

# NAME: KSHITIJ GUPTA

## Enrolment Number: 21162101007

### Sub: CCE

## Practical – 1[Batch-71]

Bob is an IT Administrator of SNS group Pvt limited is organized and wants to be adopted as Infrastructure as a Service (IAAS) using AWS cloud solution. Their majority of clients are e-commerce and OTP service providers. Initially, they want to set up three virtual Linux servers using Amazon EC2 which can be resizable and provide compute capacity along with a web-scale cloud computing solution. Bob is planning to create IAAS as below for E-Commerce clients.

Consider the following attached scenario and perform the following tasks using AWS EC2 Service:

- Search EC2 service in search box and go into it.

The screenshot shows the AWS EC2 Dashboard for the Asia Pacific (Mumbai) Region. The left sidebar includes links for EC2 Dashboard, EC2 Global View, Events, Instances (with sub-links for Instances, Instance Types, Launch Templates, Spot Requests, Savings Plans, Reserved Instances, Dedicated Hosts, Capacity Reservations), Images (AMIs, AMI Catalog), and Elastic Block Store (Volumes, Snapshots, Lifecycle Manager). The main content area has a 'Resources' summary table and a 'Launch instance' section. The 'Launch instance' section contains a large orange 'Launch instance' button, a 'Region' dropdown set to Asia Pacific (Mumbai), a status message 'This service is operating normally.', and a note about launching instances in the Mumbai region. To the right, there are sections for 'EC2 Free Tier' (info, offers for all regions, 0 offers in use, end of month forecast, 0 offers forecasted to exceed free tier limit, exceeds free tier, 0 offers exceeded and now pay-as-you-go pricing, view global EC2 resources, view all AWS Free Tier offers), 'Account attributes' (with a 'Default VPC' link to vpc-075f109655381d042), and 'Settings' (data protection and security).

- Scroll down and click into "Lunch instance"

The screenshot shows the AWS CloudShell interface with the EC2 'Instances' section selected. The main content area displays the 'Launch an instance' wizard. In the 'Name and tags' step, a single instance is being created with the name 'e.g. My Web Server'. The 'Software Image (AMI)' is set to 'Amazon Linux 2023 AMI 2023.5.2...'. The 'Virtual server type (instance type)' is 't2.micro'. A tooltip for the 'Free tier' indicates it includes 750 hours of t2.micro or t3.micro usage in the first year. The 'Launch instance' button is highlighted in orange.

## - Give the instance Name

The screenshot shows the AWS CloudShell interface with the EC2 'Instances' section selected. The main content area displays the 'Launch an instance' wizard. In the 'Name and tags' step, the instance is named 'SNS\_PR1'. The 'Software Image (AMI)' is set to 'Amazon Linux 2023 AMI 2023.5.2...'. The 'Virtual server type (instance type)' is 't2.micro'. A tooltip for the 'Free tier' indicates it includes 750 hours of t2.micro or t3.micro usage in the first year. The 'Launch instance' button is highlighted in orange.

## - Select the which type of OS you use in practical

[Launch an instance | EC2 | ap-south-1](#)

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.

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

**Quick Start**

Amazon Linux, macOS, Ubuntu, Windows, Red Hat, SUSE Linux, Browse more AMIs

Amazon Machine Image (AMI)

Amazon Linux 2023 AMI  
ami-068e0f1a600cd311c (64-bit (x86), uefi-preferred) / ami-0db2b1347d132e107 (64-bit (Arm), uefi)  
Virtualization: hvm ENA enabled: true Root device type: ebs

Free tier eligible

Description

Amazon Linux 2023 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.

