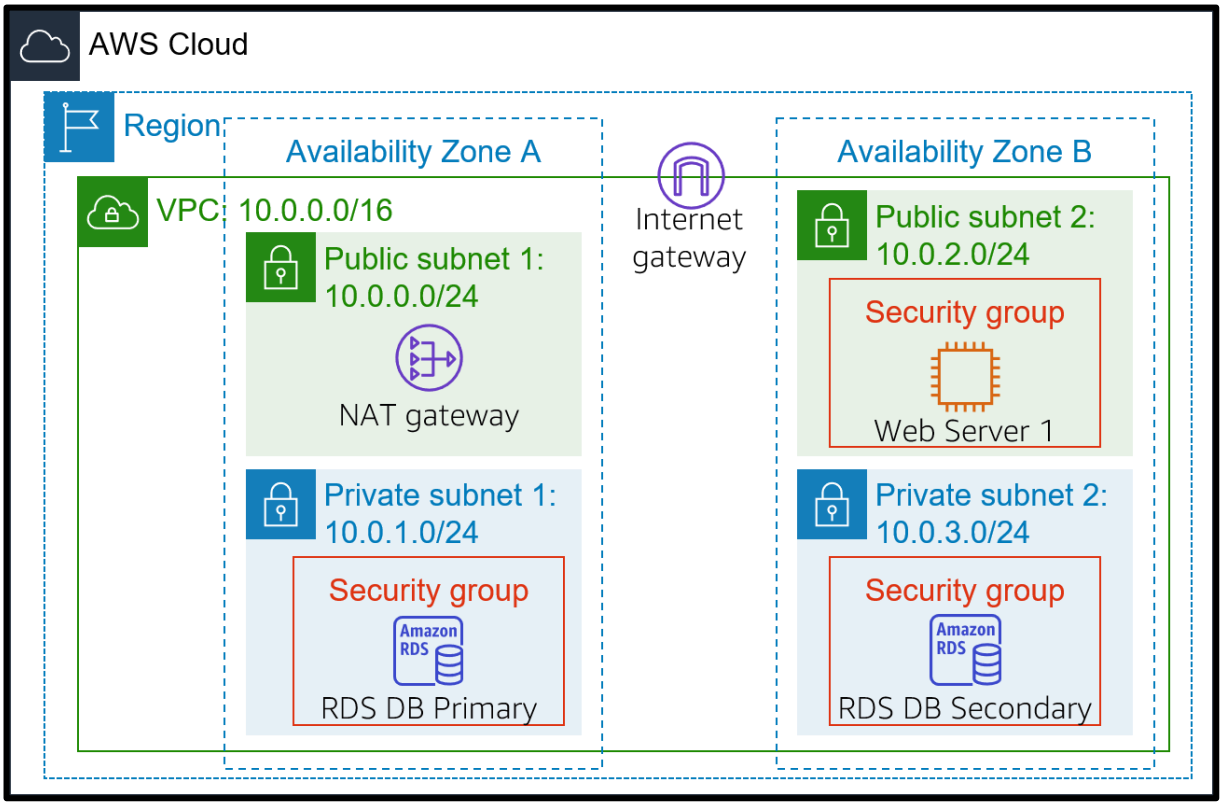
Roll No: 20BCE204
Name: Dhyan Patel
Course: Cloud Computing
Practical No: 6

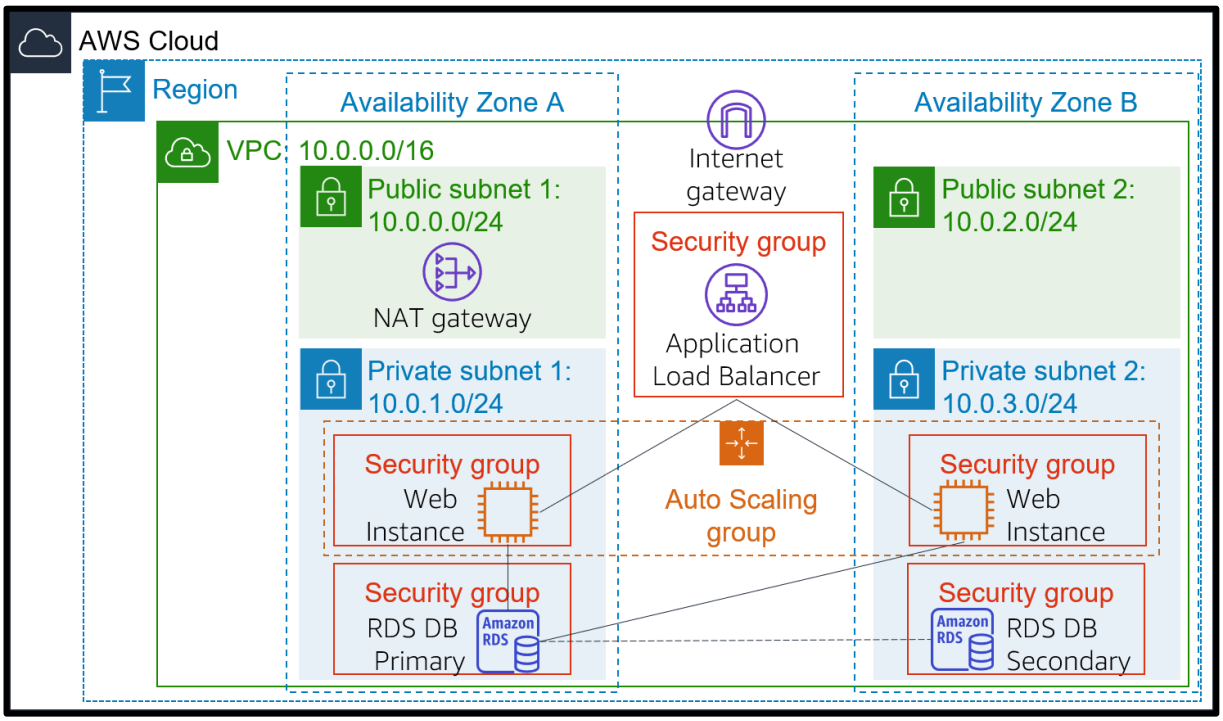
Aim: Working with an IaaS Cloud Computing: Using AWS (Amazon Web Services) to understating the following concept. Do load balancing in amazon EC2.

Elastic Load Balancing: automatically distributes incoming application traffic across multiple Amazon EC2 instances. It enables you to achieve fault tolerance in your applications by seamlessly providing the required amount of load balancing capacity needed to route application traffic.

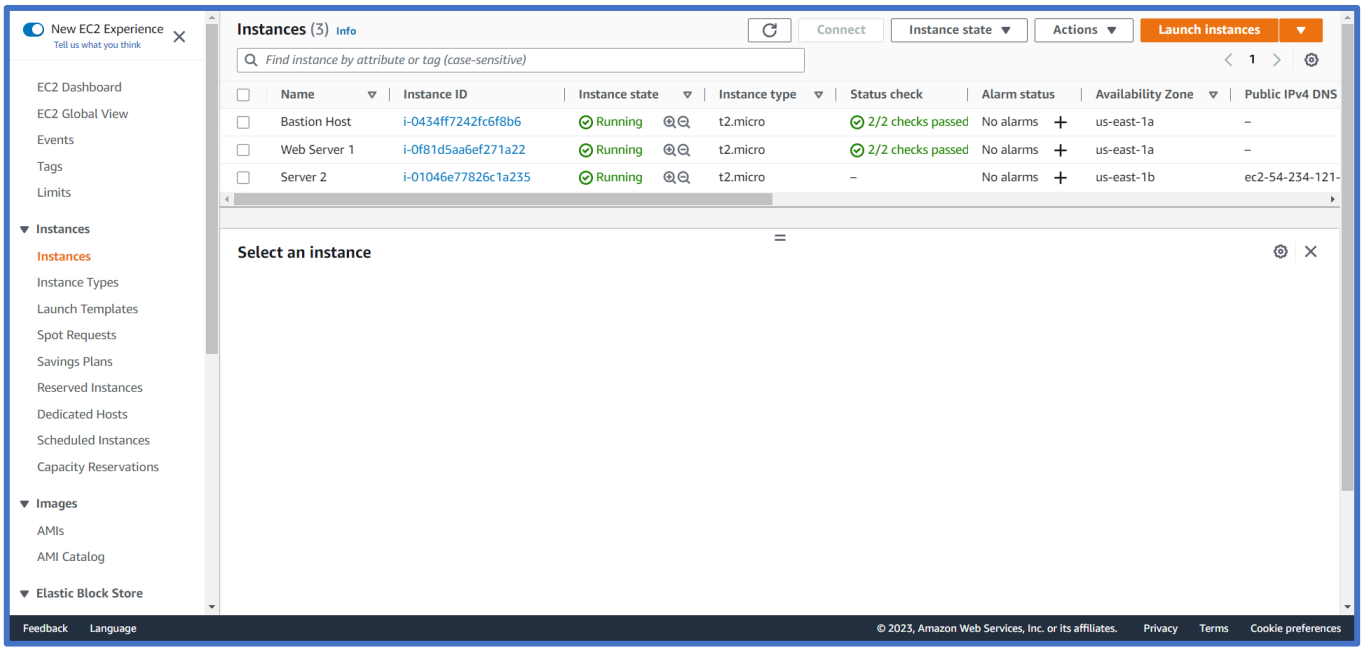
Auto Scaling: helps you maintain application availability and allows you to scale your Amazon EC2 capacity out or in automatically according to conditions you define. You can use Auto Scaling to help ensure that you are running your desired number of Amazon EC2 instances. Auto Scaling can also



