVATE KEY-----
MIIEpQIBAAKCAQEAt0EZSi2tFXbXwjvLyz+19caeaiSy3JwjUnmnXlvfJuc+nuBP
H5jFfrCeChWz1GYOjXQKByp4jP71vYnvCGQJziRHrMyki52fP3RxQNXu8UhfZv8m
y73e/f4ILcXGkrVatNpZNfg5s7lj2efMjaJr2DAWRhB2LmgTAlJGDkSCySmzRgrD
3jbj/e8y1i2cszDvjhQmios96ICf8sQva3CqR+FEpxd0yE9KTrsJgrqxaV4w+mh9
MoksVUdx6yOSTA42clY70fJUBPntxuAwYEAdhnnrjCJATj6Wj+4ibOx/OTjjTvNj
BU2AOcjM7cM5+Bxiqs6JcqGKUGiQIhIyjZ2icwIDAQABAoIBAQCthr1V2o6tZo3E
```

Cancel | Decrypt password

i-0c171a5b80a3a775e > Connect to instance

Connect Info

Connect to an instance using the browser-based client.

Instance ID	VPC ID	Security groups	IAM role
i-0c171a5b80a3a775e (Instance2)	vpc-02492443d8bcb7b0e	sg-01dc12d5aeabcd2eb (Microsoft Windows Server 2022 Base-2025.12.10-AutogenByAWSMP--1)	–

SSM Session Manager | RDP client | EC2 serial console

Record RDP connections
You can now record RDP connections using AWS Systems Manager just-in-time node access. Learn more

Try for free

Instance ID
i-0c171a5b80a3a775e (Instance2)

Connection Type

Connect using RDP client
Download a file to use with your RDP client and retrieve your password.

Connect using Fleet Manager
To connect to the instance using Fleet Manager Remote Desktop, the SSM Agent must be installed and running on the instance. For more information, see Working with SSM Agent

You can connect to your Windows instance using a remote desktop client of your choice, and by downloading and running the RDP shortcut file below:

Download remote desktop file

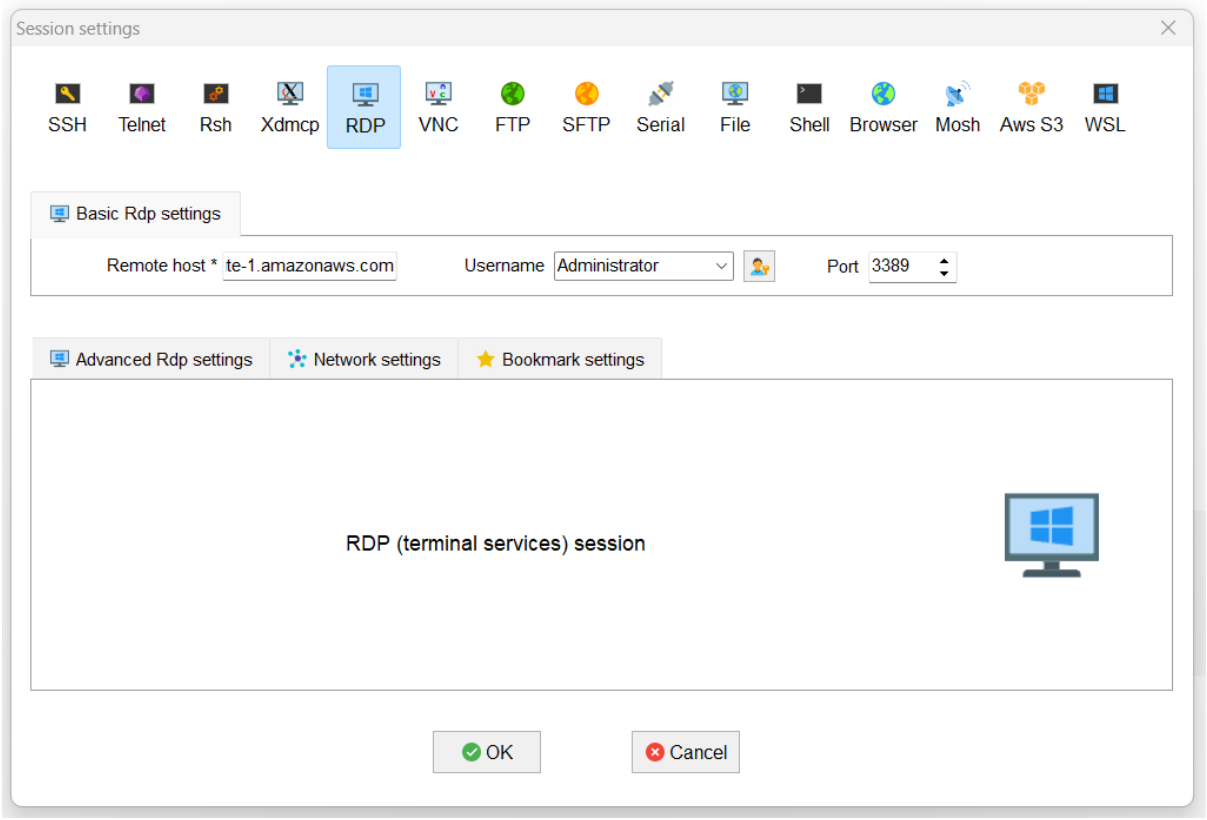
When prompted, connect to your instance using the following username and password:

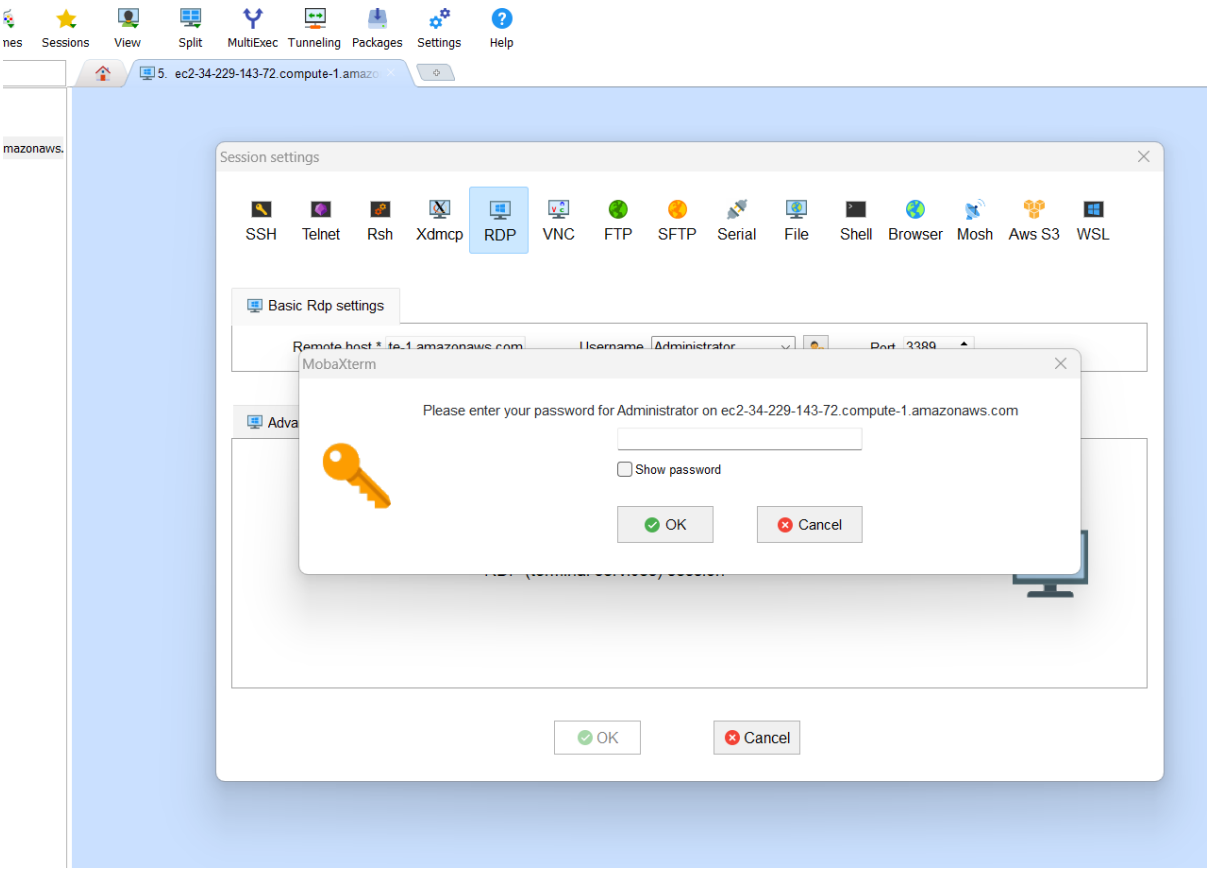
Public DNS
ec2-34-229-143-72.compute-1.amazonaws.com

Username Info
Administrator

Password
jXDSGNK%B*Pk8*(fb5S=Cds=9RgRBKP1

If you've joined your instance to a directory, you can use your directory credentials to connect to your instance.


Session settings
SSH
Telnet
Rsh
Xdmcp
RDP
VNC
FTP
SFTP
Serial
File
Shell
Browser
Mosh
Aws S3
WSL
Basic Rdp settings
Remote host * te-1.amazonaws.com
Username Administrator
Port 3389
Advanced Rdp settings
Network settings
Bookmark settings
RDP (terminal services) session
OK
Cancel


Sessions
View
Split
MultiExec
Tunneling
Packages
Settings
Help
Session settings
SSH
Telnet
Rsh
Xdmcp
RDP
VNC
FTP
SFTP
Serial
File
Shell
Browser
Mosh
Aws S3
WSL
Basic Rdp settings
MobaXterm
Please enter your password for Administrator on ec2-34-229-143-72.compute-1.amazonaws.com
Show password
OK
Cancel
OK
Cancel

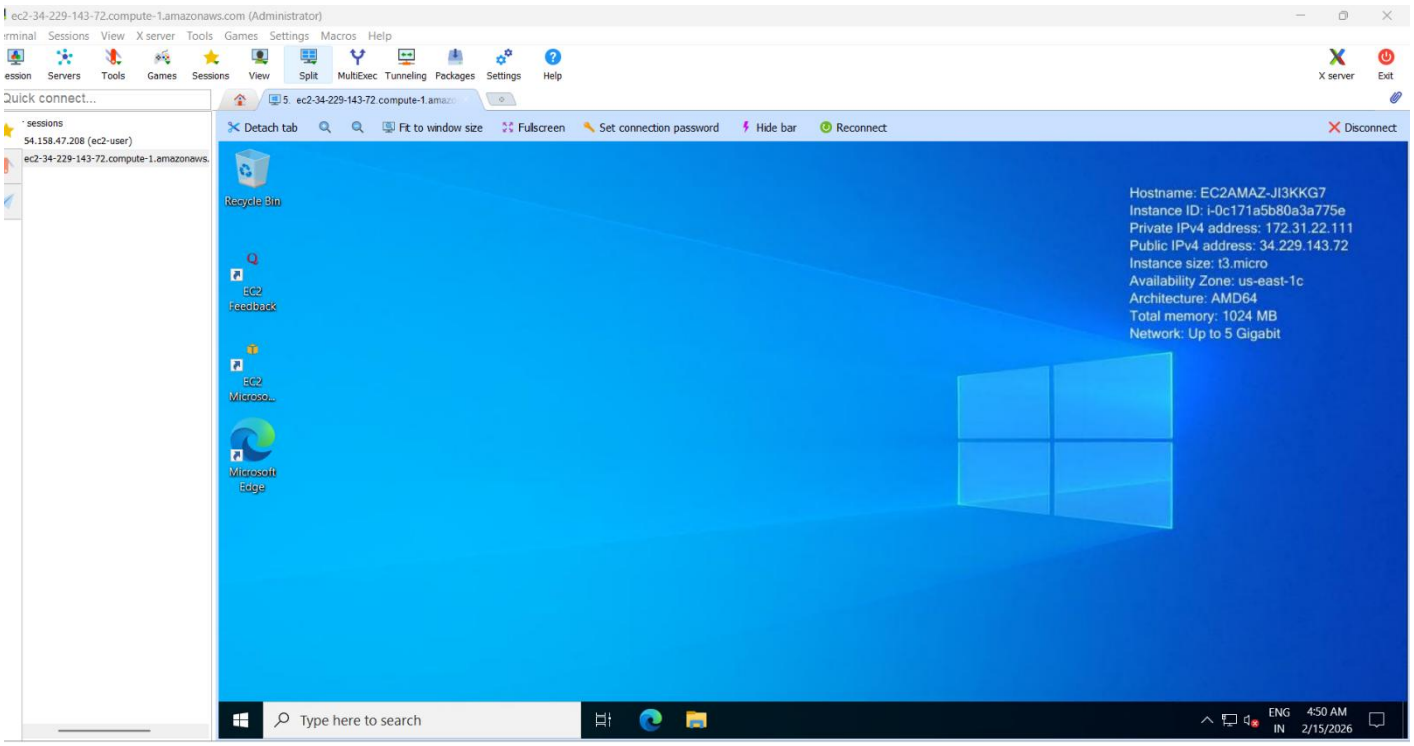
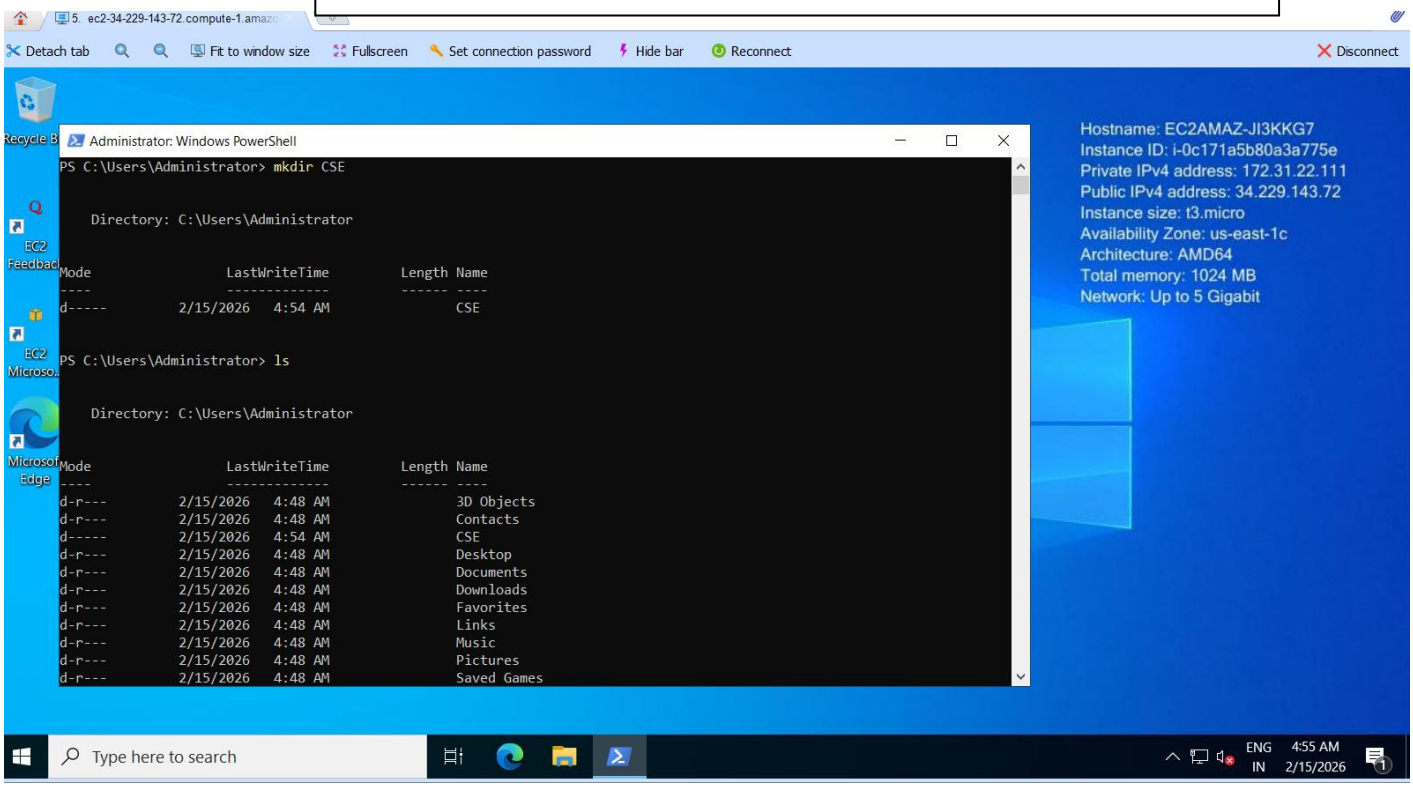


Figure: Windows EC2 instance desktop accessed via RDP.