**Summary**

Number of instances: 1

Software Image (AMI): Amazon Linux 2023.5.2...read more  
ami-068e0f1a600cd311c

Virtual server type (instance type): t2.micro

Firewall (security group): New security group

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

Free tier: In your first year includes 750 hours of t2.micro (or t3.micro) in the Regions in which

Cancel, Launch instance, Review commands

- Go into Compare instance panel and see what type of instance available and let him as it is

[Launch an instance | EC2 | ap-south-1](#)

Amazon EC2 provides a wide selection of instance types optimized to fit different use cases. Instances are virtual servers that can run applications. They have varying combinations of CPU, memory, storage, and networking capacity, and give you the flexibility to choose the appropriate mix of resources for your applications. Learn more about instance types and how they can meet your computing needs.

Currently selected: t2.micro (1 vCPUs, 1024 memory, EBS only)

**Instance types (1/538+)**

Instance type	vCPUs	Architecture	Memory (GiB)	Storage (GB)	Storage type	Network performance
t2.nano	1	i386, x86_64	0.5	-	-	Low to Moderate
<b>t2.micro</b>	<b>1</b>	<b>i386, x86_64</b>	<b>1</b>	-	-	Low to Moderate
t2.small	1	i386, x86_64	2	-	-	Low to Moderate
t2.medium	2	i386, x86_64	4	-	-	Low to Moderate
t2.large	2	x86_64	8	-	-	Low to Moderate
t2.xlarge	4	x86_64	16	-	-	Moderate
t2.2xlarge	8	x86_64	32	-	-	Moderate
t3.nano	2	x86_64	0.5	-	-	Up to 5 Gigabit
t3.micro	2	x86_64	1	-	-	Up to 5 Gigabit

Select instance type

- Create a New KEY\_PAIR

**Summary**

Number of instances: 1

Software Image (AMI): Amazon Linux 2023 AMI 2023.5.2...read more  
ami-068e0f1a600cd31c

Virtual server type (instance type): t2.micro

Firewall (security group): New security group

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

**Free tier: In your first year**

Cancel      Launch instance      Review commands

**Create key pair**

Key pair name: CCE\_PR1\_01

Key pairs allow you to connect to your instance securely.

Key pair type: RSA

RSA encrypted private and public key pair

ED25519

ED25519 encrypted private and public key pair

Private key file format: .pem

.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

- Now we configure Network setting. We allow the HTTPS traffic from internet to receive the request only from HTTPS domain

## ▼ Network settings [Info](#)

[Edit](#)

### Network [Info](#)

vpc-075f109655381d042

### Subnet [Info](#)

No preference (Default subnet in any availability zone)

### Auto-assign public IP [Info](#)

Enable

**Additional charges apply** when outside of **free tier allowance**

### 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

We'll create a new security group called '**launch-wizard-1**' with the following rules:

Allow SSH traffic from  
Helps you connect to your instance

Anywhere  
0.0.0.0/0

Allow HTTPS traffic from the internet  
To set up an endpoint, for example when creating a web server

Allow HTTP traffic from the internet  
To set up an endpoint, for example when creating a web server

- Configure the Storage (don't do anything let him as it is we are in FREE Tire) for practical purpose change 8 into 32 and after taking screenshot put it back into how it was before

## ▼ Configure storage [Info](#)

[Advanced](#)

1x  GiB  Root volume (Not encrypted)

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

[X](#)[Add new volume](#)

**i** 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](#)

The screenshot shows the 'Launch an instance' wizard in the AWS Management Console. On the left, under 'Configure storage', it specifies 1x 32 GiB gp3 Root volume (Not encrypted). A note indicates that free-tier eligible customers can get up to 30 GB of EBS General Purpose (SSD) or Magnetic storage. On the right, the 'Summary' section shows 1 instance, Amazon Linux 2023 AMI 2023.5.2, t2.micro instance type, and a new security group. A 'Launch instance' button is prominently displayed.

- Now go into advance setting and enable the termination protection and set 3 instance to launch

The screenshot shows the 'Launch an instance' wizard with the 'Advanced' tab selected. In the 'Termination protection' section, the 'Enable' dropdown is set to 'Enable'. A tooltip explains that if enabled, the instance can't be terminated using the console, API, or CLI until termination protection is disabled. The rest of the page includes sections for DNS Hostname, Instance auto-recovery, Shutdown behavior, Stop - Hibernate behavior, Termination protection, Stop protection, Detailed CloudWatch monitoring, and Credit specification.

