CLOUD COMPUTING ARCHITECTURE LAB

NAME- Shubhi Dixit

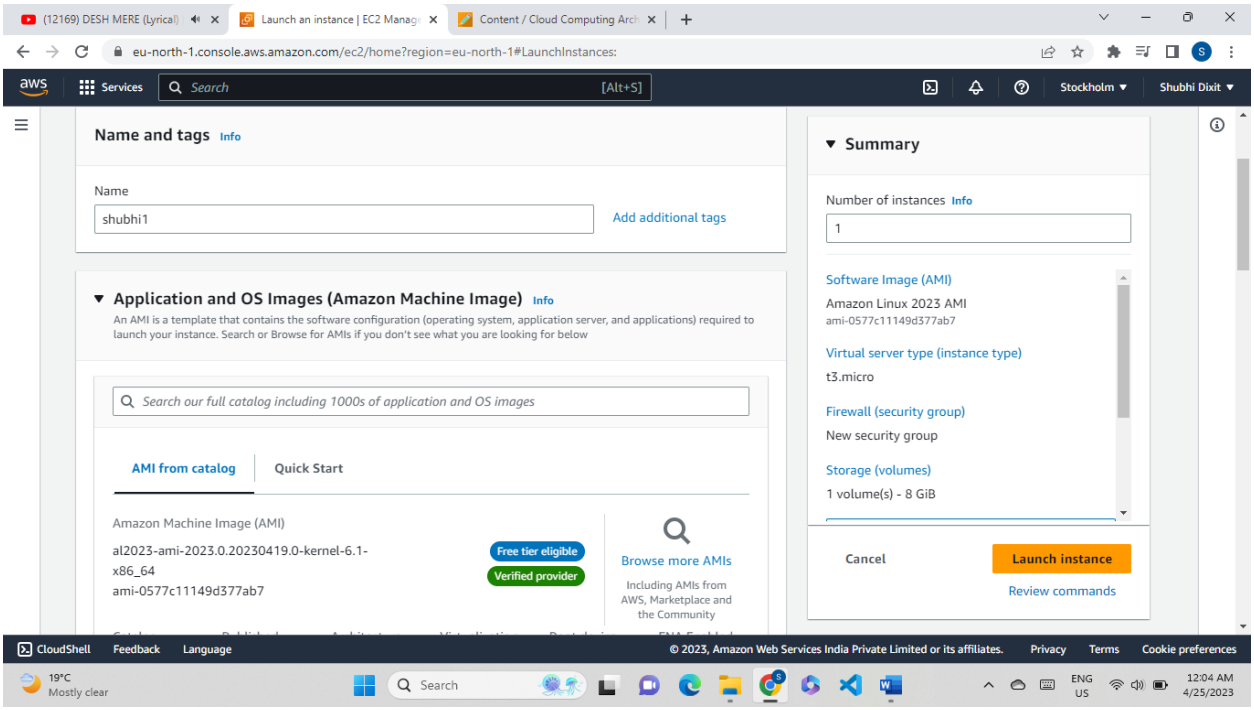
BATCH- 5

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



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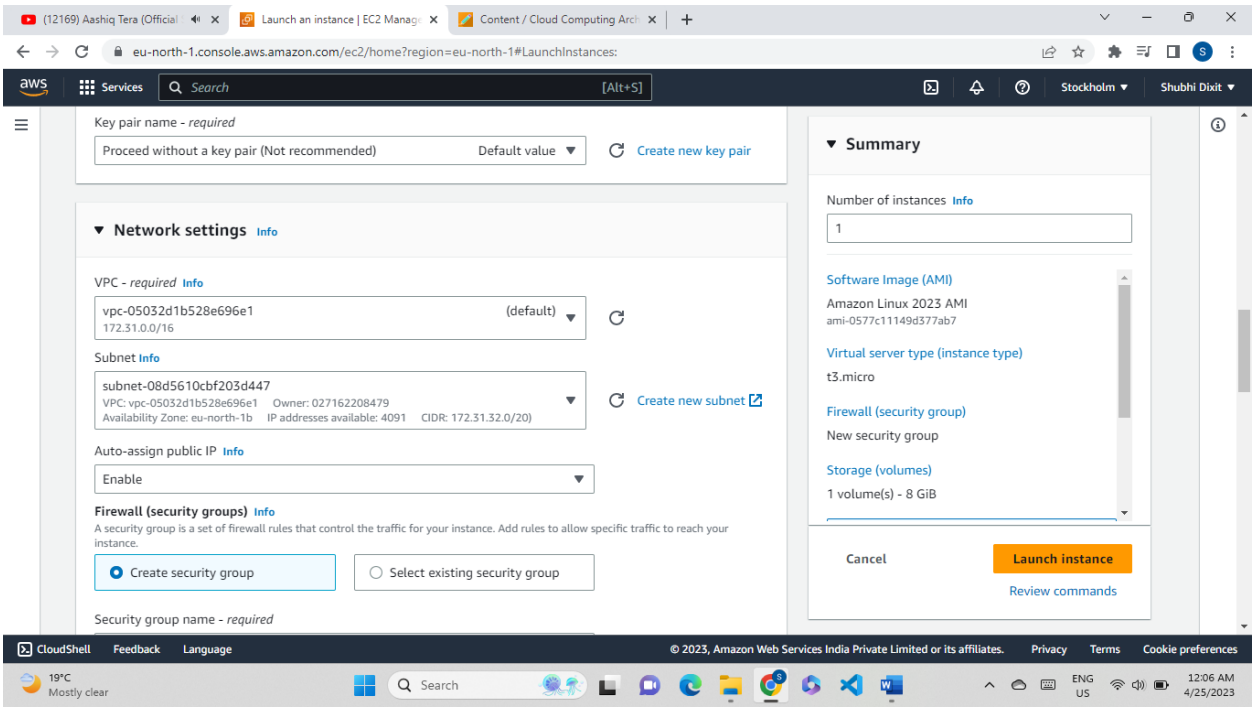
(12169) Aashiq Tera (Official
Launch an instance | EC2 Manag
Content / Cloud Computing Arch
eu-north-1.console.aws.amazon.com/ec2/home?region=eu-north-1#LaunchInstances:
aws
Services
Search
[Alt+S]
Stockholm
Shubhi Dixit
Key pair name - required
Proceed without a key pair (Not recommended)
Default value
Create new key pair
Network settings Info
VPC - required Info
vpc-05032d1b528e696e1
172.31.0.0/16
(default)
Subnet Info
subnet-08d5610cbf203d447
VPC: vpc-05032d1b528e696e1 Owner: 027162208479
Availability Zone: eu-north-1b IP addresses available: 4091 CIDR: 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
CloudShell
Feedback
Language
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19°C
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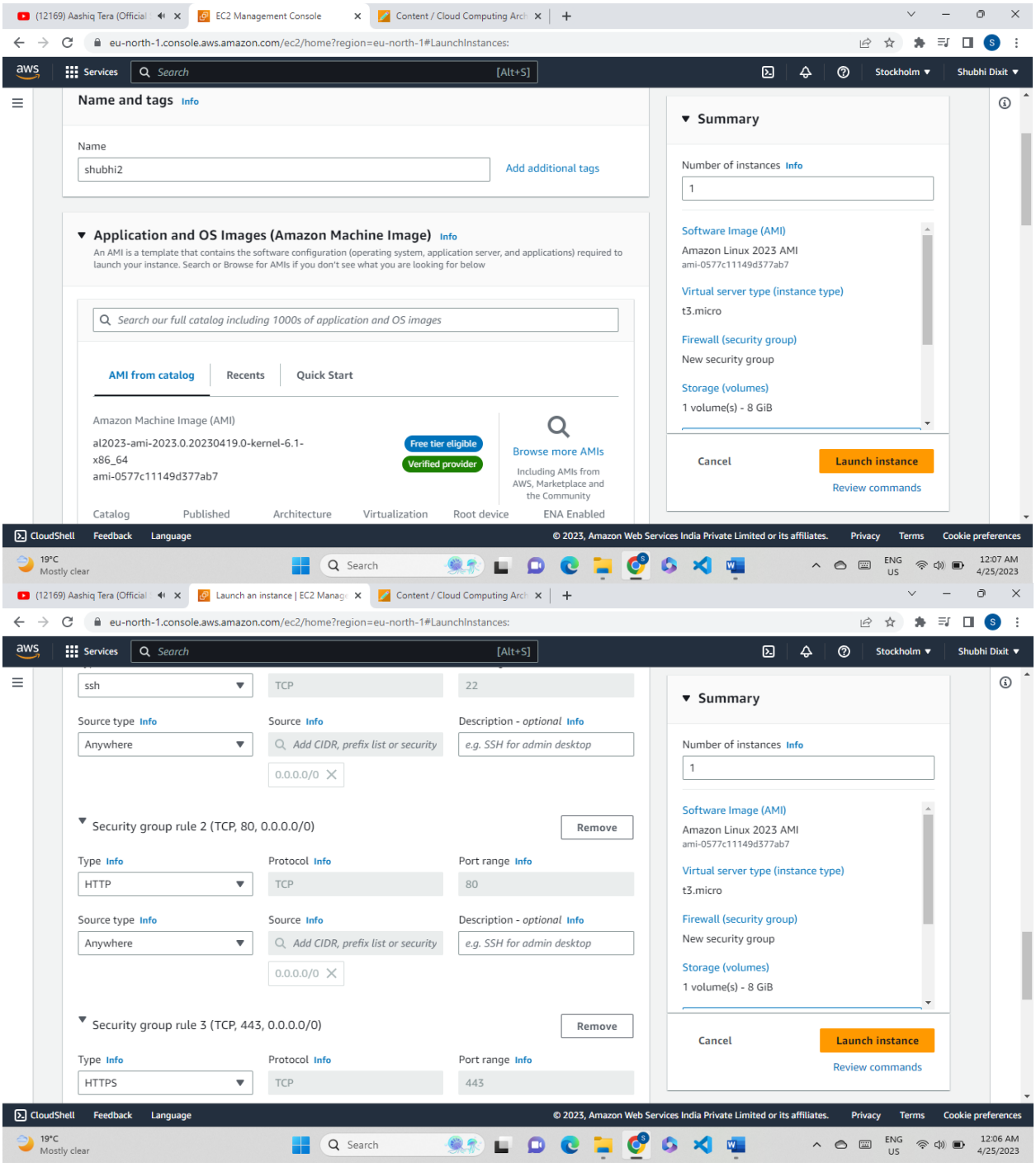
Search
ENG
US
12:06 AM
4/25/2023


