

CLOUD COMPUTING ARCHITECTURE LAB

NAME- Shubhi Dixit

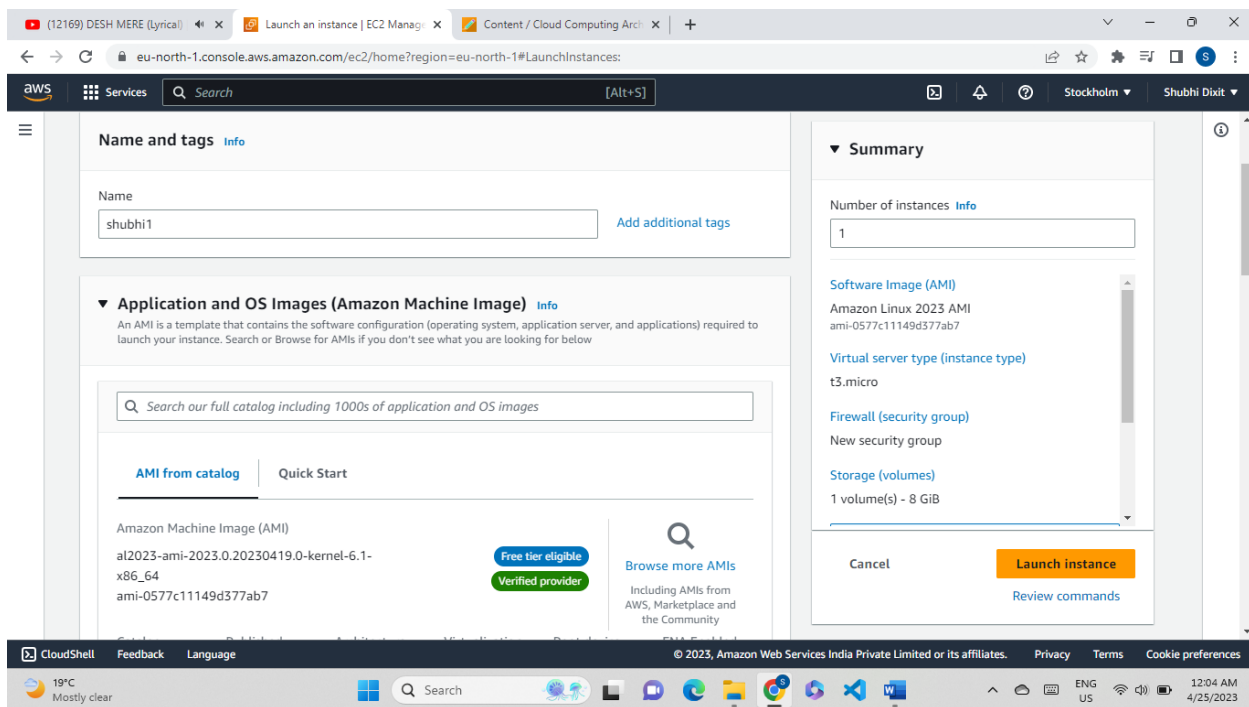
BATCH- 5

SAP ID- 50094571

AWS WAF

Adding a WAF to a Load balancer and blocking access

Step 1: Login to AWS console & create 2 EC2 instances in different



AZs

eu-north-1.console.aws.amazon.com/ec2/home?region=eu-north-1#LaunchInstances:

Services

Search

[Alt+S]

Stockholm

Shubhi Dixit

Key pair name - required

Proceed without a key pair (Not recommended)Default value

Create new key pair

▼ Network settings Info

VPC - required Info

vpc-05032d1b528e696e1172.31.0.0/16(default)

Subnet Info

subnet-08d5610cbf203d447

VPC: vpc-05032d1b528e696e1Owner: 027162208479Availability Zone: eu-north-1bIP addresses available: 4091CIDR: 172.31.32.0/20

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

Security group name - required

▼ Summary

Number of instances Info

1

Software Image (AMI)

Amazon Linux 2023 AMI
ami-0577c11149d377ab7

Virtual server type (instance type)

t3.micro

Firewall (security group)

New security group

Storage (volumes)

