AMITY SCHOOL OF ENGINERRING & TECHNOLOGY

(Academic Year 2022-23)

LAB- 6

Student Name: Vikas Rajbhar

Class: B. Tech CSE Semester: 7

Enrolment Number: A70405219037

Faculty In-charge
{Department of CSE}
ASET, AUM

AIM OF THE EXPERIMENT:

Problem Statement

1. Attach EBS volume to the instance
2. Remove EBS volume from the instance
3. Create a Load balancer
4. Create Auto Scaling of instance

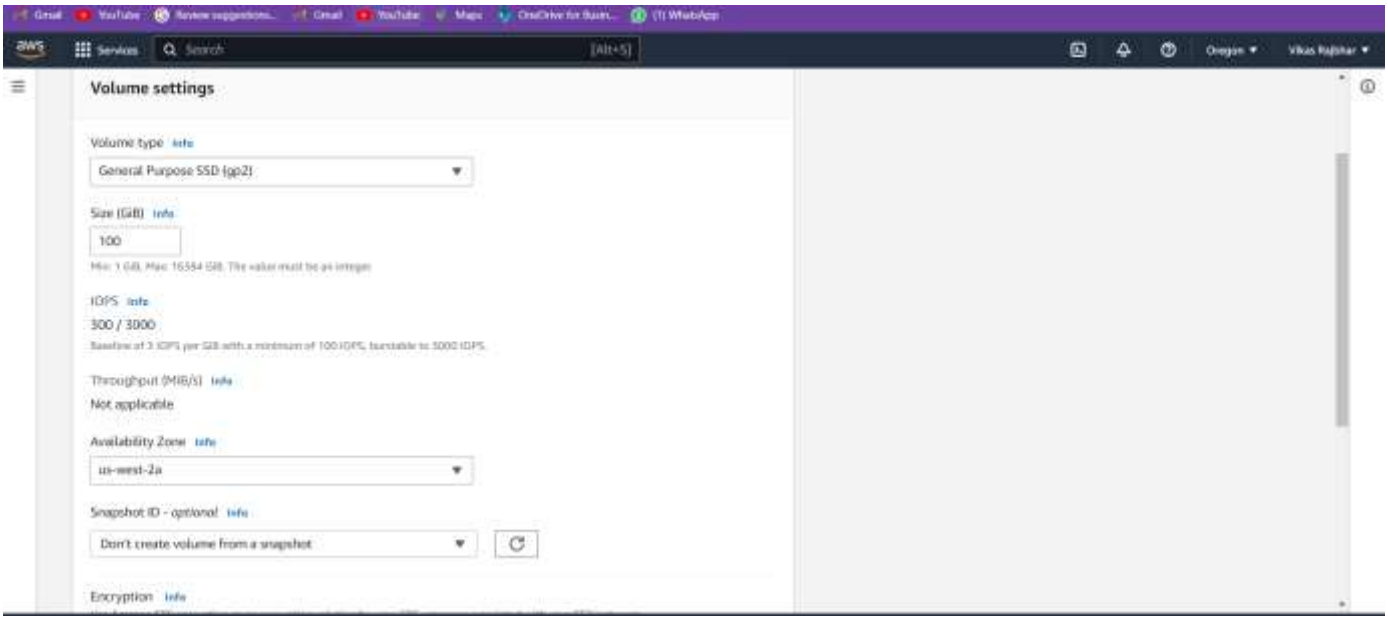
1. Attach EBS volume to the instance

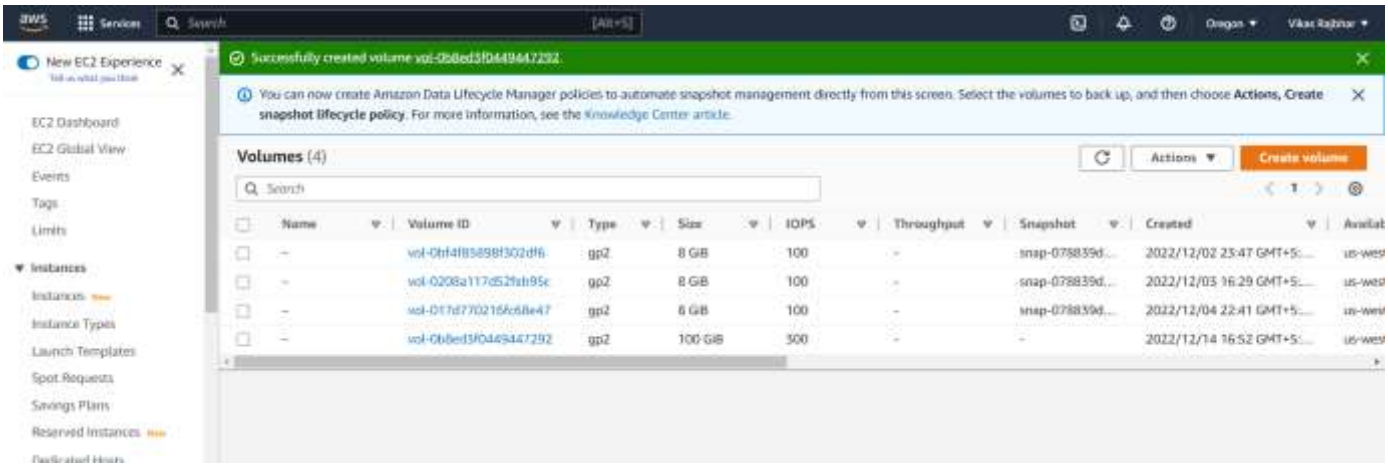
THEORY

You may attach a robust, block-level storage device called an Amazon EBS volume to your instances. You may utilise a volume as you would a physical hard disc after attaching it to an instance. EBS volumes can be changed. You may dynamically adjust the volume type, provisioned IOPS capacity, and size for current-generation volumes that are associated to current generation instance types. For data that needs frequent changes, such as the system drive for an instance or storage for a database application, you may utilise EBS volumes as main storage. They can also be used for applications with high throughput requirements that run continuous disc scans. EBS volumes survive independently of an EC2 instance's active life.

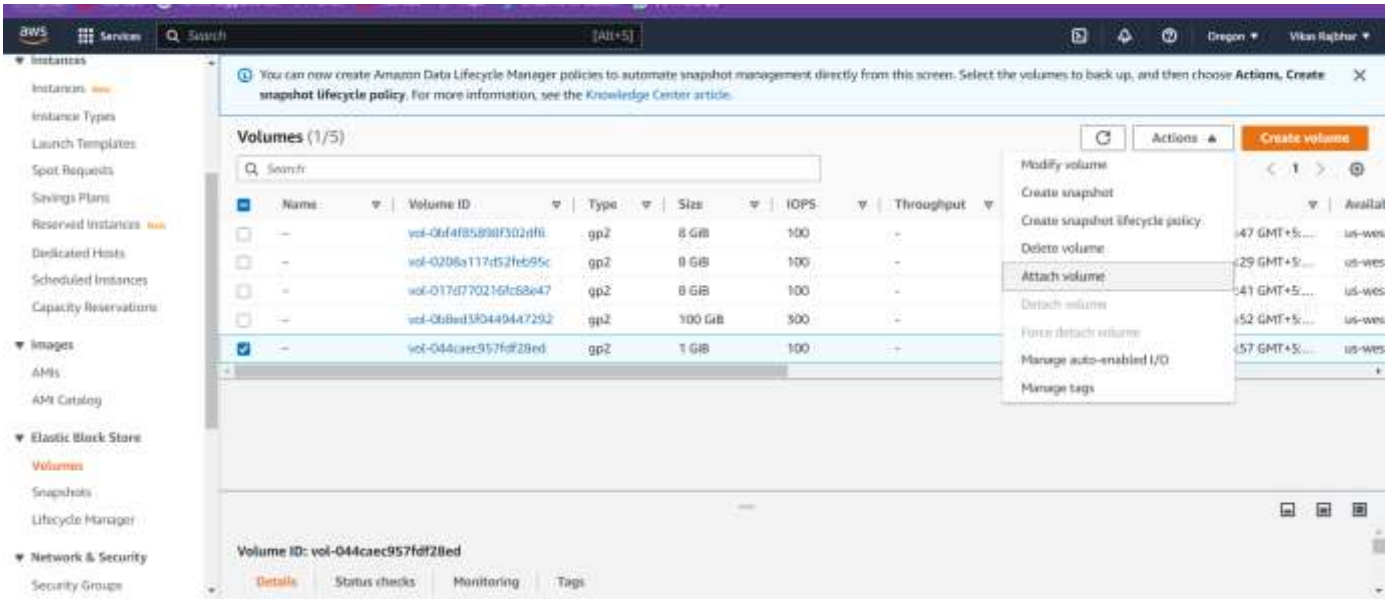
A single instance can have many EBS volumes attached. There must be a shared Availability Zone between the volume and the instance. You may use MultiAttach to simultaneously mount a volume to several instances, depending on the volume and instance types.

