

Shubham Patil.

AWS Tasks Submission

Tasks Name : Autoscaling with loadBalancer

Description:

1. Create 3 microservices: home-page,mobile-page,laptop-page.
2. Create application loadbalancer for 3 microservices.
3. Attach application loadbalancer to autoscaling.
4. In autoscaling,

Desired capacity: 3

Minimum capacity: 1

Maximum capacity: 5

1. Create a Launch Template

Search

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S3IAMEC2

EC2Launch templatesCreate 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*

Home-Tp

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)

-

Virtual server type (instance type)

-

Firewall (security group)

-

Storage (volumes)

-

Free tier: In your first year includes 750 hours of t2.micro (or t3.micro in the Regions in which t2.micro is unavailable) instance usage on free tier AMIs per month, 750 hours of public IPv4 address usage per month, 30 GiB of EBS storage,

Cancel

Create launch template

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2. Set required Configuration.

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☰

EC2 > Launch templates > Create launch template

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▼ Application and OS Images (Amazon Machine Image) - required [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

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

Recents

Quick Start

Amazon Linux

aws

macOS

Mac

Ubuntu

ubuntu

Windows

Microsoft

Red Hat

Red Hat

SUSE Linux

SUSE

Debian

debian

>

🔍

Browse more AMIs

Including AMIs from AWS, Marketplace and the Community

Amazon Machine Image (AMI)

Amazon Linux 2023 AMI

ami-0614680123427b75e (64-bit (x86), uefi-preferred) / ami-00459e74f8a0e9050 (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

▼ Summary

Software Image (AMI)

Amazon Linux 2023 AMI 2023.6.2...[read more](#)

ami-0614680123427b75e

Virtual server type (instance type)

-

Firewall (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 t2.micro is unavailable) instance usage on free tier AMIs per month, 750 hours of public IPv4 addressable IP address, 30 GiB of EBS storage

Cancel

Create launch template

3. Select the instance type , key pair , Security Groups

aws

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Menu

EC2 > Launch templates > Create launch template

Info

Refresh

Share

▼ 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: 0.0124 USD per Hour
On-Demand Windows base pricing: 0.017 USD per Hour
On-Demand RHEL base pricing: 0.0268 USD per Hour
On-Demand Ubuntu Pro base pricing: 0.0142 USD per Hour
On-Demand SUSE base pricing: 0.0124 USD per Hour

Free tier eligible

☐ 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

Shubham

▼

↺

Create new key pair

▼ Summary

Software Image (AMI)

Amazon Linux 2023 AMI 2023.6.2...[read more](#)
ami-0614680123427b75e

Virtual server type (instance type)

t2.micro

Firewall (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 t2.micro is unavailable) instance usage on free tier AMIs per month, 750 hours of public IPv4 address usage per month, 30 GiB of EBS storage

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Create launch template

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4. Add the User Data

User data - optional | Info
Upload a file with your user data or enter it in the field.

[Choose file](#)

```
#!/bin/bash
yum install httpd -y
systemctl start httpd
systemctl enable httpd
echo "<h1>This is Home|page $HOSTNAME </h1>" > /var/www/html/index.html
```

☐ User data has already been base64 encoded

Summary

Software Image (AMI)
Amazon Linux 2023 AMI 2023.6.2...[read more](#)
ami-0614680123427b75e

Virtual server type (instance type)
t2.micro

Firewall (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 t2.micro is unavailable) instance usage on free tier AMIs per month, 750 hours of public IPv4 address usage per month, 30 GiB of EBS storage.