1 volume(s) - 8 GiB

Cancel

Launch instance

Review commands

CloudShellFeedbackLanguage

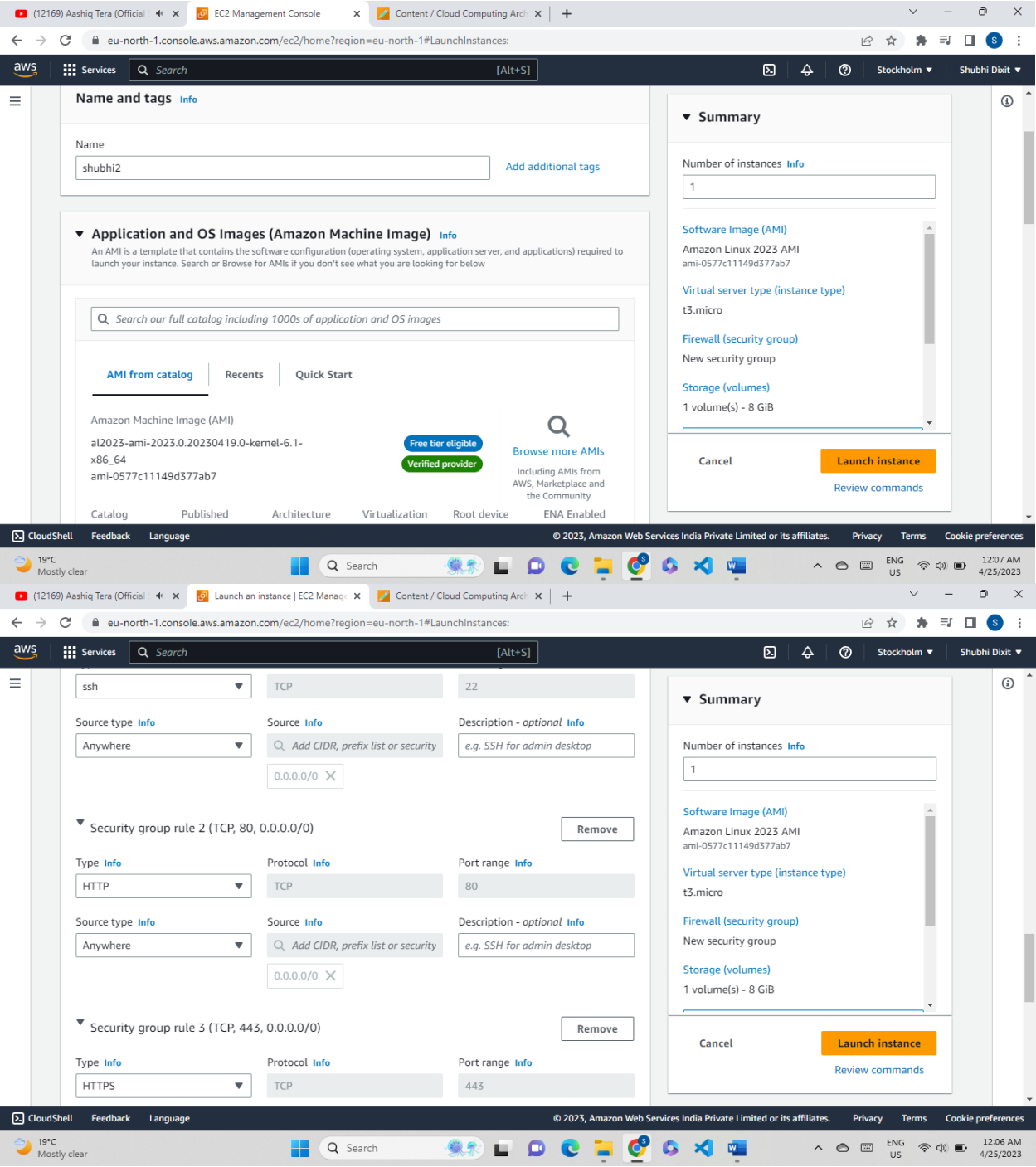
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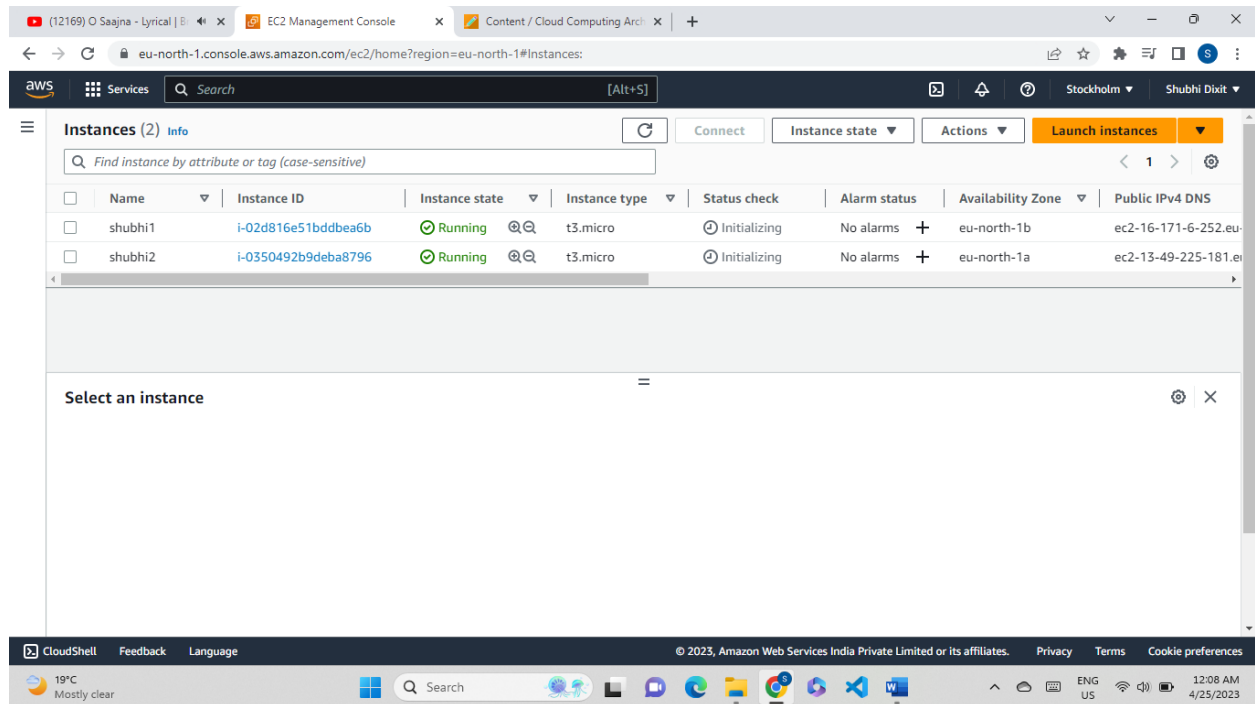
19°C
Mostly clear