(12169) Aashiq Tera (Official
EC2 Management Console
Content / Cloud Computing Arch
eu-north-1.console.aws.amazon.com/ec2/home?region=eu-north-1#LaunchInstances:
aws
Services
Search
[Alt+S]
Stockholm
Shubhi Dixit
Name and tags Info
Name
shubhi2
Add additional tags
Application and OS Images (Amazon Machine Image) Info
An AMI is a template that contains the software configuration (operating system, application server, and applications) required to launch your instance. Search or Browse for AMIs if you don't see what you are looking for below
Search our full catalog including 1000s of application and OS images
AMI from catalog
Recents
Quick Start
Amazon Machine Image (AMI)
al2023-ami-2023.0.20230419.0-kernel-6.1-x86_64
ami-0577c11149d377ab7
Free tier eligible
Verified provider
Browse more AMIs
Including AMIs from AWS, Marketplace and the Community
Catalog
Published
Architecture
Virtualization
Root device
ENA Enabled
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
CloudShell
Feedback
Language
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Launch an instance | EC2 Manage
Content / Cloud Computing Arch
eu-north-1.console.aws.amazon.com/ec2/home?region=eu-north-1#LaunchInstances:
aws
Services
Search
[Alt+S]
Stockholm
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ssh
TCP
22
Source type Info
Anywhere
Source Info
Add CIDR, prefix list or security
0.0.0.0/0
Description - optional Info
e.g. SSH for admin desktop
Security group rule 2 (TCP, 80, 0.0.0.0/0)
Remove
Type Info
HTTP
Protocol Info
TCP
Port range Info
80
Source type Info
Anywhere
Source Info
Add CIDR, prefix list or security
0.0.0.0/0
Description - optional Info
e.g. SSH for admin desktop
Security group rule 3 (TCP, 443, 0.0.0.0/0)
Remove
Type Info
HTTPS
Protocol Info
TCP
Port range Info
443
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
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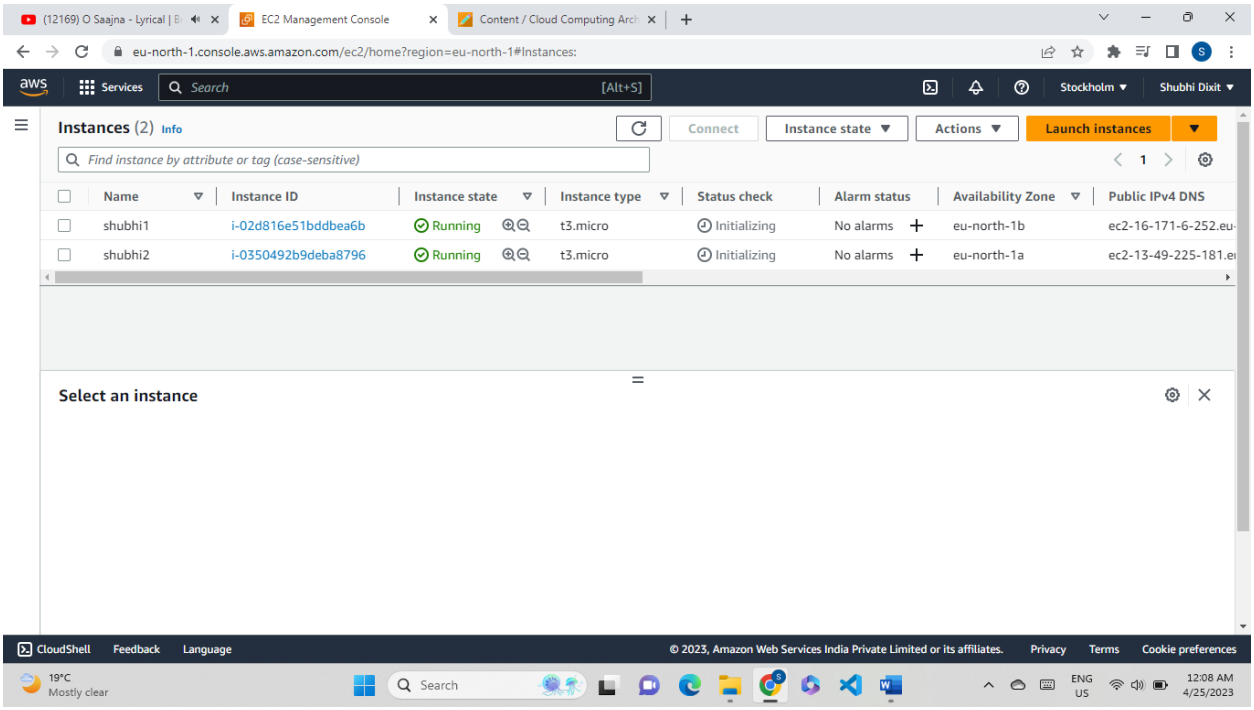


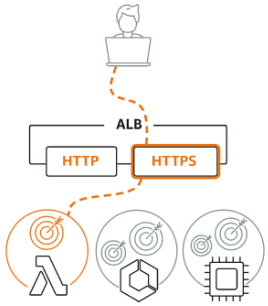
Step 2: Goto ec2-> LoadBalancer & add a application LB & check the LB

(12169) O Saajna - Lyrical | B | EC2 Management Console | Content / Cloud Computing Arch | Load balancers | EC2 Manageme

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

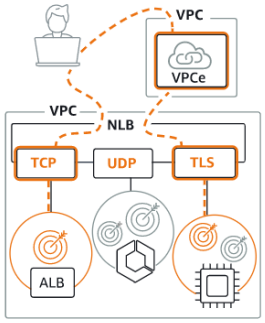
aws | Services | Search [Alt+S] | N. Virginia | Shubhi Dixit