[Cancel](#) [Create launch template](#)

5. Click on Create lanuch Template .

6. Create two more instance in the same way .

Launch Templates (3) | Info

[Search](#)

<input type="checkbox"/>	Launch Template ID	Launch Template Name	Default Version	Latest Version	Create Time	Created By
<input type="checkbox"/>	lt-03b4cab92bca0bf4	Mobile-TP	2	2	2024-12-14T05:52:31.000Z	arn:aws:iam::5:
<input type="checkbox"/>	lt-0ebbd20b3266d591d	Laptop-TP	1	1	2024-12-14T05:55:25.000Z	arn:aws:iam::5:
<input type="checkbox"/>	lt-01938dc5677d76a24	Home-TP	2	2	2024-12-14T05:42:46.000Z	arn:aws:iam::5:

Select a launch template

7. Create Target group for each template

The screenshot shows the 'Specify group details' page in the AWS Management Console. The left sidebar indicates 'Step 1: Specify group details' is active, with 'Step 2: Register targets' as the next step. The main content area is titled 'Specify group details' and includes a subtitle: 'Your load balancer routes requests to the targets in a target group and performs health checks on the targets.' Below this is the 'Basic configuration' section, which states: 'Settings in this section can't be changed after the target group is created.' Under 'Choose a target type', three options are listed: 'Instances' (selected), 'IP addresses', and 'Lambda function'. The 'Instances' option is highlighted with a blue border and includes sub-points: 'Supports load balancing to instances within a specific VPC.' and 'Facilitates the use of Amazon EC2 Auto Scaling to manage and scale your EC2 capacity.' The 'IP addresses' option includes sub-points: 'Supports load balancing to VPC and on-premises resources.', 'Facilitates routing to multiple IP addresses and network interfaces on the same instance.', 'Offers flexibility with microservice based architectures, simplifying inter-application communication.', and 'Supports IPv6 targets, enabling end-to-end IPv6 communication, and IPv4-to-IPv6 NAT.' The 'Lambda function' option includes sub-points: 'Facilitates routing to a single Lambda function.' and 'Accessible to Amazon EventBridge and Amazon CloudWatch.' The bottom of the page shows the AWS footer with '© 2024, Amazon Web Services, Inc. or its affiliates.' and links for 'Privacy', 'Terms', and 'Cookie preferences'.

8. Successfully Created the target group.

The screenshot shows the 'Home-TG' page in the AWS Management Console. The left sidebar lists various AWS services, with 'Load Balancing' expanded to show 'Target Groups'. The main content area is titled 'Home-TG' and includes an 'Actions' button. Below the title is the 'Details' section, which displays the ARN: `arn:aws:elasticloadbalancing:ap-south-1:536697239777:targetgroup/Home-TG/606211bc6246aaa4`. The details are organized into a table-like structure with the following information:

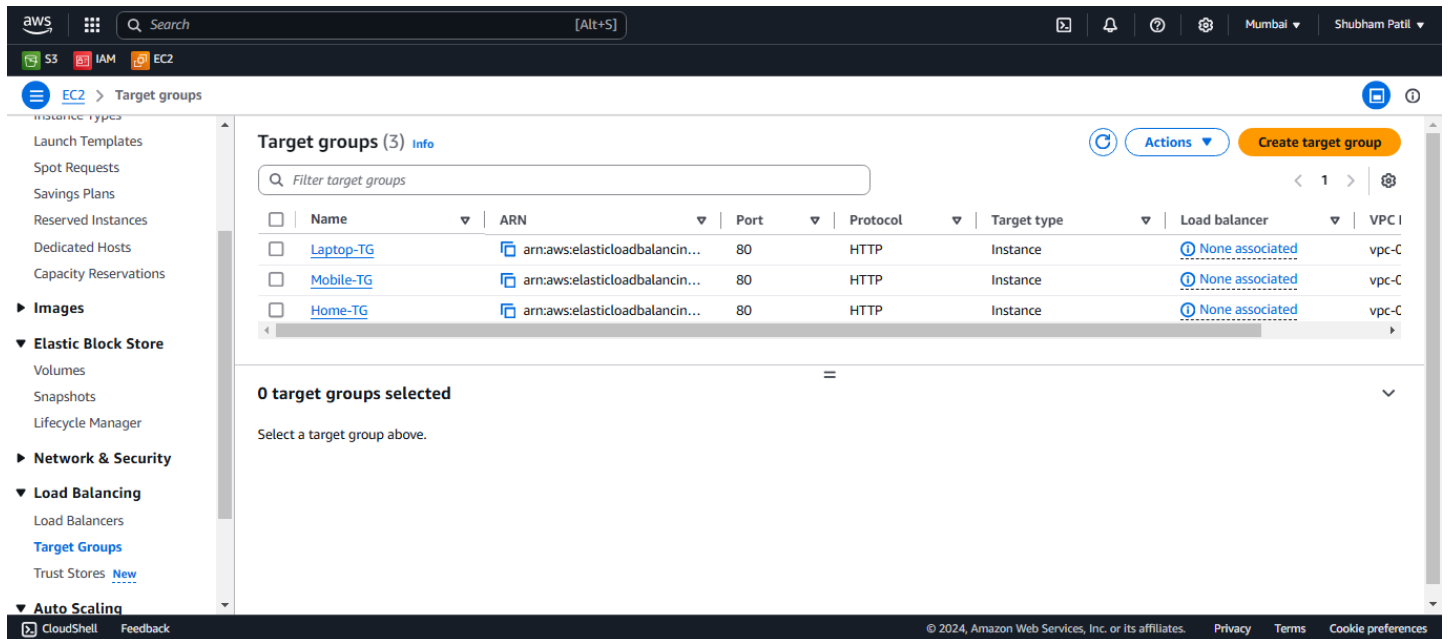
Target type	Protocol : Port	Protocol version	VPC
Instance	HTTP: 80	HTTP1	vpc-0a5b0b913f0dab75c
IP address type	Load balancer		
IPv4	None associated		

Below the details, there is a summary row with six metrics:

Total targets	Healthy	Unhealthy	Unused	Initial	Draining
0	0	0	0	0	0

Below the summary row, there is a section for 'Registered targets (0)' with an 'Info' link. To the right of this section, there are three buttons: 'Anomaly mitigation: Not applicable', 'Deregister', and 'Register targets'. The bottom of the page shows the AWS footer with '© 2024, Amazon Web Services, Inc. or its affiliates.' and links for 'Privacy', 'Terms', and 'Cookie preferences'.