automatically increase the number of Amazon EC2 instances during demand spikes to maintain performance and decrease capacity during lulls to reduce costs. Auto Scaling is well suited to applications that have stable demand patterns or that experience hourly, daily, or weekly variability in usage.



- **Create two instances in different region:**


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
AMIs
AMI Catalog
Elastic Block Store
Instances (3) Info
Connect
Instance state
Actions
Launch instances
Find instance by attribute or tag (case-sensitive)
Name
Instance ID
Instance state
Instance type
Status check
Alarm status
Availability Zone
Public IPv4 DNS
Bastion Host
i-0434ff7242fc6f8b6
Running
t2.micro
2/2 checks passed
No alarms
us-east-1a
Web Server 1
i-0f81d5aa6ef271a22
Running
t2.micro
2/2 checks passed
No alarms
us-east-1a
Server 2
i-01046e77826c1a235
Running
t2.micro
No alarms
us-east-1b
ec2-54-234-121-
Select an instance
Feedback
Language
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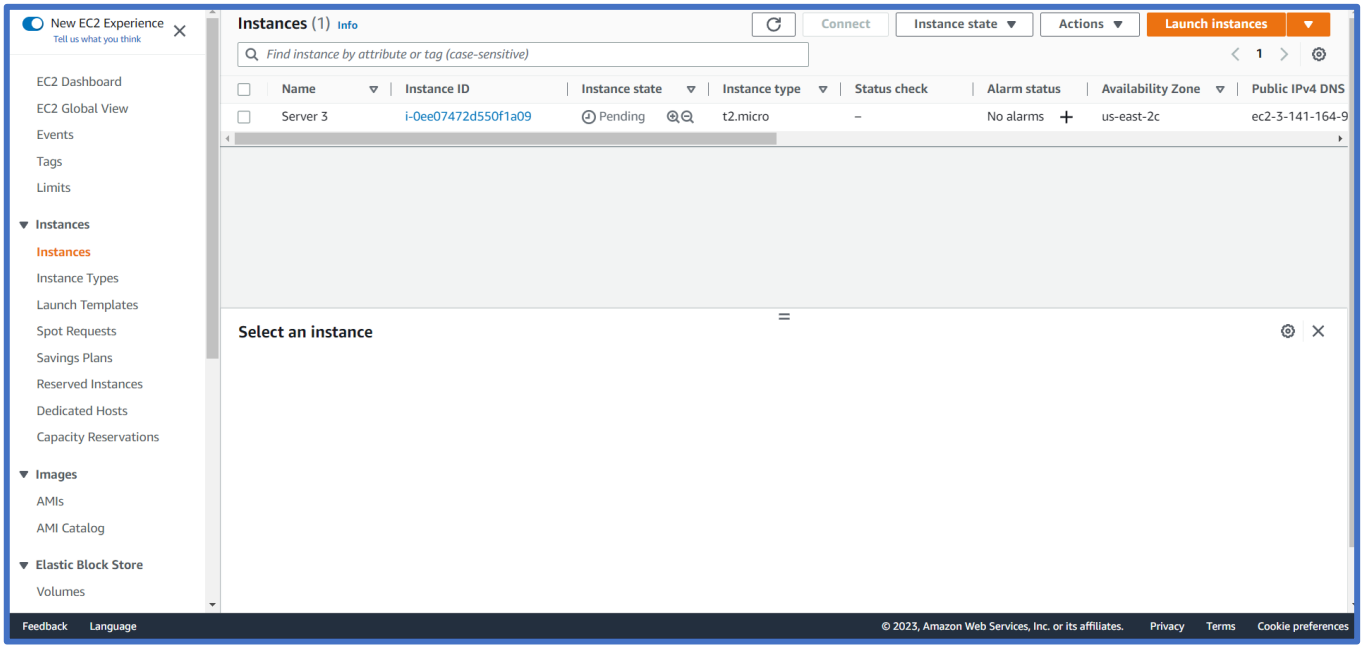
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Launch instances
Find instance by attribute or tag (case-sensitive)
Name
Instance ID
Instance state
Instance type
Status check
Alarm status
Availability Zone
Public IPv4 DNS
Server 3
i-0ee07472d550f1a09
Pending
t2.micro
No alarms
us-east-2c
ec2-3-141-164-9
Select an instance
Feedback
Language
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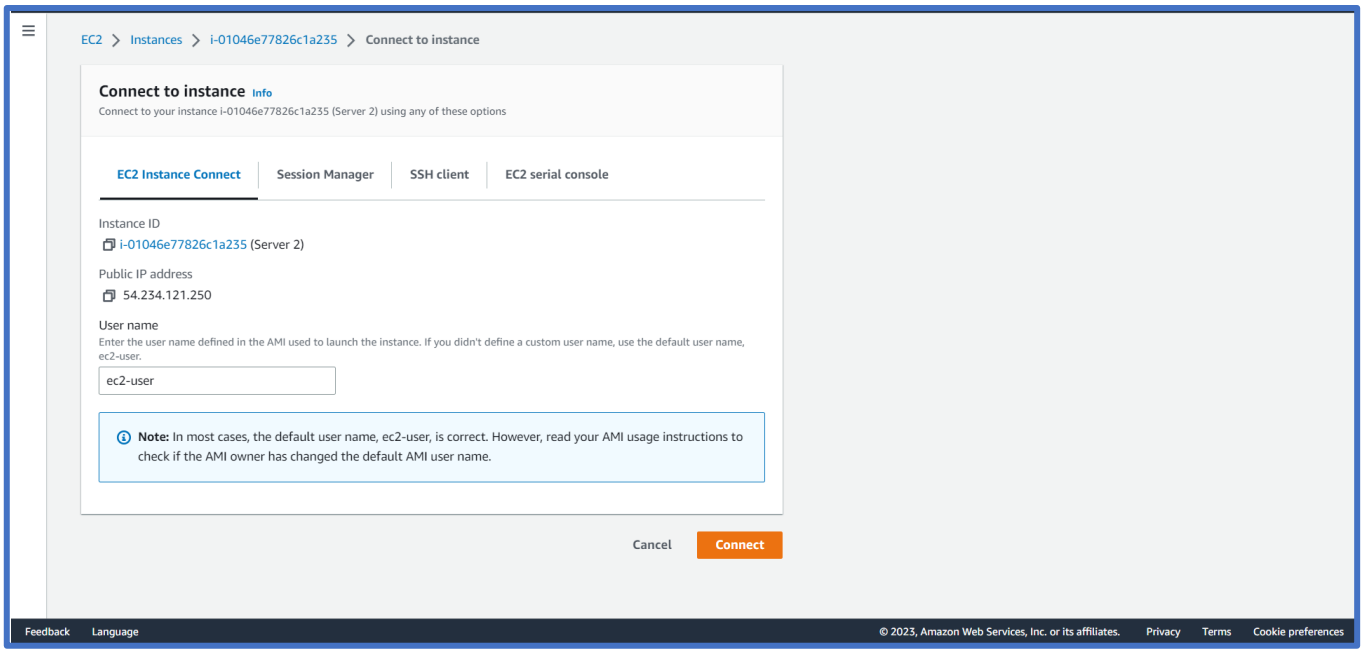
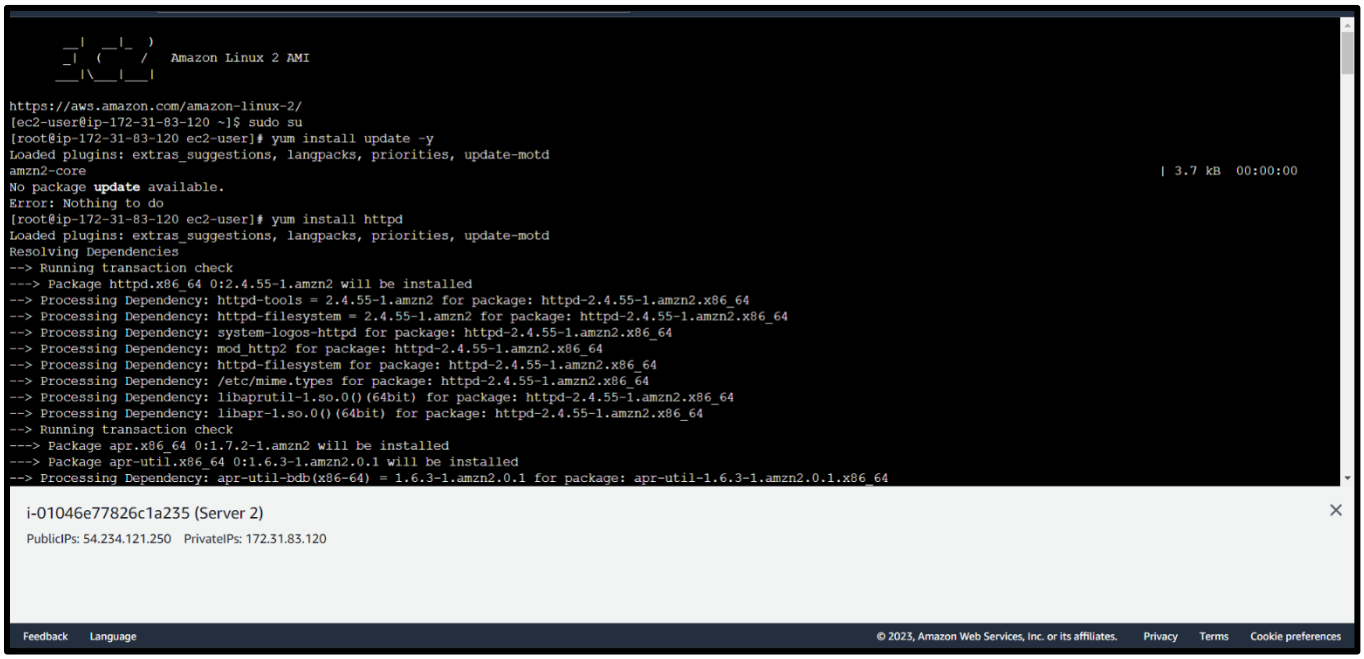
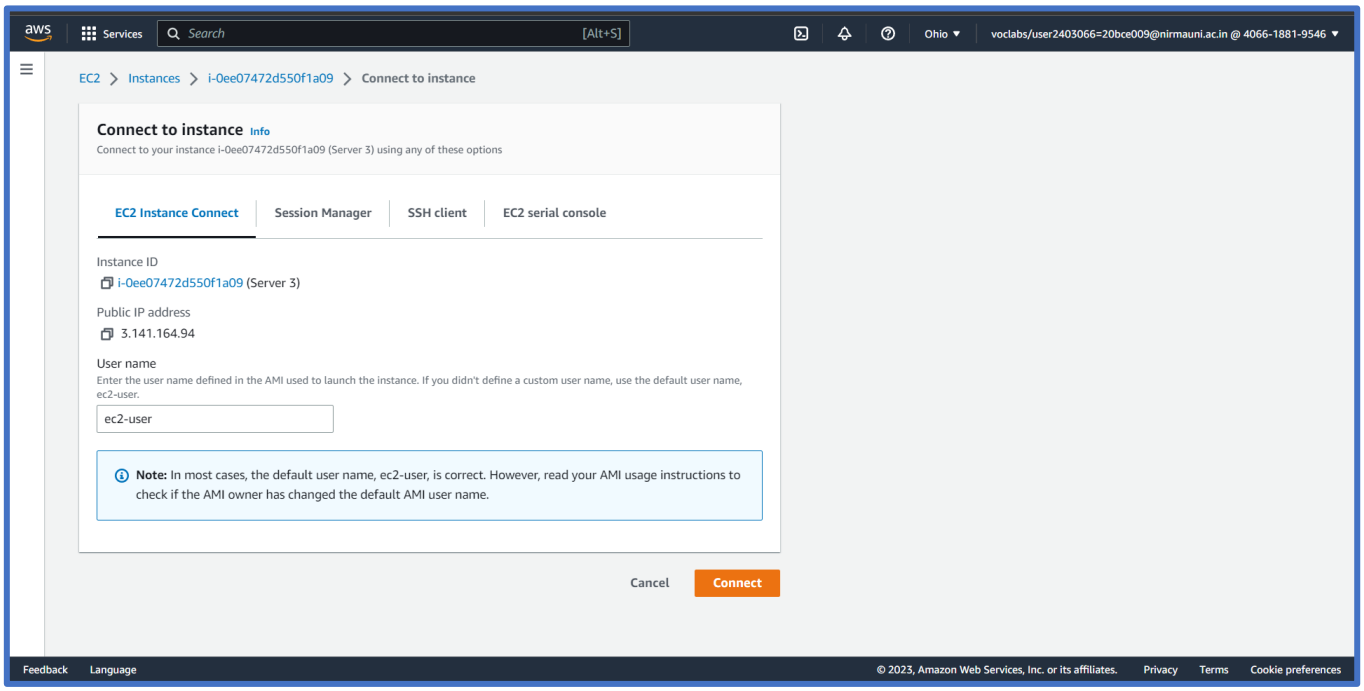
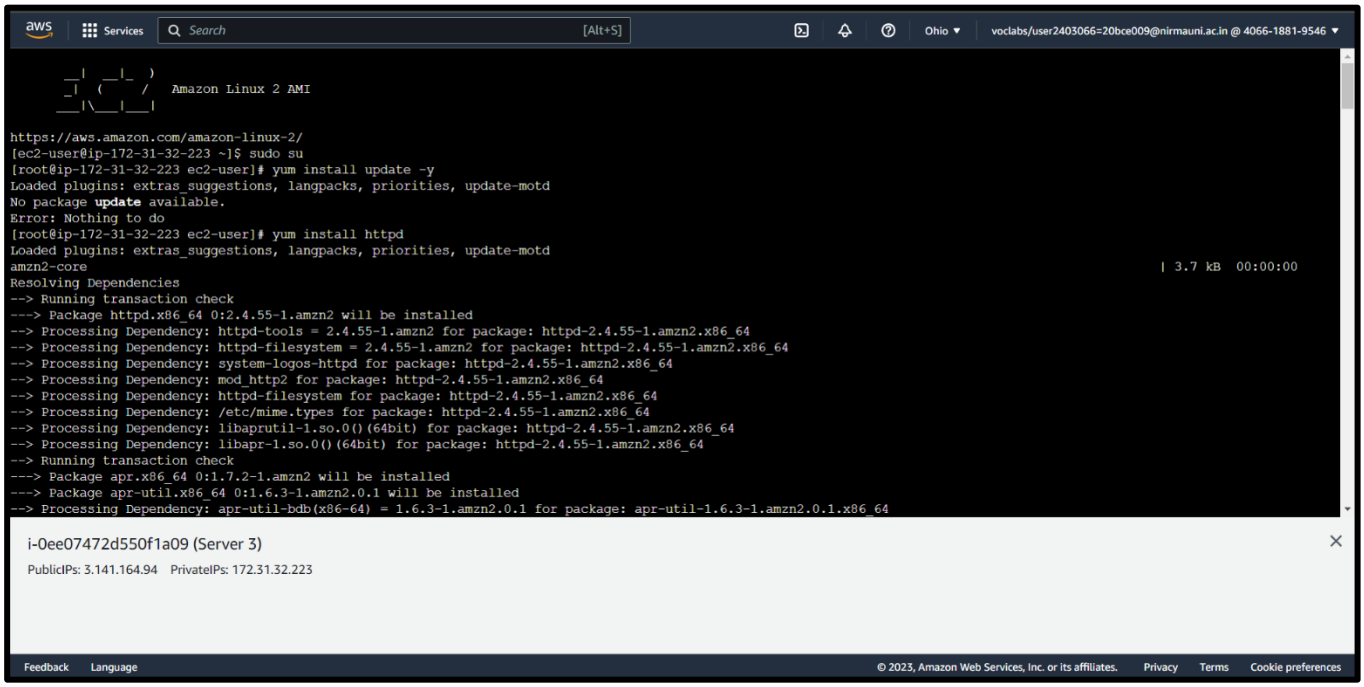