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

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

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

aws | Services | Search [Alt+S] | N. Virginia | Shubhi Dixit

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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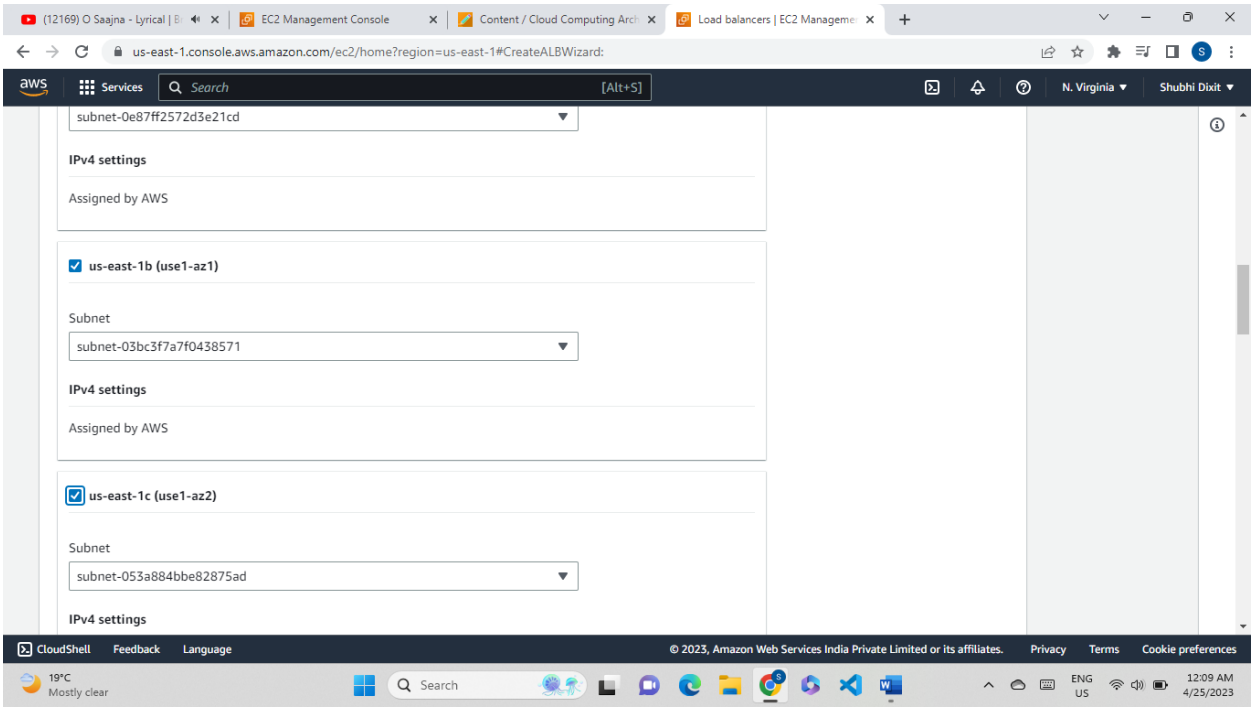
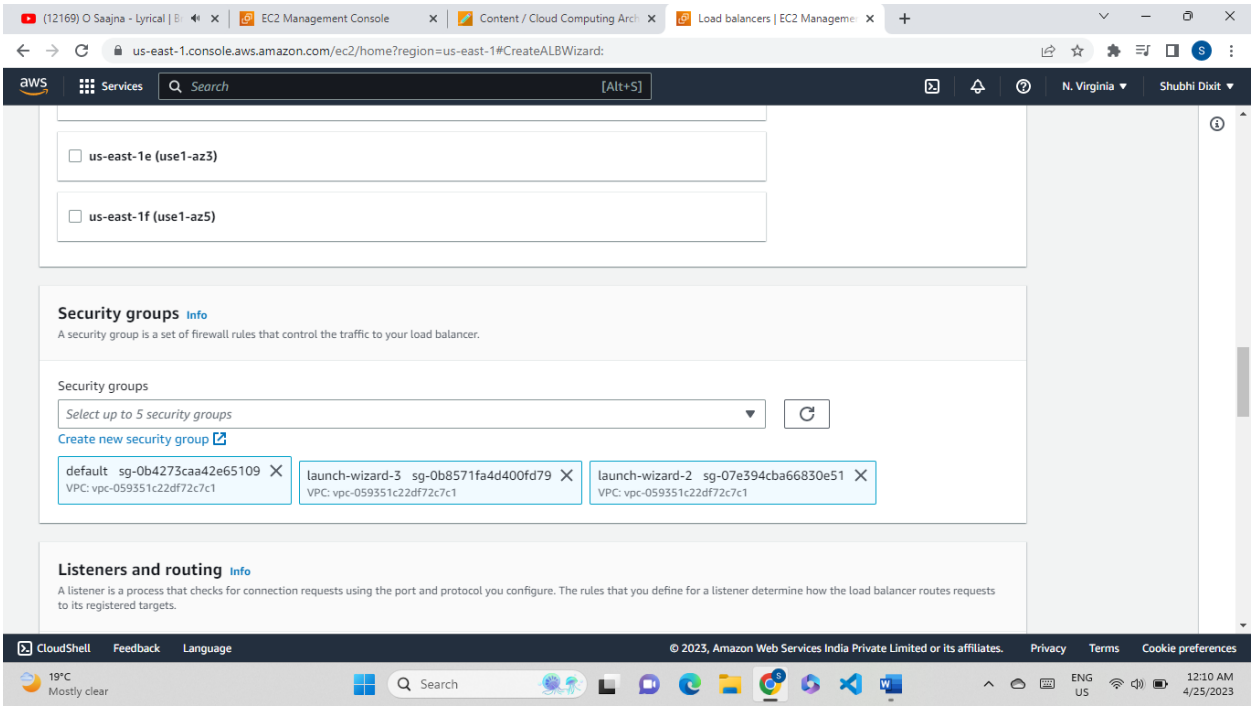
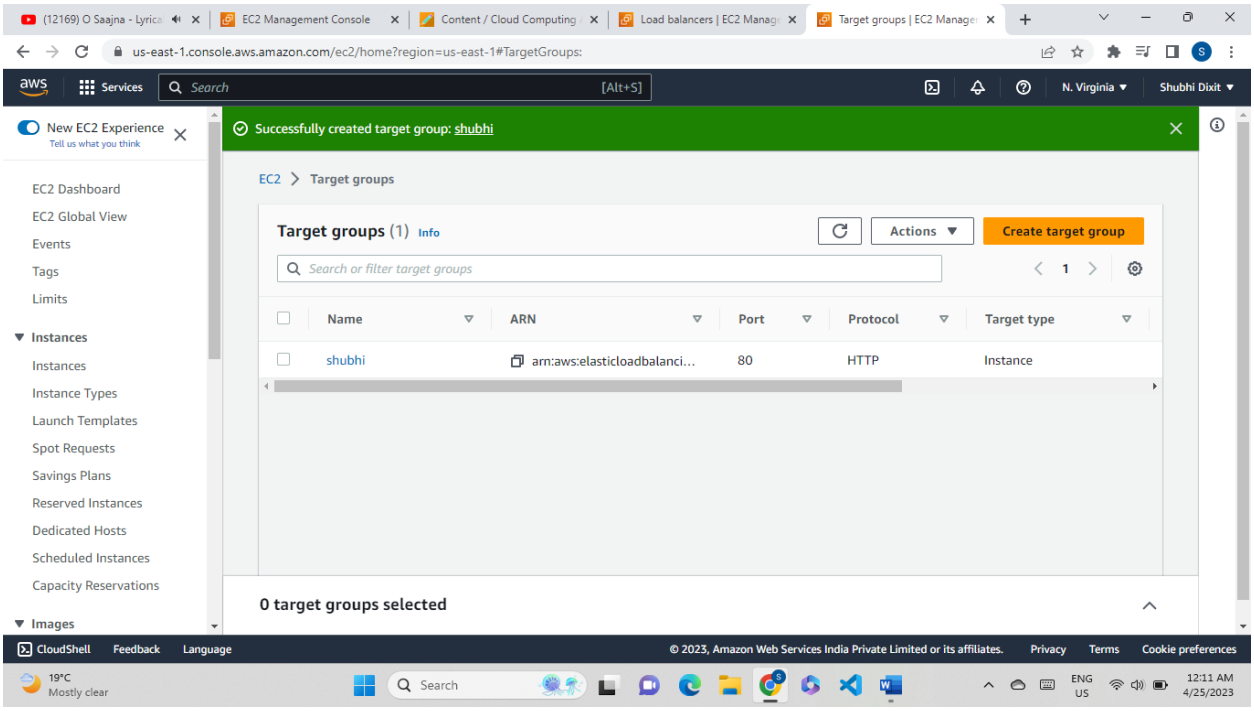