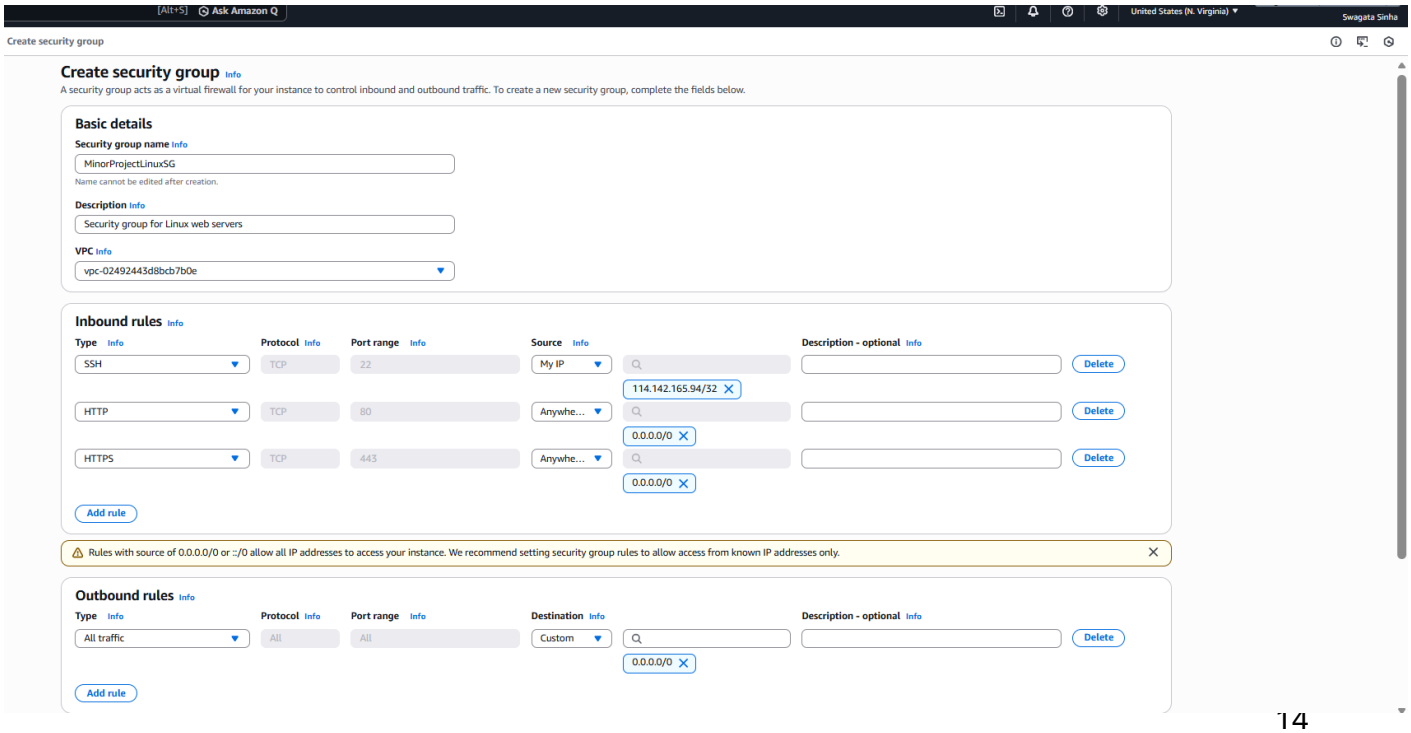
Experiment 3

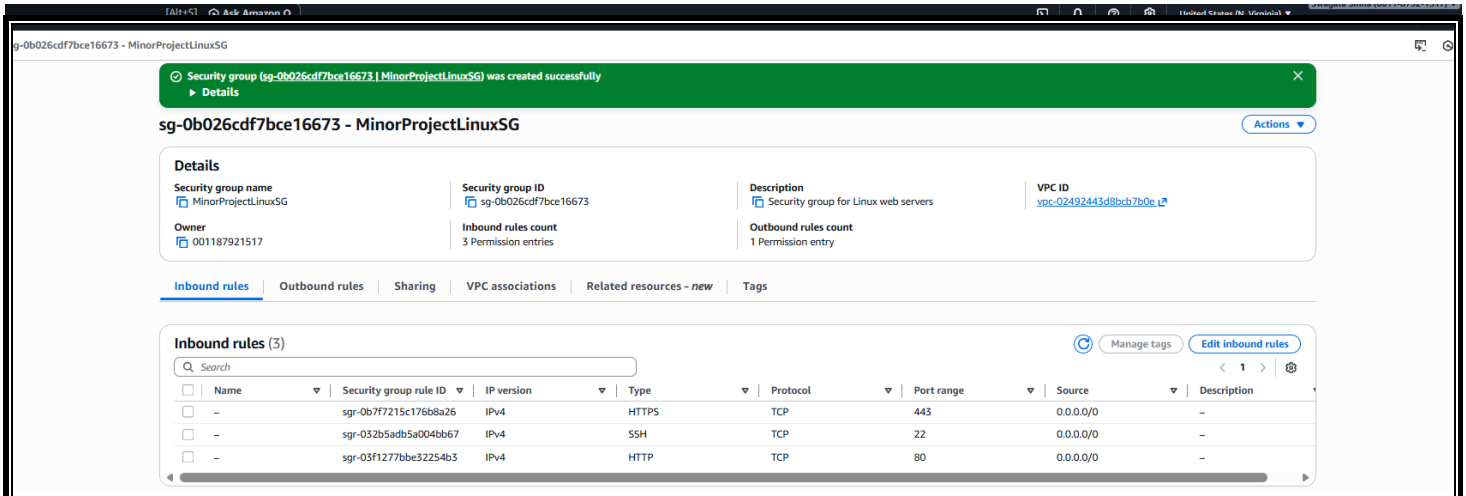
Aim: Create a launch template which can create 4 Linux instances with adding security group rule in security group of Ssh & Http, Https.

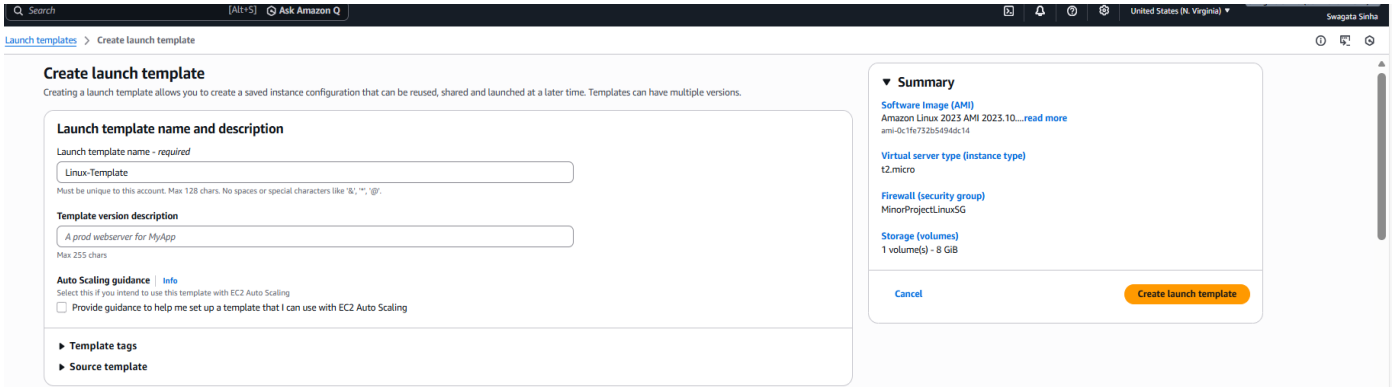
Steps performed:

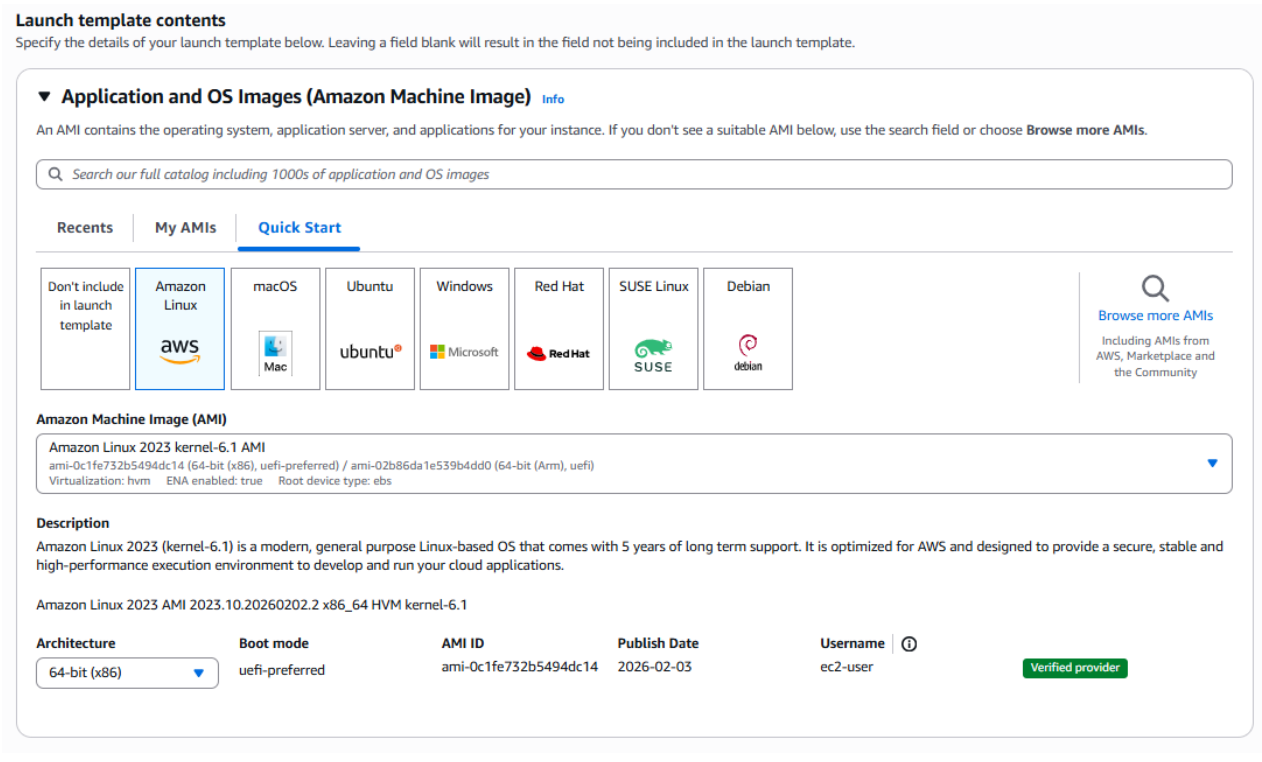
- Login to AWS Console and navigate to EC2 Dashboard.
- Go to Launch Templates → Create Launch Template.
- Enter Launch Template Name as Linux-Template.
- Select Amazon Linux AMI.
- Choose Instance type as t2.micro (Free tier eligible).
- Select RSA Key Pair (or plan to create a new one).
- Configure Security Group with inbound rules:
- SSH (22)
- HTTP (80)
- HTTPS (443)
- Click Create Launch Template.
- Go to Launch Templates → Linux-Template → Actions → Launch Instances from Template.
- Set Number of instances = 4 (deployment is optional, not executed now).

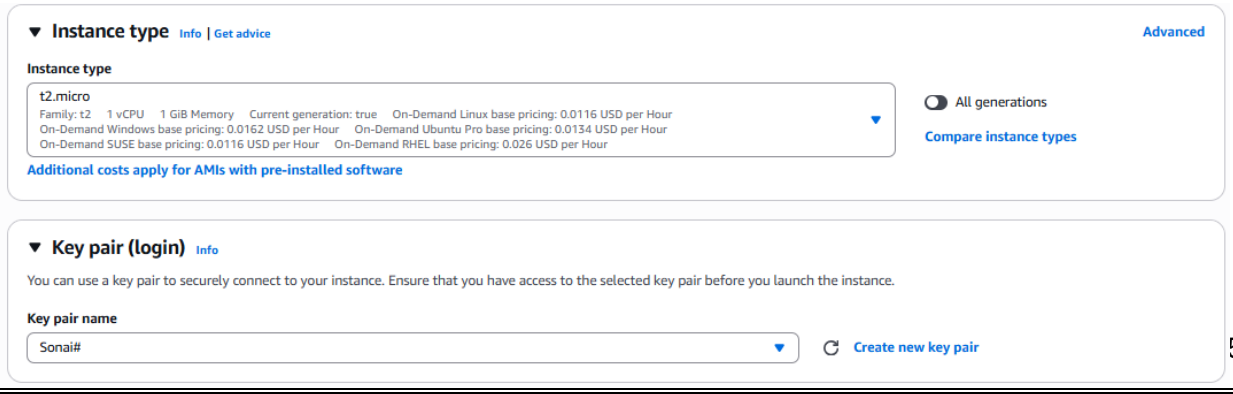
Screenshots:




Security group (sg-0b026cdf7bce16673 | MinorProjectLinuxSG) was created successfully
Details
sg-0b026cdf7bce16673 - MinorProjectLinuxSG
Actions
Details
Security group name
MinorProjectLinuxSG
Security group ID
sg-0b026cdf7bce16673
Description
Security group for Linux web servers
VPC ID
vpc-02492443d8bcb7b0e
Owner
001187921517
Inbound rules count
3 Permission entries
Outbound rules count
1 Permission entry
Inbound rules
Outbound rules
Sharing
VPC associations
Related resources - new
Tags
Inbound rules (3)
Manage tags
Edit inbound rules
Search
Name
Security group rule ID
IP version
Type
Protocol
Port range
Source
Description
sgr-0b7f7215c176b8a26
IPv4
HTTPS
TCP
443
0.0.0.0/0
sgr-032b5adb5a004bb67
IPv4
SSH
TCP
22
0.0.0.0/0
sgr-03f1277bbe32254b3
IPv4
HTTP
TCP
80
0.0.0.0/0


Launch templates
Create launch template
Create launch template
Creating a launch template allows you to create a saved instance configuration that can be reused, shared and launched at a later time. Templates can have multiple versions.
Launch template name and description
Launch template name - required
Linux-Template
Must be unique to this account. Max 128 chars. No spaces or special characters like '&', '*', '@'.
Template version description
A prod webserver for MyApp
Max 255 chars
Auto Scaling guidance | Info
Select this if you intend to use this template with EC2 Auto Scaling
Provide guidance to help me set up a template that I can use with EC2 Auto Scaling
Template tags
Source template
Summary
Software Image (AMI)
Amazon Linux 2023 AMI 2023.10....read more
ami-0c1fe732b5494dc14
Virtual server type (instance type)
t2.micro
Firewall (security group)
MinorProjectLinuxSG
Storage (volumes)
1 volume(s) - 8 GiB
Cancel
Create launch template


Launch template contents
Specify the details of your launch template below. Leaving a field blank will result in the field not being included in the launch template.
Application and OS Images (Amazon Machine Image) Info
An AMI contains the operating system, application server, and applications for your instance. If you don't see a suitable AMI below, use the search field or choose Browse more AMIs.
Search our full catalog including 1000s of application and OS images
Recents
My AMIs
Quick Start
Don't include in launch template
Amazon Linux
macOS
Ubuntu
Windows
Red Hat
SUSE Linux
Debian
Browse more AMIs
Including AMIs from AWS, Marketplace and the Community
Amazon Machine Image (AMI)
Amazon Linux 2023 kernel-6.1 AMI
ami-0c1fe732b5494dc14 (64-bit (x86), uefi-preferred) / ami-02b86da1e539b4dd0 (64-bit (Arm), uefi)
Virtualization: hvm ENA enabled: true Root device type: ebs
Description
Amazon Linux 2023 (kernel-6.1) is a modern, general purpose Linux-based OS that comes with 5 years of long term support. It is optimized for AWS and designed to provide a secure, stable and high-performance execution environment to develop and run your cloud applications.
Amazon Linux 2023 AMI 2023.10.20260202.2 x86_64 HVM kernel-6.1
Architecture
Boot mode
AMI ID
Publish Date
Username
64-bit (x86)
uefi-preferred
ami-0c1fe732b5494dc14
2026-02-03
ec2-user
Verified provider


Instance type Info | Get advice
Advanced
Instance type
t2.micro
Family: t2 1 vCPU 1 GiB Memory Current generation: true On-Demand Linux base pricing: 0.0116 USD per Hour
On-Demand Windows base pricing: 0.0162 USD per Hour On-Demand Ubuntu Pro base pricing: 0.0134 USD per Hour
On-Demand SUSE base pricing: 0.0116 USD per Hour On-Demand RHEL base pricing: 0.026 USD per Hour
All generations
Compare instance types
Additional costs apply for AMIs with pre-installed software
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
Sonai#
Create new key pair

Network settings Info

Subnet Info

subnet-0cbb951ae534cf4ec
VPC: vpc-02492443d8bcb7b0e Owner: 001187921517 Availability Zone: us-east-1d (use1-az6) Zone type: Availability Zone
IP addresses available: 4090 CIDR: 172.31.32.0/20)

Create new subnet

When you specify a subnet, a network interface is automatically added to your template.

Availability Zone Info

us-east-1d use1-az6

Enable additional zones

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.