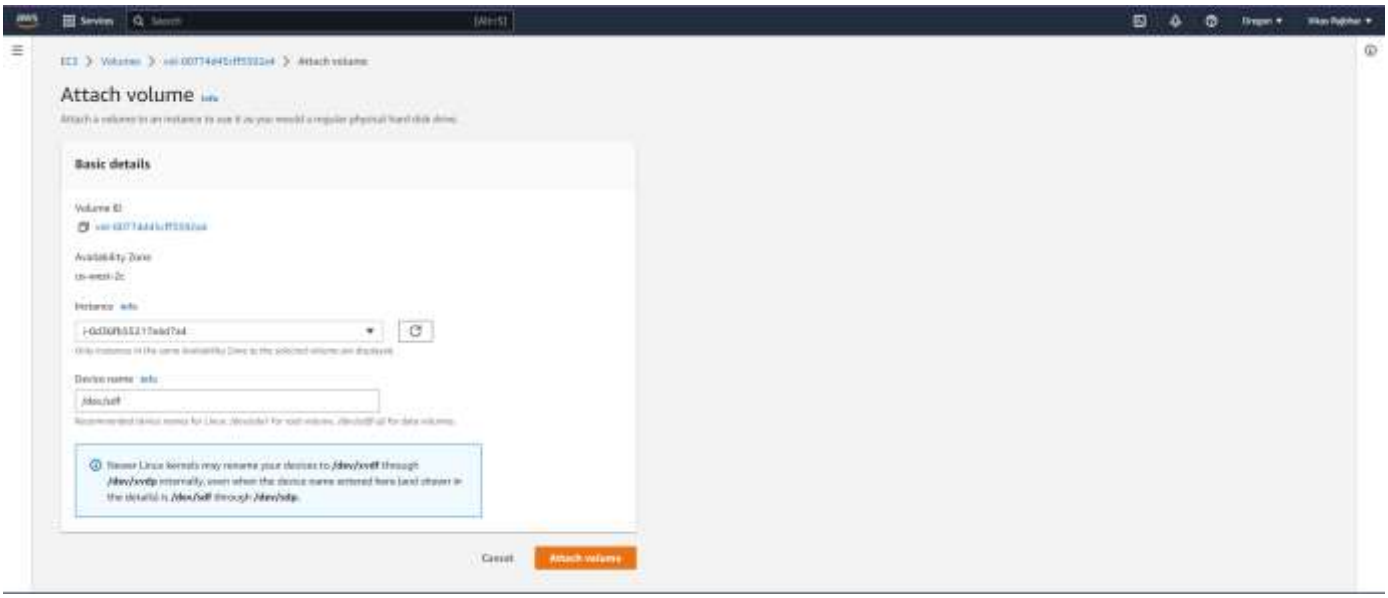
Creating EBS Volume



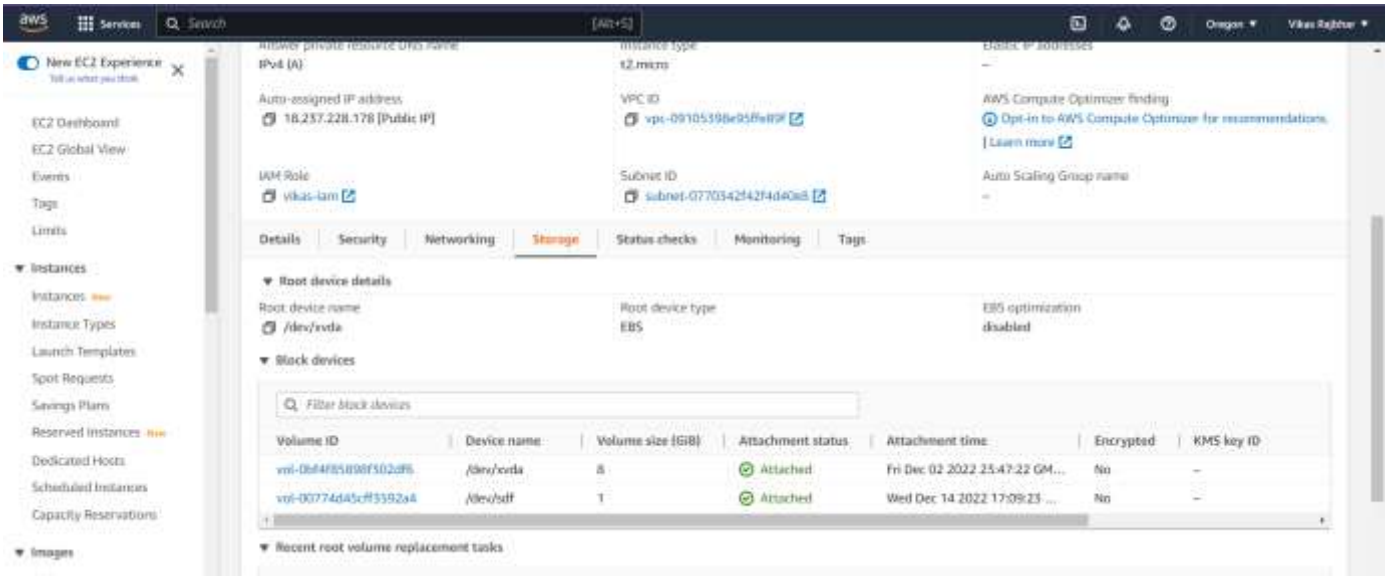


Attaching the EC2 Instance to the EBS Volume

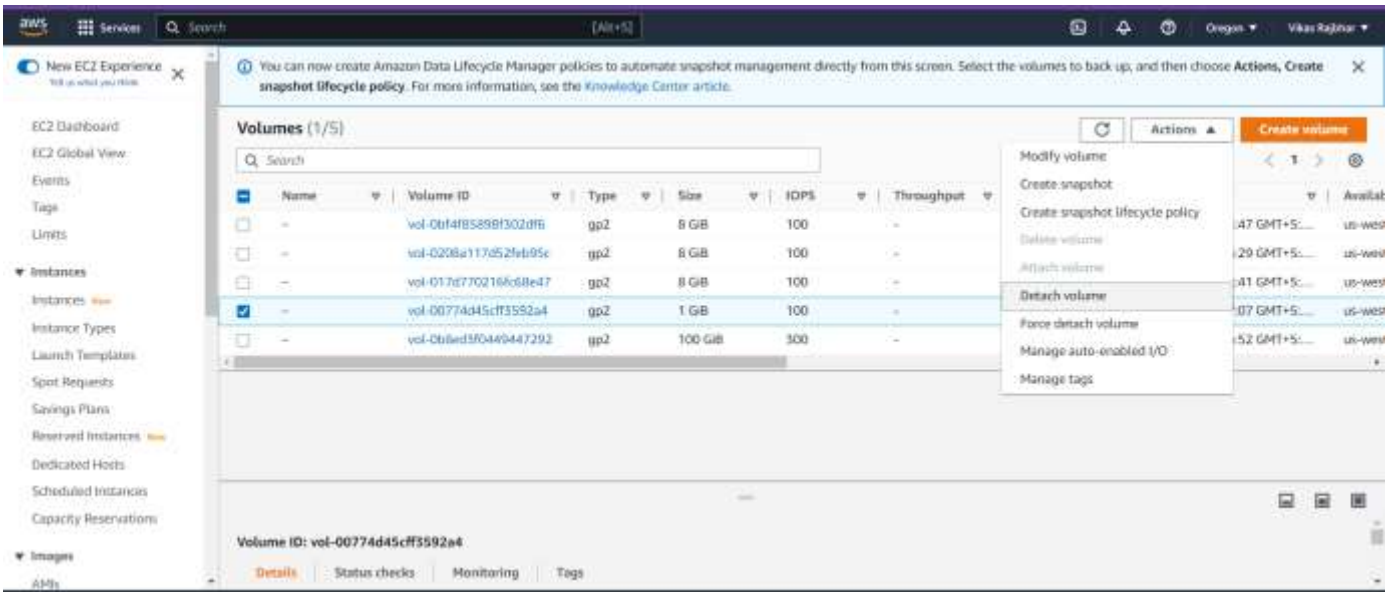


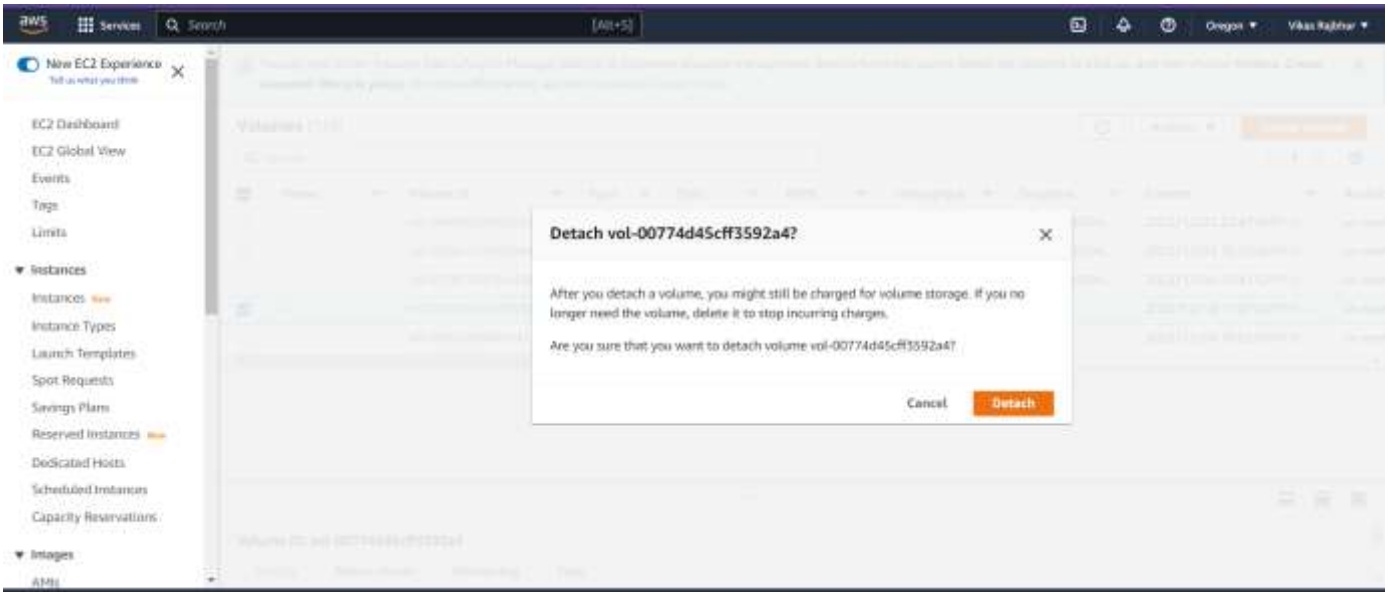


- Successfully Attached

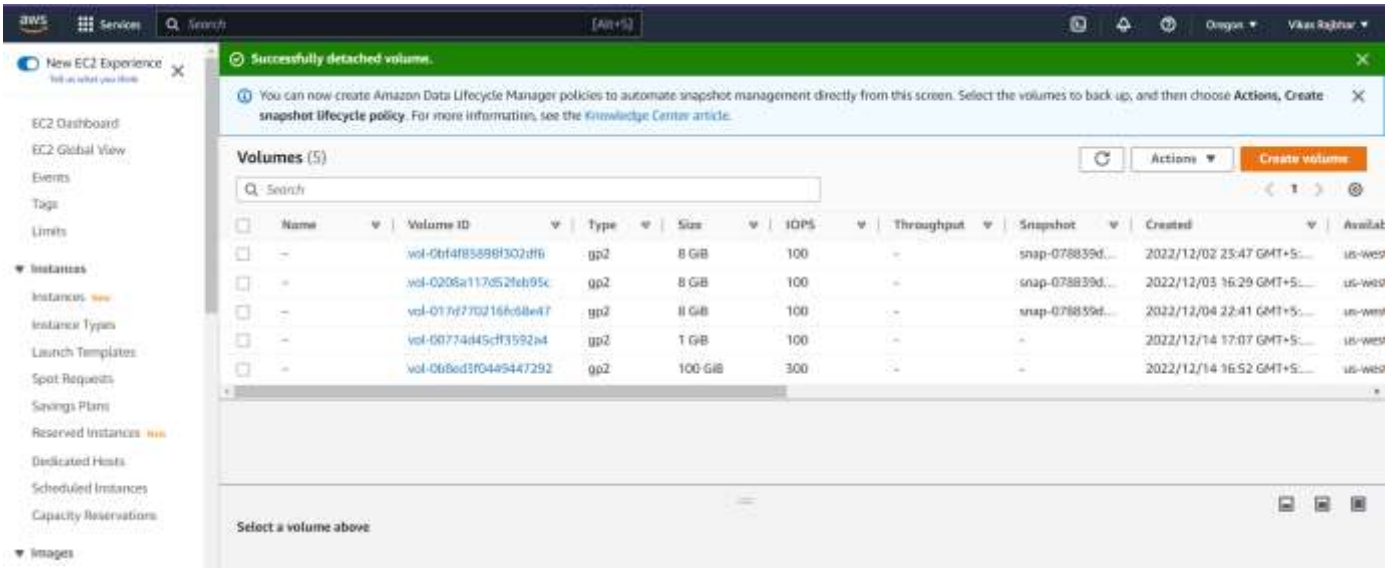


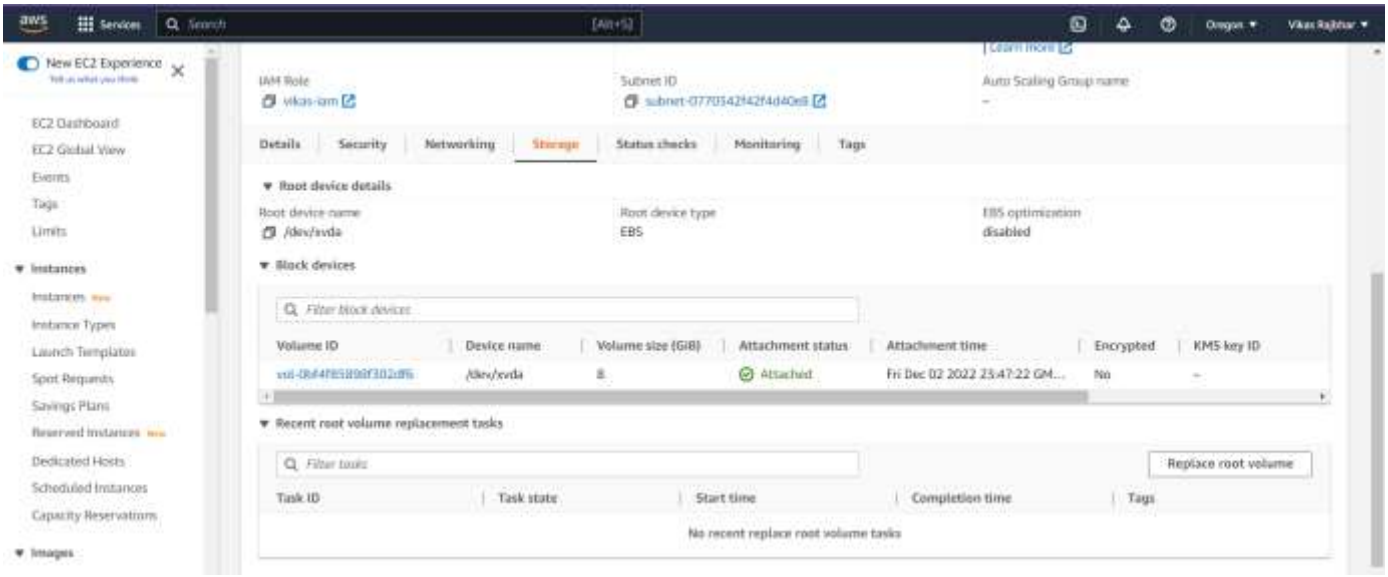
2. Detach EBS volume from the





• Successfully Detached





3. Create a Load balancer

THEORY

- Your incoming traffic is automatically split across several targets, including EC2 instances, containers, and IP addresses in one or more Availability Zones, thanks to elastic load balancing. It keeps track of the wellbeing