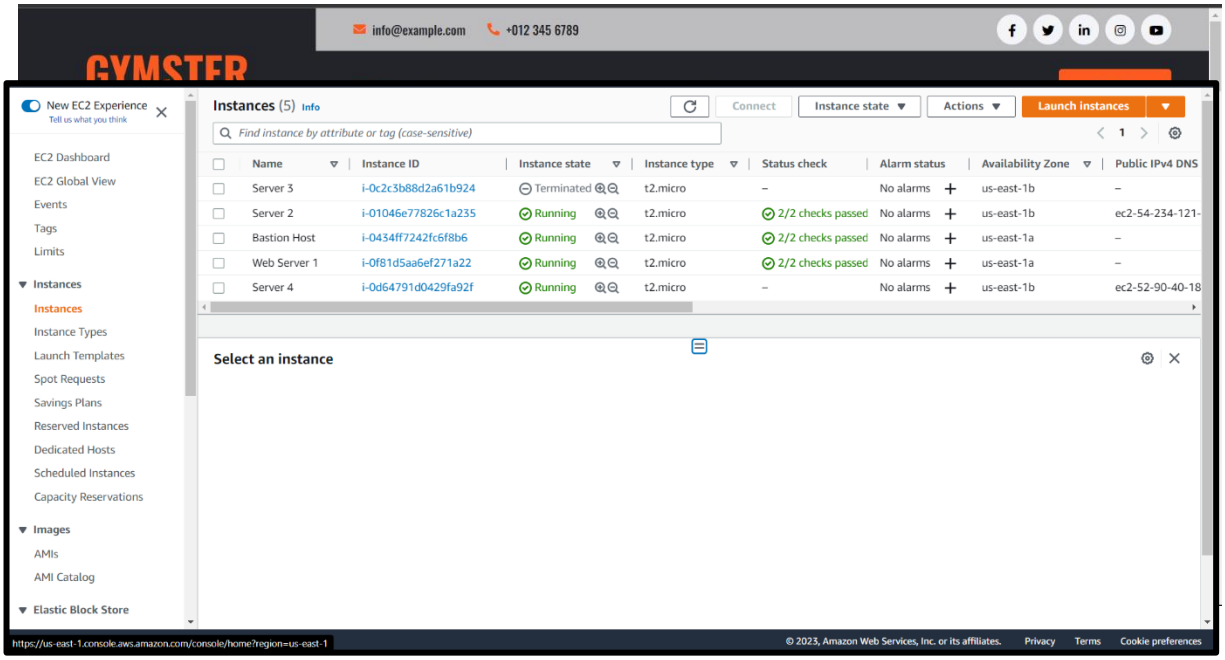
- **Hosting Website on Instance 1:**



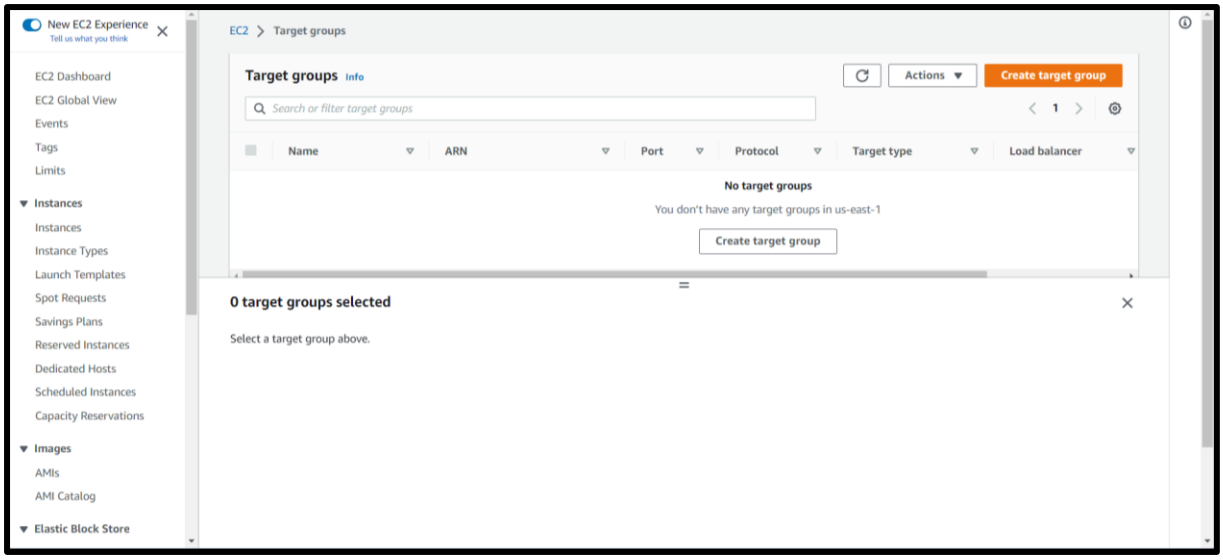


- **Hosting Website on instance 2**





- **Create Target Group of Two Instances.**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Tell us what you think
EC2 Dashboard
EC2 Global View
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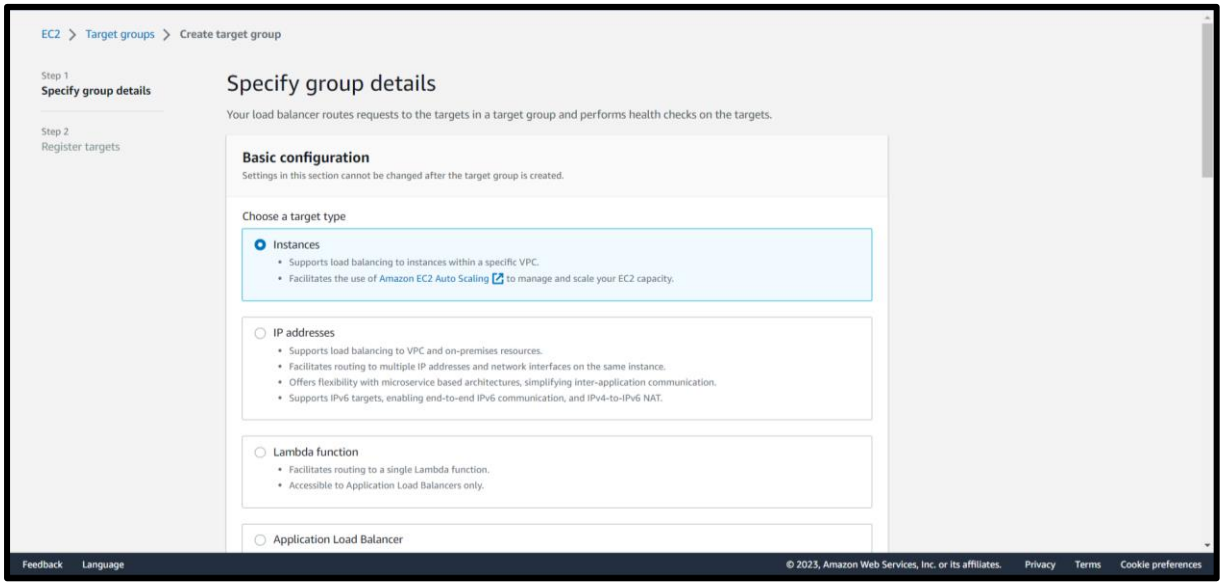
Instances
Instance Types
Launch Templates
Spot Requests
Savings Plans
Reserved Instances
Dedicated Hosts
Scheduled Instances
Capacity Reservations
Images
AMIs
AMI Catalog
Elastic Block Store
EC2 > Target groups
Target groups Info
Actions
Create target group
Search or filter target groups
Name
ARN
Port
Protocol
Target type
Load balancer
No target groups
You don't have any target groups in us-east-1
Create target group
0 target groups selected
Select a target group above.