Search

ENG
US

12:06 AM
4/25/2023

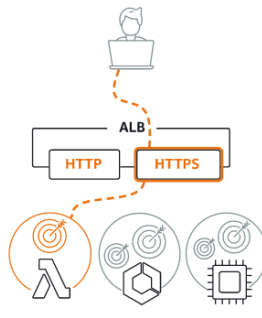




Step 2: Goto ec2-> LoadBalancer & add a application LB & check the LB

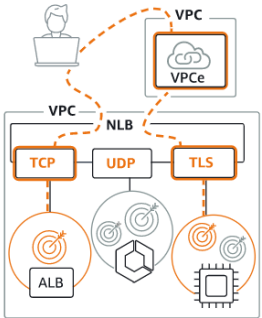
us-east-1.console.aws.amazon.com/ec2/home?region=us-east-1#SelectCreateELBWizard:

Application Load Balancer Info




Choose an Application Load Balancer when you need a flexible feature set for your applications with HTTP and HTTPS traffic. Operating at the request level, Application Load Balancers provide advanced routing and visibility features targeted at application architectures, including microservices and serverless.

Network Load Balancer Info



Choose a Network Load Balancer when you need ultra-high performance, TLS offloading at scale, centralized certificate deployment, support for UDP, and static IP addresses for your applications. Operating at the connection level, Network Load Balancers are capable of handling millions of requests per second.

Gateway Load Balancer Info



Choose a Gateway Load Balancer when you need to deploy and manage a fleet of third-party virtual appliances that support GENEVE. These appliances enable you to improve security, compliance, and policy controls.

Create

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19°C Mostly clear

us-east-1.console.aws.amazon.com/ec2/home?region=us-east-1#CreateALBWizard:

Basic configuration

Load balancer name

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

shubhid

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

An internet-facing load balancer routes requests from clients over the internet to targets. Requires a public subnet. [Learn more](#)

☐ Internal

An internal load balancer routes requests from clients to targets using private IP addresses.

IP address type Info

Select the type of IP addresses that your subnets use.

☒ IPv4

Recommended for internal load balancers.

☐ Dualstack

Includes IPv4 and IPv6 addresses.

Network mapping Info

The load balancer routes traffic to targets in the selected subnets, and in accordance with your IP address settings.

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The screenshot displays the AWS Management Console interface for the 'Create ALB Wizard' in the us-east-1 region. The top navigation bar shows the AWS logo, 'Services', a search bar, and the user's name 'Shubhi Dixit'. The main content area is divided into two columns. The left column contains the 'Subnets' section, which lists three subnets: 'us-east-1b (use1-az1)', 'us-east-1c (use1-az2)', and 'us-east-1e (use1-az3)'. Each subnet has a dropdown menu for 'Subnet' and 'IPv4 settings' (Assigned by AWS). The right column contains the 'Security groups' section, which lists three security groups: 'default', 'launch-wizard-3', and 'launch-wizard-2'. Each security group has a dropdown menu for 'Security groups' and 'VPC'. The bottom of the console shows the 'Listeners and routing' section, which is partially visible. The bottom status bar shows the date and time as 12:10 AM on 4/25/2023.

Also create Target groups

(12169) O Saajna - Lyrics

EC2 Management Console

Content / Cloud Computing

Load balancers | EC2 Manag

Target groups | EC2 Manag

us-east-1.console.aws.amazon.com/ec2/home?region=us-east-1#TargetGroups:

aws

Services

Search

[Alt+S]

N. Virginia

Shubhi Dixit

New EC2 Experience

Tell us what you think

EC2 Dashboard

EC2 Global View

Events

Tags

Limits

Instances

Instances

Instance Types

Launch Templates

Spot Requests

Savings Plans

Reserved Instances

Dedicated Hosts

Scheduled Instances

Capacity Reservations

Images

Successfully created target group: **shubhi**

EC2 > Target groups

Target groups (1) Info

Search or filter target groups

< 1 >

⚙

| <input type="checkbox"/> | Name | ARN | Port | Protocol | Target type |
|--------------------------|--------|-------------------------------|------|----------|-------------|
| <input type="checkbox"/> | shubhi | arn:aws:elasticloadbalanci... | 80 | HTTP | Instance |

0 target groups selected

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US

12:11 AM

4/25/2023

us-east-1.console.aws.amazon.com/ec2/home?region=us-east-1#CreateALBWizard:

Services

Search

[Alt+S]

VPC: vpc-059351c22df72c7c1

VPC: vpc-059351c22df72c7c1

VPC: vpc-059351c22df72c7c1

Listeners and routing

A listener is a process that checks for connection requests using the port and protocol you configure. The rules that you define for a listener determine how the load balancer routes requests to its registered targets.