Also create Target groups


(12169) O Saajna - Lyrics
EC2 Management Console
Content / Cloud Computing
Load balancers | EC2 Manage
Target groups | EC2 Manage
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
Actions
Create target group
Search or filter target groups
1
Name
ARN
Port
Protocol
Target type
shubhi
arn:aws:elasticloadbalanci...
80
HTTP
Instance
0 target groups selected
CloudShell
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Search
ENG
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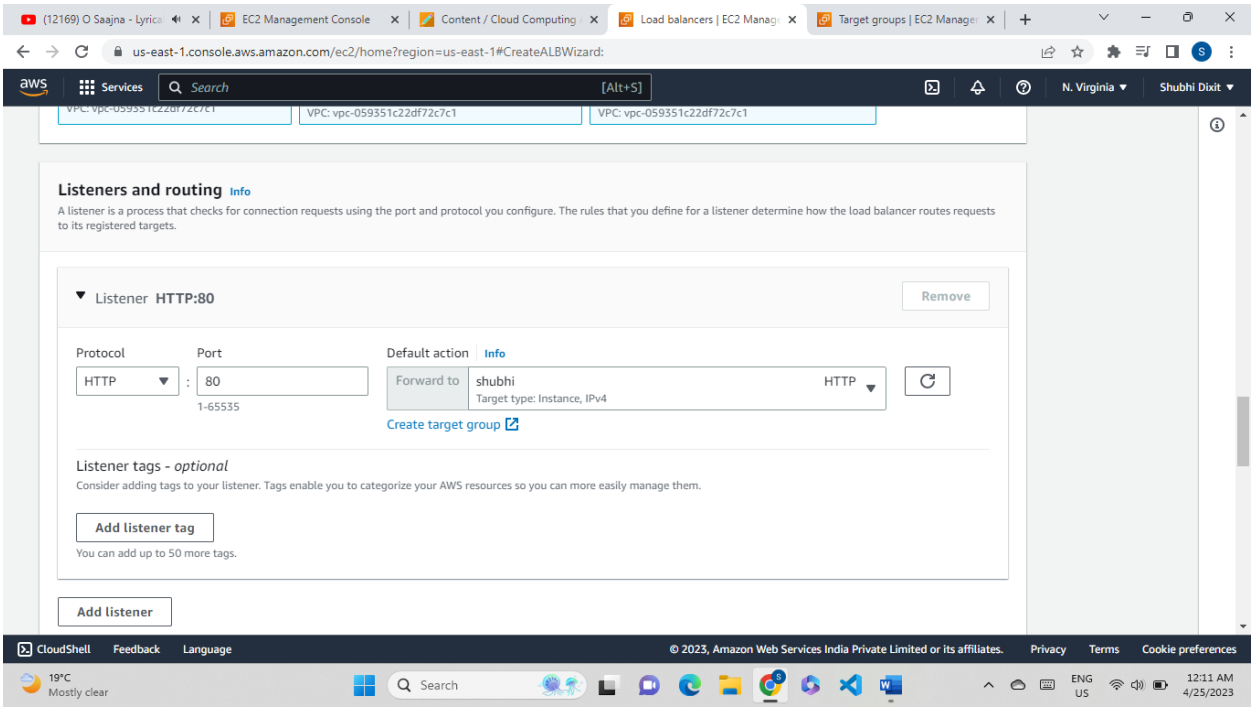
Listeners and routing Info
A listener is a process that checks for connection requests using the port and protocol you configure. The rules that you define for a listener determine how the load balancer routes requests to its registered targets.
Listener HTTP:80
Remove
Protocol
HTTP
Port
80
1-65535
Default action Info
Forward to