EC2 > Target groups > Create target group
Step 1
Specify group details
Step 2
Register targets
Specify group details
Your load balancer routes requests to the targets in a target group and performs health checks on the targets.
Basic configuration
Settings in this section cannot be changed after the target group is created.
Choose a target type
Instances
Supports load balancing to instances within a specific VPC.
Facilitates the use of Amazon EC2 Auto Scaling to manage and scale your EC2 capacity.
IP addresses
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.
Supports IPv6 targets, enabling end-to-end IPv6 communication, and IPv4-to-IPv6 NAT.
Lambda function
Facilitates routing to a single Lambda function.
Accessible to Application Load Balancers only.
Application Load Balancer
Feedback
Language
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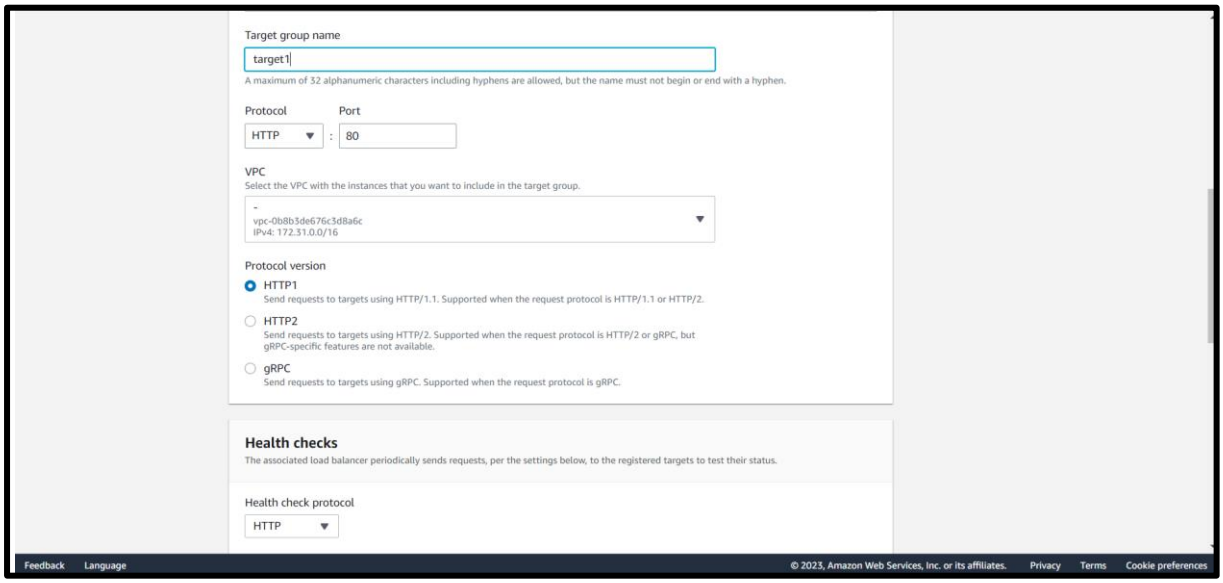
Target group name
target1
A maximum of 32 alphanumeric characters including hyphens are allowed, but the name must not begin or end with a hyphen.
Protocol
Port
HTTP
80
VPC
Select the VPC with the instances that you want to include in the target group.
vpc-0b8b3de676c3d8a6c
IPv4: 172.31.0.0/16
Protocol version
HTTP1
Send requests to targets using HTTP/1.1. Supported when the request protocol is HTTP/1.1 or HTTP/2.
HTTP2
Send requests to targets using HTTP/2. Supported when the request protocol is HTTP/2 or gRPC, but gRPC-specific features are not available.
gRPC
Send requests to targets using gRPC. Supported when the request protocol is gRPC.
Health checks
The associated load balancer periodically sends requests, per the settings below, to the registered targets to test their status.
Health check protocol
HTTP
Feedback
Language
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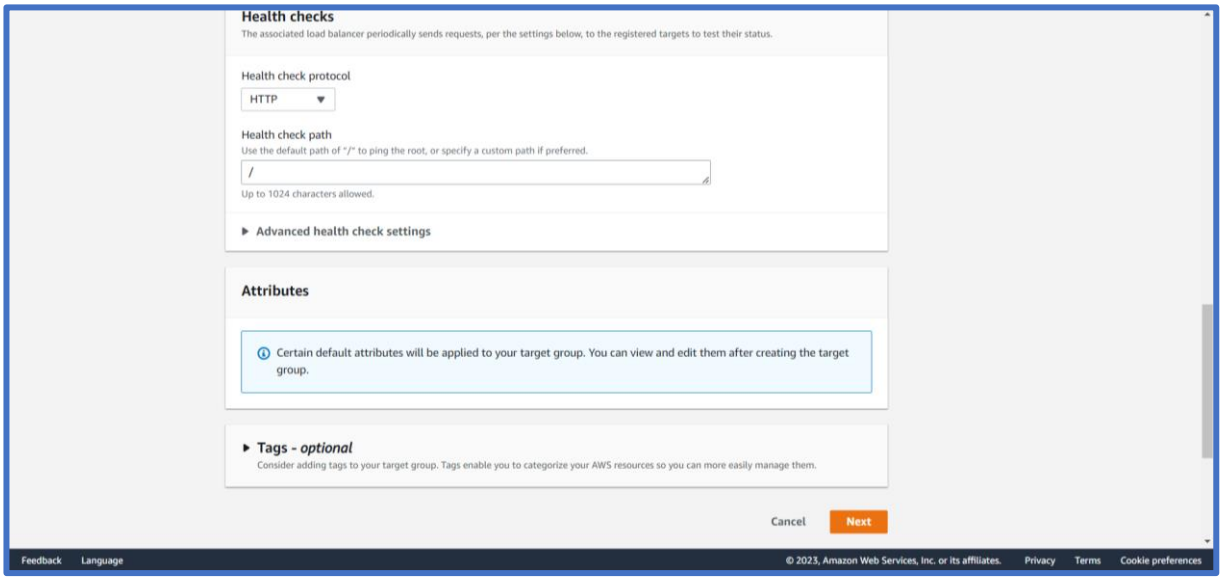
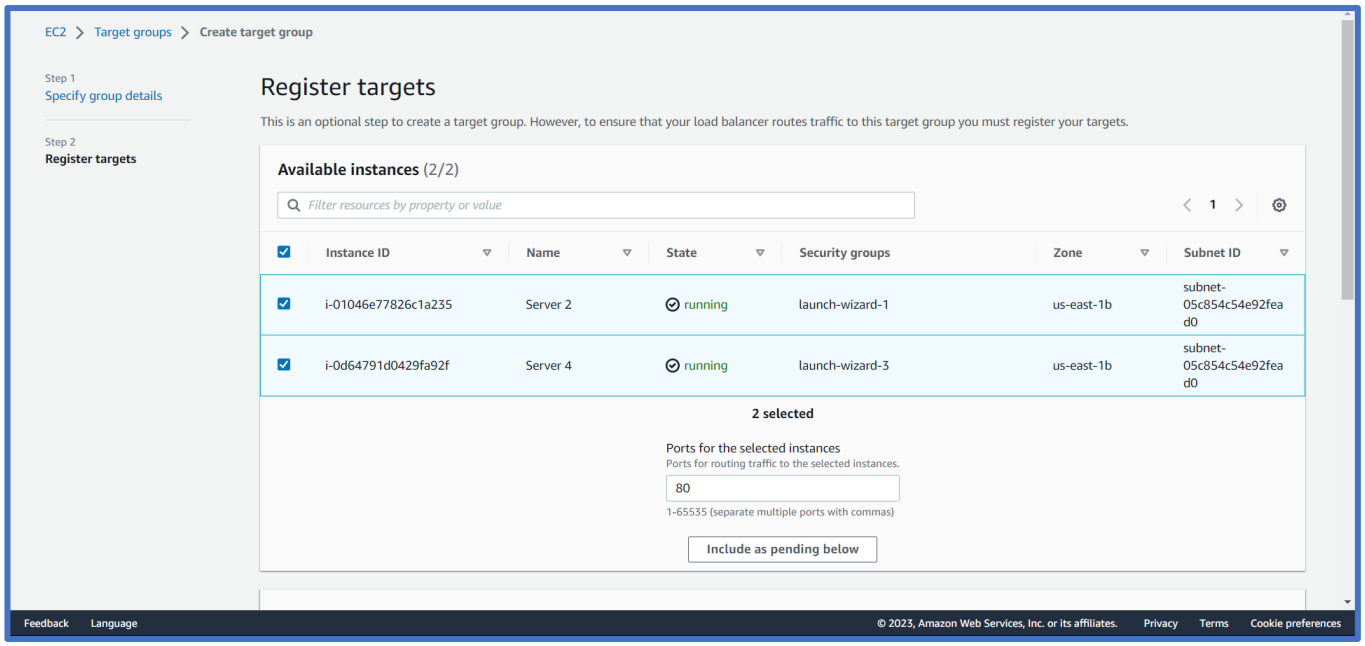
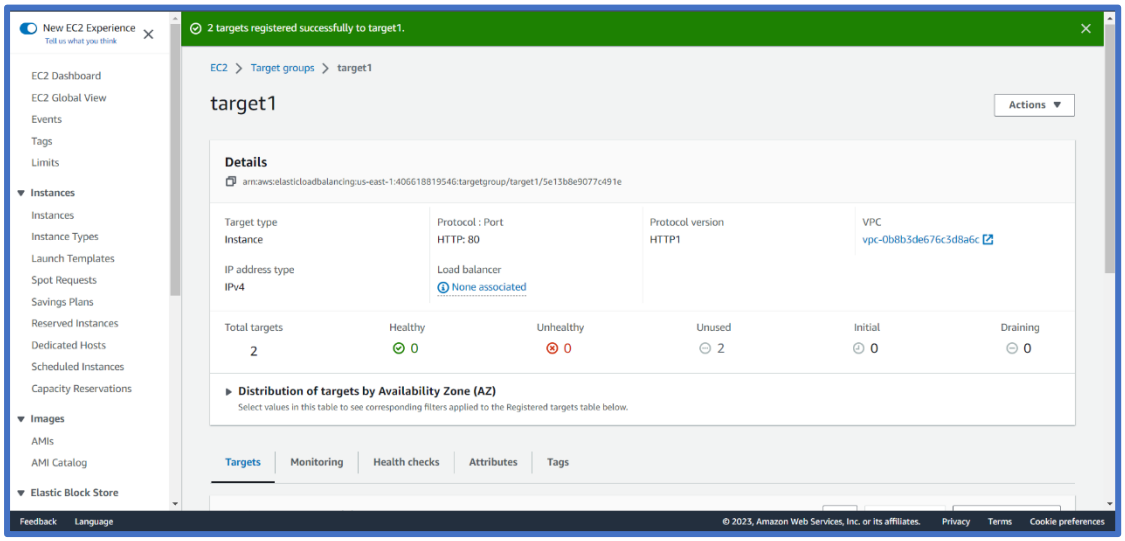
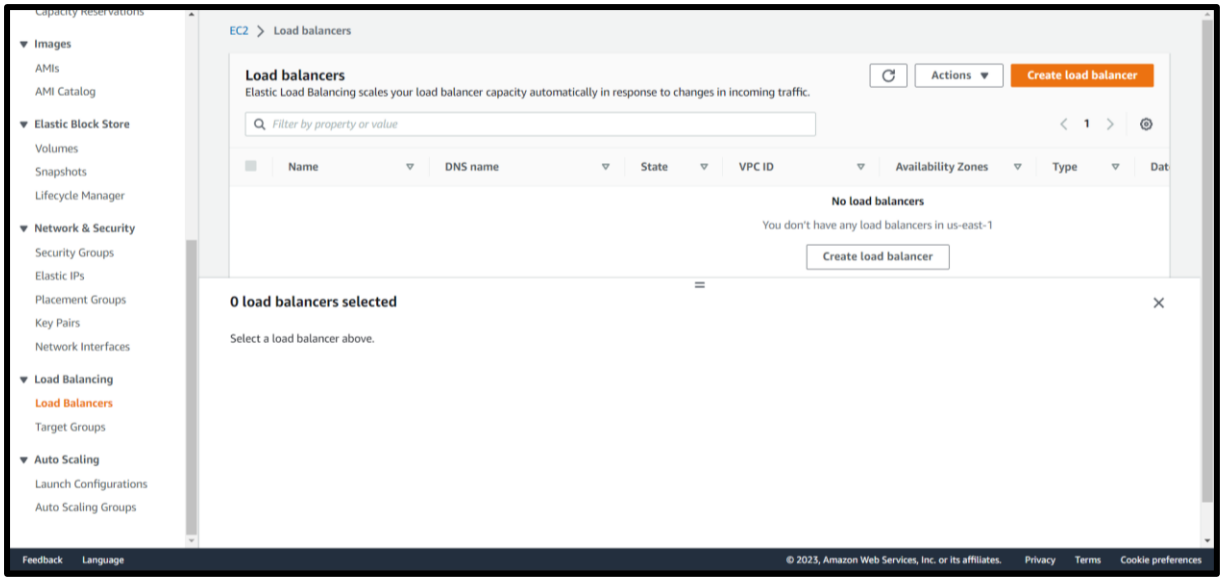