The screenshot shows the 'Launch an instance' wizard in the AWS Management Console. On the left, there's a sidebar with 'Allow tags in metadata' and a dropdown menu. Below it, 'User data - optional' is set to 'Select'. The main area contains a user data script:

```
#!/bin/bash
# Use this for your user data (script from top to bottom)
# install httpd (Linux 2 version)
yum update -y
yum install -y httpd
systemctl start httpd
systemctl enable httpd
echo "<h1>Hello World from $(hostname -f)</h1>" > /var/www/html/index.html
```

Below the script is a checkbox: 'User data has already been base64 encoded'. On the right, the 'Summary' section shows:

- Number of instances: 3
- Software Image (AMI): Amazon Linux 2023 AMI 2023.5.2... (with a 'read more' link)
- Virtual server type (instance type): t2.micro
- Firewall (security group): New security group
- Storage (volumes): 1 volume(s) - 8 GiB

At the bottom are 'Cancel', 'Launch instance' (which is highlighted in orange), and 'Review commands'.



## - Now lunch the instance

The screenshot shows the 'Instances' page in the AWS Management Console. The URL is 'ap-south-1.console.aws.amazon.com/ec2/home?region=ap-south-1#LaunchInstances'. The top navigation bar includes 'CloudShell', 'Feedback', and search bar. The status bar at the bottom shows '27°C Cloudy', '08:08 25-07-2024', and other system icons.

The main content area shows a green success message: 'Success' and 'Successfully initiated launch of instances (i-0c298116b434ef0af, i-001eb4d8e99e8fe2e, i-056727ac81a40b874)'. Below it is a 'Launch log' button.

The 'Next Steps' section contains four cards:

- Create billing and free tier usage alerts**: To manage costs and avoid surprise bills, set up email notifications for billing and free tier usage thresholds. Includes a 'Create billing alerts' button.
- Connect to your instance**: Once your instance is running, log into it from your local computer. Includes a 'Learn more' link.
- Connect an RDS database**: Configure the connection between an EC2 instance and a database to allow traffic flow between them. Includes 'Connect an RDS database' and 'Create a new RDS database' buttons.
- Create EBS snapshot policy**: Create a policy that automates the creation, retention, and deletion of EBS snapshots. Includes a 'Create EBS snapshot policy' button.



Instances (1/3) Info

Name	Instance ID	Instance state	Instance type	Status check	Alarm status	Availability Zone	Public IPv4
SNS_PR1	i-056727ac81a40b874	Running	t2.micro	Initializing	View alarms +	ap-south-1b	ec2-15-207-99-1.ap-south-1.compute.amazonaws.com
SNS_PR1	i-001eb4d8e99e8fe2e	Running	t2.micro	Initializing	View alarms +	ap-south-1b	ec2-65-1-1.ap-south-1.compute.amazonaws.com
SNS_PR1	i-0c298116b434ef0af	Running	t2.micro	Initializing	View alarms +	ap-south-1b	ec2-43-207-99-1.ap-south-1.compute.amazonaws.com

**i-056727ac81a40b874 (SNS\_PR1)**

**Details** | Status and alarms | Monitoring | Security | Networking | Storage | Tags

**Instance summary**

Instance ID	Public IPv4 address	Private IPv4 addresses
i-056727ac81a40b874 (SNS_PR1)	15.207.99.1   <a href="#">open address</a>	172.31.8.69
IPv6 address	Instance state	Public IPv4 DNS
-	Running	ec2-15-207-99-1.ap-south-1.compute.amazonaws.com   <a href="#">open address</a>
Hostname type	Private IP DNS name (IPv4 only)	
IP name: ip-172-31-8-69.ap-south-1.compute.internal	ip-172-31-8-69.ap-south-1.compute.internal	