▼ Listener HTTP:80

Remove

Protocol

Port

Default action

Info

HTTP

:

80

1-65535

Forward to

shubhi

HTTP

Target type: Instance, IPv4

Create target group

Listener tags - optional

Consider adding tags to your listener. Tags enable you to categorize your AWS resources so you can more easily manage them.

Add listener tag

You can add up to 50 more tags.

Add listener

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12:11 AM

4/25/2023

us-east-1.console.aws.amazon.com/ec2/home?region=us-east-1#LoadBalancers:search=shubhid

Services

Search

[Alt+S]

EC2 > Load balancers

Load balancers (1)

Elastic Load Balancing scales your load balancer capacity automatically in response to changes in incoming traffic.

Filter by property or value

search: shubhid

Clear filters

1

| | Name | DNS name | State | VPC ID | Availability Zones | Type | Date created |
|--------------------------|---------|----------------------------|--------------|-----------------------|----------------------|-------------|----------------------------|
| <input type="checkbox"/> | shubhid | shubhid-2012934677.us-e... | Provisioning | vpc-059351c22df72c7c1 | 3 Availability Zones | application | April 25, 2023 (UTC+05:30) |

0 load balancers selected

Select a load balancer above.

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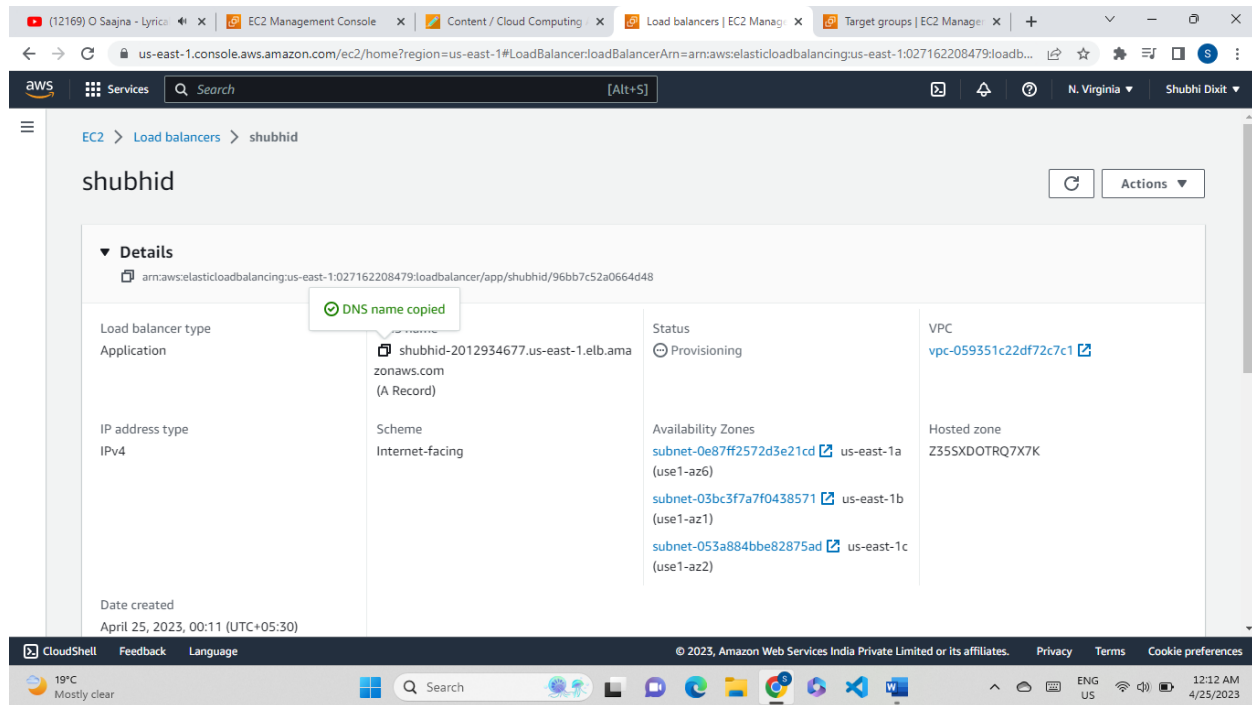
19°C