of the registered targets, only sending traffic to those that are in good shape. Elastic load balancing automatically adjusts the capacity of your load balancer in response to variations in incoming traffic.

Benefits of Load Balancer

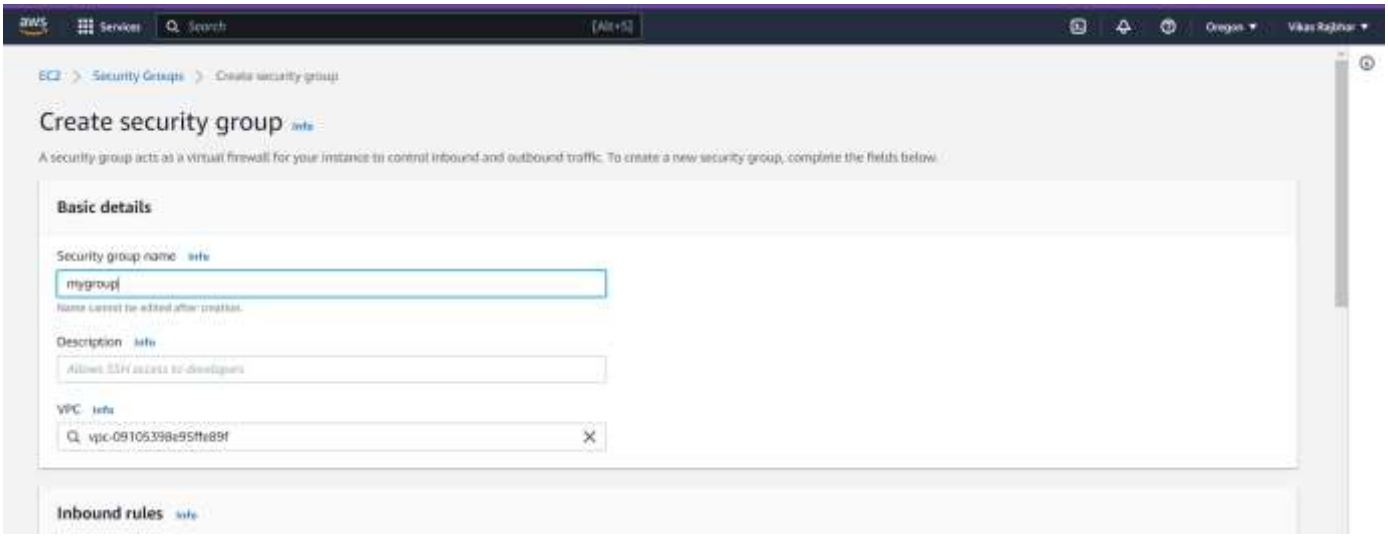
- Workloads are divided up across various computing resources, such virtual servers, via a load balancer. Your applications' availability and fault tolerance will be improved by using a load balancer.

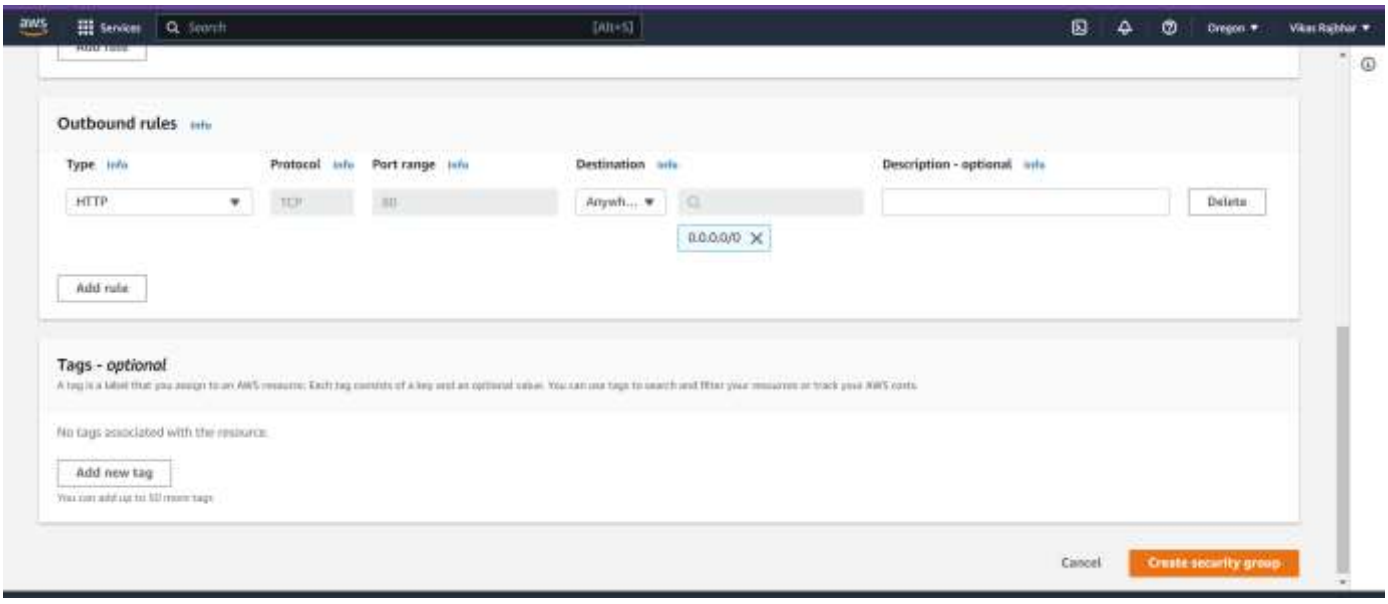
- Without affecting the overall flow of requests to your apps, you may add and subtract computing resources from your load balancer as your needs change.