9. Create two more target group in the same way .



Target groups (3) Info

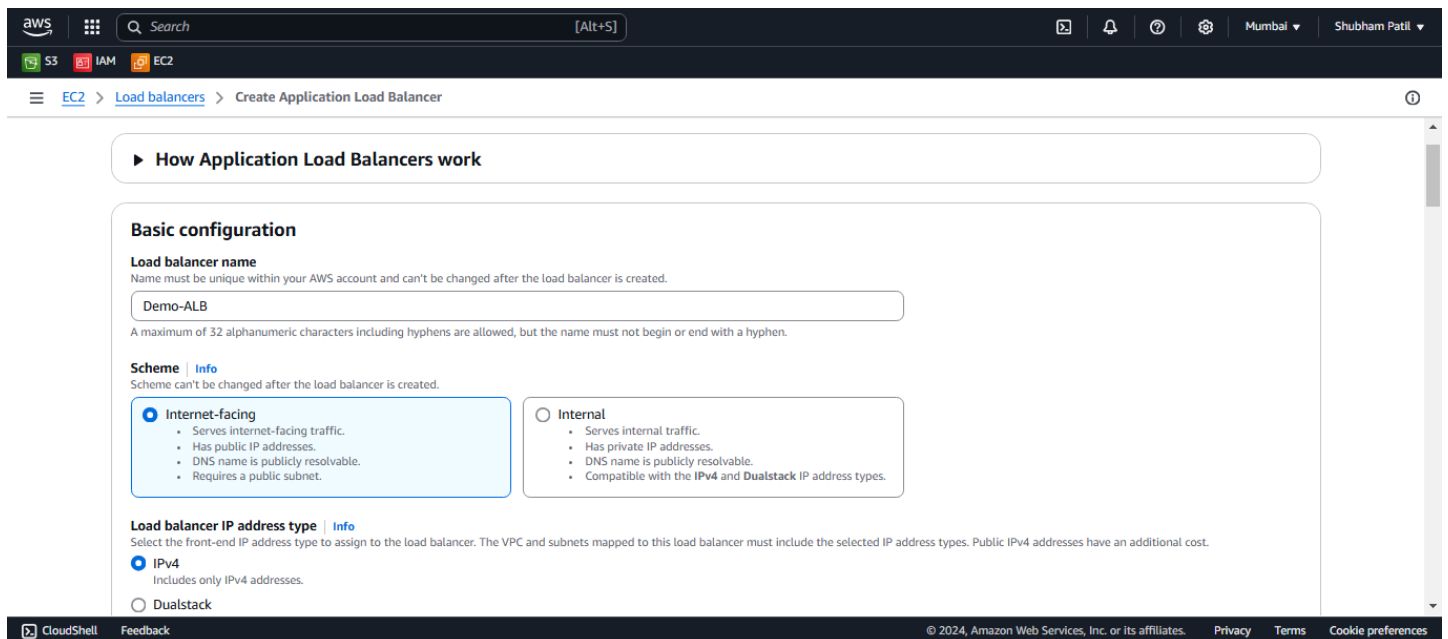
Filter target groups

<input type="checkbox"/>	Name	ARN	Port	Protocol	Target type	Load balancer	VPC
<input type="checkbox"/>	Laptop-TG	arn:aws:elasticloadbalancing...	80	HTTP	Instance	None associated	vpc-C
<input type="checkbox"/>	Mobile-TG	arn:aws:elasticloadbalancing...	80	HTTP	Instance	None associated	vpc-C
<input type="checkbox"/>	Home-TG	arn:aws:elasticloadbalancing...	80	HTTP	Instance	None associated	vpc-C

0 target groups selected

Select a target group above.

10. Create Application Load Balancer .



How Application Load Balancers work

Basic configuration

Load balancer name
Name must be unique within your AWS account and can't be changed after the load balancer is created.

Demo-ALB

A maximum of 32 alphanumeric characters including hyphens are allowed, but the name must not begin or end with a hyphen.

Scheme Info
Scheme can't be changed after the load balancer is created.

☒ **Internet-facing**

- Serves internet-facing traffic.
- Has public IP addresses.
- DNS name is publicly resolvable.
- Requires a public subnet.

☐ **Internal**

- Serves internal traffic.
- Has private IP addresses.
- DNS name is publicly resolvable.
- Compatible with the IPv4 and Dualstack IP address types.

Load balancer IP address type Info
Select the front-end IP address type to assign to the load balancer. The VPC and subnets mapped to this load balancer must include the selected IP address types. Public IPv4 addresses have an additional cost.

☒ **IPv4**
Includes only IPv4 addresses.

☐ **Dualstack**

11.Successfully Created ALB.

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EC2Load balancersDemo-ALB

Instance types

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Elastic Block Store

Volumes

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Lifecycle Manager

Network & Security

Load Balancing

Load Balancers

Target Groups

Trust Stores

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Successfully created load balancer: Demo-ALB

It might take a few minutes for your load balancer to fully set up and route traffic. Targets will also take a few minutes to complete the registration process and pass initial health checks.