Register Instances in target group.





Create Load Balancer for the Target group according to type.


Images
AMIs
AMI Catalog
Elastic Block Store
Volumes
Snapshots
Lifecycle Manager
Network & Security
Security Groups
Elastic IPs
Placement Groups
Key Pairs
Network Interfaces
Load Balancing
Load Balancers
Target Groups
Auto Scaling
Launch Configurations
Auto Scaling Groups
EC2 > Load balancers
Load balancers
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
Name
DNS name
State
VPC ID
Availability Zones
Type
No load balancers
You don't have any load balancers in us-east-1
Create load balancer
0 load balancers selected
Select a load balancer above.
Feedback
Language
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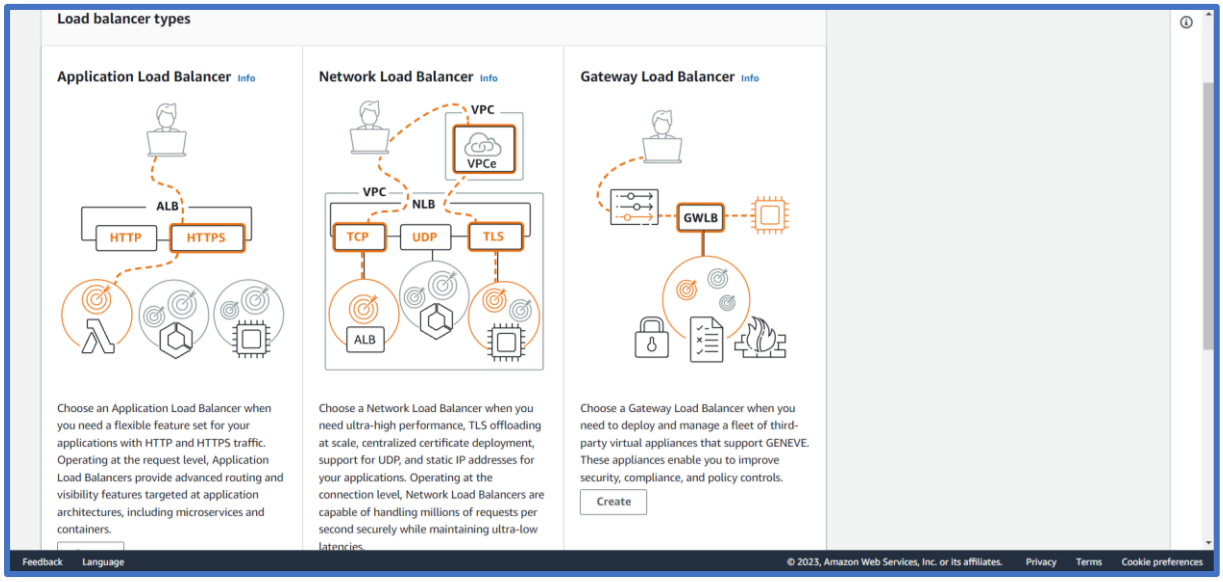
Load balancer types
Application Load Balancer Info
ALB
HTTP
HTTPS
Choose an Application Load Balancer when you need a flexible feature set for your applications with HTTP and HTTPS traffic. Operating at the request level, Application Load Balancers provide advanced routing and visibility features targeted at application architectures, including microservices and containers.