Mostly clear

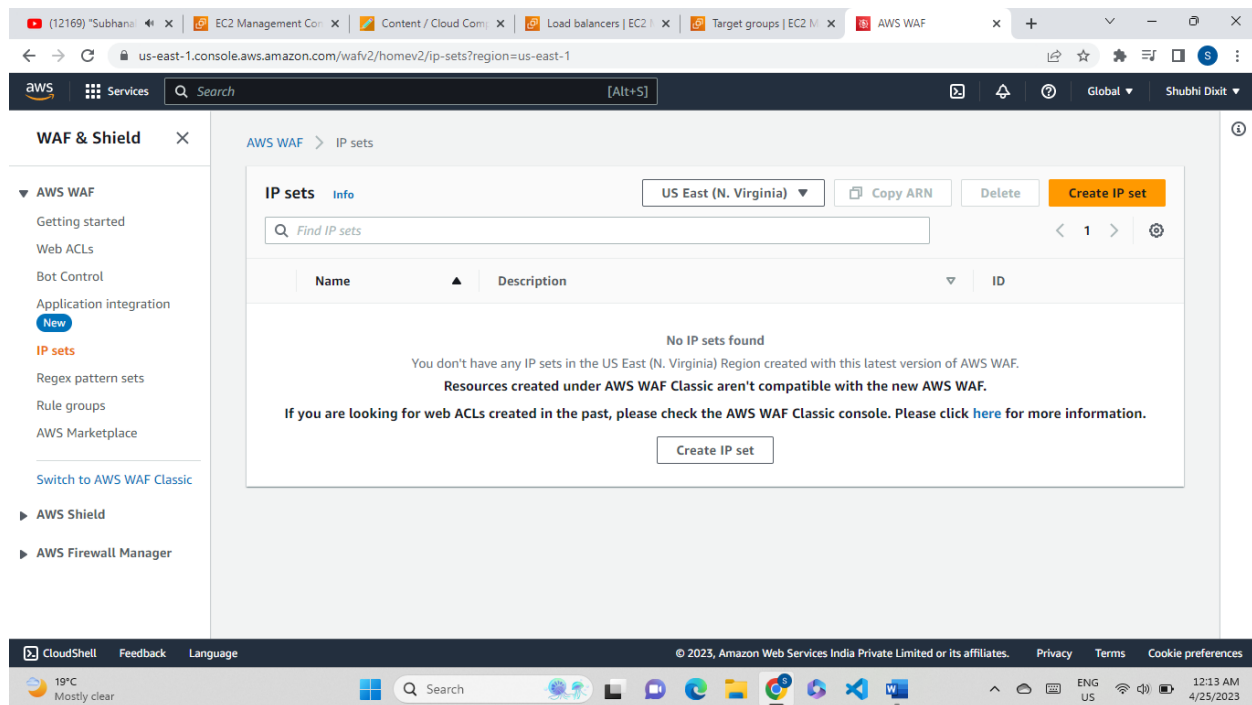
Search

12:11 AM

4/25/2023



Step 3: Goto WAF -> create ip set



The screenshot displays the AWS WAF console in the us-east-1 region. The 'IP set details' form is filled out with the following information:

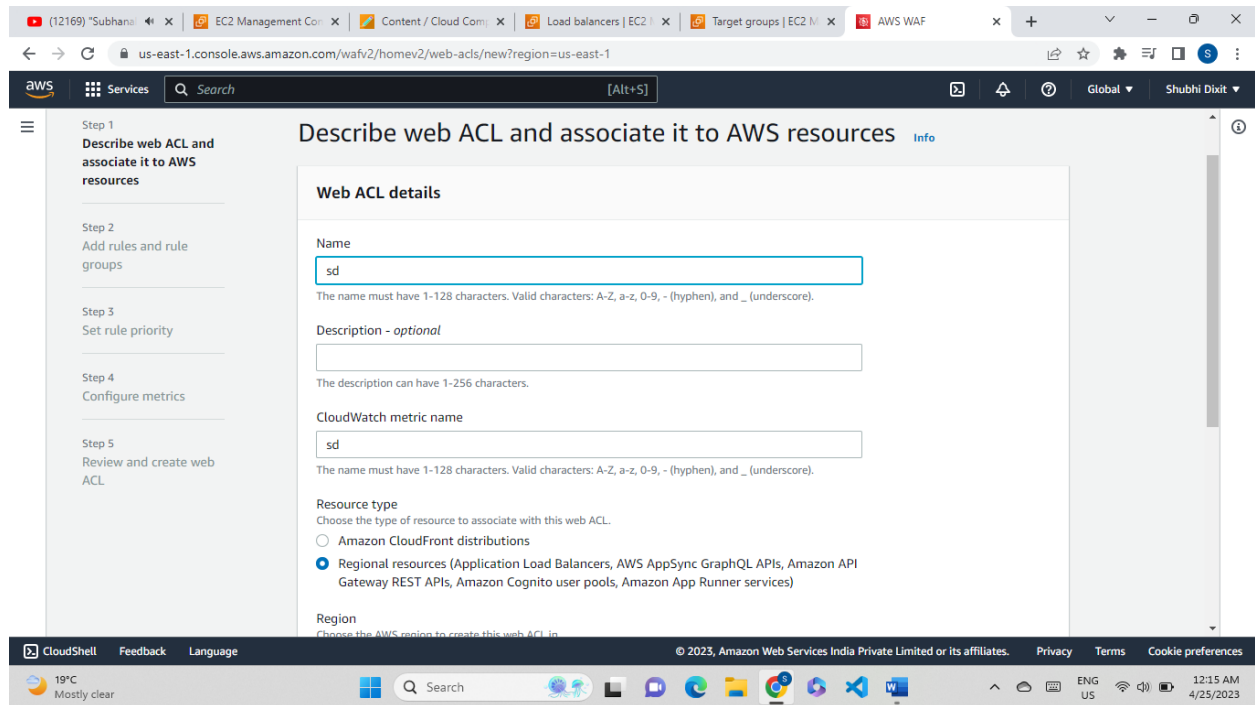
- IP set name:** shubhiset
- Description - optional:** (empty)
- Region:** US East (N. Virginia)
- IP version:** IPv4 (selected)
- IP addresses:** 10.0.0.0/32