Select existing security group | Create security group

Common security groups Info

Select security groups

MinorProjectLinuxSG sg-0b026cdf7bce16673
VPC: vpc-02492443d8bcb7b0e

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

Network interface 1

Device index Info: 0

Network interface Info: New interface

Description Info:

Subnet Info: subnet-0cbb951ae534cf4ec
IP addresses available: 4090

Security groups Info: Select security groups
Show all selected (1)

Auto-assign public IP Info: Enable

Summary

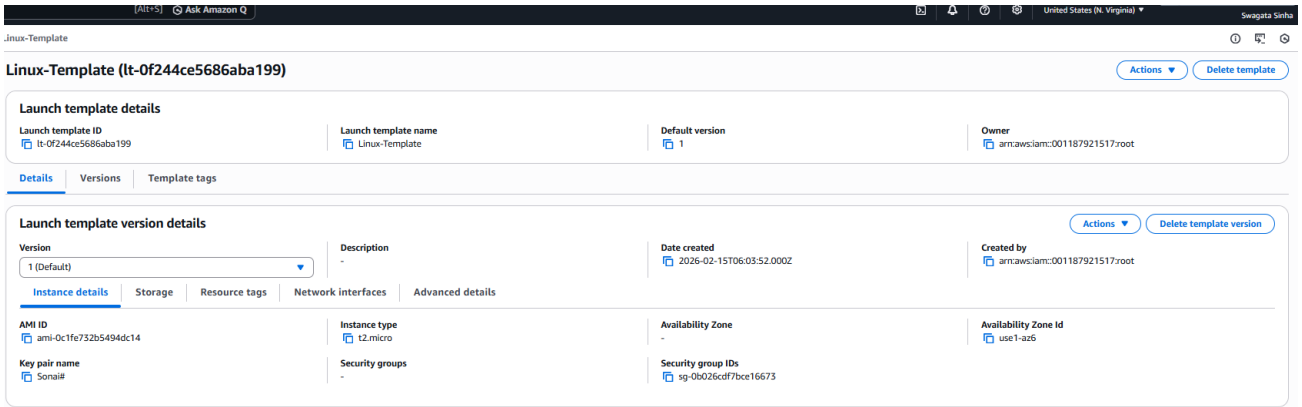
Software Image (AMI)
Amazon Linux 2023 AMI 2023.10....read more
ami-0c1fe732b5494dc14

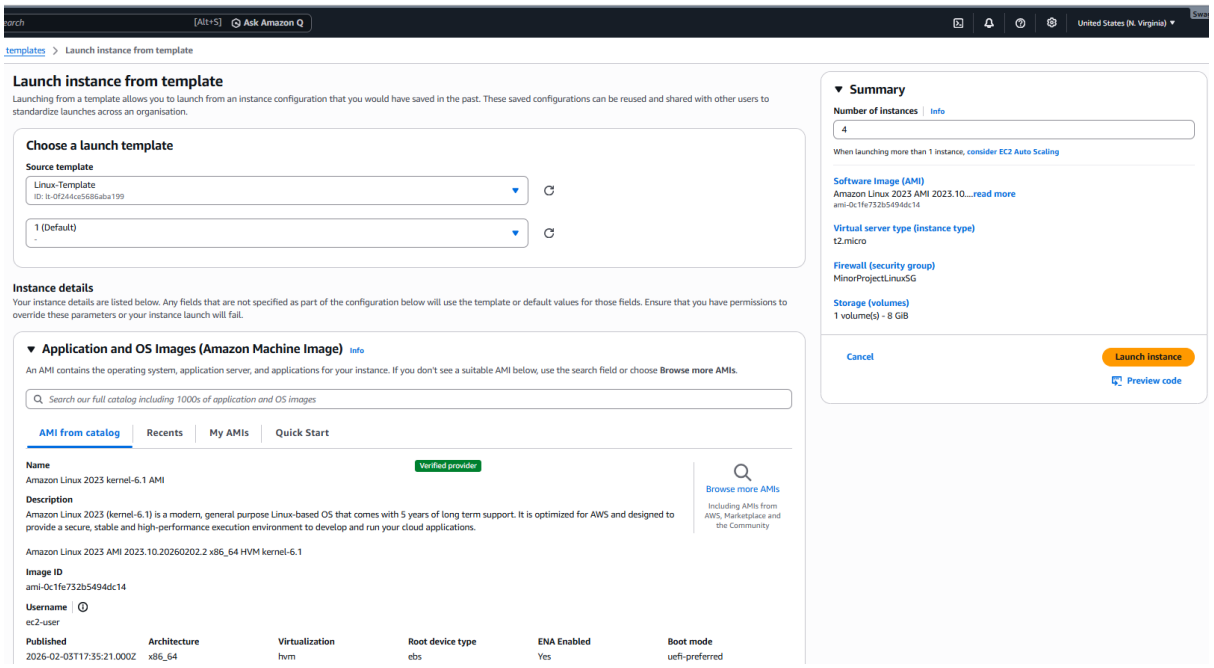
Virtual server type (instance type)
t2.micro

Firewall (security group)
MinorProjectLinuxSG

Storage (volumes)
1 volume(s) - 8 GiB

Cancel | Create launch template





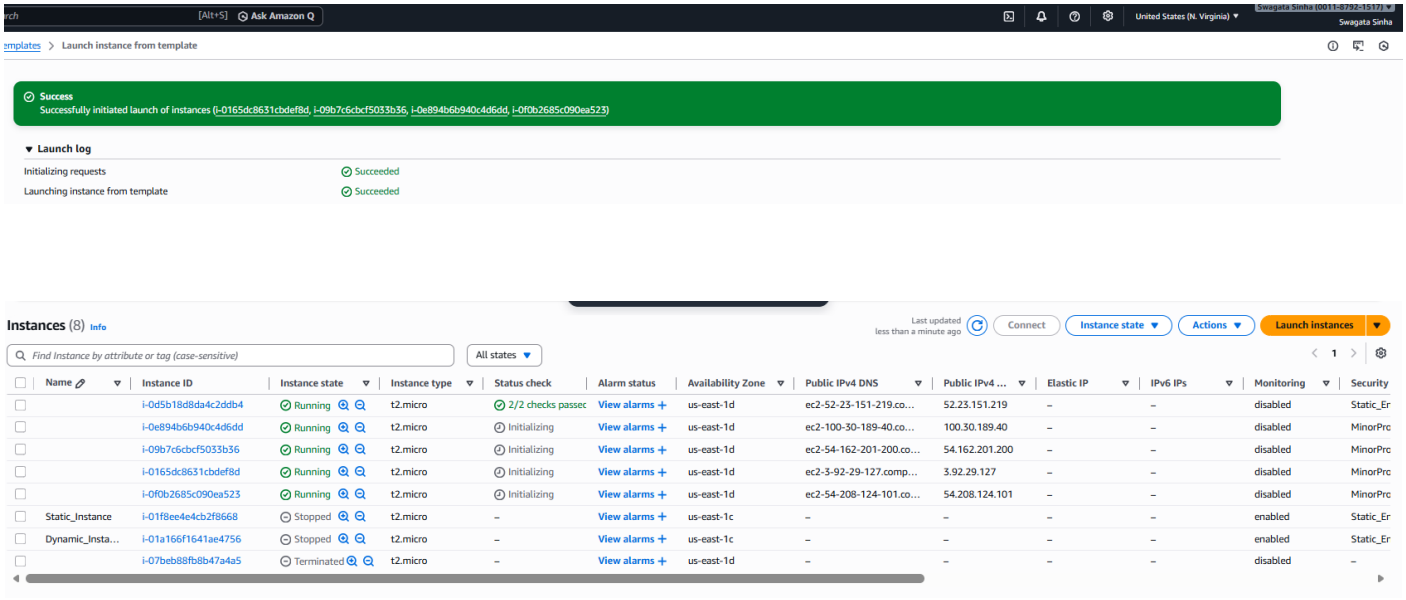
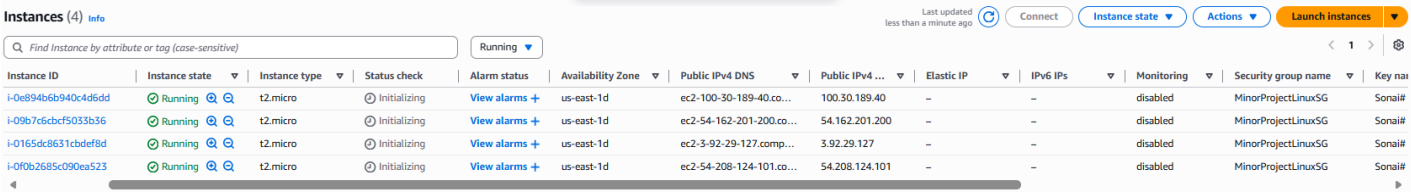


Figure: Launch template created for Linux EC2 instances.



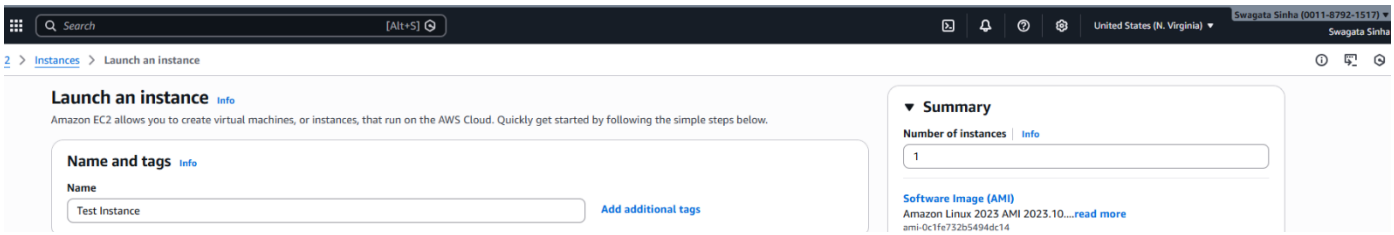
Experiment 4

Aim: Create a 5gb volume which can be attached with Linux ec2 instance. Volume and instance should be in same availability zone.

Steps performed:

- Login to AWS Console and navigate to **EC2 Dashboard**.
- Click on **Launch Instance** and select **Amazon Linux AMI**.
- Choose instance type as t2.micro (Free tier eligible).
- Select or create an RSA key pair.
- Configure Security Group with inbound rule: SSH (22) – My IP.
- Launch the instance and wait until it reaches **Running** state.
- Note the **Availability Zone** of the instance from the Details tab.
- Go to **EC2 → Volumes → Create Volume**.
- Enter Size as 5 GiB.
- Select the **same Availability Zone** as the instance.
- Click **Create Volume**.
- Select the created volume → Click **Actions → Attach Volume**.
- Choose the Linux EC2 instance and set device name as /dev/sdf.
- Click **Attach** and verify volume state shows **In-use**.

Screenshots:



Application and OS Images (Amazon Machine Image) Info

An AMI contains the operating system, application server, and applications for your instance. If you don't see a suitable AMI below, use the search field or choose **Browse more AMIs**.

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

Recents | My AMIs | Quick Start

Amazon Linux | macOS | Ubuntu | Windows | Red Hat | SUSE Linux | Debian

Browse more AMIs
Including AMIs from AWS, Marketplace and the Community

Amazon Machine Image (AMI)

Amazon Linux 2023 kernel-6.1 AMI
ami-0c1fe732b5494dc14 (64-bit (x86), uefi-preferred) / ami-02b86da1e539b4dd0 (64-bit (Arm), uefi)
Virtualization: hvm ENA enabled: true Root device type: ebs

Description

Amazon Linux 2023 (kernel-6.1) is a modern, general purpose Linux-based OS that comes with 5 years of long term support. It is optimized for AWS and designed to provide a secure, stable and high-performance execution environment to develop and run your cloud applications.

Amazon Linux 2023 AMI 2023.10.20260202.2 x86_64 HVM kernel-6.1

Architecture	Boot mode	AMI ID	Publish Date	Username	
64-bit (x86)	uefi-preferred	ami-0c1fe732b5494dc14	2026-02-03	ec2-user	Verified provider

Instance type Info | Get advice

Instance type

t2.micro
Family: t2 1 vCPU 1 GiB Memory Current generation: true On-Demand Linux base pricing: 0.0116 USD per Hour
On-Demand Windows base pricing: 0.0162 USD per Hour On-Demand Ubuntu Pro base pricing: 0.0134 USD per Hour
On-Demand SUSE base pricing: 0.0116 USD per Hour On-Demand RHEL base pricing: 0.026 USD per Hour

All generations

Compare instance types

Additional costs apply for AMIs with pre-installed software

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*

Sonai# | Create new key pair

Network settings Info

VPC - *required* Info

vpc-02492443d8bcb7b0e (default)
172.31.0.0/16

Subnet Info

subnet-0866de87910fe34ae
VPC: vpc-02492443d8bcb7b0e Owner: 001187921517 Availability Zone: us-east-1b (use1-az2)
Zone type: Availability Zone IP addresses available: 4091 CIDR: 172.31.80.0/20)

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

launch-wizard-1 sg-0d0c94c82b713be00
VPC: vpc-02492443d8bcb7b0e

Compare security group rules

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

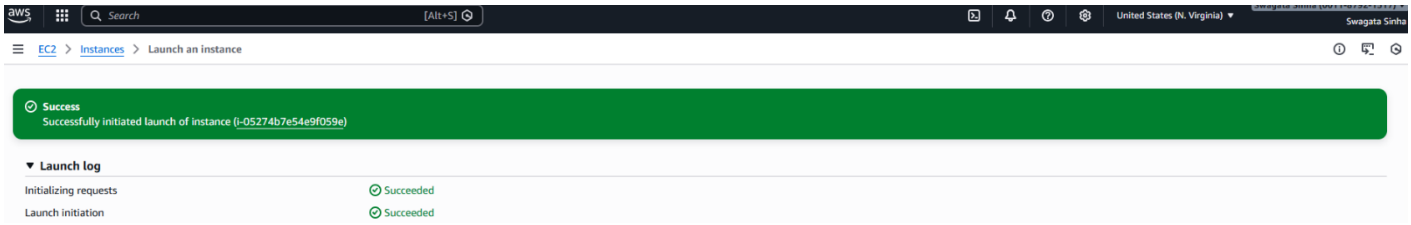
▸ Advanced network configuration

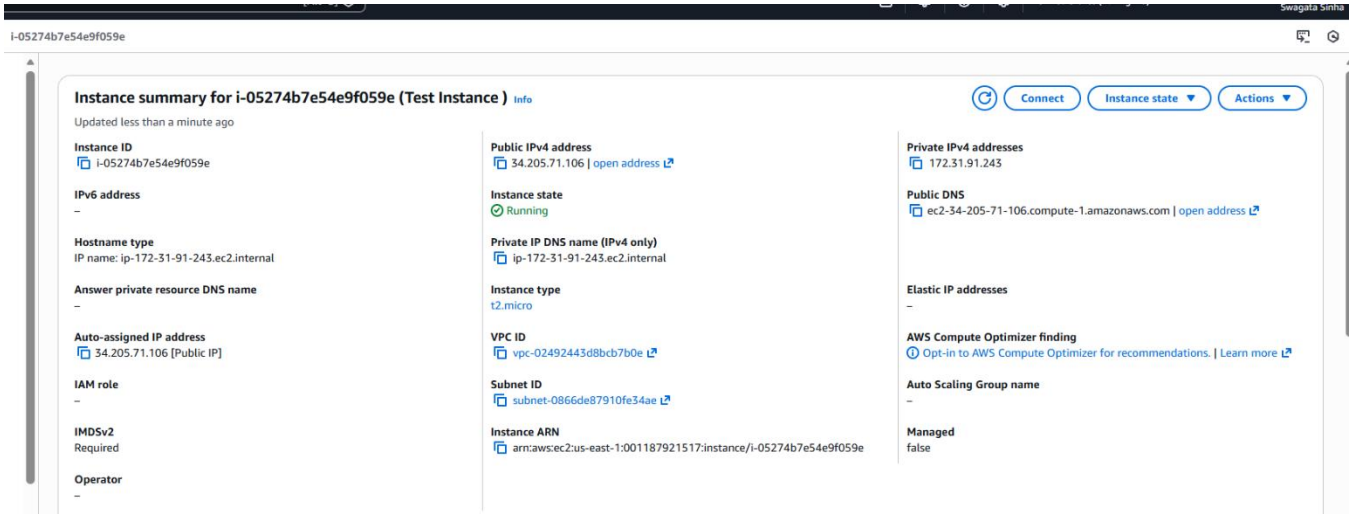
Configure storage Info

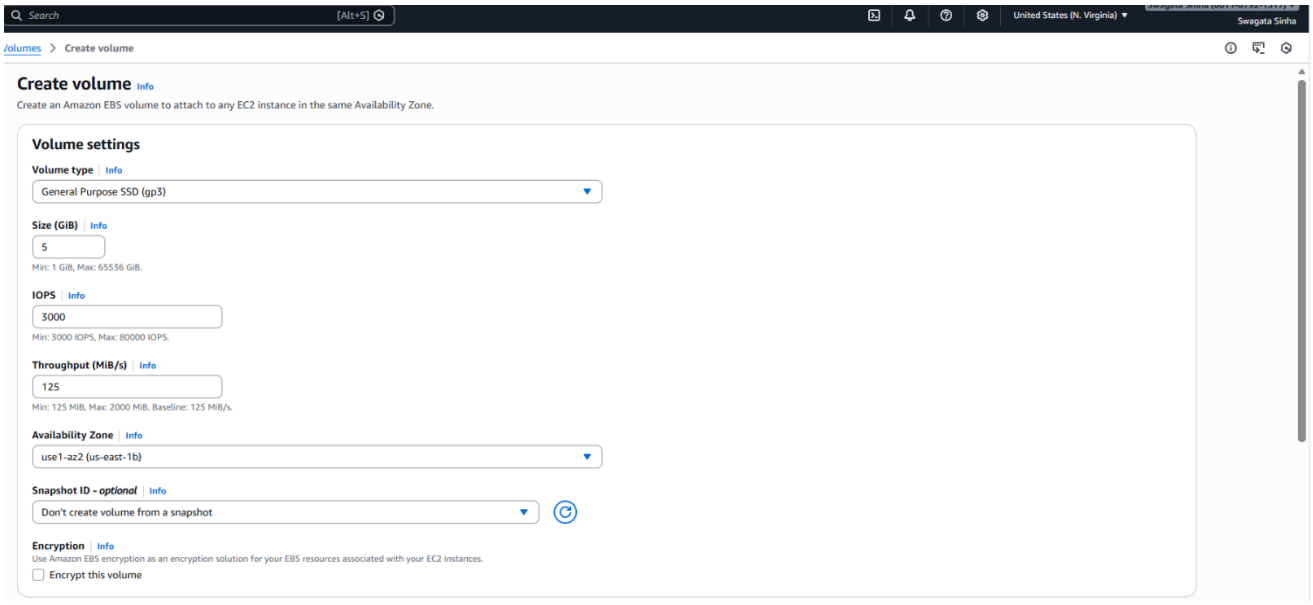
Advanced

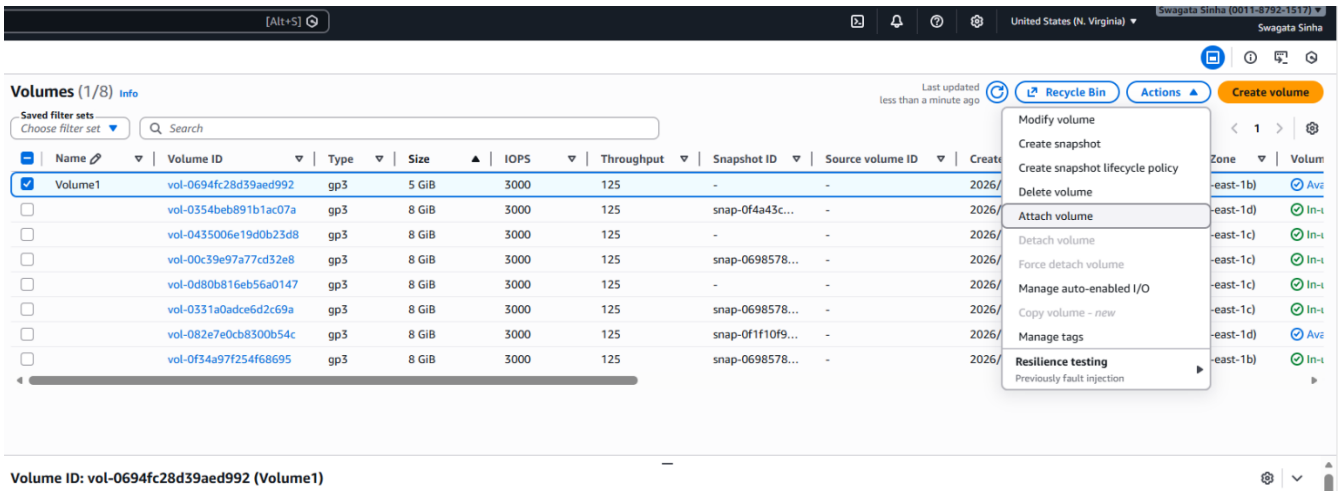
1x 8 GiB gp3 Root volume, 3000 IOPS, Not encrypted

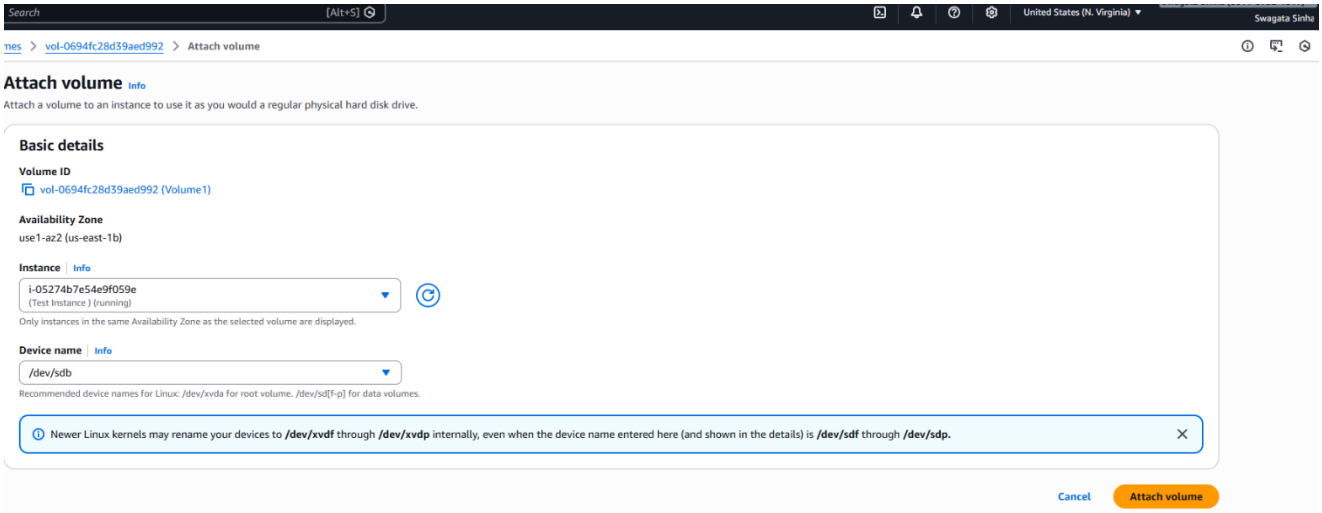
Add new volume

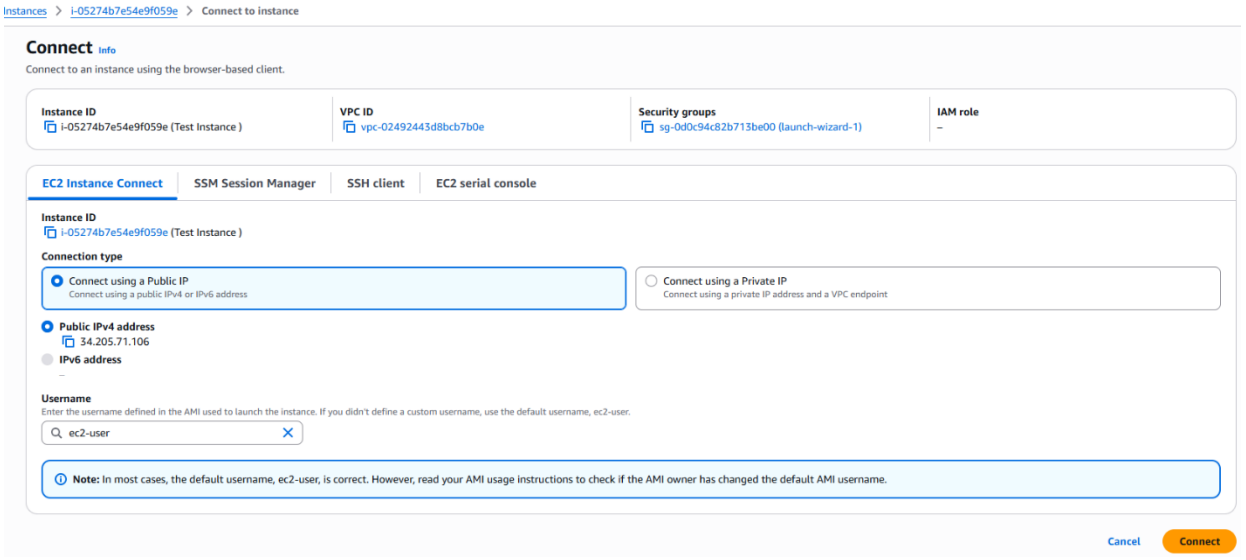

Search
[Alt+S]
United States (N. Virginia)
Swagata Sinha
EC2 > Instances > Launch an instance
Success
Successfully initiated launch of instance (i-05274b7e54e9f059e)
Launch log
Initializing requests
Succeeded
Launch initiation
Succeeded

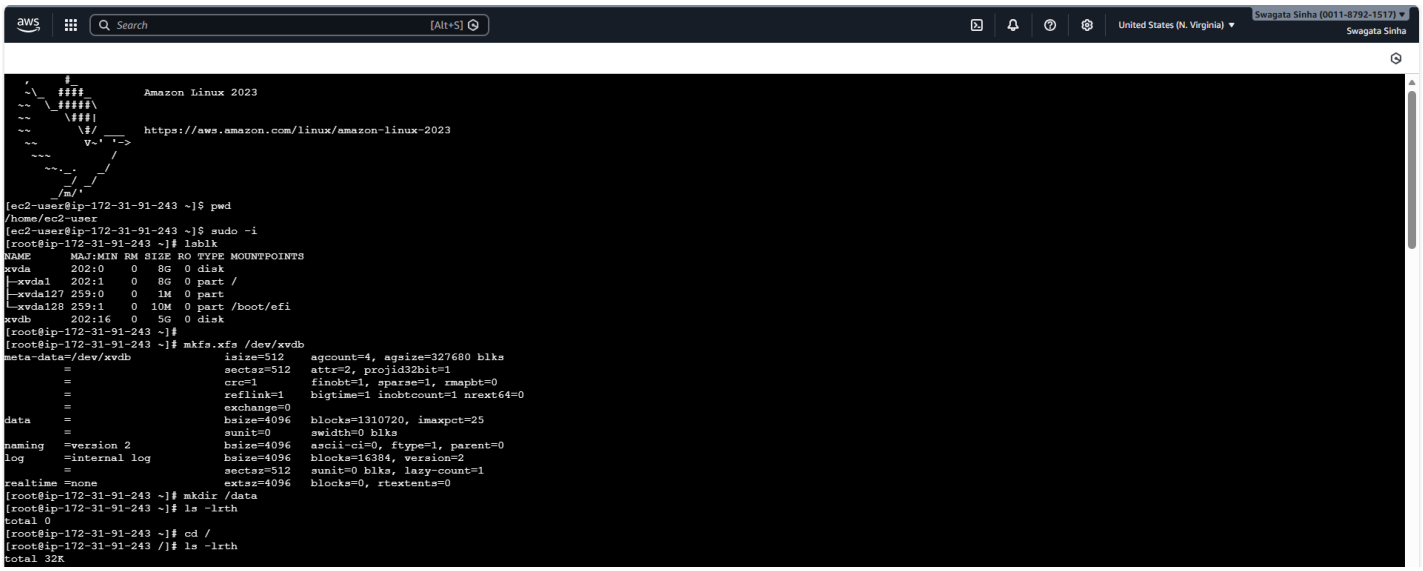

i-05274b7e54e9f059e
Instance summary for i-05274b7e54e9f059e (Test Instance) Info
Updated less than a minute ago
Connect
Instance state
Actions
Instance ID
i-05274b7e54e9f059e
IPv6 address
–
Hostname type
IP name: ip-172-31-91-243.ec2.internal
Answer private resource DNS name
–
Auto-assigned IP address
34.205.71.106 [Public IP]
IAM role
–
IMDSv2
Required
Operator
–
Public IPv4 address
34.205.71.106 | open address
Instance state
Running
Private IP DNS name (IPv4 only)
ip-172-31-91-243.ec2.internal
Instance type
t2.micro
VPC ID
vpc-02492443d8bcb7b0e
Subnet ID
subnet-0866de87910fe34ae
Instance ARN
arn:aws:ec2:us-east-1:001187921517:instance/i-05274b7e54e9f059e
Private IPv4 addresses
172.31.91.243
Public DNS
ec2-34-205-71-106.compute-1.amazonaws.com | open address
Elastic IP addresses
–
AWS Compute Optimizer finding
Opt-in to AWS Compute Optimizer for recommendations. | Learn more
Auto Scaling Group name
–
Managed
false

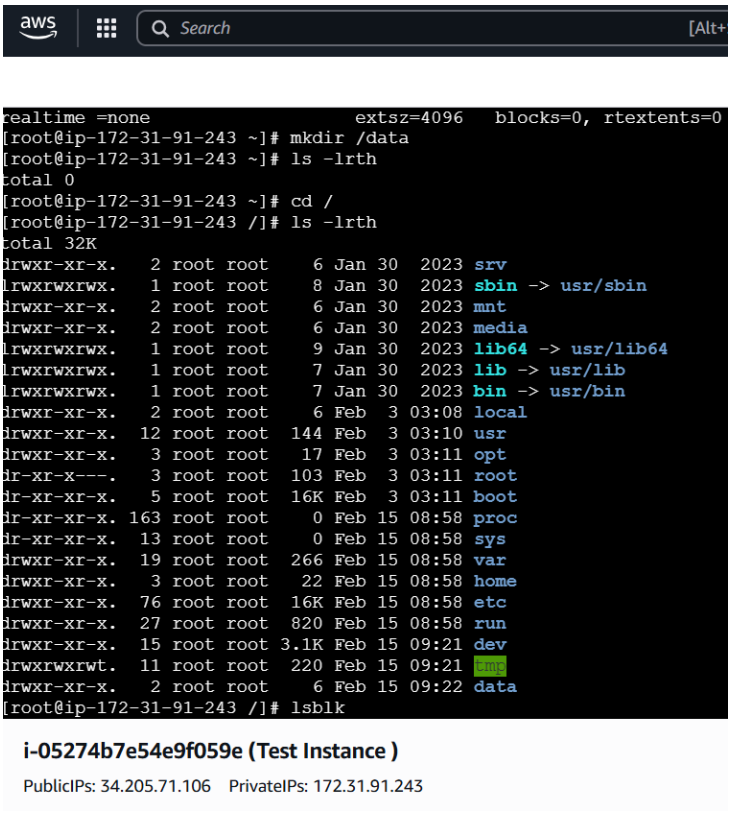

Search
[Alt+S]
United States (N. Virginia)
Swagata Sinha
/olumes > Create volume
Create volume Info