- As per you see the public is shared with user to use the AWS service and privet id is used to privet communication within the instance group
- Monitor your instance

**i-056727ac81a40b874 (SNS\_PR1)**

**Instance summary**

Instance ID	Public IPv4 address	Private IPv4 addresses
i-056727ac81a40b874 (SNS_PR1)	13.233.139.217   <a href="#">open address</a>	172.31.8.69
IPv6 address	Instance state	Public IPv4 DNS
-	Running	ec2-13-233-139-217.ap-south-1.compute.amazonaws.com   <a href="#">open address</a>
Hostname type	Private IP DNS name (IPv4 only)	
IP name: ip-172-31-8-69.ap-south-1.compute.internal	ip-172-31-8-69.ap-south-1.compute.internal	

- Modify the security group that your web server is using to allow HTTP access

The screenshot shows the AWS CloudWatch Metrics console. A single data point for the metric 'i-056727ac81a40b874 (SNS\_PR1)' is displayed. The data point has a value of 1, a timestamp of 'Thu Jul 25 2024 09:14:36 GMT+0530 (India Standard Time)', and an owner ID of '008971634001'. The interface includes tabs for 'Inbound rules' and 'Outbound rules'.

- After clicking on security group you land into another page in page click on "edit inbound rule"

The screenshot shows the AWS Security Groups Inbound rules list. It displays two rules:

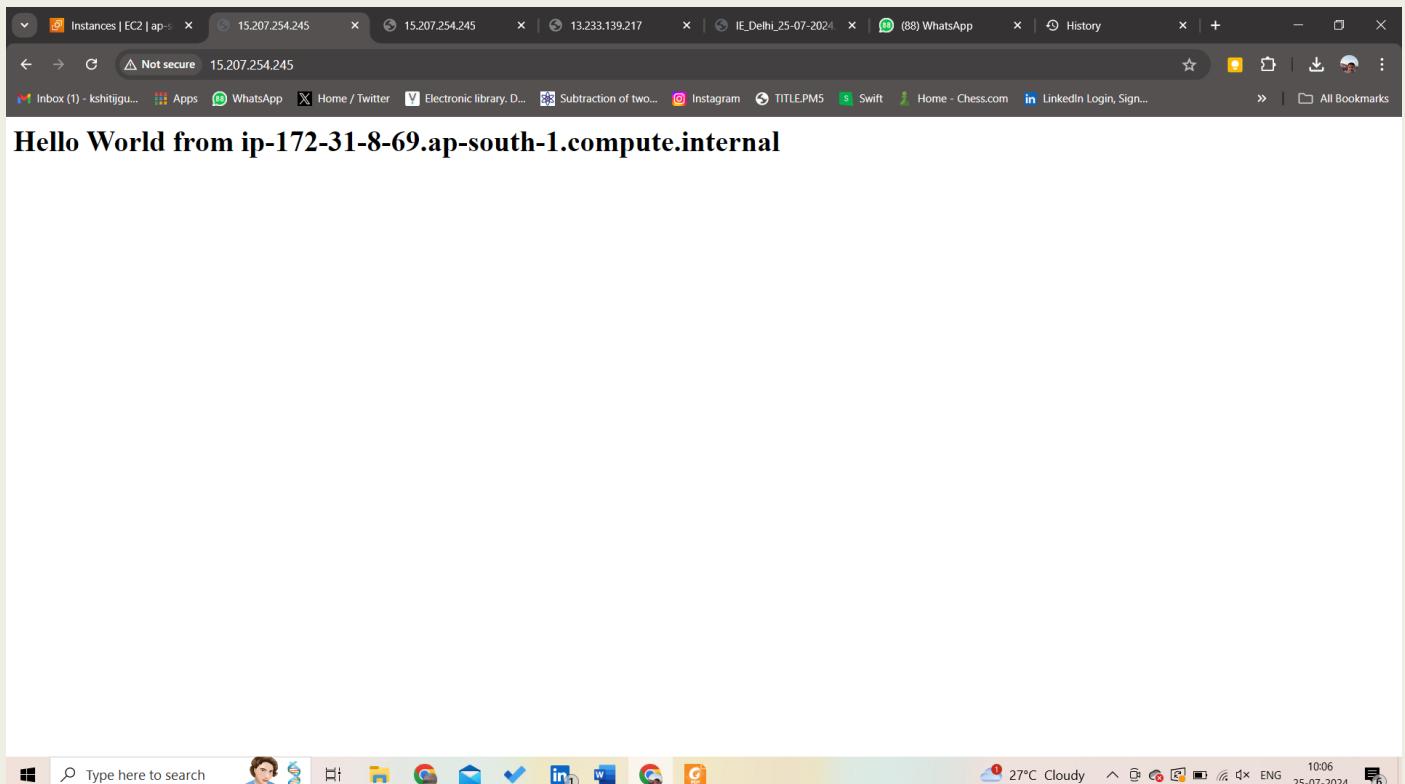
Name	Security group rule ID	IP version	Type	Protocol	Port range
-	sgr-0b6a2401d591dffda	IPv4	SSH	TCP	22
-	sgr-0cea8bff91e51661f	IPv4	HTTPS	TCP	443