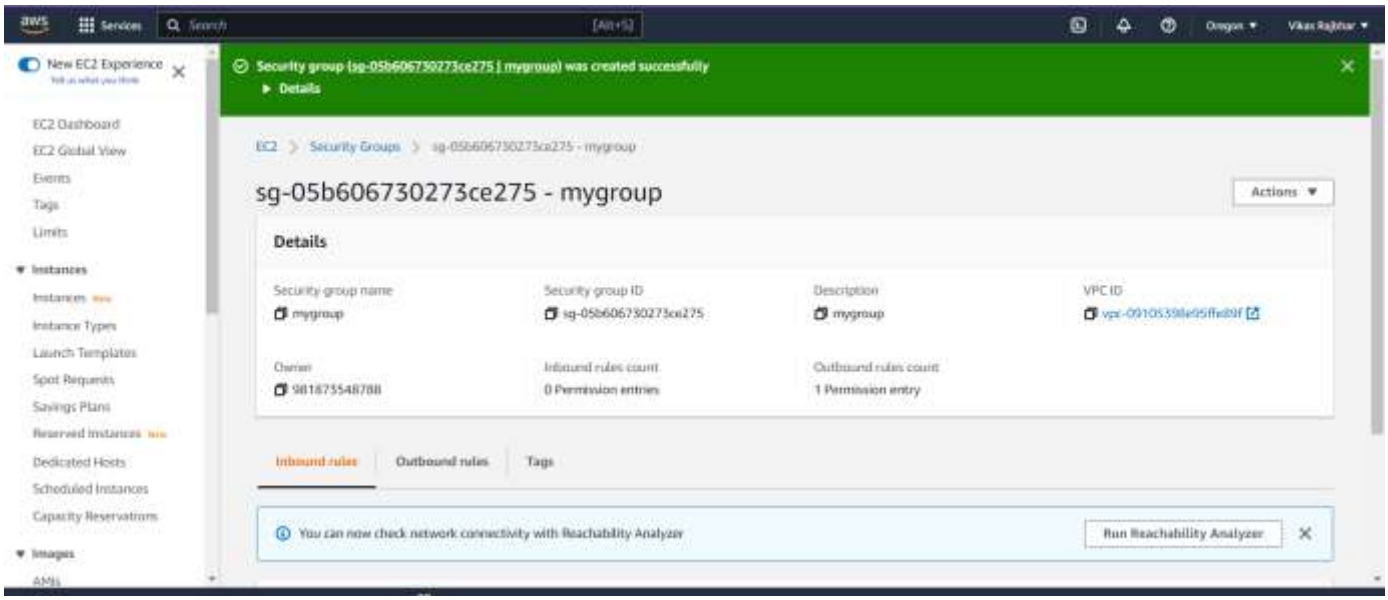
- To ensure that the load balancer only sends requests to the healthy compute resources, you may implement health checks, which keep an eye on their condition. Additionally, you may delegate encryption and decryption tasks to your load balancer, freeing up your computational resources to concentrate on their primary tasks.

- To start with, before creating the Load Balancer we will have to create a security group