Create an Amazon EBS volume to attach to any EC2 instance in the same Availability Zone.
Volume settings
Volume type Info
General Purpose SSD (gp3)
Size (GiB) Info
5
Min: 1 GiB, Max: 65536 GiB.
IOPS Info
3000
Min: 3000 IOPS, Max: 80000 IOPS.
Throughput (MiB/s) Info
125
Min: 125 MiB, Max: 2000 MiB. Baseline: 125 MiB/s.
Availability Zone Info
use1-az2 (us-east-1b)
Snapshot ID - optional Info
Don't create volume from a snapshot
Encryption Info
Use Amazon EBS encryption as an encryption solution for your EBS resources associated with your EC2 instances.
Encrypt this volume


[Alt+S]
United States (N. Virginia)
Swagata Sinha (0011-8792-1517)
Swagata Sinha
Volumes (1/8) Info
Last updated less than a minute ago
Recycle Bin
Actions
Create volume
Saved filter sets
Choose filter set
Search
Name
Volume ID
Type
Size
IOPS
Throughput
Snapshot ID
Source volume ID
Volume1
vol-0694fc28d39aed992
gp3
5 GiB
3000
125
vol-0354beb891b1ac07a
8 GiB
snap-0f4a43c...
vol-0435006e19d0b23d8
vol-00c39e97a77cd32e8
snap-0698578...
vol-0d80b816eb56a0147
vol-0331a0adce6d2c69a
vol-082e7e0cb8300b54c
snap-0f1f10f9...
vol-0f34a97f254f68695
Modify volume
Create snapshot
Create snapshot lifecycle policy
Delete volume
Attach volume
Detach volume
Force detach volume
Manage auto-enabled I/O
Copy volume - new
Manage tags
Resilience testing
Previously fault injection
Volume ID: vol-0694fc28d39aed992 (Volume1)


Search
[Alt+S]
United States (N. Virginia)
Swagata Sinha
nes > vol-0694fc28d39aed992 > Attach volume
Attach volume Info
Attach a volume to an instance to use it as you would a regular physical hard disk drive.
Basic details
Volume ID
vol-0694fc28d39aed992 (Volume1)
Availability Zone
use1-az2 (us-east-1b)
Instance Info
i-05274b7e54e9f059e
(Test Instance) (running)
Only instances in the same Availability Zone as the selected volume are displayed.
Device name Info
/dev/sdb
Recommended device names for Linux: /dev/xvda for root volume. /dev/sd[f-p] for data volumes.
Newer Linux kernels may rename your devices to /dev/xvdf through /dev/xvdp internally, even when the device name entered here (and shown in the details) is /dev/sdf through /dev/sdp.
Cancel
Attach volume


Instances > i-05274b7e54e9f059e > Connect to instance
Connect Info
Connect to an instance using the browser-based client.
Instance ID
i-05274b7e54e9f059e (Test Instance)
VPC ID
vpc-02492443d8bcb7b0e
Security groups
sg-0d0c94c82b713be00 (launch-wizard-1)
IAM role
–
EC2 Instance Connect
SSM Session Manager
SSH client
EC2 serial console
Instance ID
i-05274b7e54e9f059e (Test Instance)
Connection type
Connect using a Public IP
Connect using a public IPv4 or IPv6 address
Connect using a Private IP
Connect using a private IP address and a VPC endpoint
Public IPv4 address
34.205.71.106
IPv6 address
–
Username
Enter the username defined in the AMI used to launch the instance. If you didn't define a custom username, use the default username, ec2-user.
ec2-user
Note: In most cases, the default username, ec2-user, is correct. However, read your AMI usage instructions to check if the AMI owner has changed the default AMI username.
Cancel
Connect


aws
Search
[Alt+S]
United States (N. Virginia)
Swagata Sinha (0011-8792-1517)
Swagata Sinha
Amazon Linux 2023
https://aws.amazon.com/linux/amazon-linux-2023
[ec2-user@ip-172-31-91-243 ~]$ pwd
/home/ec2-user
[ec2-user@ip-172-31-91-243 ~]$ sudo -i
[root@ip-172-31-91-243 ~]# lsblk
NAME MAJ:MIN RM SIZE RO TYPE MOUNTPOINTS
xvda 202:0 0 8G 0 disk
├─xvda1 202:1 0 8G 0 part /
├─xvda127 259:0 0 1M 0 part
└─xvda128 259:1 0 10M 0 part /boot/efi
xvdb 202:16 0 5G 0 disk
[root@ip-172-31-91-243 ~]#
[root@ip-172-31-91-243 ~]# mkfs.xfs /dev/xvdb
meta-data=/dev/xvdb isize=512 agcount=4, agsize=327680 blks
= sectsz=512 attr=2, projid32bit=1
= crc=1 finobt=1, sparse=1, rmapbt=0
= reflink=1 bigtime=1 inobtcount=1 nrext64=0
= exchange=0
data = bsize=4096 blocks=1310720, imaxpct=25
= sunit=0 swidth=0 blks
naming =version 2 bsize=4096 ascii-ci=0, ftype=1, parent=0
log =internal log bsize=4096 blocks=16384, version=2
= sectsz=512 sunit=0 blks, lazy-count=1
realtime =none extsz=4096 blocks=0, rtextents=0
[root@ip-172-31-91-243 ~]# mkdir /data
[root@ip-172-31-91-243 ~]# ls -lrth
total 0
[root@ip-172-31-91-243 ~]# cd /
[root@ip-172-31-91-243 /]# ls -lrth
total 32K




```
[root@ip-172-31-91-243 /]# lsblk
NAME      MAJ:MIN RM SIZE RO TYPE MOUNTPOINTS
xvda      202:0    0   8G  0 disk
├─xvda1   202:1    0   8G  0 part /
├─xvda127 259:0    0   1M  0 part
└─xvda128 259:1    0  10M  0 part /boot/efi
xvdb      202:16   0   5G  0 disk
[root@ip-172-31-91-243 /]# mount /dev/xvdb /data
[root@ip-172-31-91-243 /]# lsblk
NAME      MAJ:MIN RM SIZE RO TYPE MOUNTPOINTS
xvda      202:0    0   8G  0 disk
├─xvda1   202:1    0   8G  0 part /
├─xvda127 259:0    0   1M  0 part
└─xvda128 259:1    0  10M  0 part /boot/efi
xvdb      202:16   0   5G  0 disk /data
[root@ip-172-31-91-243 /]# df -h
Filesystem      Size  Used Avail Use% Mounted on
devtmpfs        4.0M     0  4.0M   0% /dev
tmpfs           481M     0  481M   0% /dev/shm
tmpfs           193M  448K  192M   1% /run
/dev/xvda1      8.0G  1.6G  6.4G  20% /
tmpfs           481M     0  481M   0% /tmp
/dev/xvda128     10M  1.3M  8.7M  13% /boot/efi
tmpfs            97M     0   97M   0% /run/user/1000
/dev/xvdb       5.0G   68M  4.9G   2% /data
[root@ip-172-31-91-243 /]# cd /data
[root@ip-172-31-91-243 data]# ls
```

Figure: 5GB EBS volume attached to Linux EC2 instance (same AZ)

```
drwxr-xr-x.   3 root root   17 Feb 15 09:37 data
drwxrwxrwt.  11 root root  220 Feb 15 09:39 tmp
[root@ip-172-31-91-243 /]# lsblk
NAME      MAJ:MIN RM SIZE RO TYPE MOUNTPOINTS
xvda      202:0    0   8G  0 disk
├─xvda1   202:1    0   8G  0 part /
├─xvda127 259:0    0   1M  0 part
└─xvda128 259:1    0  10M  0 part /boot/efi
xvdb      202:16   0   5G  0 disk /data
[root@ip-172-31-91-243 /]#
```

Experiment 5

Aim: Create a 5gb volume which can be attached with Linux ec2 instance. Volume and instance should be in different regions.