Network Load Balancer Info
VPC
VPCe
VPC
NLB
TCP
UDP
TLS
ALB
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 securely while maintaining ultra-low latencies.
Gateway Load Balancer Info
GWLB
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
Feedback
Language
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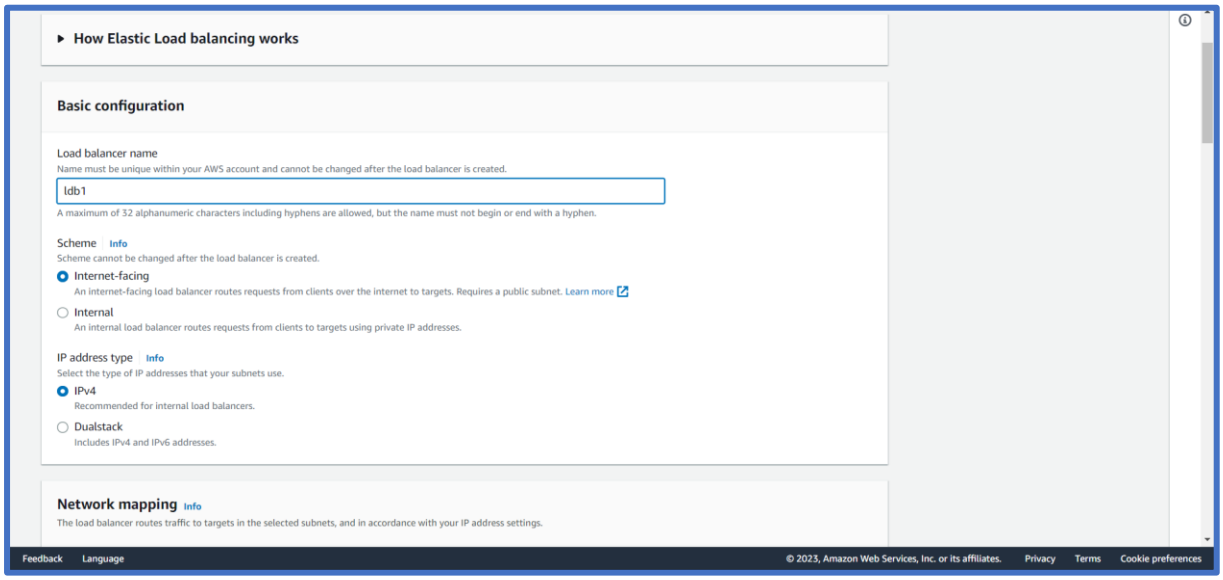
How Elastic Load balancing works
Basic configuration
Load balancer name
Name must be unique within your AWS account and cannot be changed after the load balancer is created.
ldb1
A maximum of 32 alphanumeric characters including hyphens are allowed, but the name must not begin or end with a hyphen.
Scheme Info
Scheme cannot 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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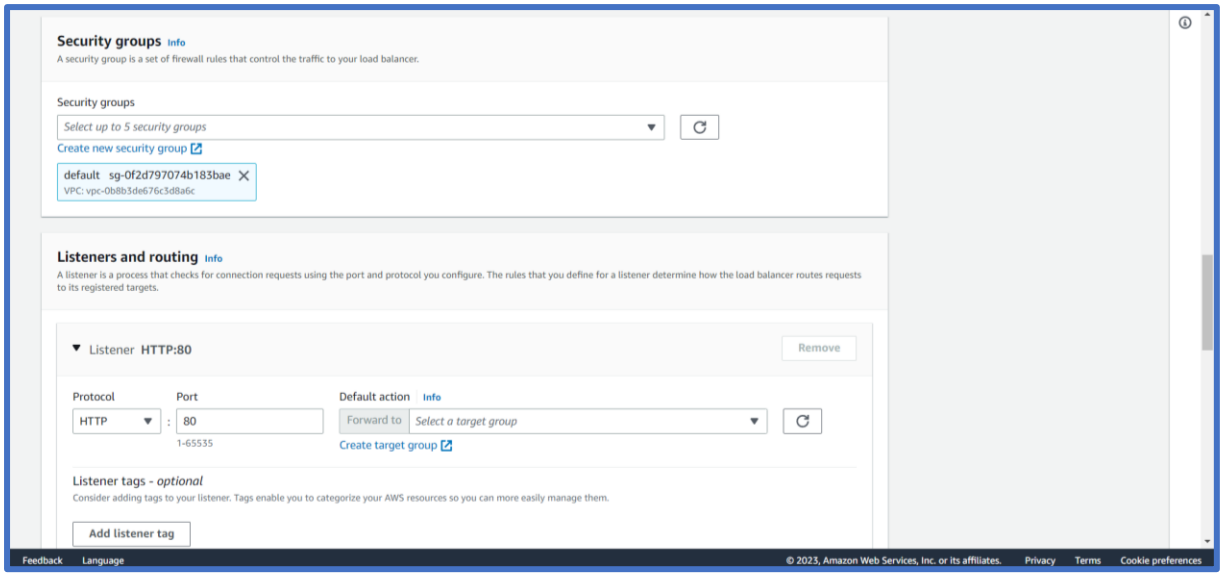
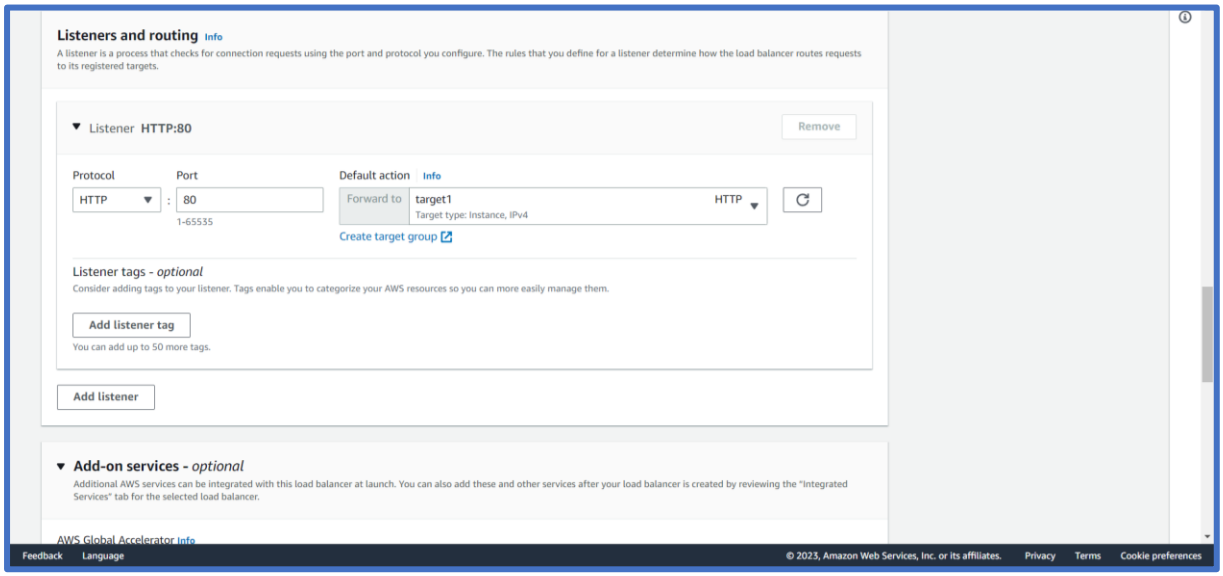
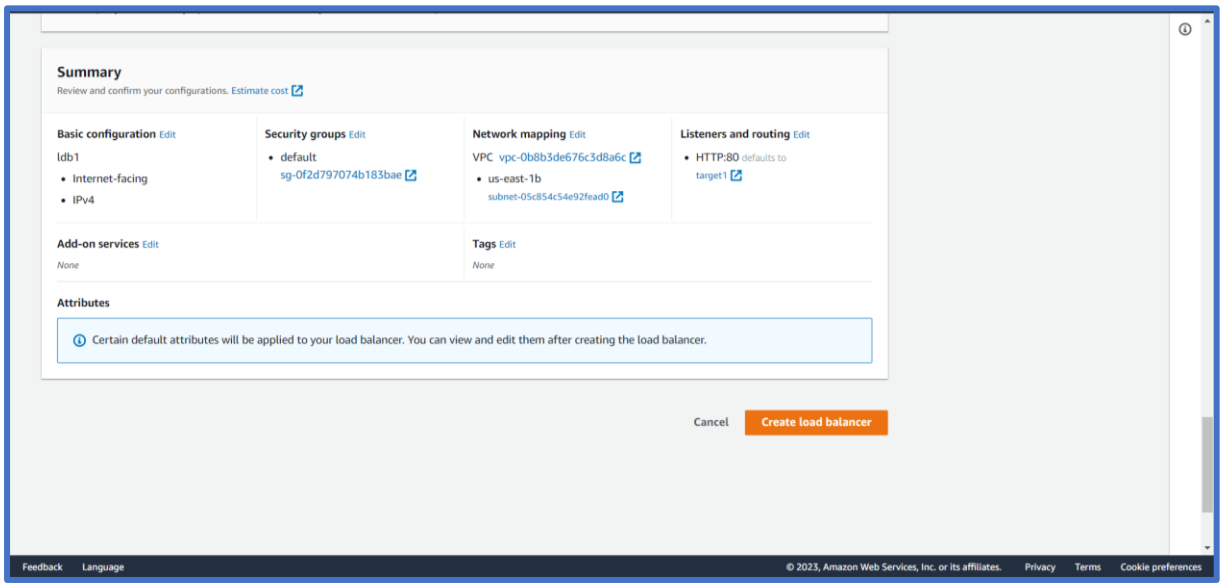
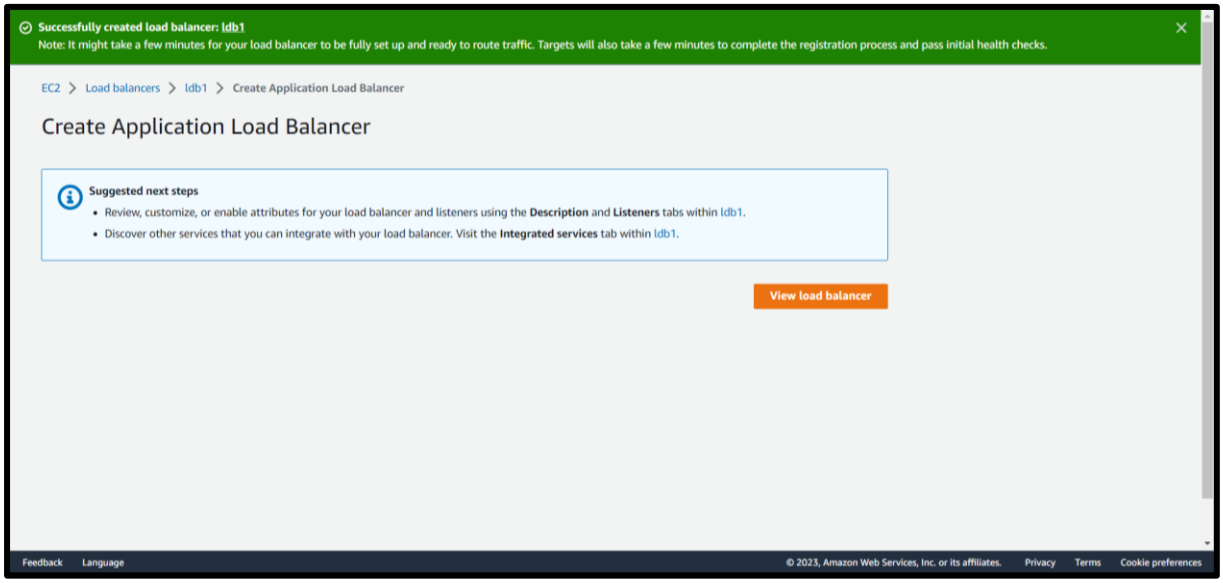