shubhi
Target type: Instance, IPv4
HTTP
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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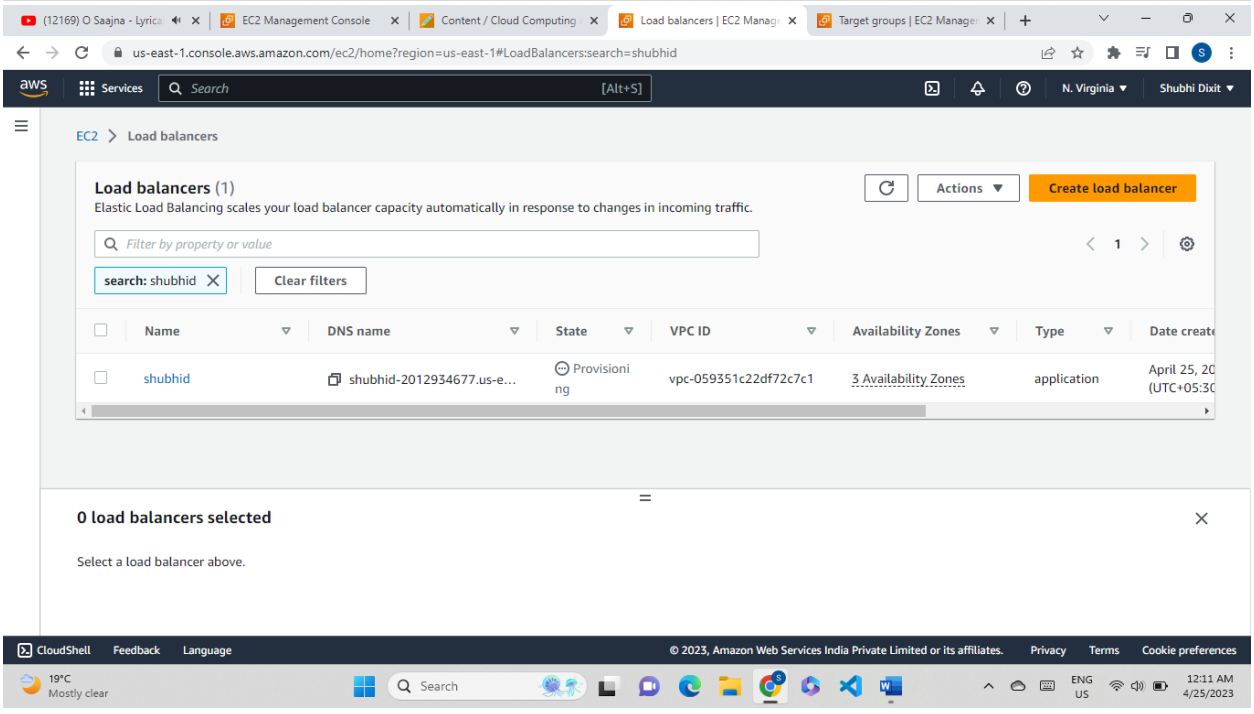
EC2 > Load balancers
Load balancers (1)
Elastic Load Balancing scales your load balancer capacity automatically in response to changes in incoming traffic.
Actions
Create load balancer
Filter by property or value
search: shubhid
Clear filters
Name
DNS name
State
VPC ID
Availability Zones
Type
shubhid
shubhid-2012934677.us-e...
Provisioning
vpc-059351c22df72c7c1
3 Availability Zones
application
0 load balancers selected
Select a load balancer above.
CloudShell
Feedback
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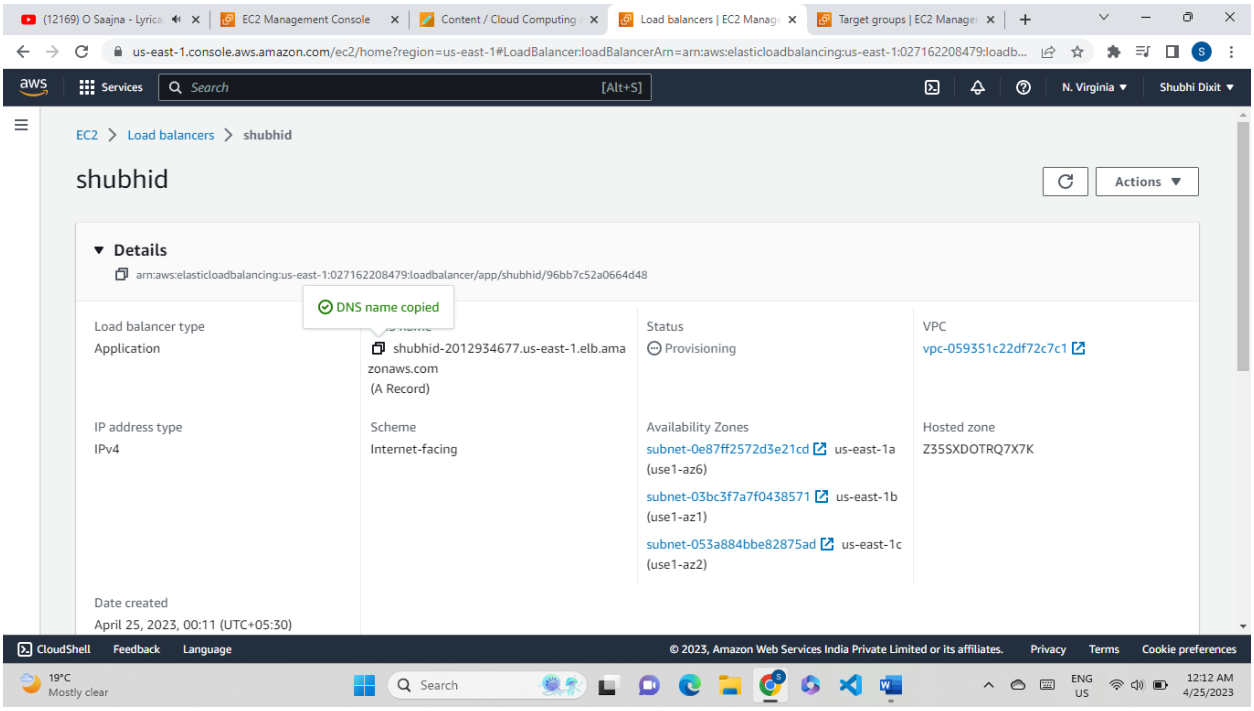
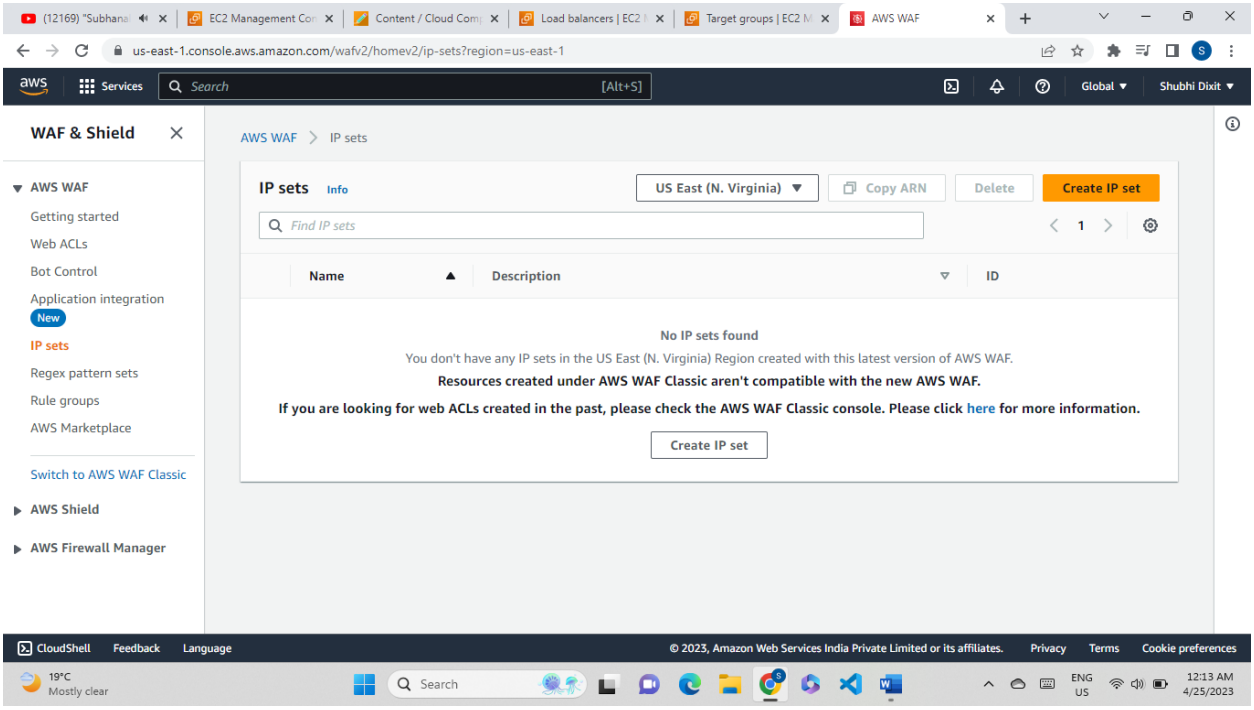
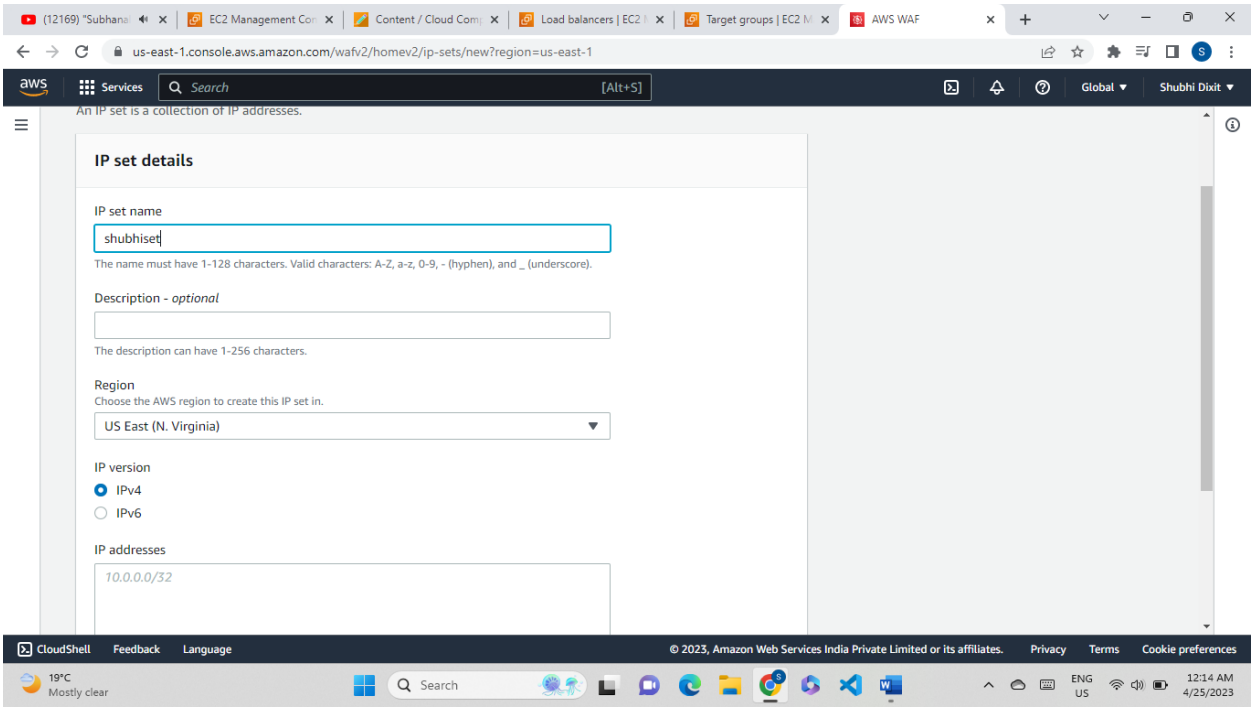
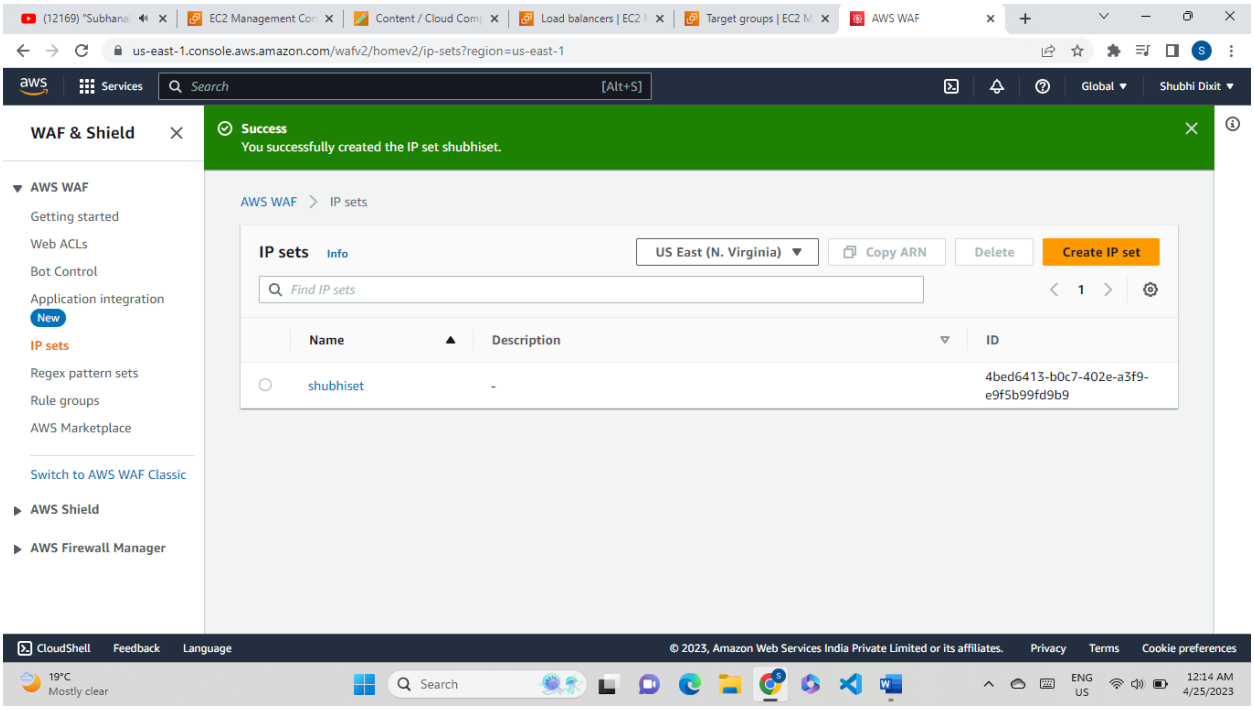