Steps performed:

• Login to AWS Console and navigate to EC2 Dashboard.

• Select **Region 1** (e.g., N. Virginia).

• Click on **Launch Instance** and select **Amazon Linux AMI**.

• Choose instance type as t2.micro (Free tier eligible).

• Create or select an RSA key pair.

• Configure Security Group with inbound rule: SSH (22).

• Launch the instance and wait until it reaches **Running** state.

Create 5GB Volume in Region 1

• Go to **EC2 → Volumes → Create Volume**.

• Enter Size as 5 GiB.

• Select the same Availability Zone as the instance.

• Click **Create Volume**.

• Attach the volume to the Linux EC2 instance.

Create Snapshot

• Select the volume → Click **Actions → Create Snapshot**.

• Click **Create Snapshot** and wait until status shows **Completed**.

Copy Snapshot to Different Region

• Select the snapshot → Click **Actions → Copy Snapshot**.

• Choose **Destination Region** (e.g., Mumbai).

• Click **Copy Snapshot**.

• Change region to the destination region.

• Wait until copied snapshot status shows **Completed**.

Create Volume in Different Region

• Select the copied snapshot → Click **Actions → Create Volume**.

• Select an Availability Zone in that region.

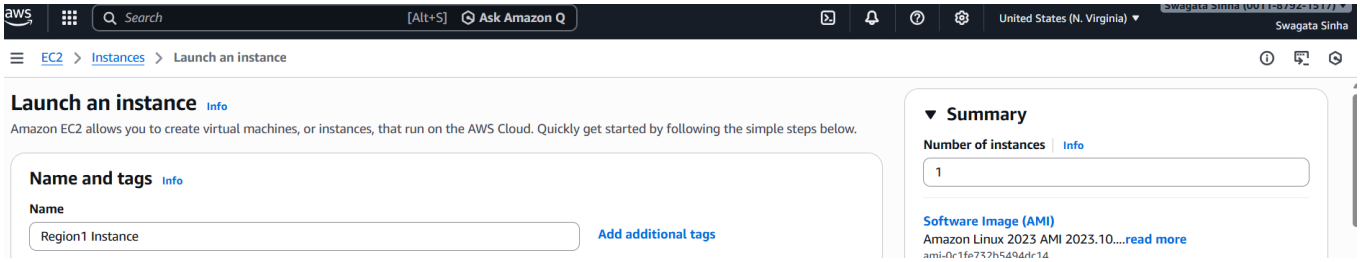
• Click **Create Volume**.

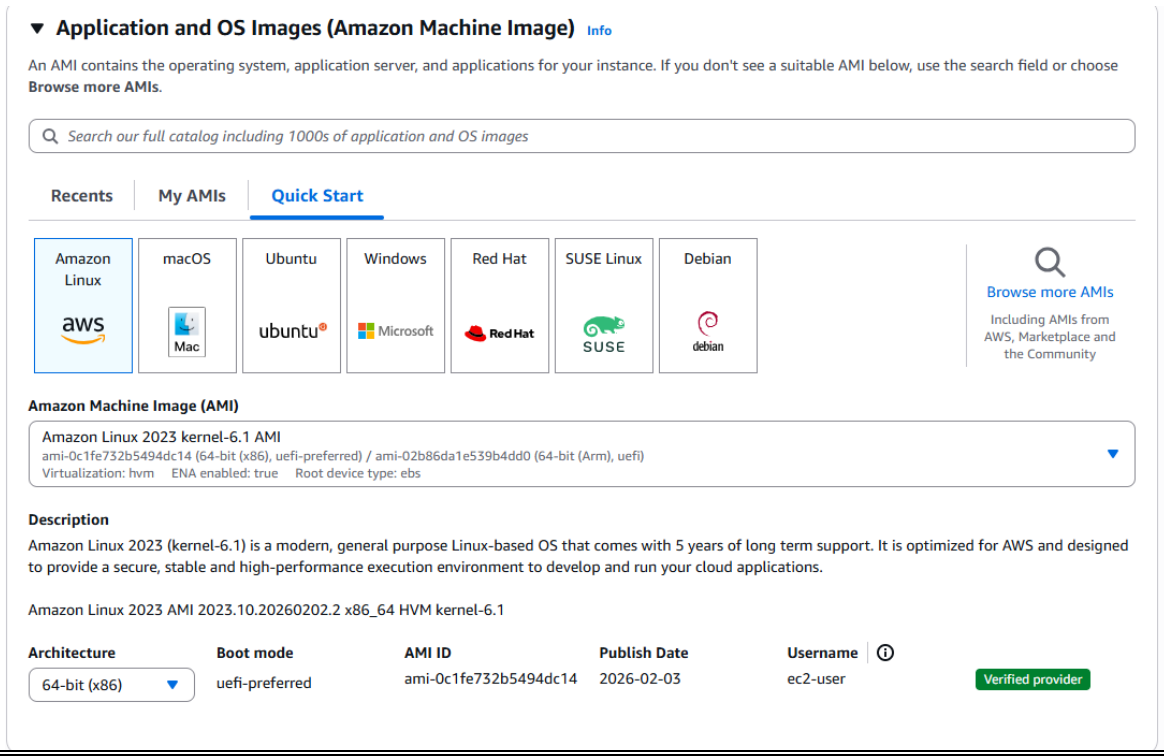
• Launch a Linux EC2 instance in this new region.

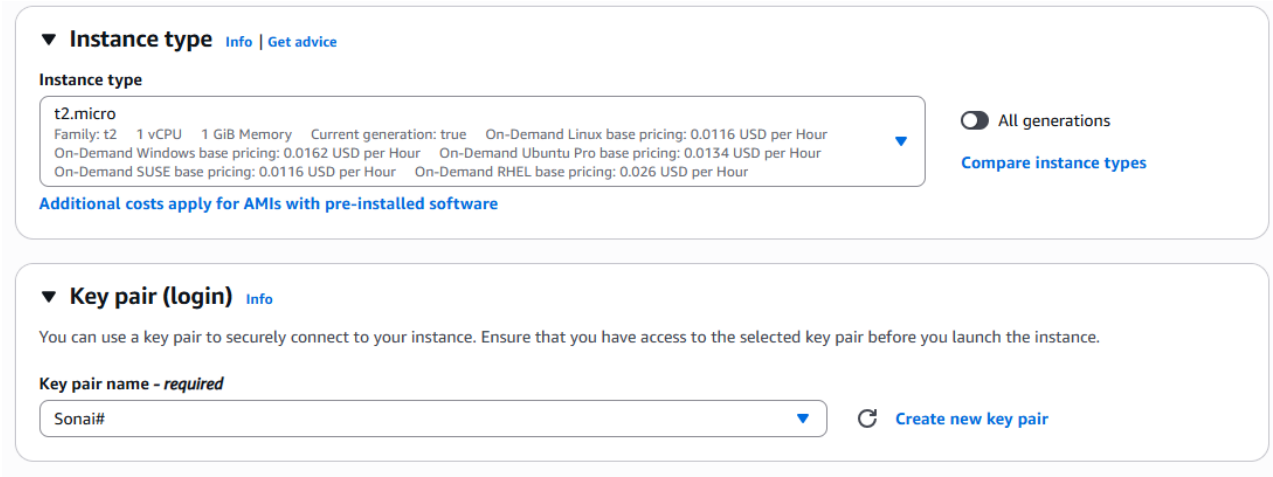
• Attach the newly created 5GB volume to this instance.

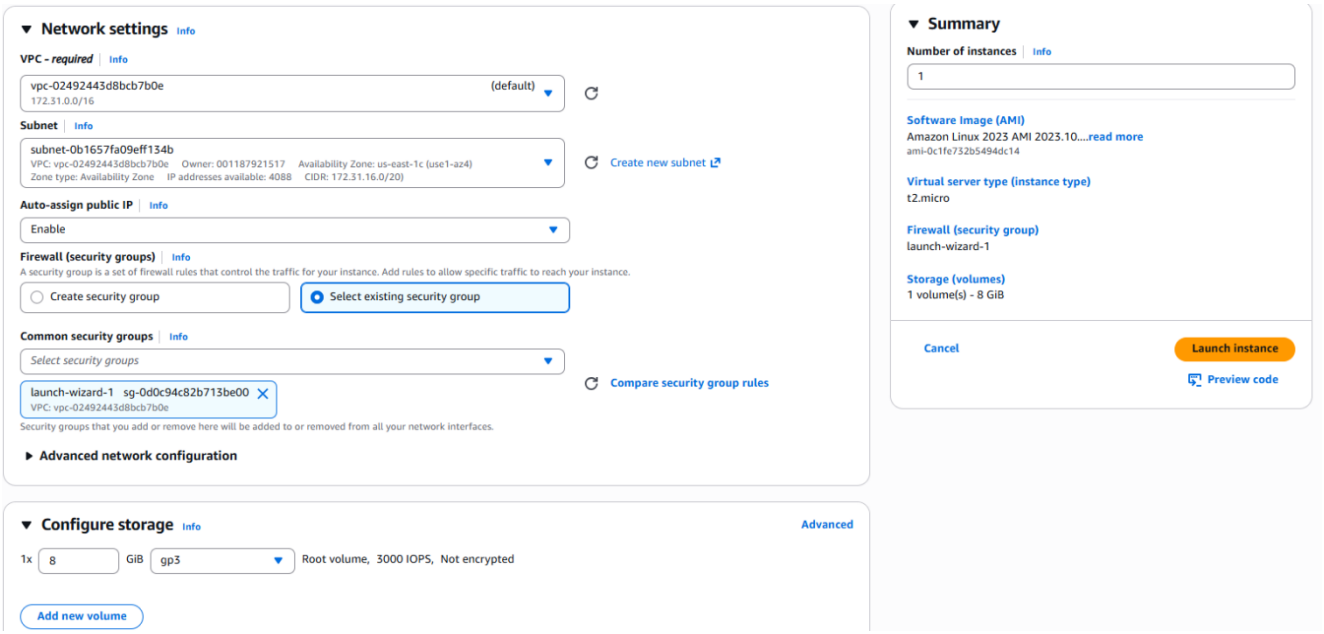
Screenshots:

For Region 1:

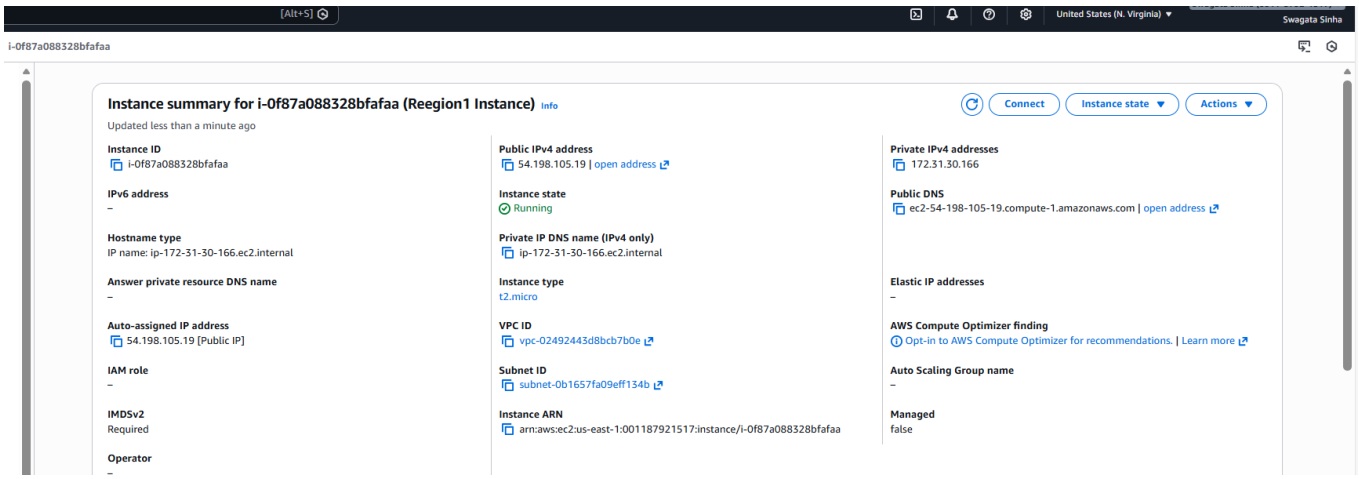


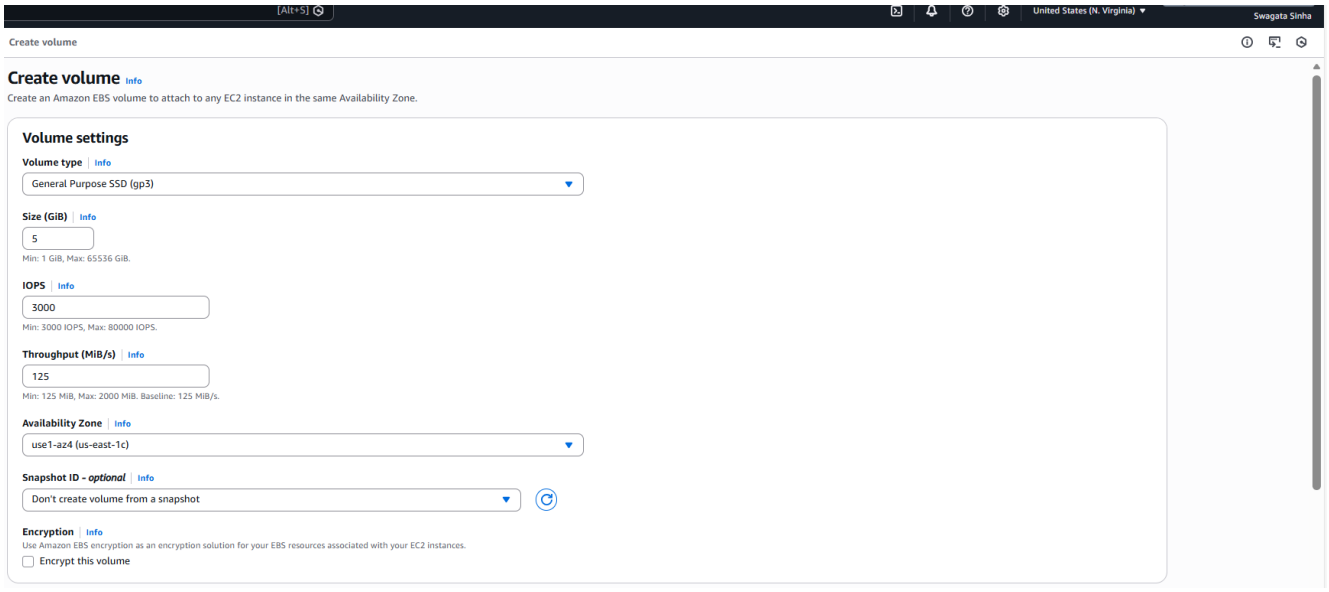


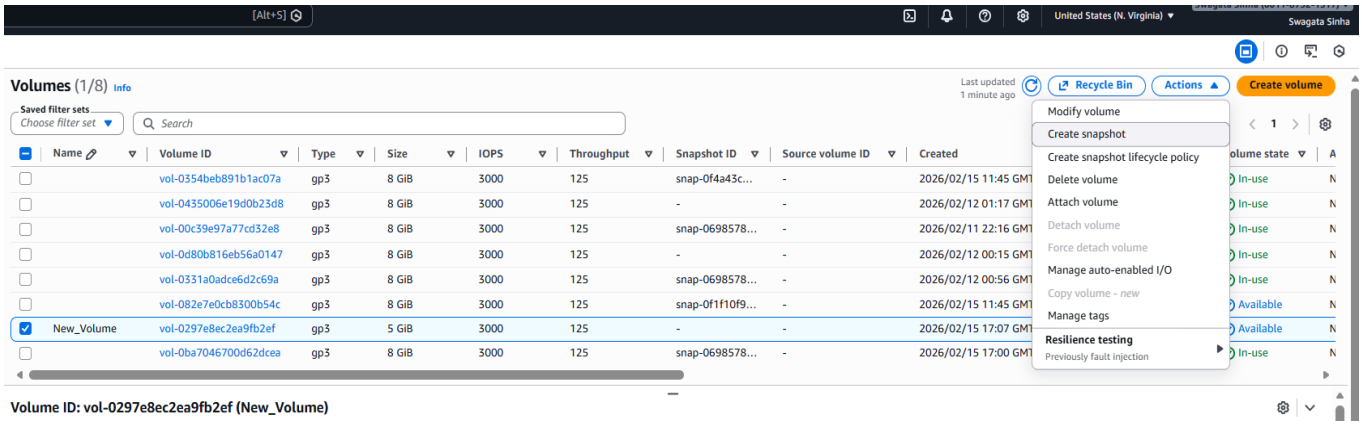

Instance type Info | Get advice
Instance type
t2.micro
Family: t2 1 vCPU 1 GiB Memory Current generation: true On-Demand Linux base pricing: 0.0116 USD per Hour
On-Demand Windows base pricing: 0.0162 USD per Hour On-Demand Ubuntu Pro base pricing: 0.0134 USD per Hour
On-Demand SUSE base pricing: 0.0116 USD per Hour On-Demand RHEL base pricing: 0.026 USD per Hour
All generations
Compare instance types
Additional costs apply for AMIs with pre-installed software
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
Sonai#
Create new key pair

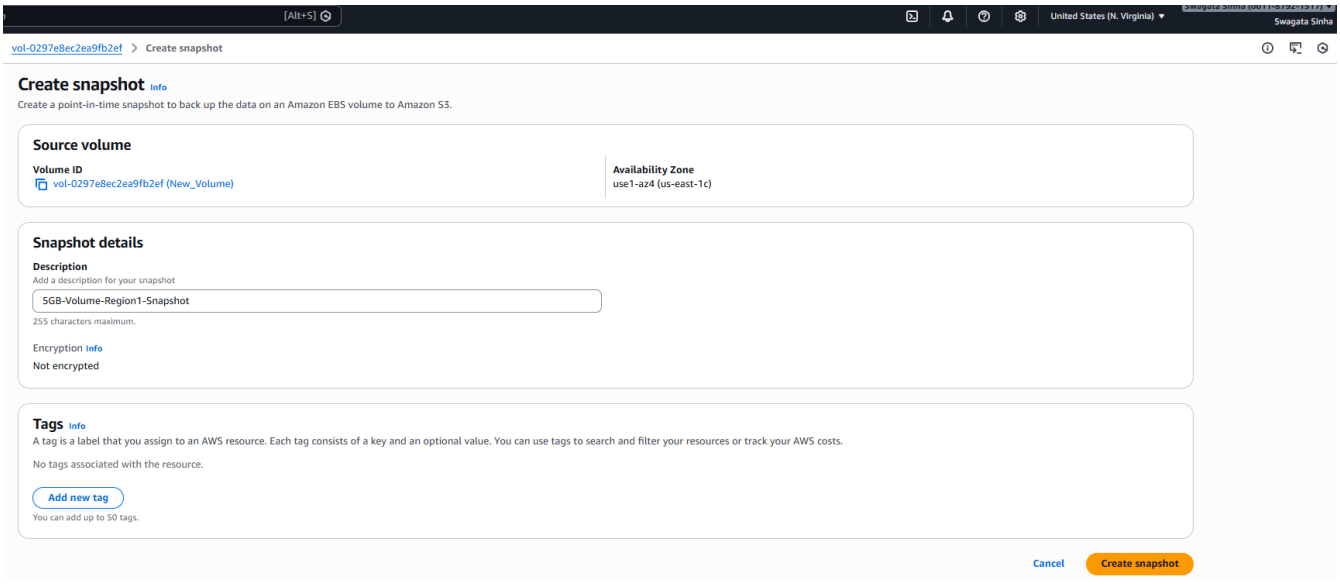

Network settings Info
VPC - required Info
vpc-02492443d8bcb7b0e (default)
172.31.0.0/16
Subnet Info
subnet-0b1657fa09eff134b
Create new subnet
Auto-assign public IP Info
Enable
Firewall (security groups) Info
A security group is a set of firewall rules that control the traffic for your instance. Add rules to allow specific traffic to reach your instance.