A success message is shown: "You successfully created the IP set shubhiset." Below this, the 'IP sets' table lists the newly created set:

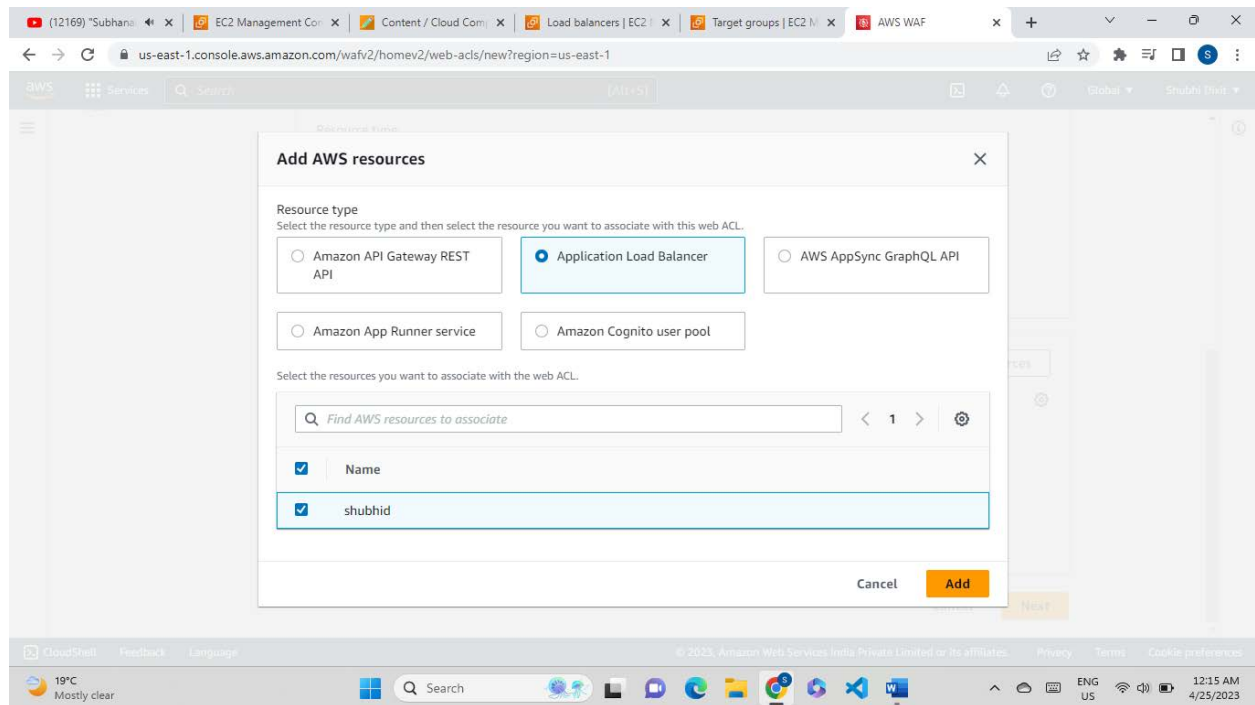
| Name | Description | ID |
|-----------|-------------|--------------------------------------|
| shubhiset | - | 4bed6413-b0c7-402e-a3f9-e9f5b99fd9b9 |

The left sidebar shows the navigation menu with 'IP sets' highlighted under the 'AWS WAF' section.

Step 4 : Create a web acl by giving name & appropriate configurations



Step 5 : Add resources to the web acl (here LB created previously)



Step 6: In the rules & rule groups , add the ipset

The screenshot shows the AWS WAF console interface for creating a web ACL. The left sidebar contains a navigation menu with the following steps:

- Step 1: Describe web ACL and associate it to AWS resources
- Step 2: Add rules and rule groups
- Step 3: Set rule priority
- Step 4: Configure metrics
- Step 5: Review and create web ACL

The main content area is titled "Add rules and rule groups" and includes an "Info" link. Below the title, there is a description: "A rule defines attack patterns to look for in web requests and the action to take when a request matches the patterns. Rule groups are reusable collections of rules. You can use managed rule groups offered by AWS and AWS Marketplace sellers. You can also write your own rules and use your own rule groups."