- In edit panel you can change the rule and add the rule like I done. I add the rule called HTTP in source select Anyway

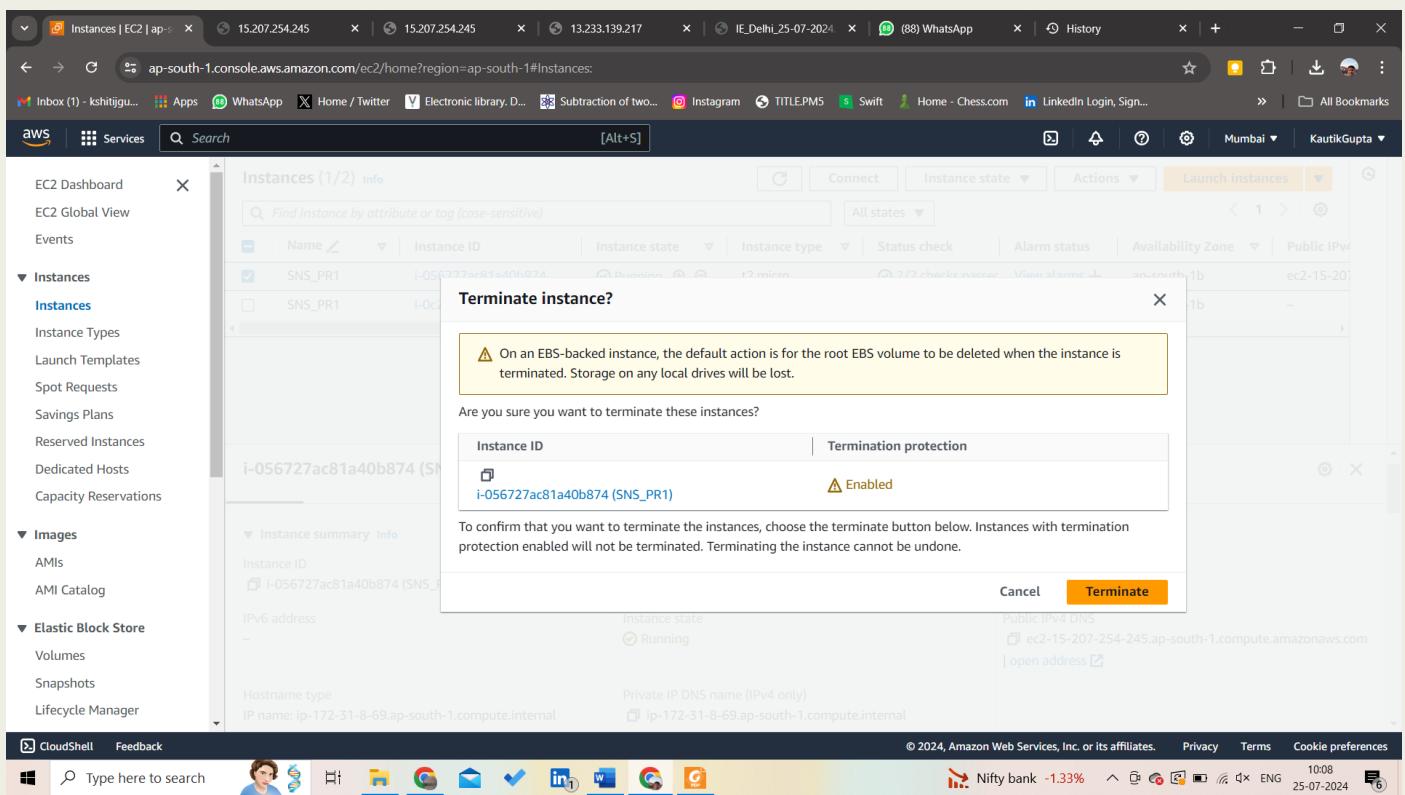
The screenshot shows the AWS EC2 Security Groups Edit inbound rules page. It displays three rules:

Security group rule ID	Type	Protocol	Port range	Source	Description - optional
sgr-0b6a2401d591dffda	SSH	TCP	22	Custom	0.0.0.0/0
sgr-0cea8bff91e51661f	HTTPS	TCP	443	Custom	0.0.0.0/0
-	HTTP	TCP	80	Anywhere	0.0.0.0/0

A button labeled 'Add rule' is visible at the bottom left.



- Test termination protection
- If you want to try to terminate the instance a service give the Error that “termination protection is on” and if you want to terminate, first you should off the “termination protection”



Screenshot of the AWS EC2 Instances page showing the termination protection dialog.

The dialog box is titled "Change termination protection". It contains the following text:  
To prevent your instance from being accidentally terminated, you can enable termination protection for the instance. [Learn more](#)  
Instance ID: i-056727ac81a40b874 (SNS\_PR1)  
Termination protection:  Enable

A yellow warning box states: "Termination protection disabled. The instance is no longer protected against accidental termination. If the instance is terminated, data stored on ephemeral storage is lost."

Buttons: Cancel, Save

Table header: Instances (1/2) Info

Table rows:

- Name: SNS\_PR1, Instance ID: i-056727ac81a40b874, Instance state: Running, Instance type: t2.micro, Status check: 2/2 checks passed, Alarm status: View alarms, Availability Zone: ap-south-1b, Public IPv4: ec2-15-207-254-245.ap-south-1.compute.amazonaws.com
- Name: SNS\_PR1, Instance ID: i-0c298116b434ef0af, Instance state: Terminated, Instance type: t2.micro, Status check: -, Alarm status: View alarms, Availability Zone: ap-south-1b, Public IPv4: -

Bottom navigation: CloudShell, Feedback

System tray: Type here to search, BSE midcap -0.90%, 10:10, 25-07-2024, 6 notifications

Screenshot of the AWS EC2 Instances page showing the successful termination of an instance.

Notification bar: Successfully initiated termination of i-056727ac81a40b874

Table header: Instances (1/2) Info

Table rows:

- Name: SNS\_PR1, Instance ID: i-056727ac81a40b874, Instance state: Shutting-down, Instance type: t2.micro, Status check: 2/2 checks passed, Alarm status: View alarms, Availability Zone: ap-south-1b, Public IPv4: 15.207.254.245 | [open address](#)
- Name: SNS\_PR1, Instance ID: i-0c298116b434ef0af, Instance state: Terminated, Instance type: t2.micro, Status check: -, Alarm status: View alarms, Availability Zone: ap-south-1b, Public IPv4: -

Bottom navigation: CloudShell, Feedback

System tray: Type here to search, BSE midcap -0.90%, 10:11, 25-07-2024, 6 notifications