Create security group
Select existing security group
Common security groups Info
Select security groups
launch-wizard-1 sg-0d0c94c82b713be00
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
Summary
Number of instances Info
1
Software Image (AMI)
Amazon Linux 2023 AMI 2023.10....read more
ami-0c1fe732b5494dc14
Virtual server type (instance type)
t2.micro
Firewall (security group)
launch-wizard-1
Storage (volumes)
1 volume(s) - 8 GiB
Cancel
Launch instance
Preview code
Configure storage Info
Advanced
1x 8 GiB gp3 Root volume, 3000 IOPS, Not encrypted
Add new volume


Launch an instance
Success
Successfully initiated launch of instance (i-0f87a088328bfafaa)
Launch log
Initializing requests Succeeded
Launch initiation Succeeded

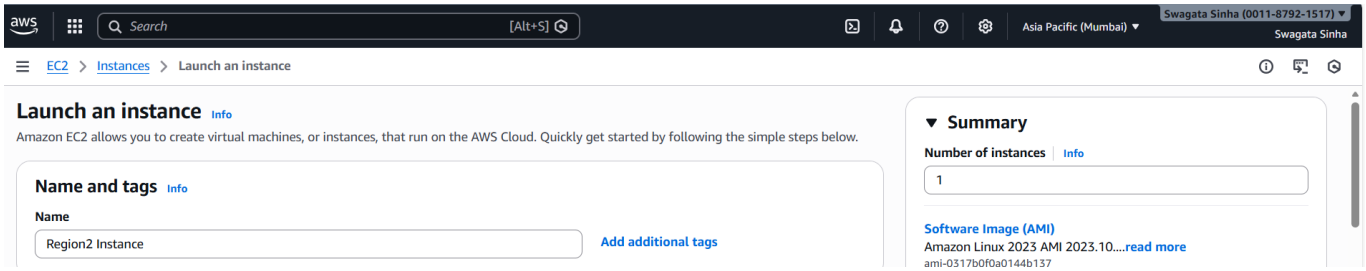

i-0f87a088328bfafaa
Instance summary for i-0f87a088328bfafaa (Reegion1 Instance) Info
Updated less than a minute ago
Connect
Instance state
Actions
Instance ID
i-0f87a088328bfafaa
IPv6 address
Hostname type
IP name: ip-172-31-30-166.ec2.internal
Answer private resource DNS name
Auto-assigned IP address
54.198.105.19 [Public IP]
IAM role
IMDSv2
Required
Operator
Public IPv4 address
54.198.105.19 | open address
Instance state
Running
Private IP DNS name (IPv4 only)
ip-172-31-30-166.ec2.internal
Instance type
t2.micro
VPC ID
vpc-02492443d8bcb7b0e
Subnet ID
subnet-0b1657fa09eff134b
Instance ARN
arn:aws:ec2:us-east-1:001187921517:instance/i-0f87a088328bfafaa
Private IPv4 addresses
172.31.30.166
Public DNS
ec2-54-198-105-19.compute-1.amazonaws.com | open address
Elastic IP addresses
AWS Compute Optimizer finding
Opt-in to AWS Compute Optimizer for recommendations. | Learn more
Auto Scaling Group name
Managed
false

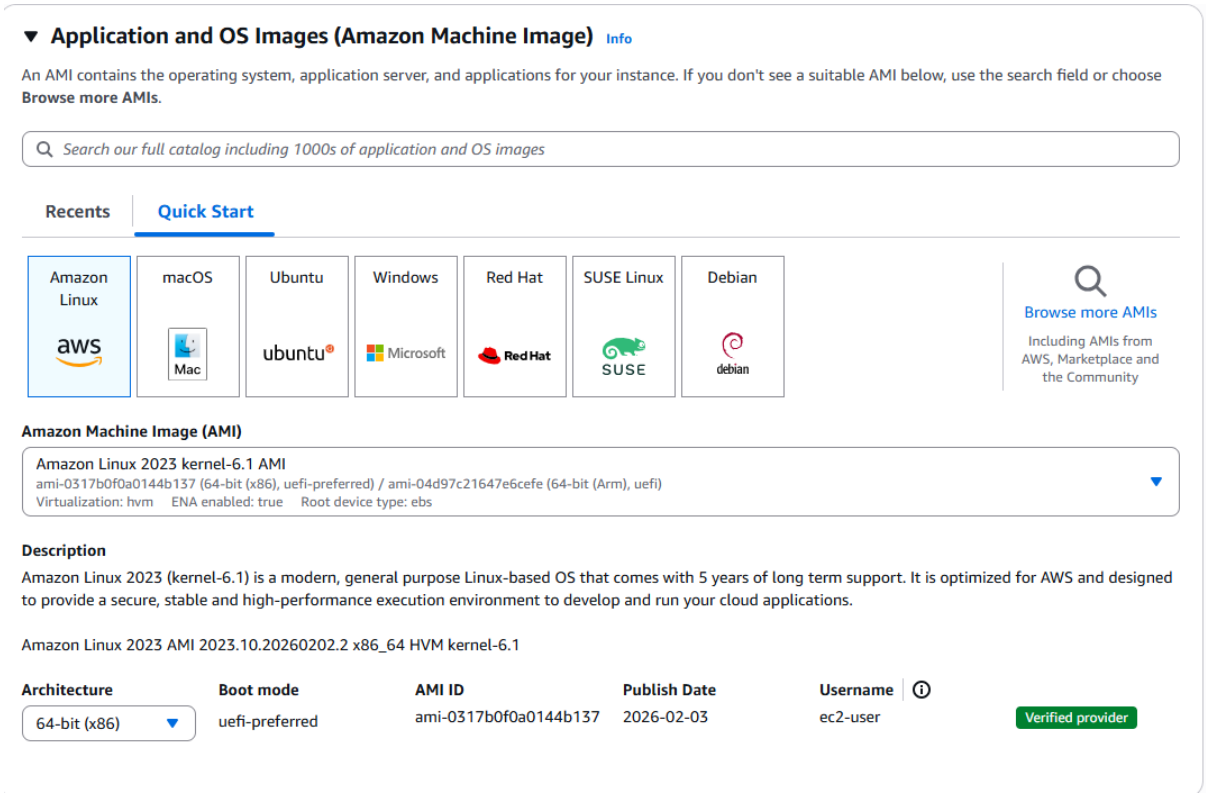

[Alt+S]
United States (N. Virginia)
Swagata Sinha
Create volume
Create volume Info
Create an Amazon EBS volume to attach to any EC2 instance in the same Availability Zone.
Volume settings
Volume type | Info
General Purpose SSD (gp3)
Size (GiB) | Info
5
Min: 1 GiB, Max: 65536 GiB.
IOPS | Info
3000
Min: 3000 IOPS, Max: 80000 IOPS.
Throughput (MiB/s) | Info
125
Min: 125 MiB, Max: 2000 MiB. Baseline: 125 MiB/s.
Availability Zone | Info
use1-az4 (us-east-1c)
Snapshot ID - optional | Info
Don't create volume from a snapshot
Encryption | Info
Use Amazon EBS encryption as an encryption solution for your EBS resources associated with your EC2 instances.
Encrypt this volume

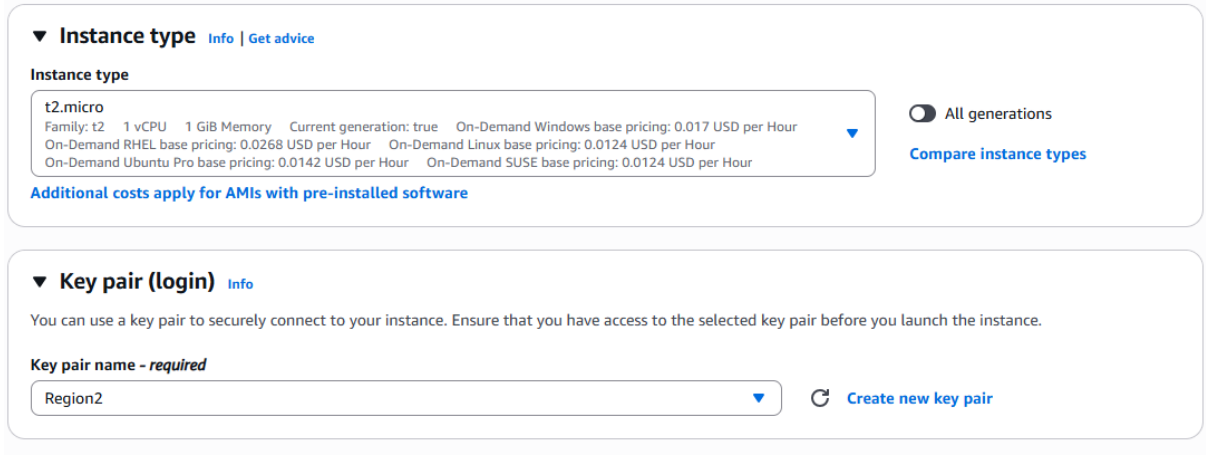

[Alt+S]
United States (N. Virginia)
Swagata Sinha
Volumes (1/8) Info
Last updated 1 minute ago
Recycle Bin
Actions
Create volume
Saved filter sets
Choose filter set
Search
Name
Volume ID
Type
Size
IOPS
Throughput
Snapshot ID
Source volume ID
Created
Volume state
vol-0354beb891b1ac07a gp3 8 GiB 3000 125 snap-0f4a43c... - 2026/02/15 11:45 GMT In-use
vol-0435006e19d0b23d8 gp3 8 GiB 3000 125 - - 2026/02/12 01:17 GMT In-use
vol-00c39e97a77cd32e8 gp3 8 GiB 3000 125 snap-0698578... - 2026/02/11 22:16 GMT In-use
vol-0d80b816eb56a0147 gp3 8 GiB 3000 125 - - 2026/02/12 00:15 GMT In-use
vol-0331a0adce6d2c69a gp3 8 GiB 3000 125 snap-0698578... - 2026/02/12 00:56 GMT In-use
vol-082e7e0cb8300b54c gp3 8 GiB 3000 125 snap-0f1f10f9... - 2026/02/15 11:45 GMT Available
New_Volume vol-0297e8ec2ea9fb2ef gp3 5 GiB 3000 125 - - 2026/02/15 17:07 GMT Available
vol-0ba7046700d62dcea gp3 8 GiB 3000 125 snap-0698578... - 2026/02/15 17:00 GMT In-use
Modify volume
Create snapshot
Create snapshot lifecycle policy
Delete volume
Attach volume
Detach volume
Force detach volume
Manage auto-enabled I/O
Copy volume - new
Manage tags
Resilience testing
Previously fault injection
Volume ID: vol-0297e8ec2ea9fb2ef (New_Volume)

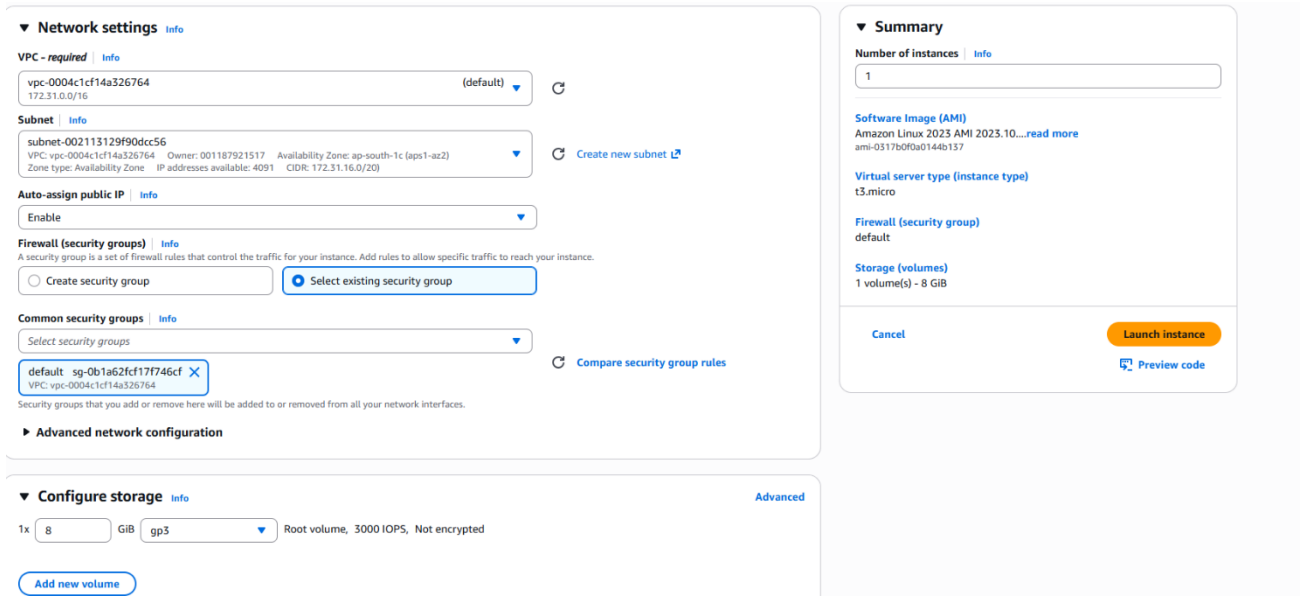

[Alt+S]
United States (N. Virginia)
Swagata Sinha
vol-0297e8ec2ea9fb2ef > Create snapshot
Create snapshot Info
Create a point-in-time snapshot to back up the data on an Amazon EBS volume to Amazon S3.
Source volume
Volume ID
vol-0297e8ec2ea9fb2ef (New_Volume)
Availability Zone
use1-az4 (us-east-1c)
Snapshot details
Description
Add a description for your snapshot
5GB-Volume-Region1-Snapshot
255 characters maximum.
Encryption Info
Not encrypted
Tags Info
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 tags.