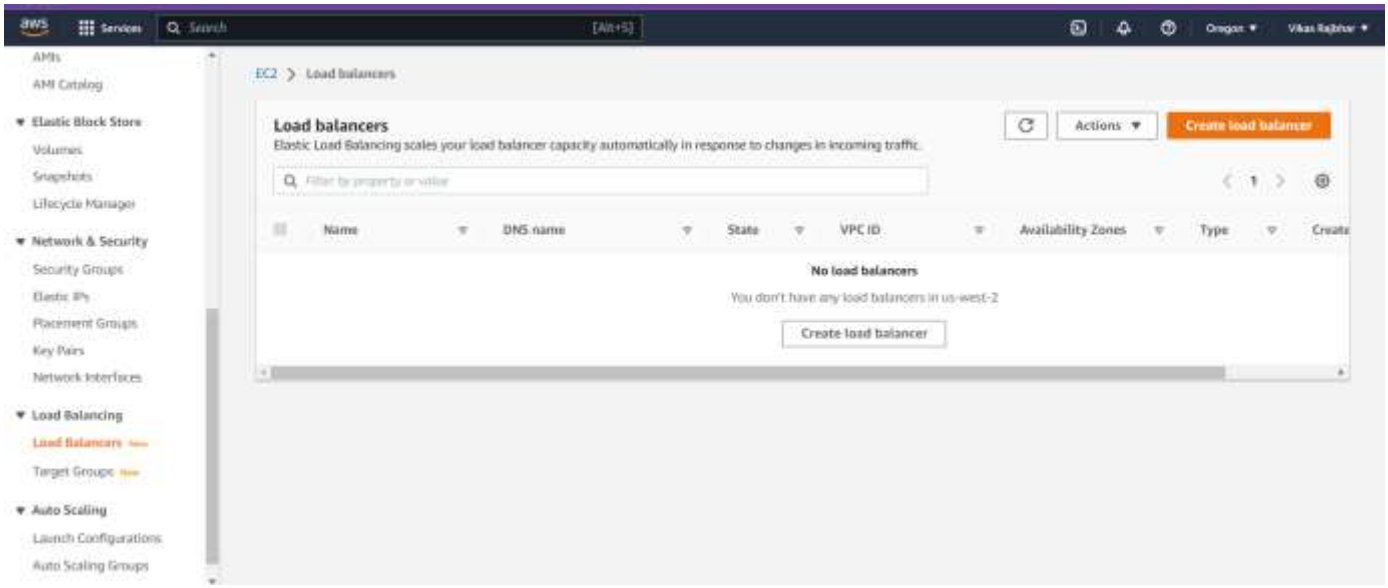
Creating the Security Group

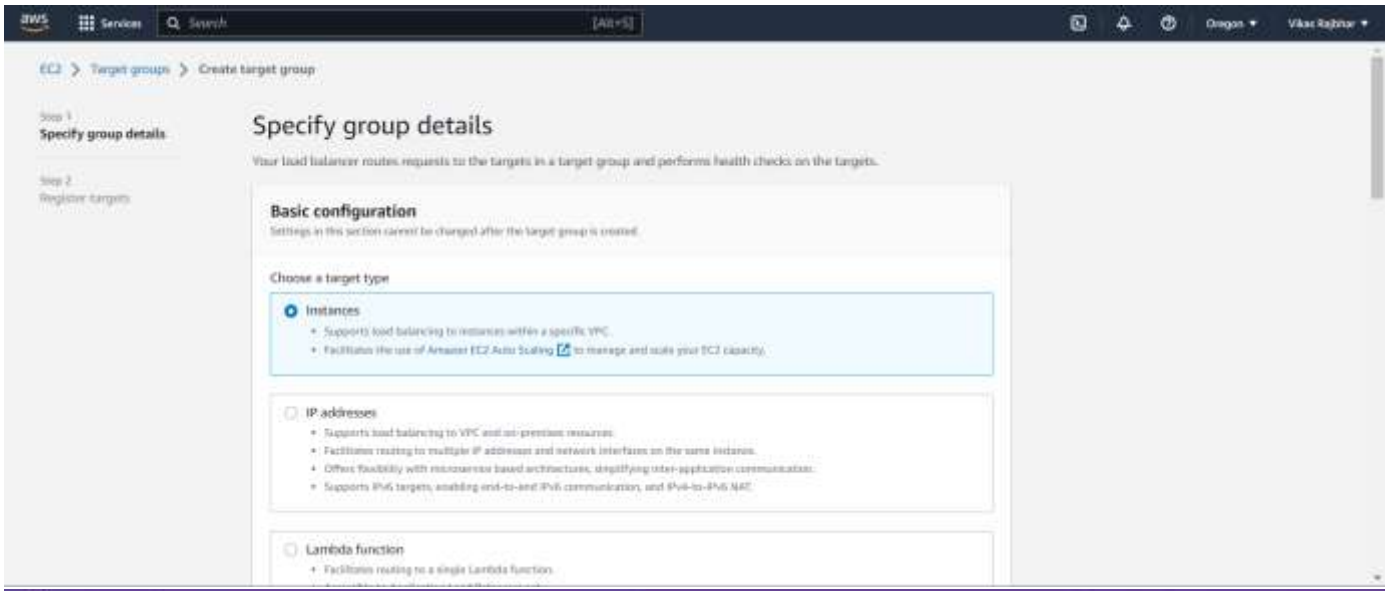


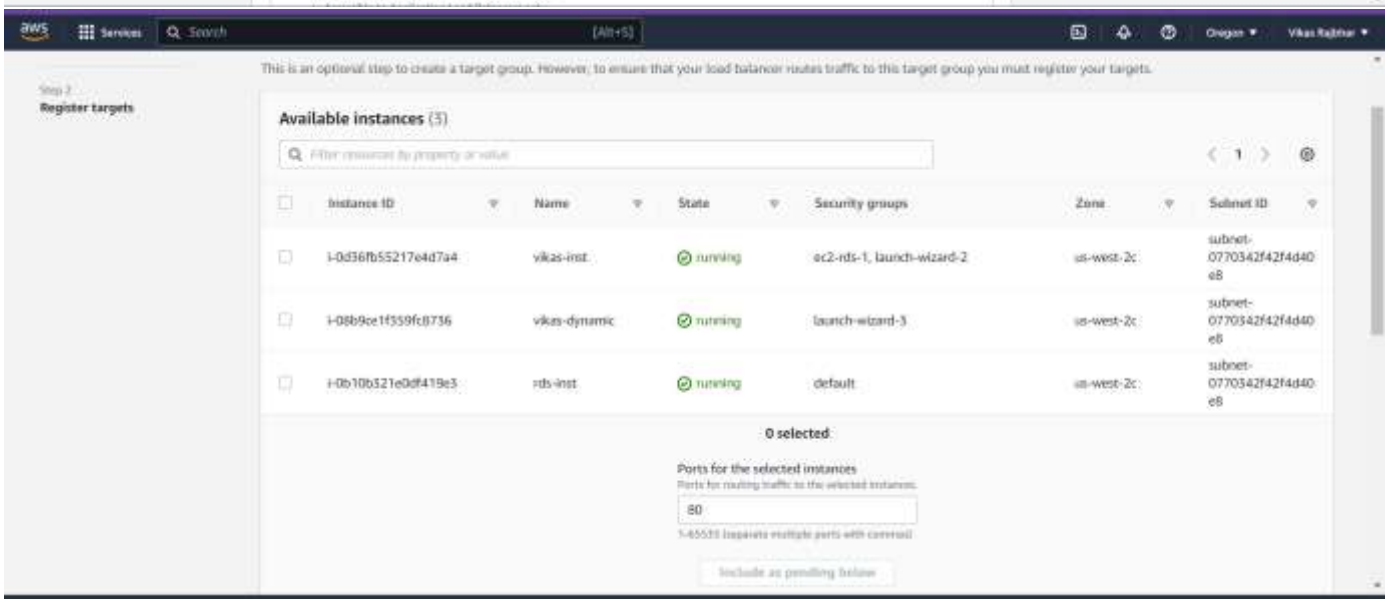




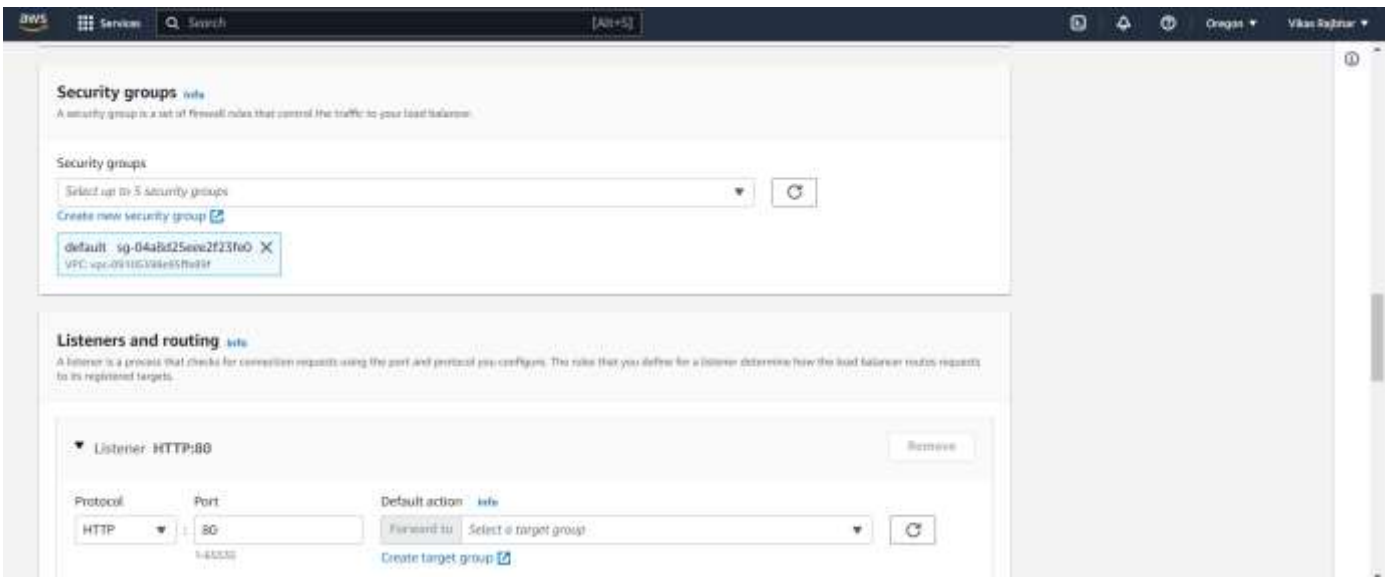
Creating a Load Balancer

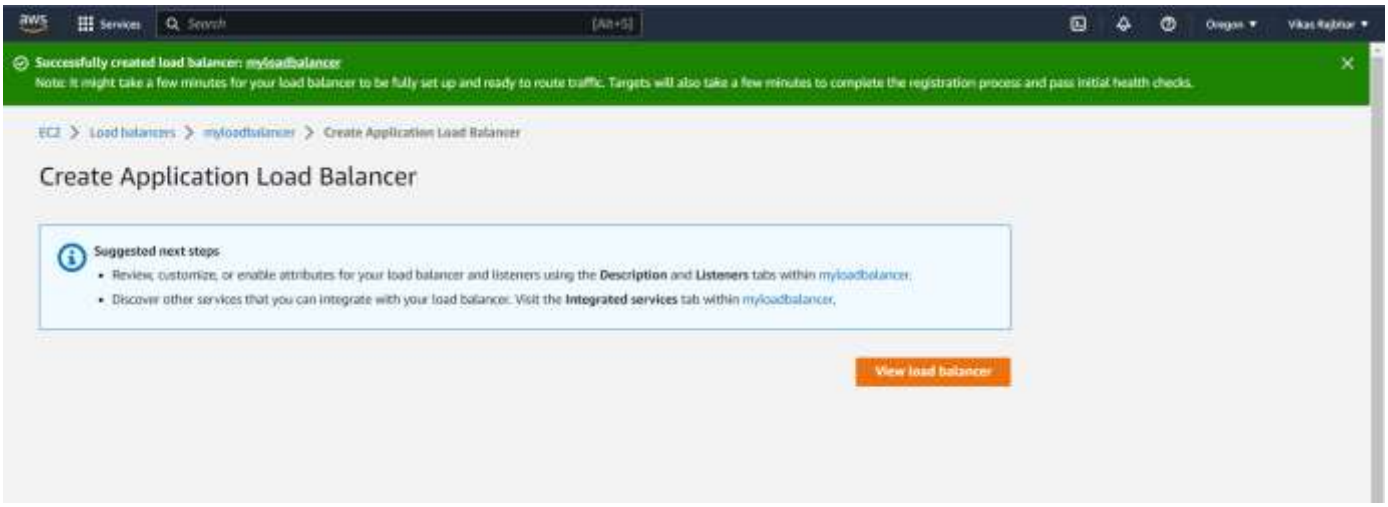


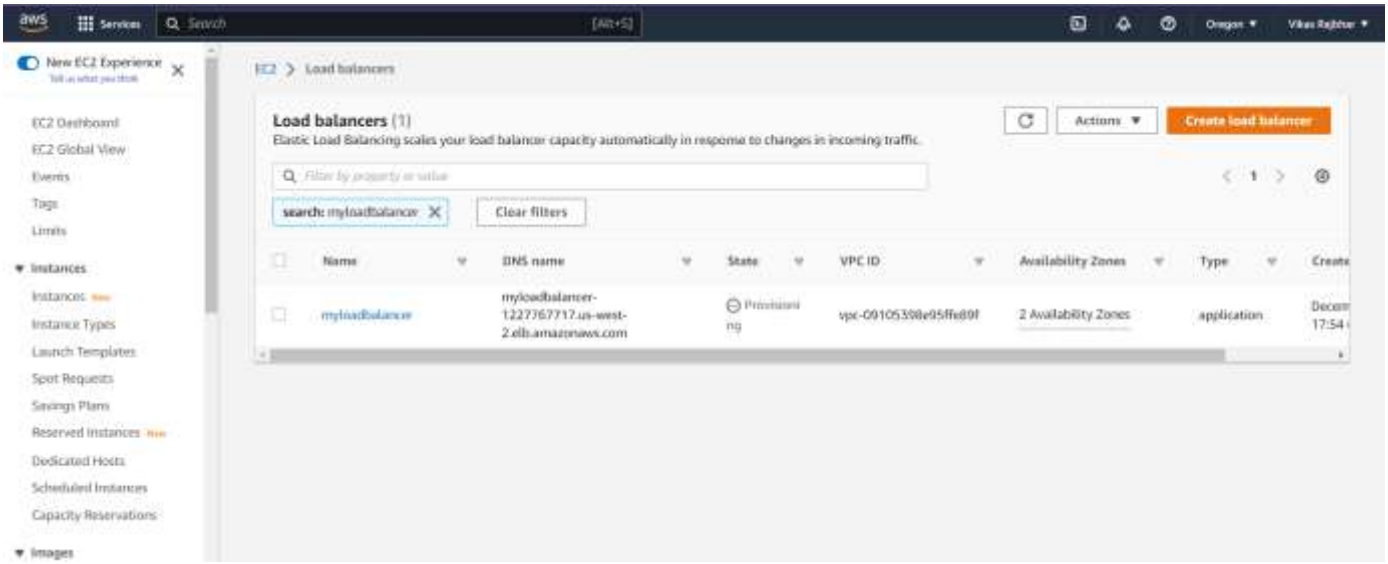




- Attaching the security group, created earlier, to the load balancer







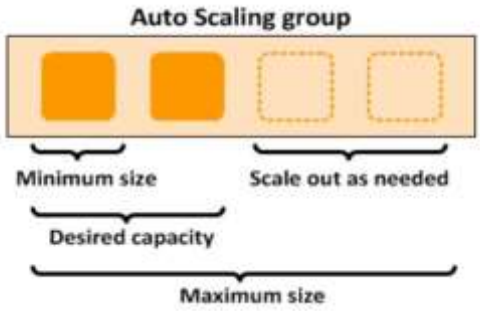
4. Create Auto Scaling of instance

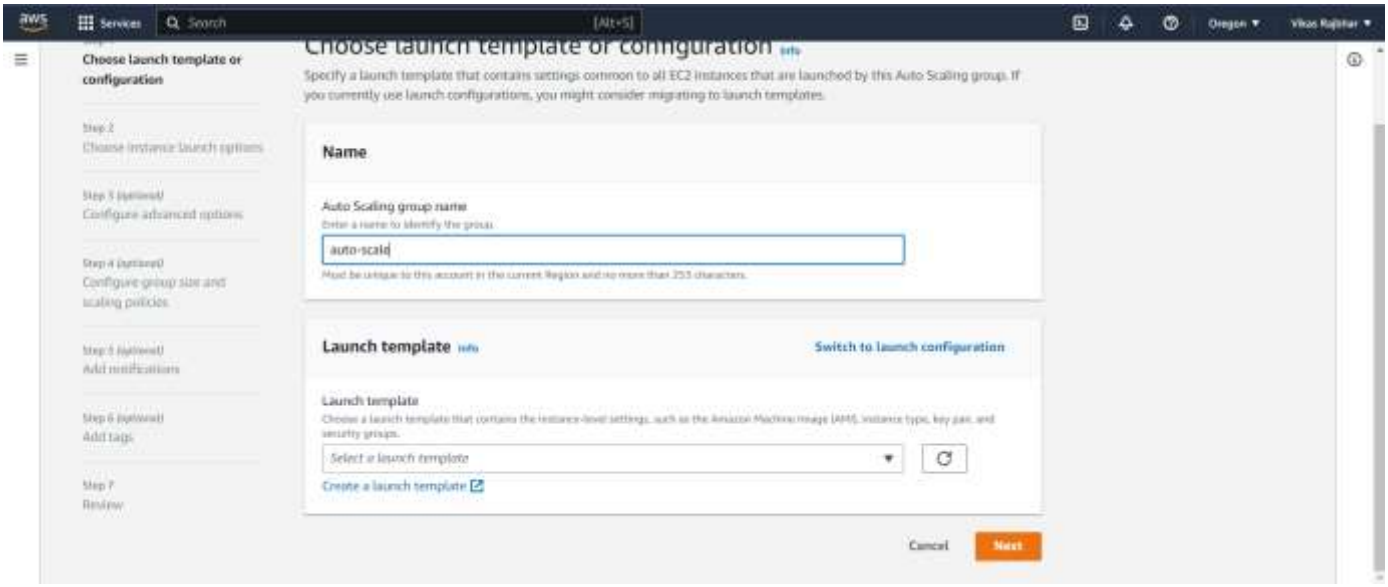
THEORY

- You can make sure that you have the appropriate number of Amazon EC2 instances available to handle the load for your application by using Amazon EC2 Auto Scaling. Auto Scaling groups are assemblages of EC2 instances that you build. Each Auto Scaling group has a minimum number of instances that can be specified, and Amazon EC2 Auto Scaling makes sure that your group never falls below this amount. Each Auto Scaling group has a maximum number of instances that can be specified, and Amazon EC2 Auto Scaling makes sure that your group never exceeds this amount. Amazon EC2 Auto Scaling makes sure that your group has the number of instances you select when you create the group or at any other time afterward if you specify the appropriate capacity. As the demand for your application rises or falls, Amazon EC2 Auto Scaling can launch or terminate instances provided scaling policies are specified.