Demo-ALB

Details

Load balancer type

Application

Scheme

Internet-facing

Status

Provisioning

Hosted zone

Zone ID

VPC

vpc-0a5b0b913f0dab75c

Availability Zones

subnets

Load balancer IP address type

IPv4

Date created

December 14, 2024, 11:42 (UTC+05:30)

Load balancer ARN

arn:aws:elasticloadbalancing:ap-south-1:536697239777:loadbalancer/app/Demo-ALB:df8a6fe7038ba601

DNS name

Demo-ALB-1405423672.ap-south-1.elb.amazonaws.com (A Record)

12.Add Listener Rules for Target Group

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EC2Load balancersDemo-ALBHTTP:80 listener

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RulesAttributesTags

Listener rules (3)

Traffic received by the listener is routed according to the default action and any additional rules. Rules are evaluated in priority order from the lowest value to the highest value.

Filter rules

mobile

2

Path Pattern is /mobile/

Forward to target group

Mobile-TG: 1 (100%)

Target group stickiness: Off

ARN

1 t

laptop

3

Path Pattern is /laptop/

Forward to target group

Laptop-TG: 1 (100%)

Target group stickiness: Off

ARN

1 t

Default

Last (default)

If no other rule applies

Forward to target group

Home-TG: 1 (100%)

Target group stickiness: Off

ARN

0 t

13. Create a Auto Scaling group for each Template.

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S3IAMEC2

EC2 > Auto Scaling groups > Create Auto Scaling group

Choose launch template

Step 2

Choose instance launch options

Step 3 - optional

Integrate with other services

Step 4 - optional

Configure group size and scaling

Step 5 - optional

Add notifications

Step 6 - optional

Add tags

Step 7

Review

Choose launch template

Specify a launch template that contains settings common to all EC2 instances that are launched by this Auto Scaling group.

Name

Auto Scaling group name

Enter a name to identify the group.

Home-ASG

Must be unique to this account in the current Region and no more than 255 characters.

Launch template

Search launch templates

Mobile-TP

Laptop-TP

Home-TP

Select a launch template

Create a launch template

CloudShell

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14. Attach to an existing load balancer and Select the target group.

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S3IAMEC2

EC2 > Auto Scaling groups > Create Auto Scaling group

Step 3 - optional

Integrate with other services

Step 4 - optional

Configure group size and scaling

Step 5 - optional

Add notifications

Step 6 - optional

Add tags

Step 7

Review

Load balancing

Use the options below to attach your Auto Scaling group to an existing load balancer, or to a new load balancer that you define.

No load balancer

Attach to an existing load balancer

Attach to a new load balancer

Attach to an existing load balancer

Select the load balancers that you want to attach to your Auto Scaling group.

Choose from your load balancer target groups

Choose from Classic Load Balancers

Existing load balancer target groups

Only instance target groups that belong to the same VPC as your Auto Scaling group are available for selection.

Select target groups

Home-TG | HTTP

CloudShell

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15. Enter the Desired capacity According to your Description.

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Create Auto Scaling group

Step 6 - optional
Add tags

Step 7
Review

Desired capacity

Specify your group size.

2

Scaling Info

You can resize your Auto Scaling group manually or automatically to meet changes in demand.

Scaling limits

Set limits on how much your desired capacity can be increased or decreased.

Min desired capacity

Max desired capacity

1

5

Equal or less than desired capacity

Equal or greater than desired capacity

Automatic scaling - optional

Choose whether to use a target tracking policy Info

You can set up other metric-based scaling policies and scheduled scaling after creating your Auto Scaling group.

No scaling policies

Your Auto Scaling group will remain at its initial size and will not dynamically resize to meet demand.

Target tracking scaling policy

Choose a CloudWatch metric and target value and let the scaling policy adjust the desired capacity in proportion to the metric's value.

Scaling policy name

16. Select Target tracking sacling policy.

aws

Search

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S3

IAM

EC2

EC2

Auto Scaling groups

Create Auto Scaling group

Automatic scaling - optional

Choose whether to use a target tracking policy | Info

You can set up other metric-based scaling policies and scheduled scaling after creating your Auto Scaling group.

☐ No scaling policies

Your Auto Scaling group will remain at its initial size and will not dynamically resize to meet demand.