Cancel
Create snapshot

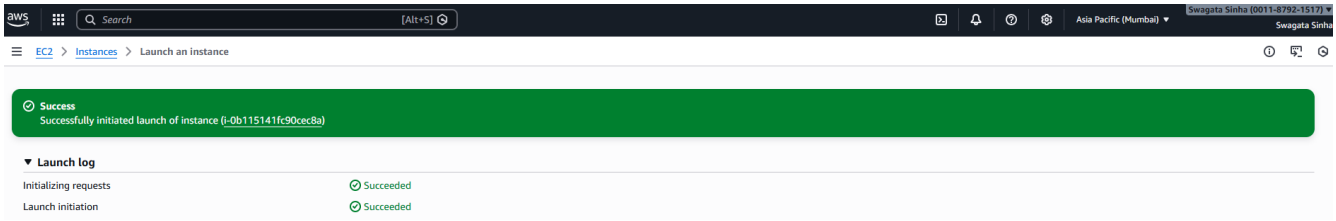
For Region 2:

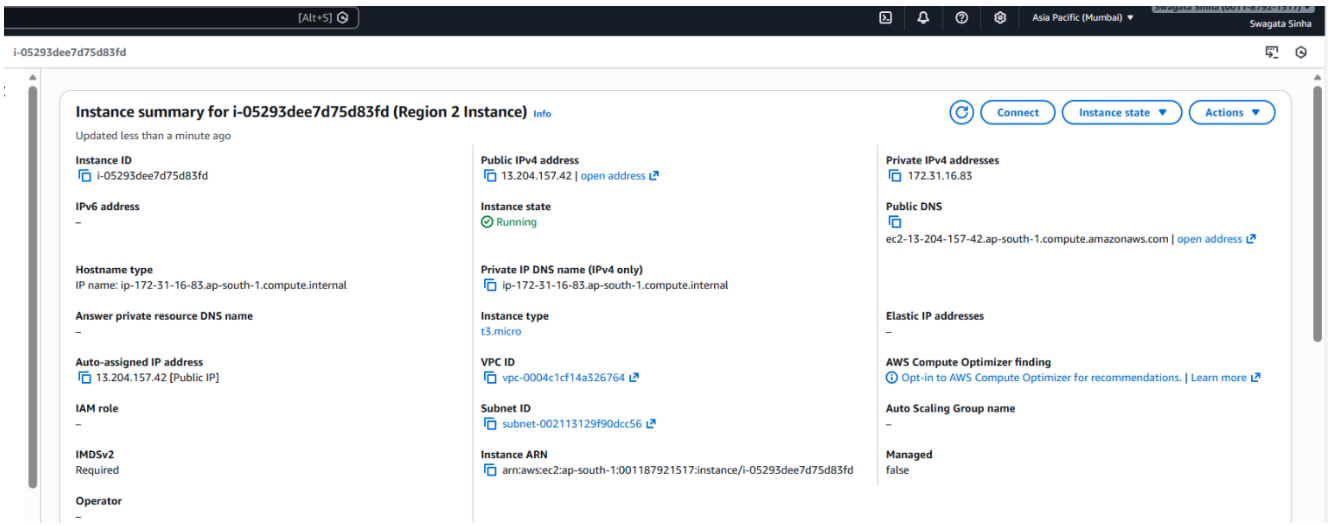

Search
[Alt+S]
Asia Pacific (Mumbai)
Swagata Sinha (0011-8792-1517)
Swagata Sinha
EC2 > Instances > Launch an instance
Launch an instance Info
Amazon EC2 allows you to create virtual machines, or instances, that run on the AWS Cloud. Quickly get started by following the simple steps below.
Name and tags Info
Name
Region2 Instance
Add additional tags
Summary
Number of instances Info
1
Software Image (AMI)
Amazon Linux 2023 AMI 2023.10....read more
ami-0317b0f0a0144b137

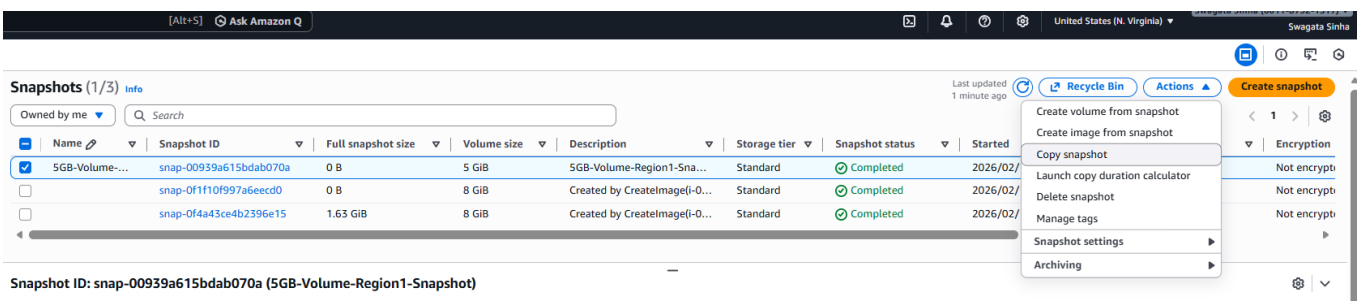

Application and OS Images (Amazon Machine Image) Info
An AMI contains the operating system, application server, and applications for your instance. If you don't see a suitable AMI below, use the search field or choose Browse more AMIs.
Search our full catalog including 1000s of application and OS images
Recents
Quick Start
Amazon Linux
macOS
Ubuntu
Windows
Red Hat
SUSE Linux
Debian
Browse more AMIs
Including AMIs from AWS, Marketplace and the Community
Amazon Machine Image (AMI)
Amazon Linux 2023 kernel-6.1 AMI
ami-0317b0f0a0144b137 (64-bit (x86), uefi-preferred) / ami-04d97c21647e6cefe (64-bit (Arm), uefi)
Virtualization: hvm ENA enabled: true Root device type: ebs
Description
Amazon Linux 2023 (kernel-6.1) is a modern, general purpose Linux-based OS that comes with 5 years of long term support. It is optimized for AWS and designed to provide a secure, stable and high-performance execution environment to develop and run your cloud applications.
Amazon Linux 2023 AMI 2023.10.20260202.2 x86_64 HVM kernel-6.1
Architecture
Boot mode
AMI ID
Publish Date
Username
64-bit (x86)
uefi-preferred
ami-0317b0f0a0144b137
2026-02-03
ec2-user
Verified provider

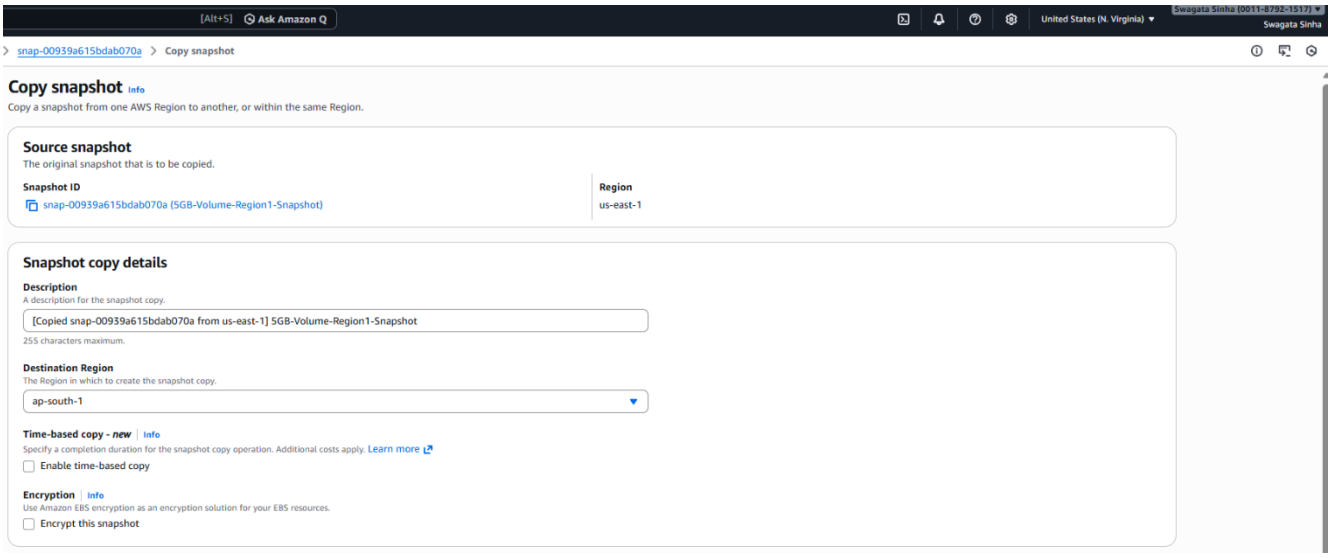

Instance type Info | Get advice
Instance type
t2.micro
Family: t2 1 vCPU 1 GiB Memory Current generation: true On-Demand Windows base pricing: 0.017 USD per Hour
On-Demand RHEL base pricing: 0.0268 USD per Hour On-Demand Linux base pricing: 0.0124 USD per Hour
On-Demand Ubuntu Pro base pricing: 0.0142 USD per Hour On-Demand SUSE base pricing: 0.0124 USD per Hour
All generations
Compare instance types
Additional costs apply for AMIs with pre-installed software
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
Region2
Create new key pair

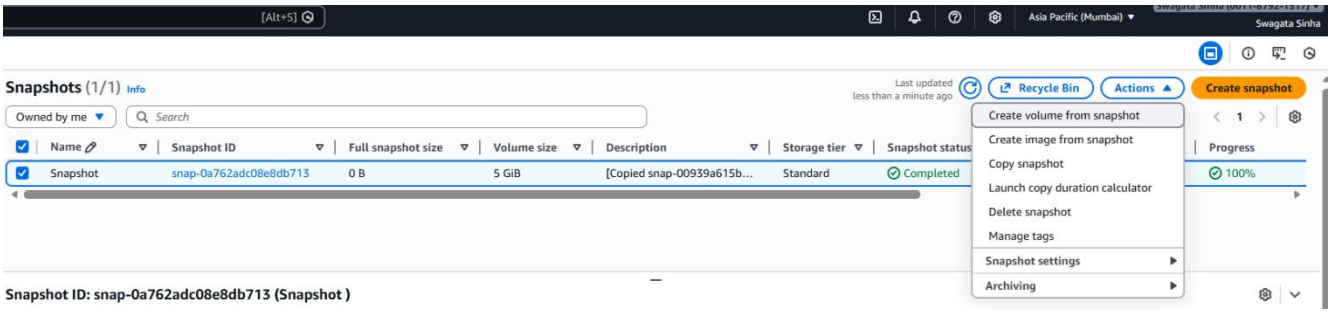

Network settings Info
VPC - required Info
vpc-0004c1cf14a326764 (default)
172.31.0.0/16
Subnet Info
subnet-002113129f90dcc56
VPC: vpc-0004c1cf14a326764 Owner: 001187921517 Availability Zone: ap-south-1c (aps1-az2)
Zone type: Availability Zone IP addresses available: 4091 CIDR: 172.31.16.0/20)
Create 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
default sg-0b1a62fcf17f746cf
VPC: vpc-0004c1cf14a326764
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
Configure storage Info
Advanced
1x 8 GiB gp3 Root volume, 3000 IOPS, Not encrypted
Add new volume
Summary
Number of instances Info
1
Software Image (AMI)
Amazon Linux 2023 AMI 2023.10....read more
ami-0317b0f0a0144b137
Virtual server type (instance type)
t3.micro
Firewall (security group)
default
Storage (volumes)
1 volume(s) - 8 GiB
Cancel
Launch instance
Preview code

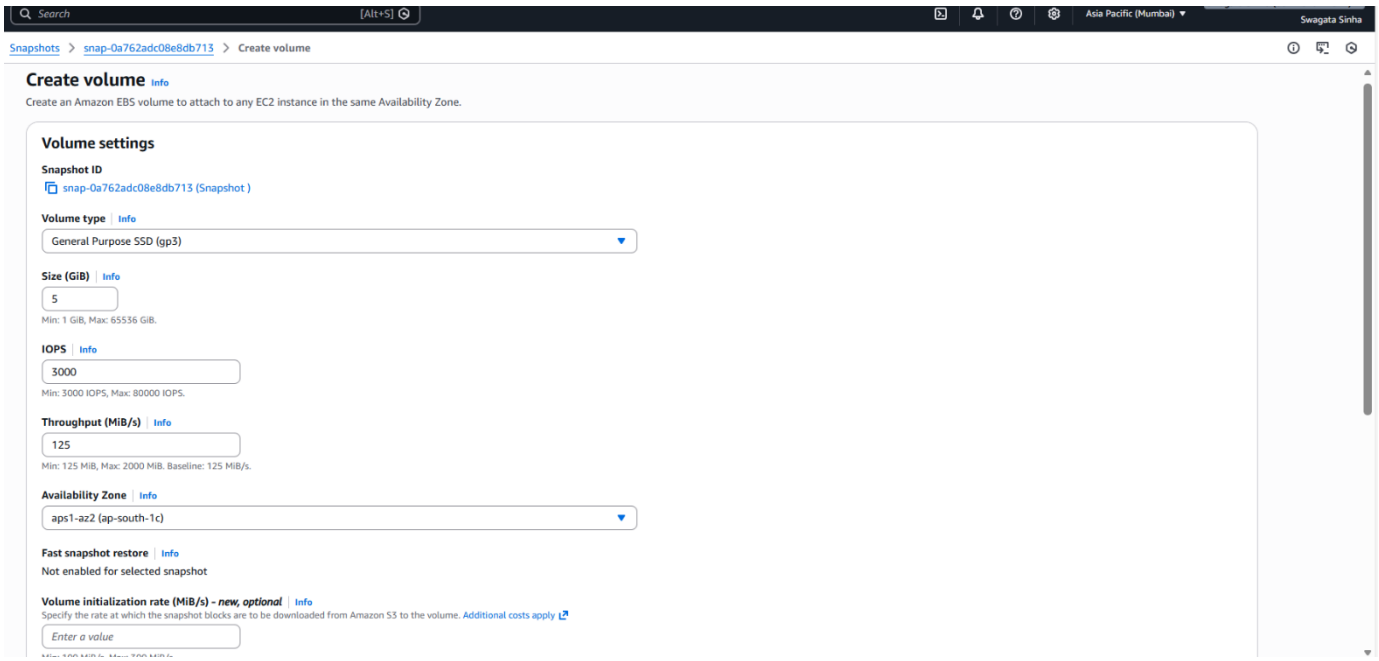

Search [Alt+S]
Asia Pacific (Mumbai)
Swagata Sinha
EC2 > Instances > Launch an instance
Success
Successfully initiated launch of instance (i-0b115141fc90cec8a)
Launch log
Initializing requests Succeeded
Launch initiation Succeeded

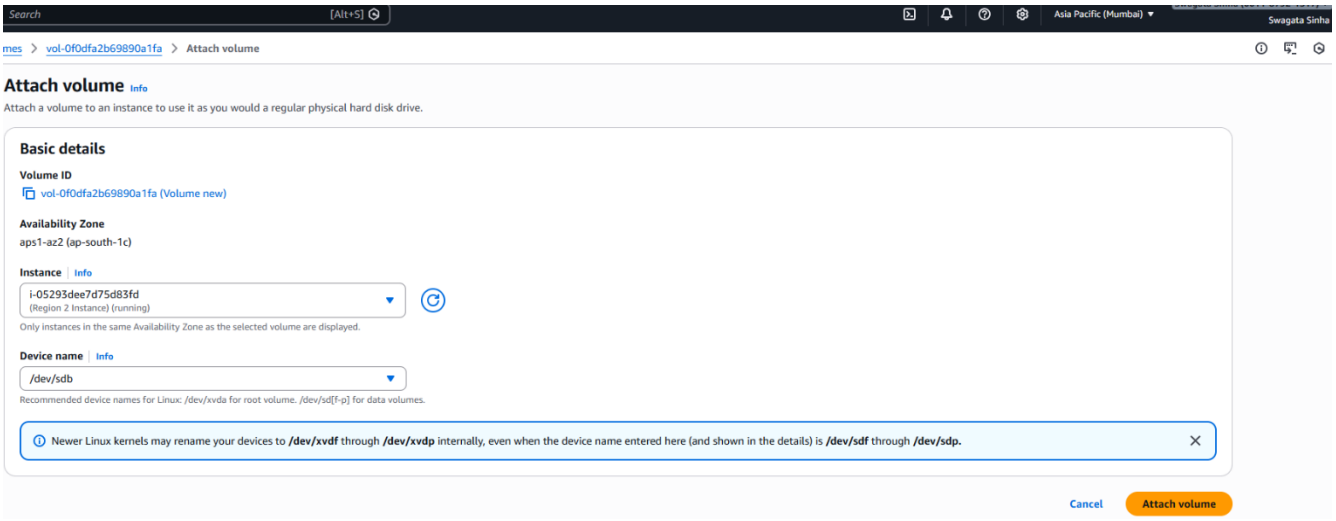

[Alt+S]
Asia Pacific (Mumbai)
Swagata Sinha
i-05293dee7d75d83fd
Instance summary for i-05293dee7d75d83fd (Region 2 Instance) Info
Connect
Instance state
Actions
Updated less than a minute ago
Instance ID
i-05293dee7d75d83fd
IPv6 address
–
Hostname type
IP name: ip-172-31-16-83.ap-south-1.compute.internal
Answer private resource DNS name
–
Auto-assigned IP address
13.204.157.42 [Public IP]
IAM role
–
IMDSv2
Required
Operator
–
Public IPv4 address
13.204.157.42 | open address
Instance state
Running
Private IP DNS name (IPv4 only)
ip-172-31-16-83.ap-south-1.compute.internal
Instance type
t3.micro
VPC ID
vpc-0004c1cf14a326764
Subnet ID
subnet-002113129f90dcc56
Instance ARN
arn:aws:ec2:ap-south-1:001187921517:instance/i-05293dee7d75d83fd
Private IPv4 addresses
172.31.16.83
Public DNS
ec2-13-204-157-42.ap-south-1.compute.amazonaws.com | open address
Elastic IP addresses
–
AWS Compute Optimizer finding
Opt-in to AWS Compute Optimizer for recommendations. | Learn more
Auto Scaling Group name
–
Managed
false

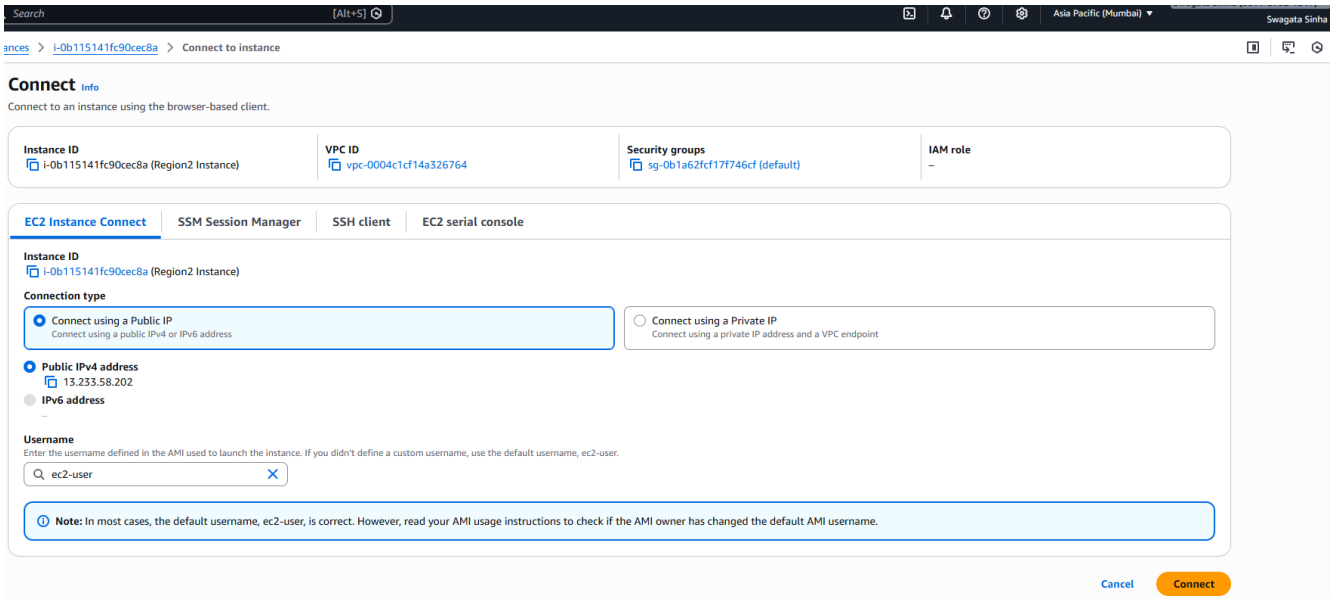

[Alt+S] Ask Amazon Q
United States (N. Virginia)
Swagata Sinha
Snapshots (1/3) Info
Last updated 1 minute ago
Recycle Bin
Actions
Create snapshot
Owned by me
Search
Name
Snapshot ID
Full snapshot size
Volume size
Description
Storage tier
Snapshot status
Started
Encryption
5GB-Volume-...
snap-00939a615bdab070a
0 B
5 GiB
5GB-Volume-Region1-Sna...