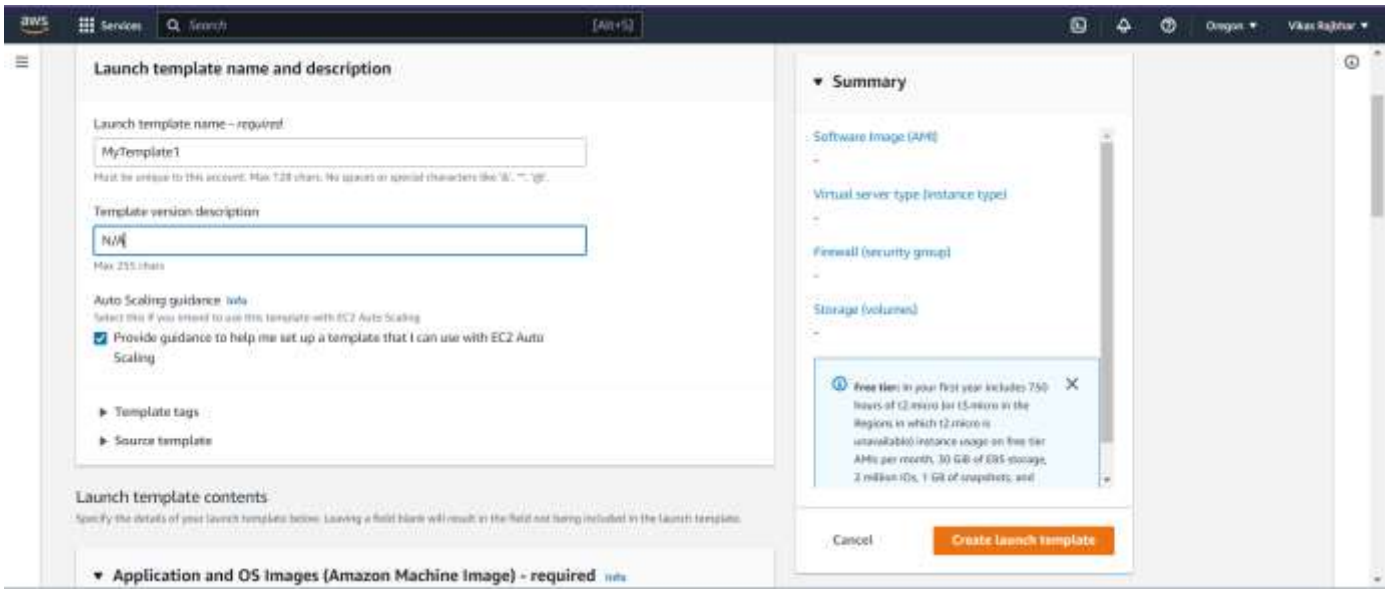
- For instance, the next Auto Scaling group has a minimum instance size of one, a targeted instance capacity of two, and a maximum instance size of four. Within your minimum and

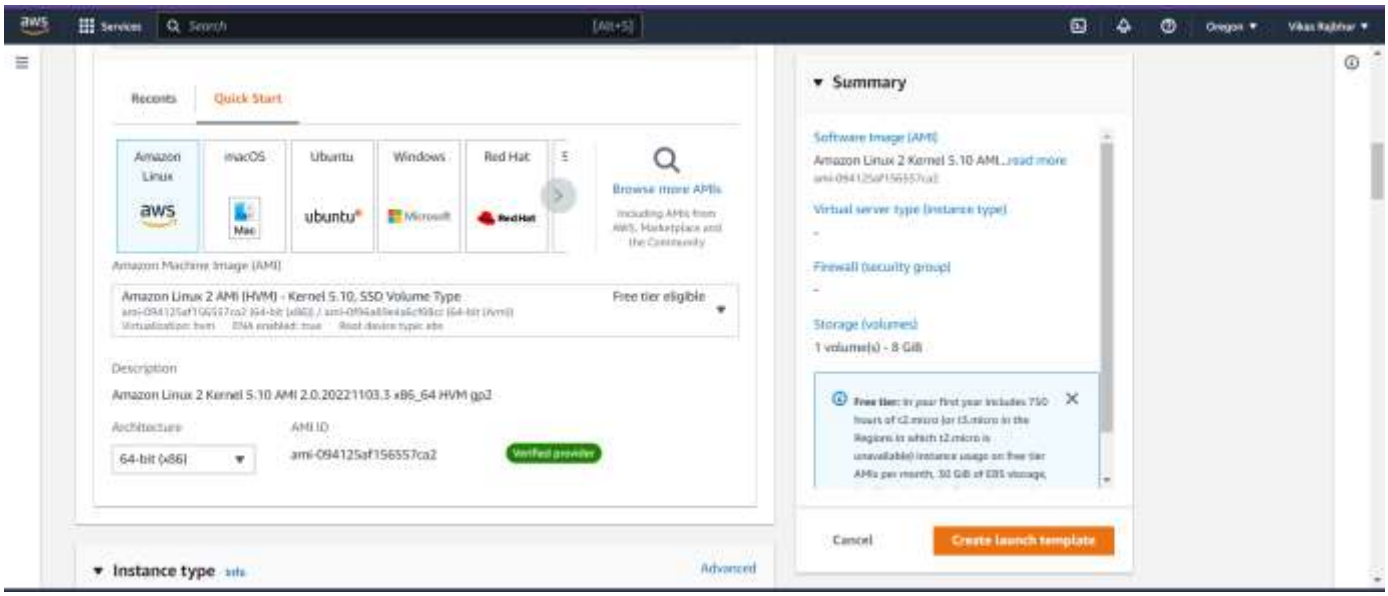
maximum number of instances, the scaling policies you design change the number of instances according to the parameters you set.

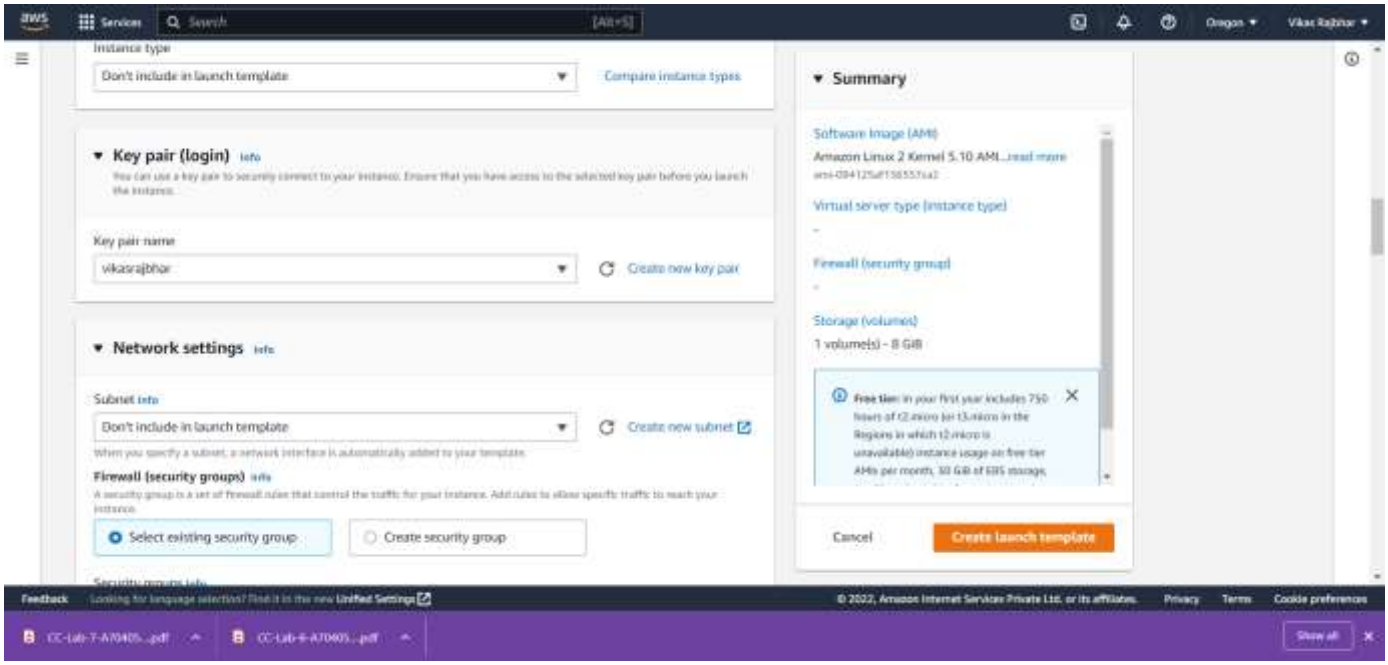




- **Creating a Template**




Recents
Quick Start
Amazon Linux
macOS
Ubuntu
Windows
Red Hat
Browse more AMIs
Including AMIs from AWS, Marketplace and the Community
Amazon Machine Image (AMI)
Amazon Linux 2 AMI (HVM) - Kernel 5.10, SSD Volume Type
Free tier eligible
Description
Amazon Linux 2 Kernel 5.10 AMI 2.0.20221103.3 x86_64 HVM gp2
Architecture
64-bit (x86)
AMI ID
ami-094125af156557ca2
Verified provider
Summary
Software Image (AMI)
Amazon Linux 2 Kernel 5.10 AMI...read more
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, 30 GiB of EBS storage,
Cancel
Create launch template
Instance type
Advanced