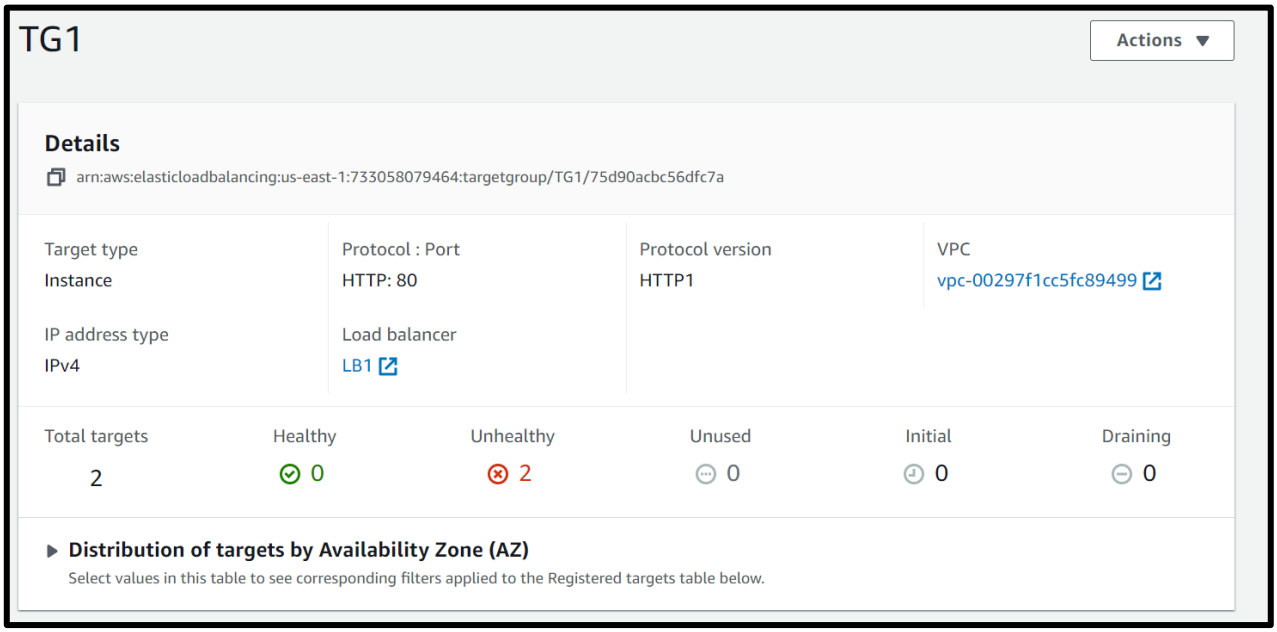
- **Select Target group which is Made previous.**

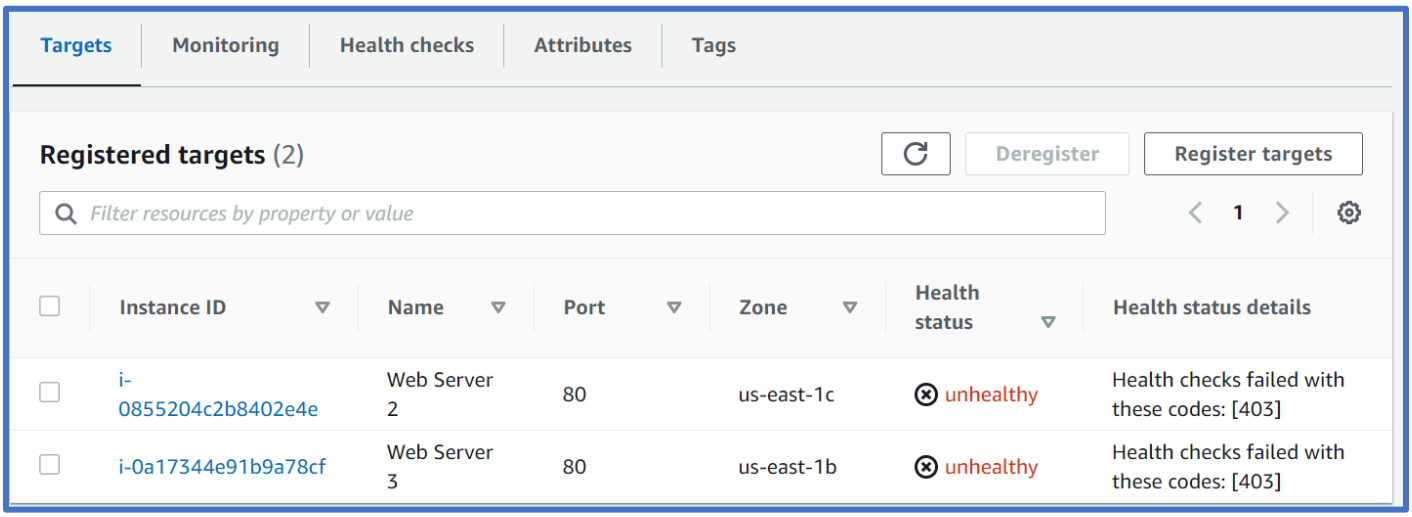




- **Load balancer is created.**







Conclusion: In this practical identifying how load balancer work, balance load b/w two instances. **Elastic Load Balancing** automatically distributes incoming application traffic across multiple Amazon EC2 instances. It enables you to providing the required amount of load balancing capacity needed to route application traffic.