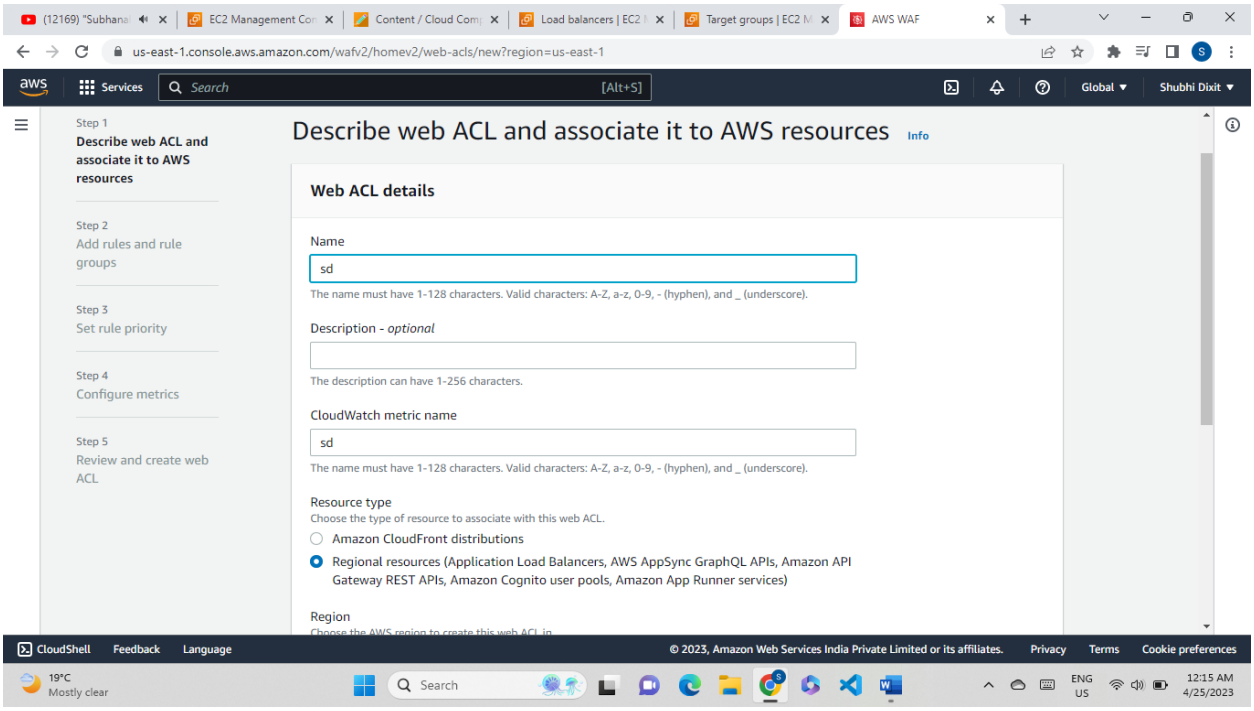
Step 3: Goto WAF -> create ip set



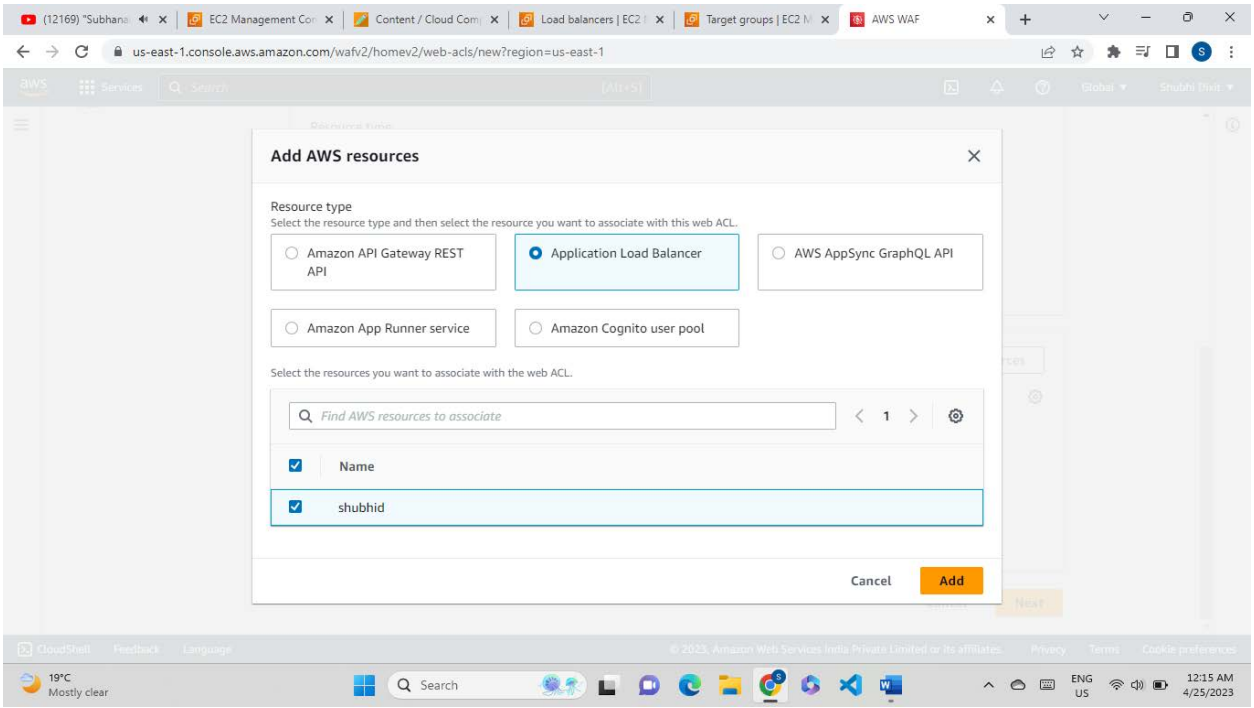




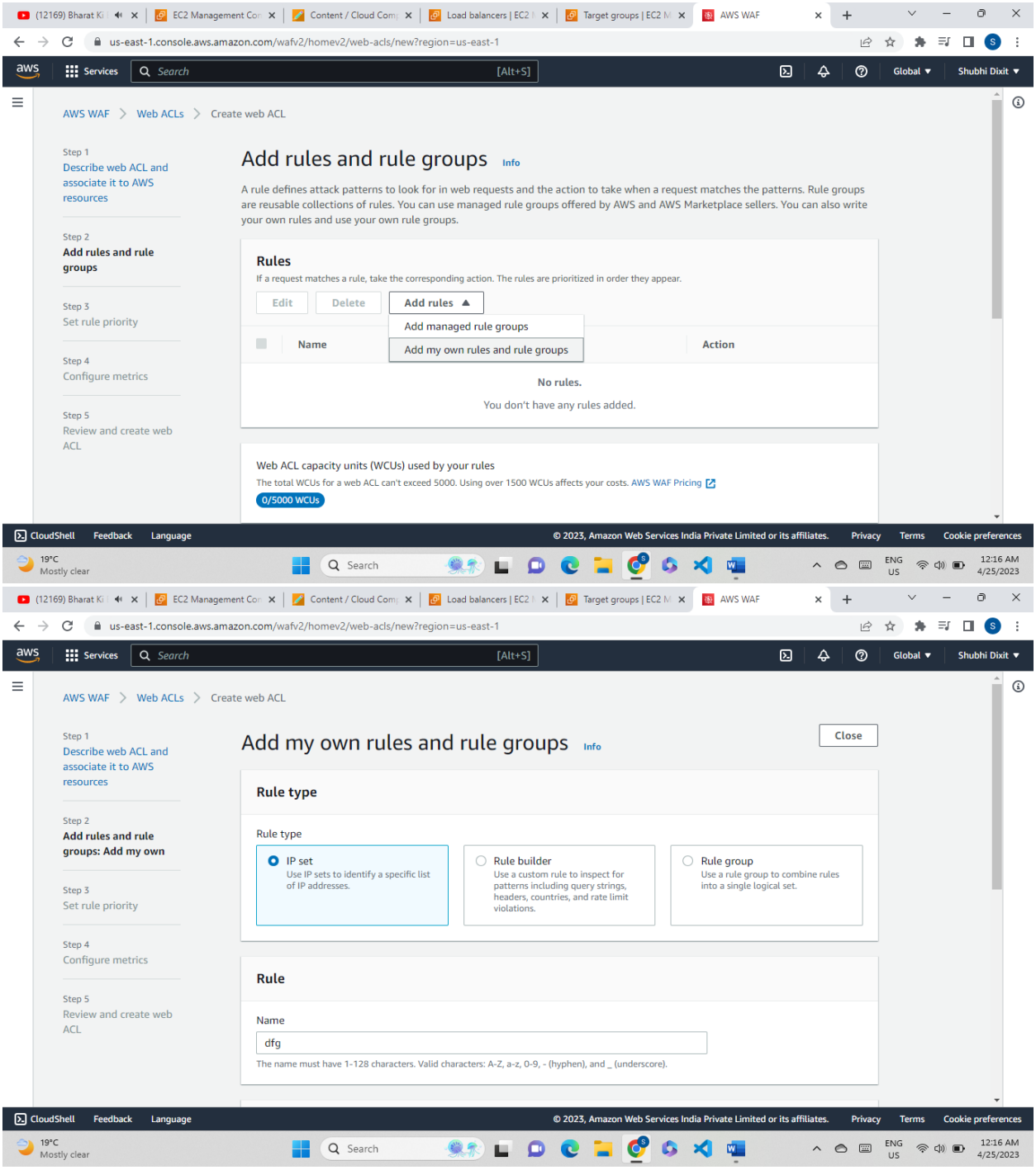
Step 4 : Create a web acl by giving name & appropriate configurations