☒ Target tracking scaling policy

Choose a CloudWatch metric and target value and let the scaling policy adjust the desired capacity in proportion to the metric's value.

Scaling policy name

Target Tracking Policy

Metric type | Info

Monitored metric that determines if resource utilization is too low or high. If using EC2 metrics, consider enabling detailed monitoring for better scaling performance.

Average CPU utilization

Target value

75

Instance warmup | Info

120 seconds

☐ Disable scale in to create only a scale-out policy

CloudShell

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17. Successfully Created the ASG for each template.

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S3 IAM EC2

EC2 > Auto Scaling groups

Auto Scaling groups (3) Info

Search your Auto Scaling groups

Launch configurations Launch templates Actions Create Auto Scaling group

<input type="checkbox"/>	Name	Launch template/configuration	Instances	Status	Desired capacity	Min	Max	Availability Zones
<input type="checkbox"/>	Laptop-ASG	Laptop-TP Version Default	0	Updating capacity...	2	1	5	ap-south-1c, ap-south...
<input type="checkbox"/>	Mobile-ASG	Mobile-TP Version Default	2	-	2	1	5	ap-south-1c, ap-south...
<input type="checkbox"/>	Home-ASG	Home-TP Version Default	2	-	2	1	5	ap-south-1c, ap-south...

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18. It will automatically start creating instances on your system.

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S3 IAM EC2

Instances (6) Info

Last updated less than a minute ago

Find Instance by attribute or tag (case-sensitive)

All states

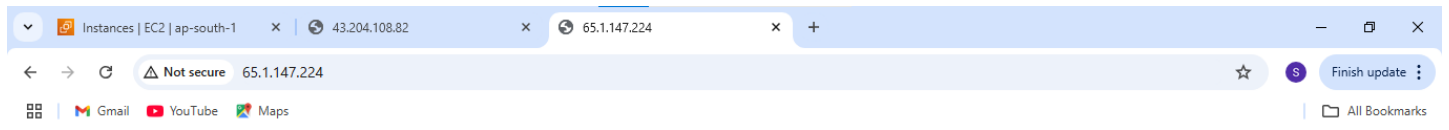
<input type="checkbox"/>	Name	Instance ID	Instance state	Instance type	Status check	Alarm status	Availability Zone	Public IP
<input type="checkbox"/>		i-05d81d0a82f68b843	Running	t2.micro	2/2 checks passed	View alarms +	ap-south-1a	ec2-3-1'
<input type="checkbox"/>		i-0c05b21993b3532eb	Running	t2.micro	2/2 checks passed	View alarms +	ap-south-1a	ec2-13-'
<input type="checkbox"/>		i-01f640d46901de6a6	Running	t2.micro	Initializing	View alarms +	ap-south-1a	ec2-3-1'
<input type="checkbox"/>		i-026cc45bb30d0c1ed	Running	t2.micro	Initializing	View alarms +	ap-south-1b	ec2-43-i

Select an instance

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19.Hit Home Page ip



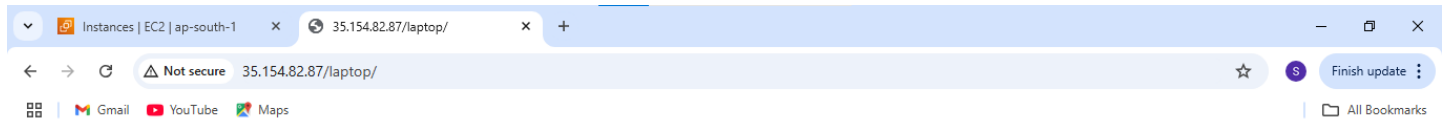
This is Home page ip-172-31-8-44.ap-south-1.compute.internal

20.Hit Mobile Page ip



This is mobile page ip-172-31-6-174.ap-south-1.compute.internal

21. Hit Laptop Page ip



This is laptop page ip-172-31-9-213.ap-south-1.compute.internal