Standard
Completed
2026/02/
Not encrypte
snap-0f1f10f997a6eecd0
0 B
8 GiB
Created by CreateImage(i-0...
Standard
Completed
2026/02/
Not encrypte
snap-0f4a43ce4b2396e15
1.63 GiB
8 GiB
Created by CreateImage(i-0...
Standard
Completed
2026/02/
Not encrypte
Create volume from snapshot
Create image from snapshot
Copy snapshot
Launch copy duration calculator
Delete snapshot
Manage tags
Snapshot settings
Archiving
Snapshot ID: snap-00939a615bdab070a (5GB-Volume-Region1-Snapshot)

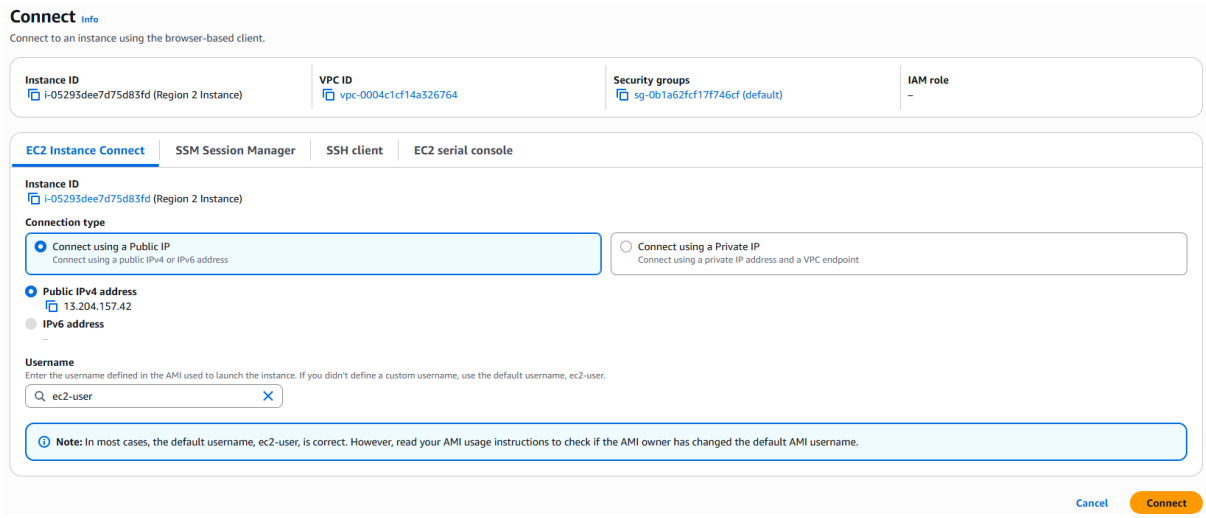

[Alt+S] Ask Amazon Q
United States (N. Virginia)
Swagata Sinha
snap-00939a615bdab070a > Copy snapshot
Copy snapshot Info
Copy a snapshot from one AWS Region to another, or within the same Region.
Source snapshot
The original snapshot that is to be copied.
Snapshot ID
snap-00939a615bdab070a (5GB-Volume-Region1-Snapshot)
Region
us-east-1
Snapshot copy details
Description
A description for the snapshot copy.
[Copied snap-00939a615bdab070a from us-east-1] 5GB-Volume-Region1-Snapshot
255 characters maximum.
Destination Region
The Region in which to create the snapshot copy.
ap-south-1
Time-based copy - new | Info
Specify a completion duration for the snapshot copy operation. Additional costs apply. Learn more
Enable time-based copy
Encryption | Info
Use Amazon EBS encryption as an encryption solution for your EBS resources.
Encrypt this snapshot


[Alt+S]
Asia Pacific (Mumbai)
Swagata Sinha
Snapshots (1/1) Info
Last updated less than a minute ago
Recycle Bin
Actions
Create snapshot
Owned by me
Search
Name
Snapshot ID
Full snapshot size
Volume size
Description
Storage tier
Snapshot status
Progress
Snapshot
snap-0a762adc08e8db713
0 B
5 GiB
[Copied snap-00939a615b...
Standard
Completed
100%
Create volume from snapshot
Create image from snapshot
Copy snapshot
Launch copy duration calculator
Delete snapshot
Manage tags
Snapshot settings
Archiving
Snapshot ID: snap-0a762adc08e8db713 (Snapshot)


Search
[Alt+S]
Asia Pacific (Mumbai)
Swagata Sinha
Snapshots > snap-0a762adc08e8db713 > Create volume
Create volume Info
Create an Amazon EBS volume to attach to any EC2 instance in the same Availability Zone.
Volume settings
Snapshot ID
snap-0a762adc08e8db713 (Snapshot)
Volume type | Info
General Purpose SSD (gp3)
Size (GiB) | Info
5
Min: 1 GiB, Max: 65536 GiB.
IOPS | Info
3000
Min: 3000 IOPS, Max: 80000 IOPS.
Throughput (MiB/s) | Info
125
Min: 125 MiB, Max: 2000 MiB. Baseline: 125 MiB/s.
Availability Zone | Info
aps1-az2 (ap-south-1c)
Fast snapshot restore | Info
Not enabled for selected snapshot
Volume initialization rate (MiB/s) - new, optional | Info
Specify the rate at which the snapshot blocks are to be downloaded from Amazon S3 to the volume. Additional costs apply
Enter a value


Search
[Alt+S]
Asia Pacific (Mumbai)
Swagata Sinha
mes > vol-0f0dfa2b69890a1fa > Attach volume
Attach volume Info
Attach a volume to an instance to use it as you would a regular physical hard disk drive.
Basic details
Volume ID
vol-0f0dfa2b69890a1fa (Volume new)
Availability Zone
aps1-az2 (ap-south-1c)
Instance Info
i-05293dee7d75d83fd
(Region 2 Instance) (running)
Only instances in the same Availability Zone as the selected volume are displayed.
Device name Info
/dev/sdb
Recommended device names for Linux: /dev/xvda for root volume. /dev/sd[f-p] for data volumes.
Newer Linux kernels may rename your devices to /dev/xvdf through /dev/xvdp internally, even when the device name entered here (and shown in the details) is /dev/sdf through /dev/sdp.
Cancel
Attach volume


Search
[Alt+S]
Asia Pacific (Mumbai)
Swagata Sinha
ances > i-0b115141fc90cec8a > Connect to instance
Connect Info
Connect to an instance using the browser-based client.
Instance ID
i-0b115141fc90cec8a (Region2 Instance)
VPC ID
vpc-0004c1cf14a326764
Security groups
sg-0b1a62fcf17f746cf (default)
IAM role
–
EC2 Instance Connect
SSM Session Manager
SSH client
EC2 serial console
Instance ID
i-0b115141fc90cec8a (Region2 Instance)
Connection type
Connect using a Public IP
Connect using a public IPv4 or IPv6 address
Connect using a Private IP
Connect using a private IP address and a VPC endpoint
Public IPv4 address
13.233.58.202
IPv6 address
Username
Enter the username defined in the AMI used to launch the instance. If you didn't define a custom username, use the default username, ec2-user.
ec2-user
Note: In most cases, the default username, ec2-user, is correct. However, read your AMI usage instructions to check if the AMI owner has changed the default AMI username.
Cancel
Connect


Connect Info
Connect to an instance using the browser-based client.
Instance ID
i-05293dee7d75d83fd (Region 2 Instance)
VPC ID
vpc-0004c1cf14a326764
Security groups
sg-0b1a62fcf17f746cf (default)
IAM role
–
EC2 Instance Connect
SSM Session Manager
SSH client
EC2 serial console
Instance ID
i-05293dee7d75d83fd (Region 2 Instance)
Connection type
Connect using a Public IP
Connect using a public IPv4 or IPv6 address
Connect using a Private IP
Connect using a private IP address and a VPC endpoint
Public IPv4 address
13.204.157.42
IPv6 address
Username
Enter the username defined in the AMI used to launch the instance. If you didn't define a custom username, use the default username, ec2-user.
ec2-user
Note: In most cases, the default username, ec2-user, is correct. However, read your AMI usage instructions to check if the AMI owner has changed the default AMI username.
Cancel
Connect

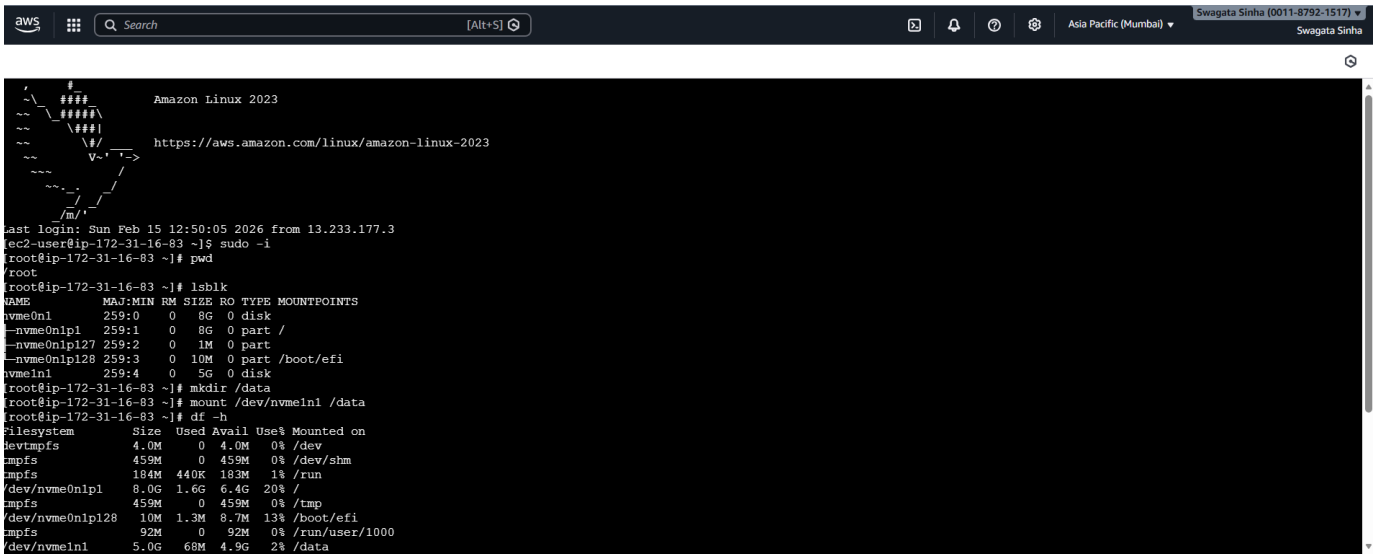
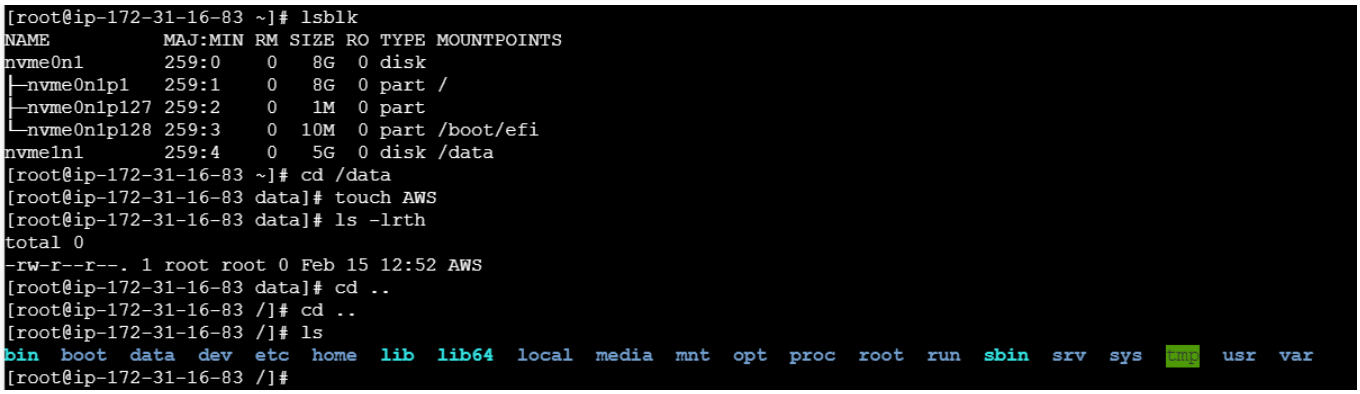


Figure: Snapshot copied and volume attached in different region.

```
/root
[root@ip-172-31-16-83 ~]# lsblk
NAME           MAJ:MIN RM SIZE RO TYPE MOUNTPOINTS
nvme0n1        259:0    0   8G  0 disk
├─nvme0n1p1    259:1    0   8G  0 part /
├─nvme0n1p127 259:2    0   1M  0 part
└─nvme0n1p128 259:3    0  10M  0 part /boot/efi
nvme1n1        259:4    0   5G  0 disk
[root@ip-172-31-16-83 ~]# mkdir /data
[root@ip-172-31-16-83 ~]# mount /dev/nvme1n1 /data
[root@ip-172-31-16-83 ~]# df -h
Filesystem        Size  Used Avail Use% Mounted on
devtmpfs          4.0M     0  4.0M   0% /dev
tmpfs             459M     0  459M   0% /dev/shm
tmpfs             184M  440K  183M   1% /run
/dev/nvme0n1p1    8.0G  1.6G  6.4G  20% /
tmpfs             459M     0  459M   0% /tmp
/dev/nvme0n1p128   10M  1.3M  8.7M  13% /boot/efi
tmpfs              92M     0   92M   0% /run/user/1000
/dev/nvme1n1      5.0G   68M  4.9G   2% /data
[root@ip-172-31-16-83 ~]# lsblk
NAME           MAJ:MIN RM SIZE RO TYPE MOUNTPOINTS
nvme0n1        259:0    0   8G  0 disk
├─nvme0n1p1    259:1    0   8G  0 part /
├─nvme0n1p127 259:2    0   1M  0 part
└─nvme0n1p128 259:3    0  10M  0 part /boot/efi
nvme1n1        259:4    0   5G  0 disk /data
[root@ip-172-31-16-83 ~]# cd /data
[root@ip-172-31-16-83 data]# touch AWS
[root@ip-172-31-16-83 data]# ls -lrth
total 0
-rw-r--r--. 1 root root 0 Feb 15 12:52 AWS
[root@ip-172-31-16-83 data]#
```

i-05293dee7d75d83fd (Region 2 Instance)

PublicIPs: 13.204.157.42 PrivateIPs: 172.31.16.83



Project Outcomes:

Through this minor project on Amazon Web Services, I successfully:

- Launched and configured Linux and Windows EC2 instances.
- Implemented Security Group rules for SSH, RDP, HTTP, and HTTPS access.
- Connected instances securely using MobaXterm.
- Created and used a Launch Template to automatically deploy multiple Linux instances.
- Created and attached 5GB EBS volumes in the same Availability Zone.
- Implemented cross-region volume attachment using snapshot copy method.
- Understood how regions, availability zones, VPCs, and storage services work in AWS.

This project strengthened my practical understanding of cloud infrastructure deployment and management.

Conclusion:

This minor project helped me gain hands-on experience with real-time cloud operations in AWS. I learned how to securely launch and manage EC2 instances, configure networking rules, automate deployments using launch templates, and handle storage management across regions.

Overall, the project improved my confidence in working with cloud infrastructure and gave me practical exposure to industry-relevant AWS services.