Instance type
Don't include in launch template
Compare instance types
Key pair (login)
Key pair name
vikasrajbhar
Create new key pair
Network settings
Subnet
Don't include in launch template
Create new subnet
Firewall (security groups)
Select existing security group
Create security group
Summary
Software Image (AMI)
Amazon Linux 2 Kernel 5.10 AMI...read more
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, 30 GiB of EBS storage,
Cancel
Create launch template
Feedback
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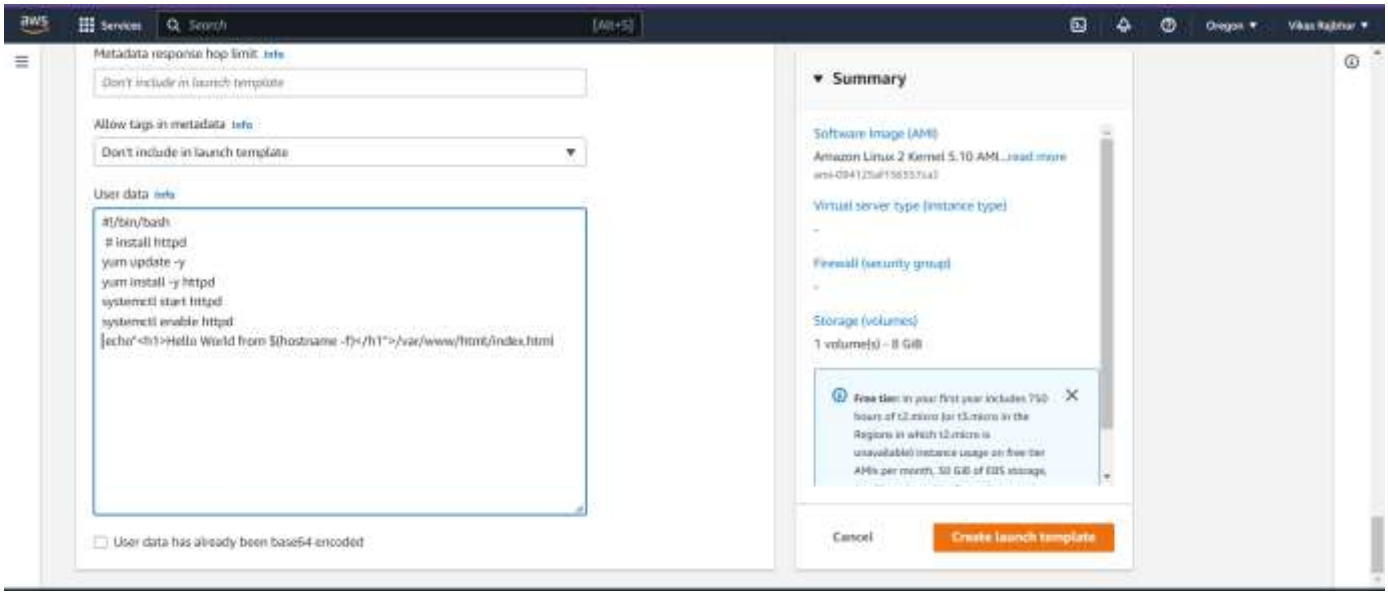
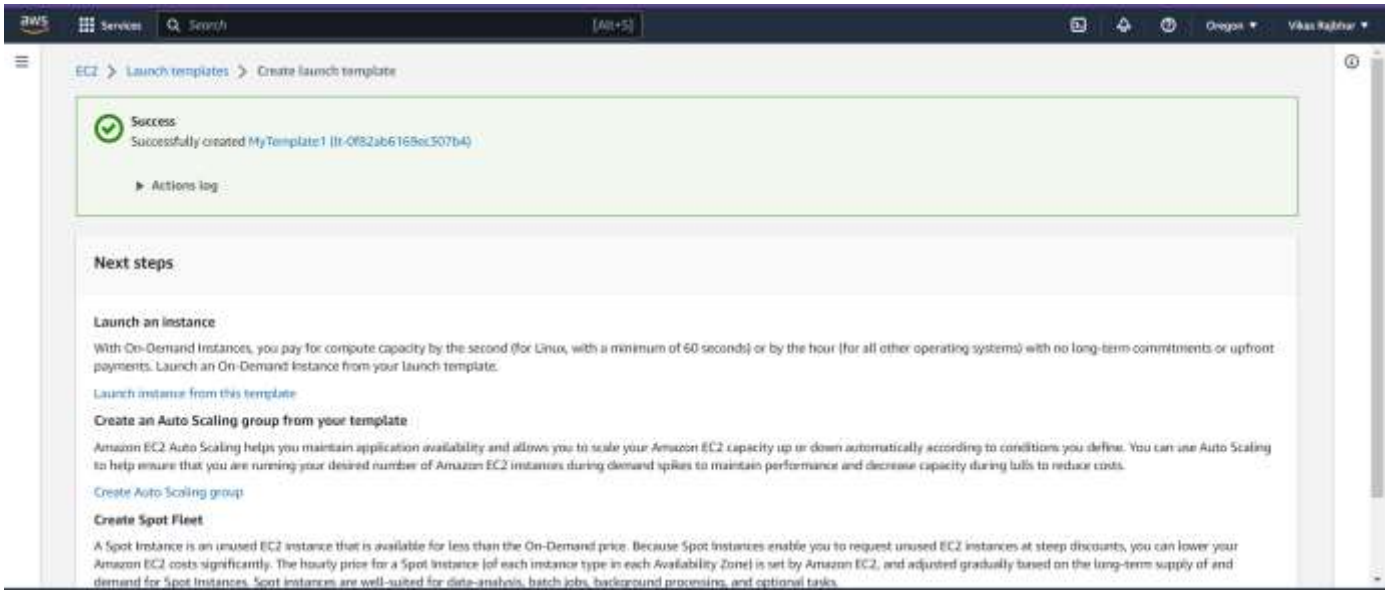
Privacy
Terms
Cookie preferences

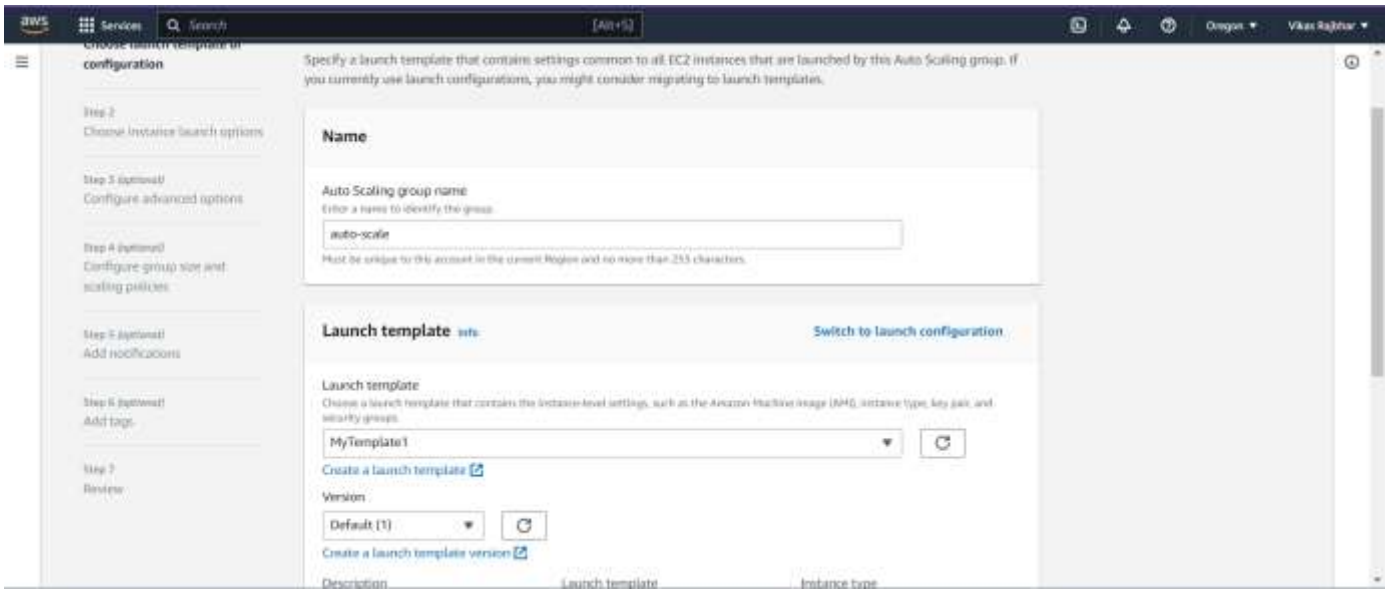

Metadata response hop limit
Don't include in launch template
Allow tags in metadata
Don't include in launch template
User data
#!/bin/bash
install httpd
yum update -y
yum install -y httpd
systemctl start httpd
systemctl enable httpd
echo "<h1>Hello World from $(hostname -f)</h1>" > /var/www/html/index.html
User data has already been base64 encoded
Summary
Software Image (AMI)
Amazon Linux 2 Kernel 5.10 AMI...read more
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, 30 GiB of EBS storage,
Cancel
Create launch template

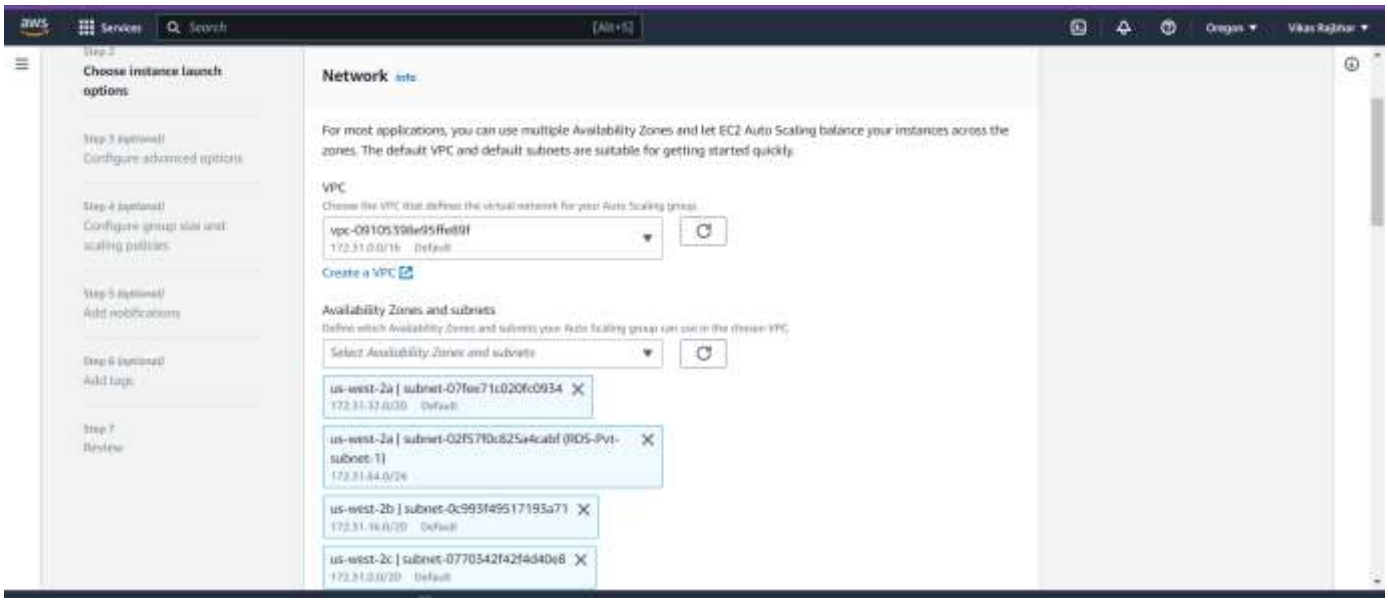
In the user data section, as shown above, insert the following code