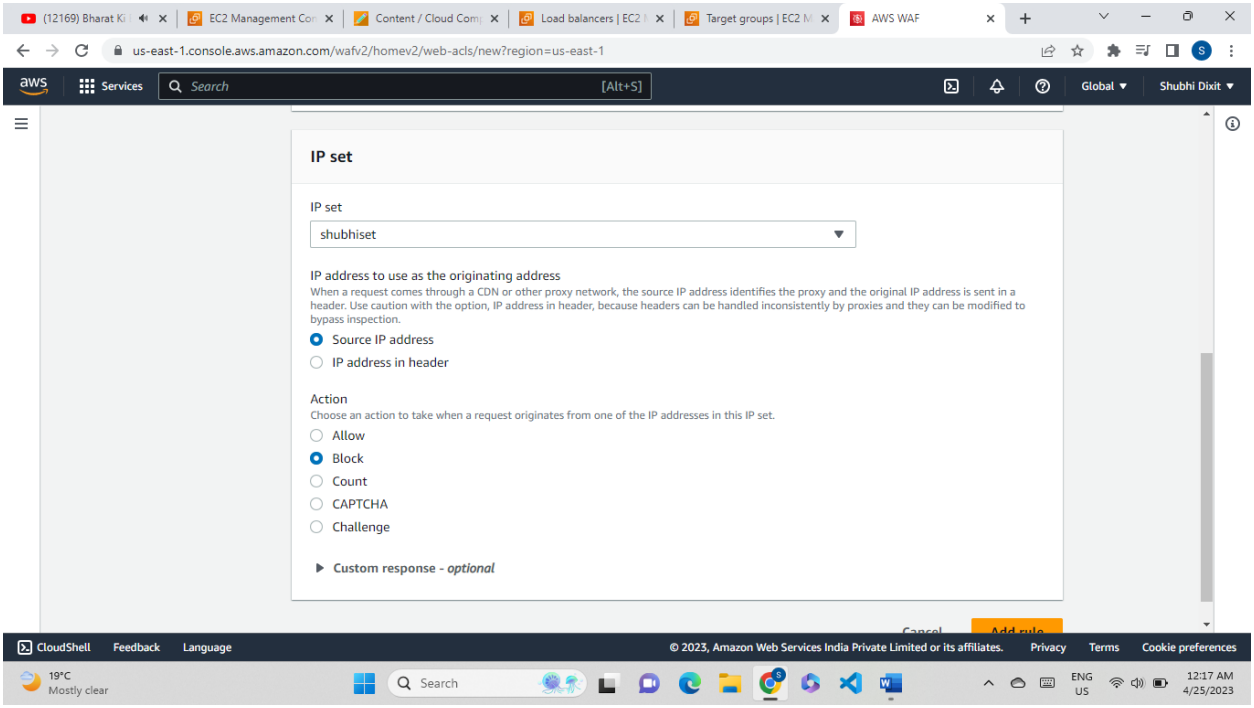
Step 5 : Add resources to the web acl (here LB created previously)



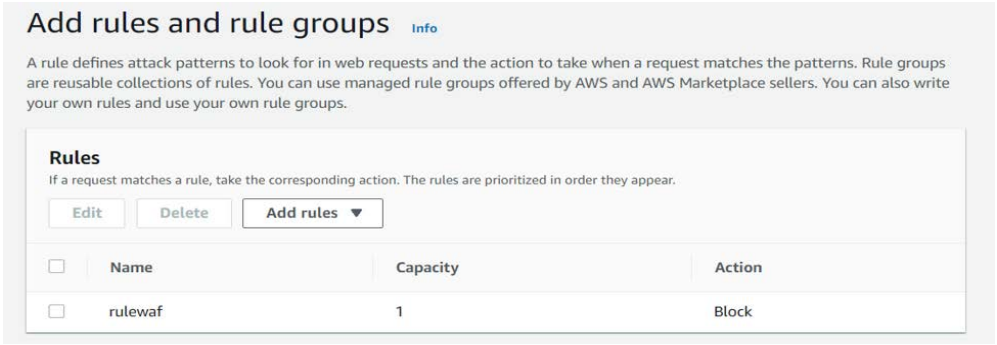
Step 6: In the rules & rule groups , add the ipset



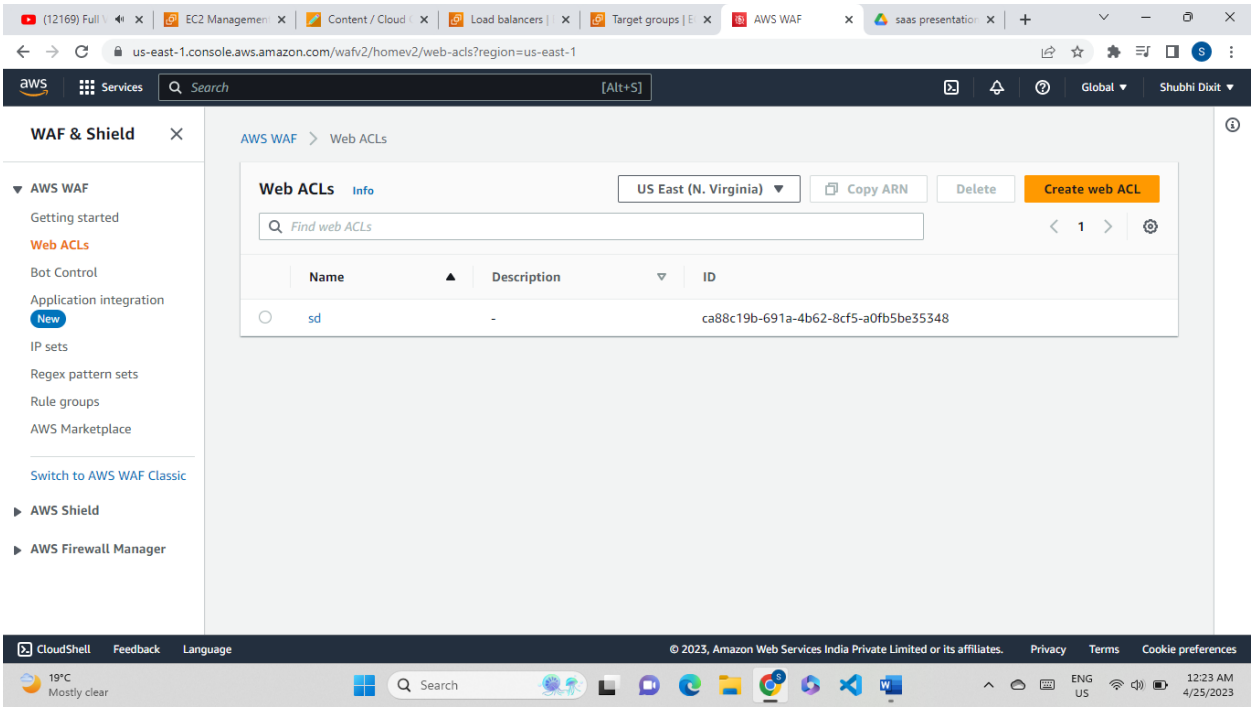
Step 7: Under Action use the “block” action