The "Rules" section shows a table with columns "Name" and "Action". A dropdown menu is open, showing the following options:

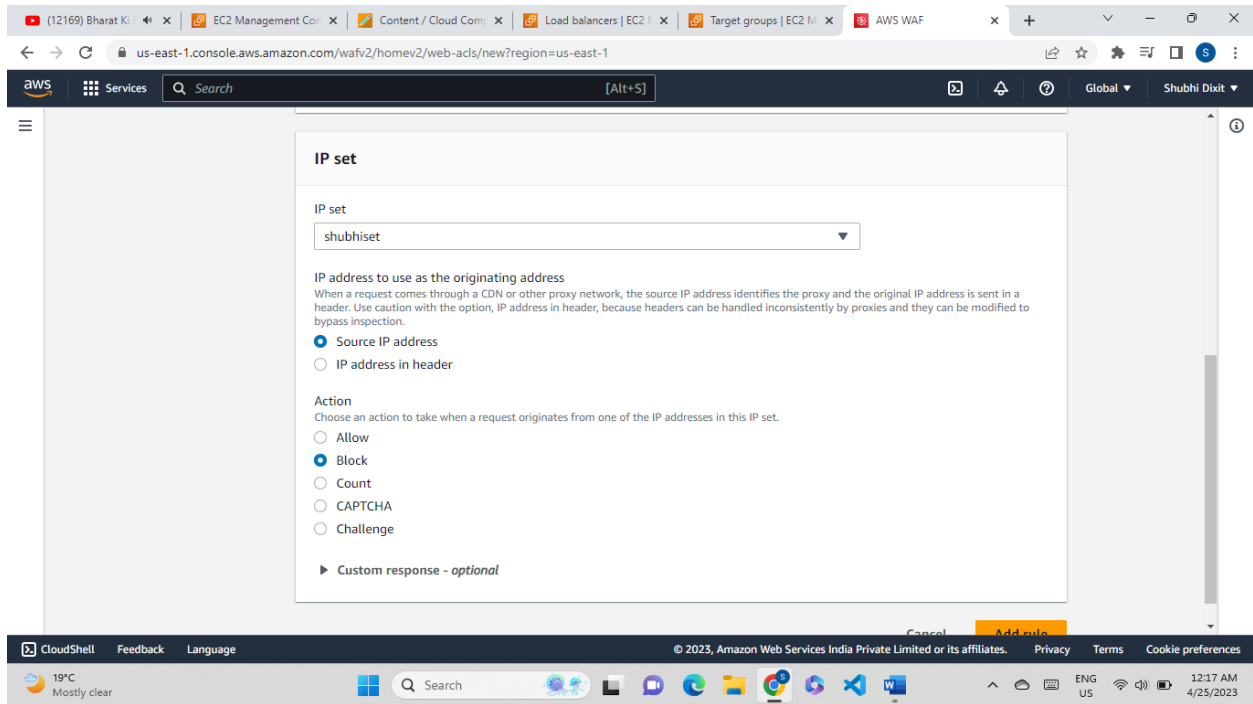
- Add rules
- Add managed rule groups
- Add my own rules and rule groups

The "Add my own rules and rule groups" option is selected, leading to a form titled "Add my own rules and rule groups". The form includes a "Rule type" section with three radio buttons:

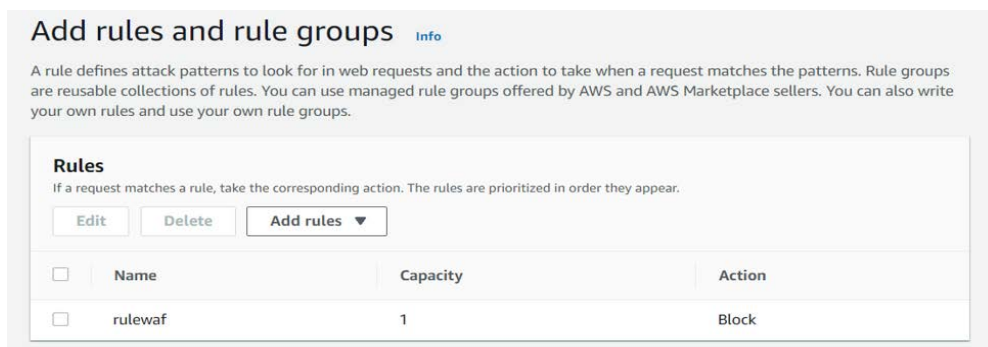
- ☒ IP set: Use IP sets to identify a specific list of IP addresses.
- ☐ Rule builder: Use a custom rule to inspect for patterns including query strings, headers, countries, and rate limit violations.
- ☐ Rule group: Use a rule group to combine rules into a single logical set.

The "Rule" section includes a "Name" field with the value "dfg". Below the field, a note states: "The name must have 1-128 characters. Valid characters: A-Z, a-z, 0-9, - (hyphen), and _ (underscore)."