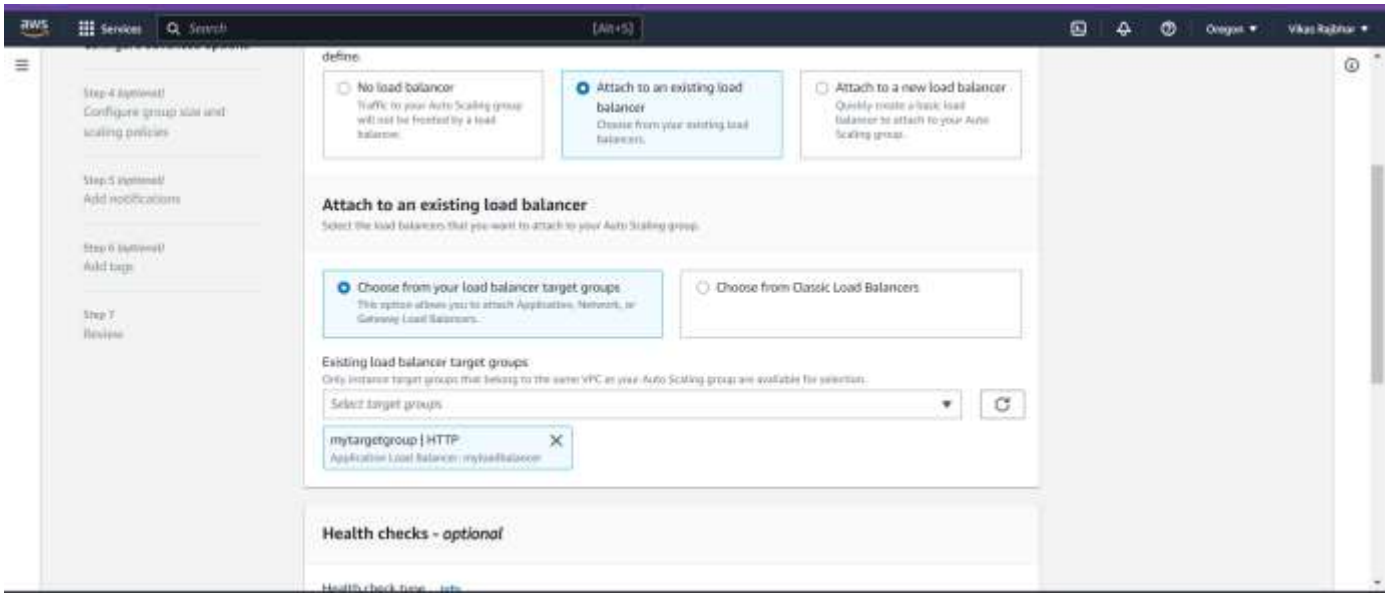
```
#!/bin/bash  # install httpd yum
update -y yum install -y httpd
systemctl start httpd systemctl
enable httpd  echo"<h1>Hello
World from $(hostname -
f)</h1”>/var/www/html/index.
html Template successfully
created
```

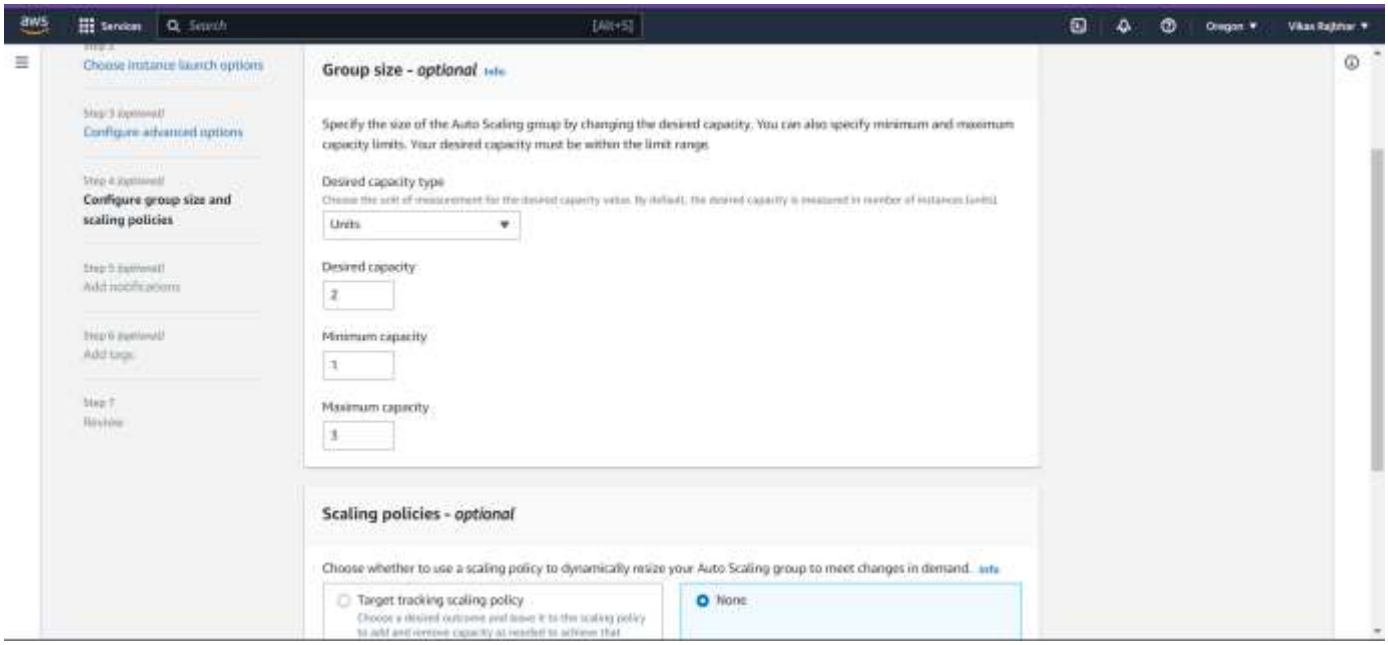


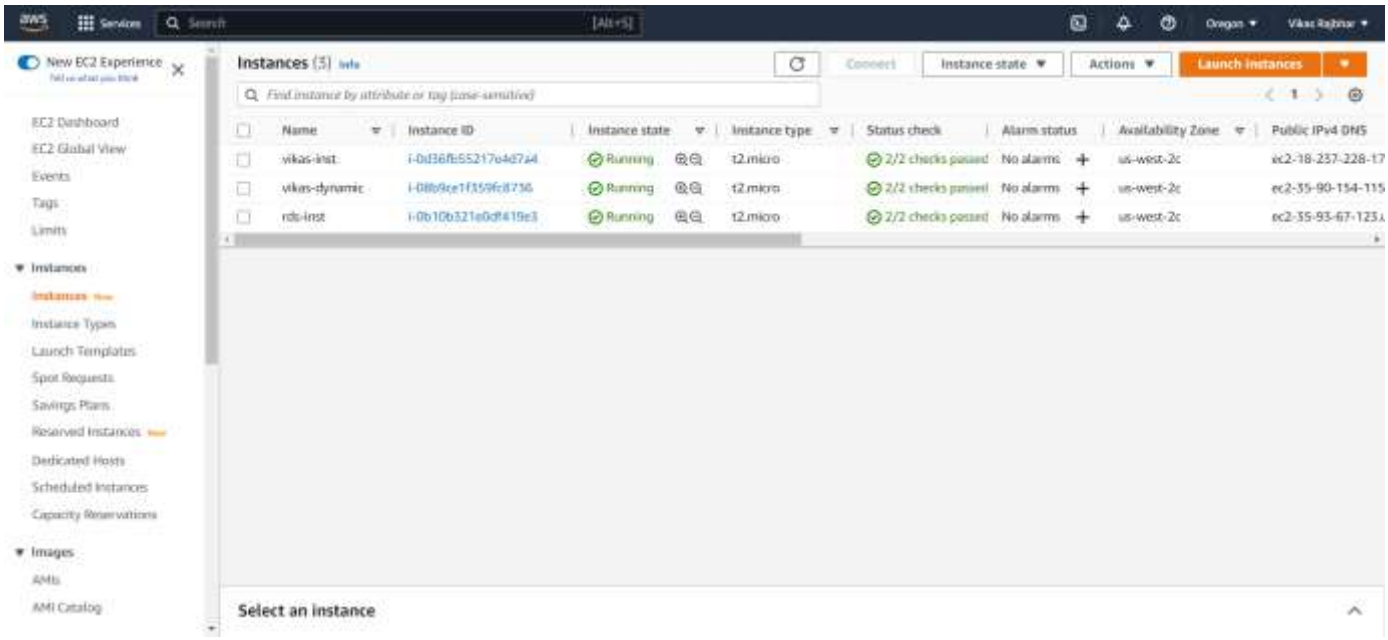
Attaching the created template




Choose instance launch options
Configure advanced options
Configure group size and scaling policies
Add notifications
Add tags
Review
Network info
For most applications, you can use multiple Availability Zones and let EC2 Auto Scaling balance your instances across the zones. The default VPC and default subnets are suitable for getting started quickly.
VPC
vpc-0910559fde95ffe89f
Create a VPC
Availability Zones and subnets
Select Availability Zones and subnets
us-west-2a | subnet-07fee71c020fc0934
us-west-2a | subnet-02f57f0c825a4cabf (RDS-Pvt-subnet-1)
us-west-2b | subnet-0c993f49517193a71
us-west-2c | subnet-0770342f42f4d40e8


define.
No load balancer
Attach to an existing load balancer
Attach to a new load balancer
Attach to an existing load balancer
Choose from your load balancer target groups
Choose from Classic Load Balancers
Existing load balancer target groups
Select target groups
mytargetgroup | HTTP
Health checks - optional


Choose instance launch options
Configure advanced options
Configure group size and scaling policies
Add notifications
Add tags
Review
Group size - optional info
Specify the size of the Auto Scaling group by changing the desired capacity. You can also specify minimum and maximum capacity limits. Your desired capacity must be within the limit range.
Desired capacity type
Units
Desired capacity
2
Minimum capacity
1
Maximum capacity
3
Scaling policies - optional
Choose whether to use a scaling policy to dynamically resize your Auto Scaling group to meet changes in demand. info
Target tracking scaling policy
None


Services
Search
[Alt+S]
Oregon
New EC2 Experience
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
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
vikas-inst
i-0d36fb55217e4d7a4
Running
t2.micro
2/2 checks passed
No alarms
us-west-2c
vikas-dynamic
i-08b9ce1f359fc8736
Running
t2.micro
2/2 checks passed
No alarms
us-west-2c
rds-inst
i-0b10b321e0df419e3
Running
t2.micro
2/2 checks passed
No alarms
us-west-2c
Select an instance