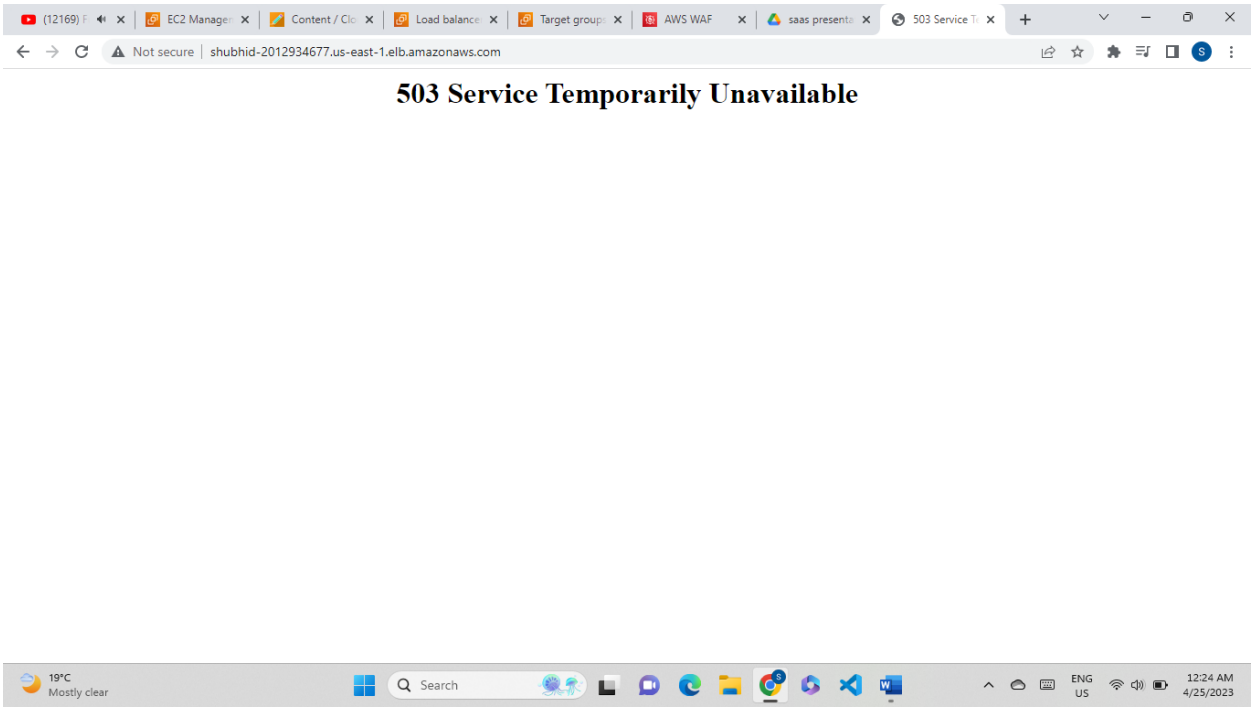
Step 8: Click add rule



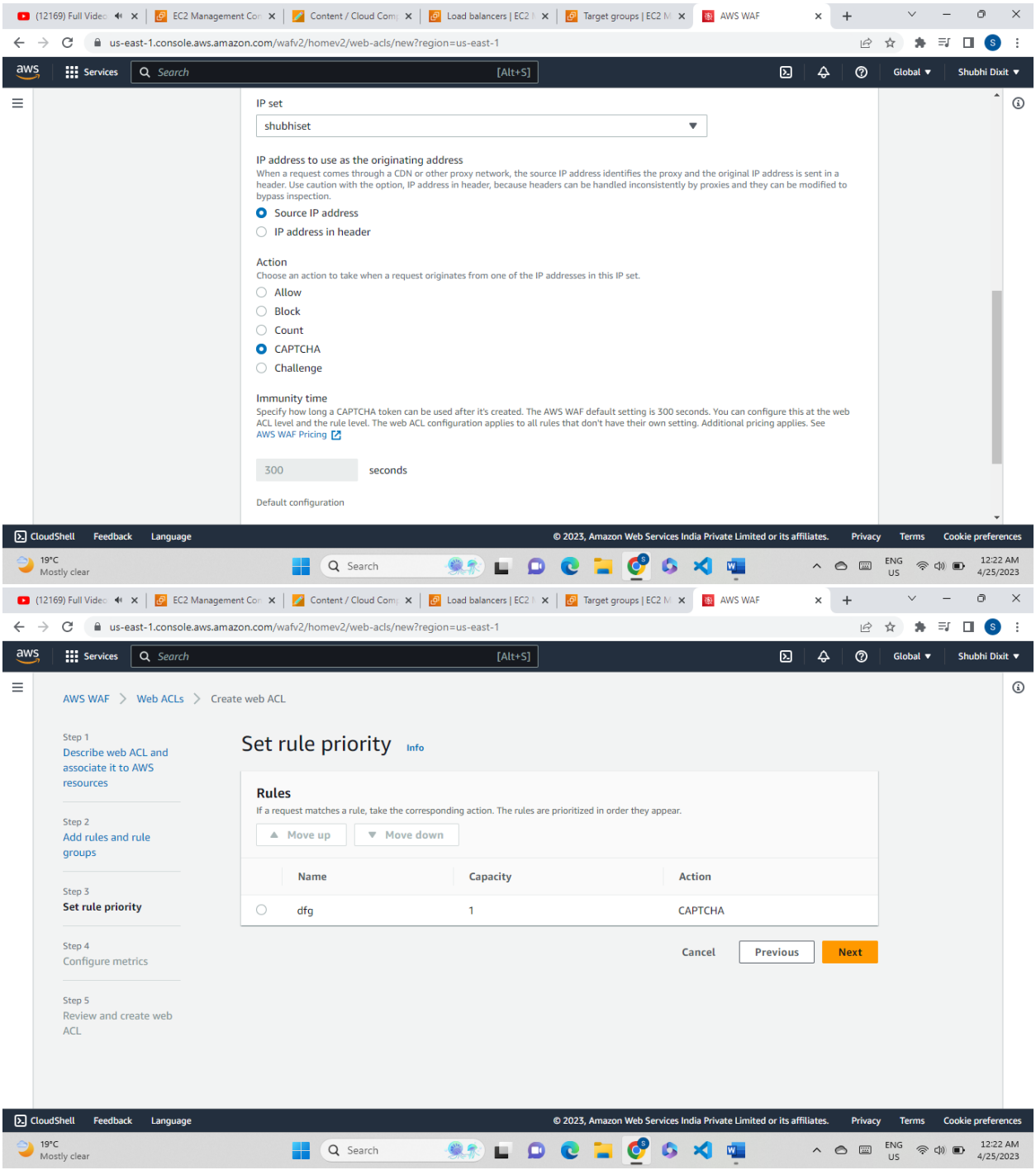
Step 9: Review and create the web acl



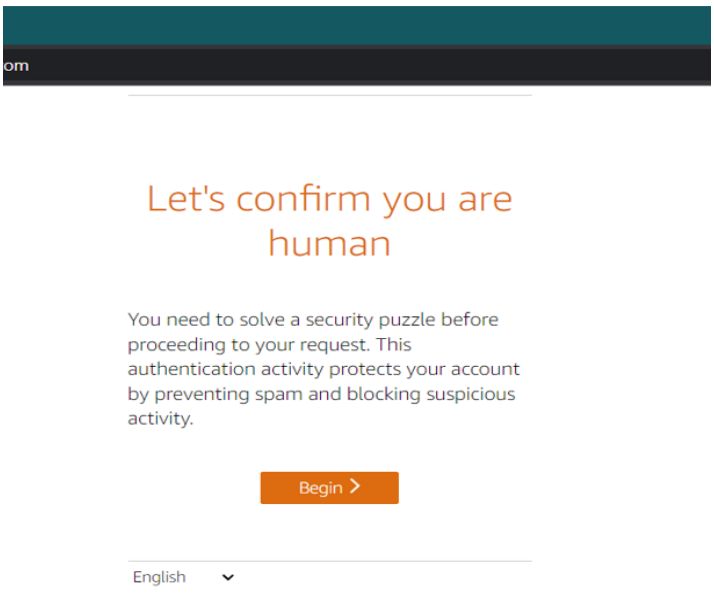
Step 10: Access the LB by its DNS



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



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