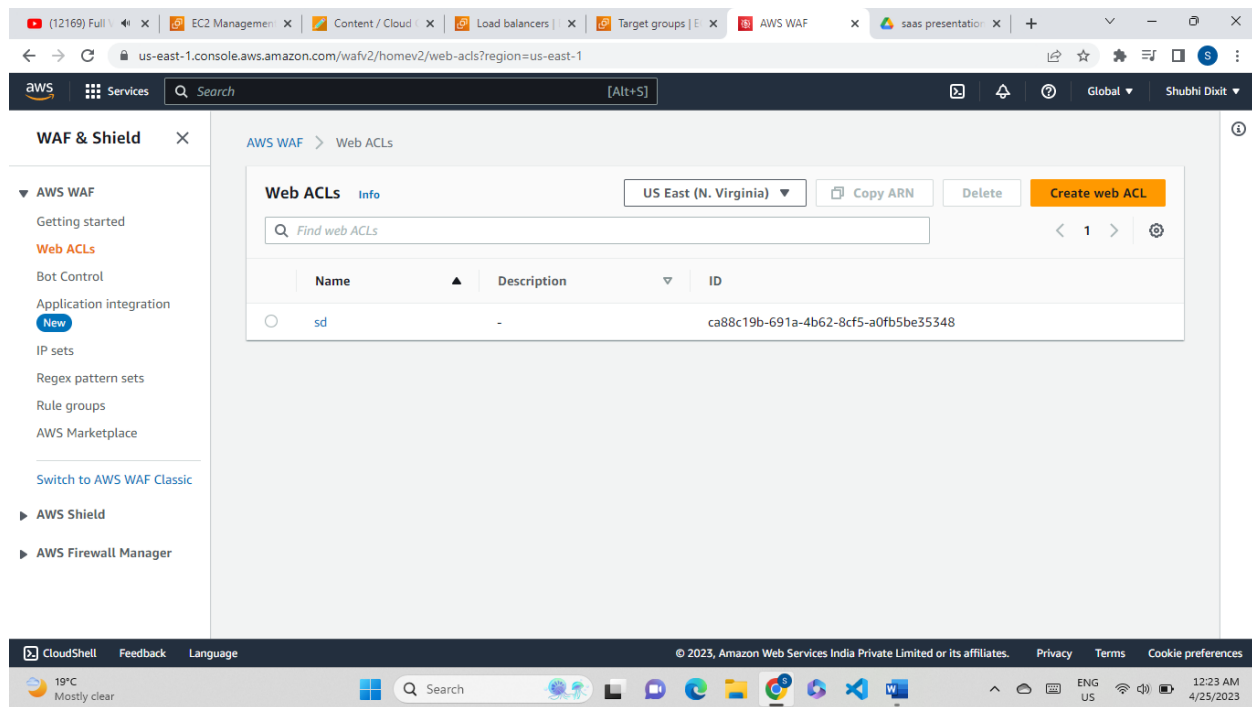
Step 7: Under Action use the “block” action



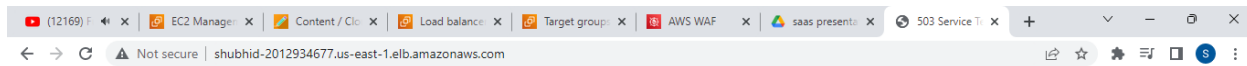
Step 8: Click add rule



Step 9: Review and create the web acl



Step 10: Access the LB by its DNS



503 Service Temporarily Unavailable



Step 11: If you change the action in step 7 to CAPTCHA , an authentication step is added

The screenshot displays the AWS WAF console interface. The top navigation bar includes the AWS logo, 'Services', a search bar, and the user's name 'Shubhi Dixit'. The breadcrumb trail shows 'AWS WAF > Web ACLs > Create web ACL'. The main content area is titled 'Set rule priority' and includes an 'Info' icon. A sidebar on the left lists the steps of the wizard: Step 1 (Describe web ACL and associate it to AWS resources), Step 2 (Add rules and rule groups), Step 3 (Set rule priority), Step 4 (Configure metrics), and Step 5 (Review and create web ACL). The 'Set rule priority' step is currently active. It features a 'Rules' section with a description: 'If a request matches a rule, take the corresponding action. The rules are prioritized in order they appear.' Below this are 'Move up' and 'Move down' buttons. A table lists the rules:

| | Name | Capacity | Action |
|-----------------------|------|----------|---------|
| <input type="radio"/> | dfg | 1 | CAPTCHA |

At the bottom of the table are 'Cancel', 'Previous', and 'Next' buttons. The 'Next' button is highlighted in orange. The bottom of the screen shows a Windows taskbar with the date and time '12:22 AM 4/25/2023'.

And then copy the DNS of load balancer and paste it in browser

om

Let's confirm you are human

You need to solve a security puzzle before proceeding to your request. This authentication activity protects your account by preventing spam and blocking suspicious activity.

Begin >

English ▼