Project 3: Demonstration of EC2 Autoscaling in AWS

Demonstrate the EC2 Autoscaling in AWS.

Create the following resources and demonstrate the scale-out and scale-in capabilities of AWS EC2 Autoscaling.
- Launch template for Application Load Balancer
- Application Load Balancer
- Launch template
- Autoscaling group

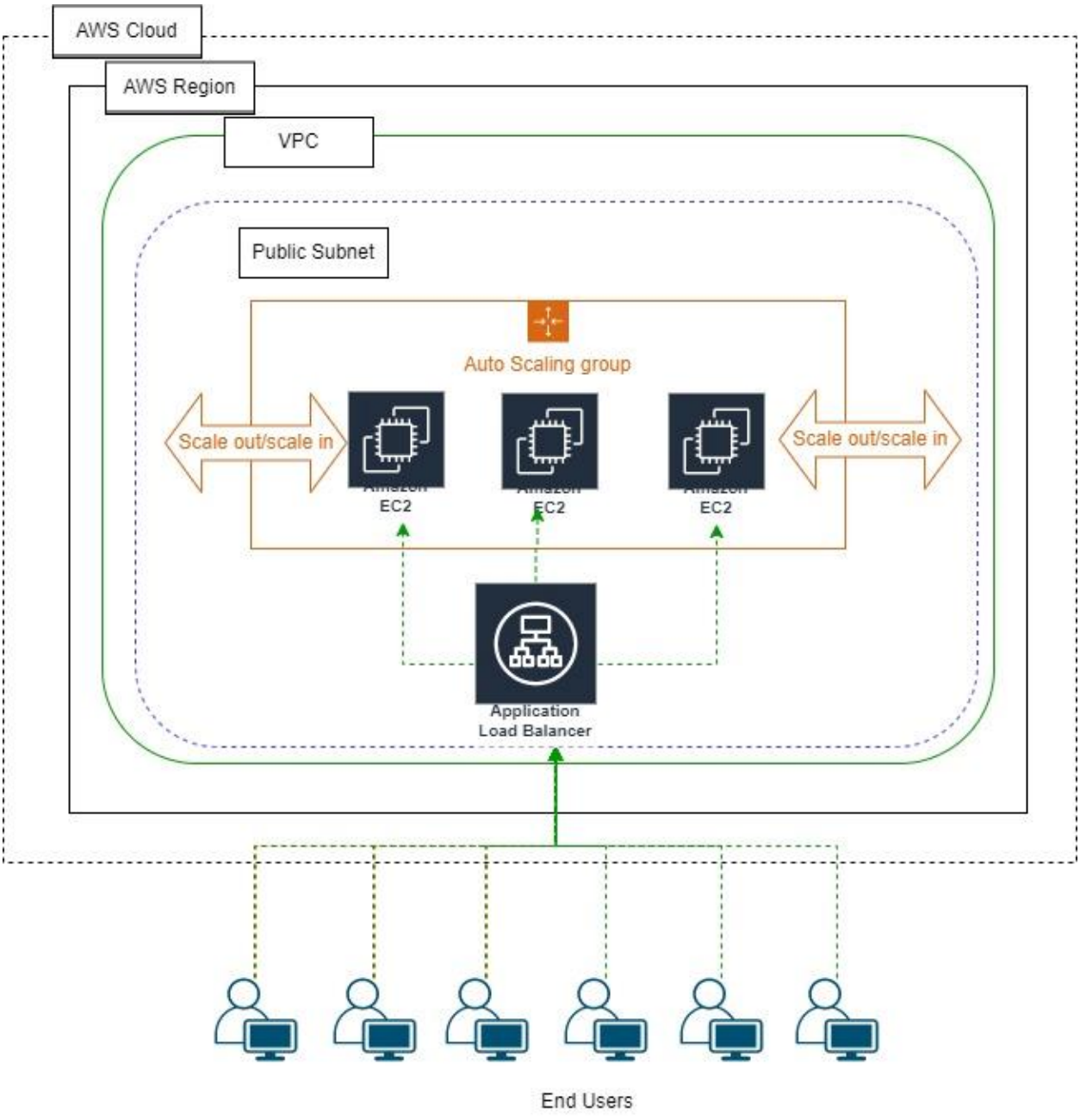
This Document Covers the follwoing sections:

1. Archtitctural Diagram

2. Creating Target Groups and Application Loadbalancer

3. Creating Launch Template and Autoscaling Group and Testing the Autoscaling

1.Architecture: EC2 Autoscaling in AWS

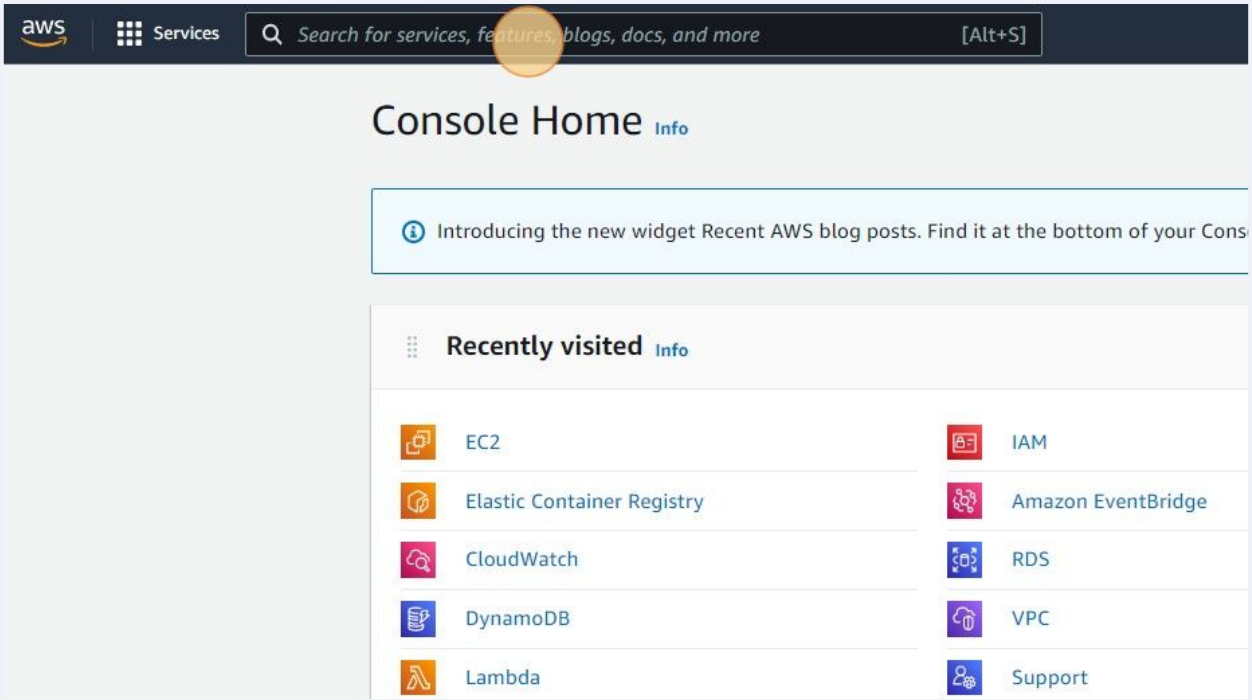


2: Creating Target Groups and Application Loadbalancer

1 Navigate to https://ap-south-1.console.aws.amazon.com/console/home?region=ap-south-1

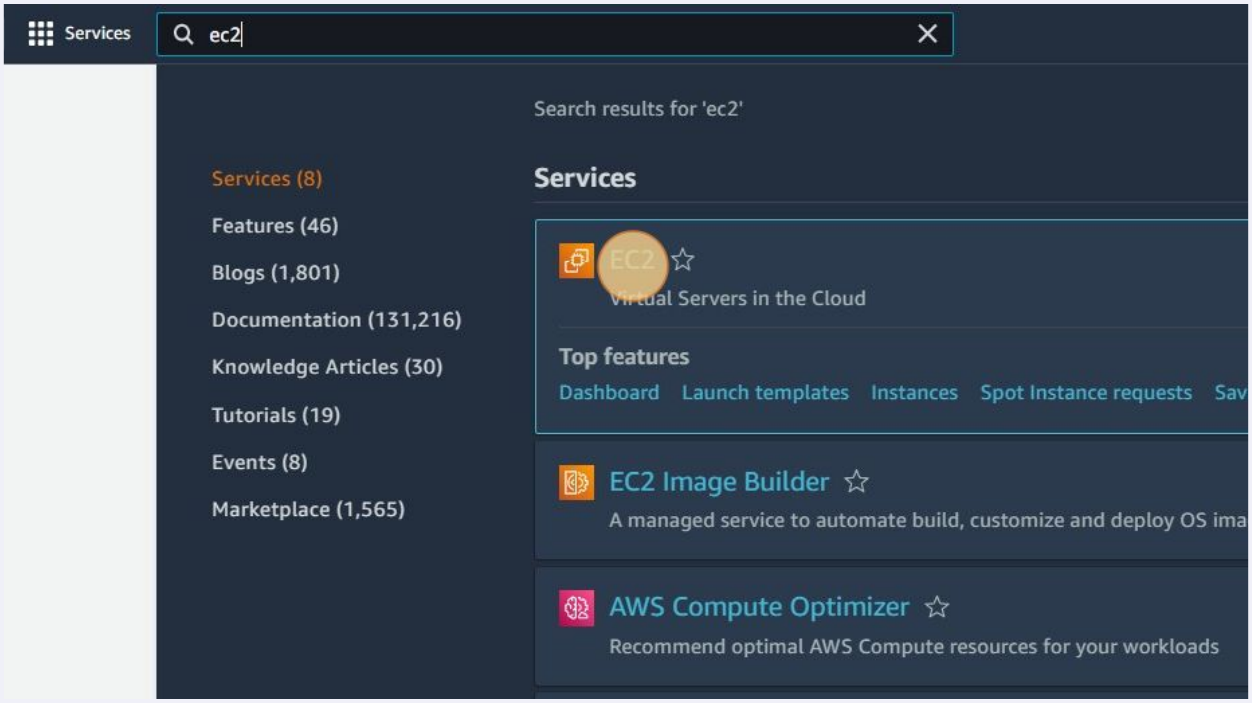
Creating Target Group

2 Click the "Search for services, features, blogs, docs, and more" field.

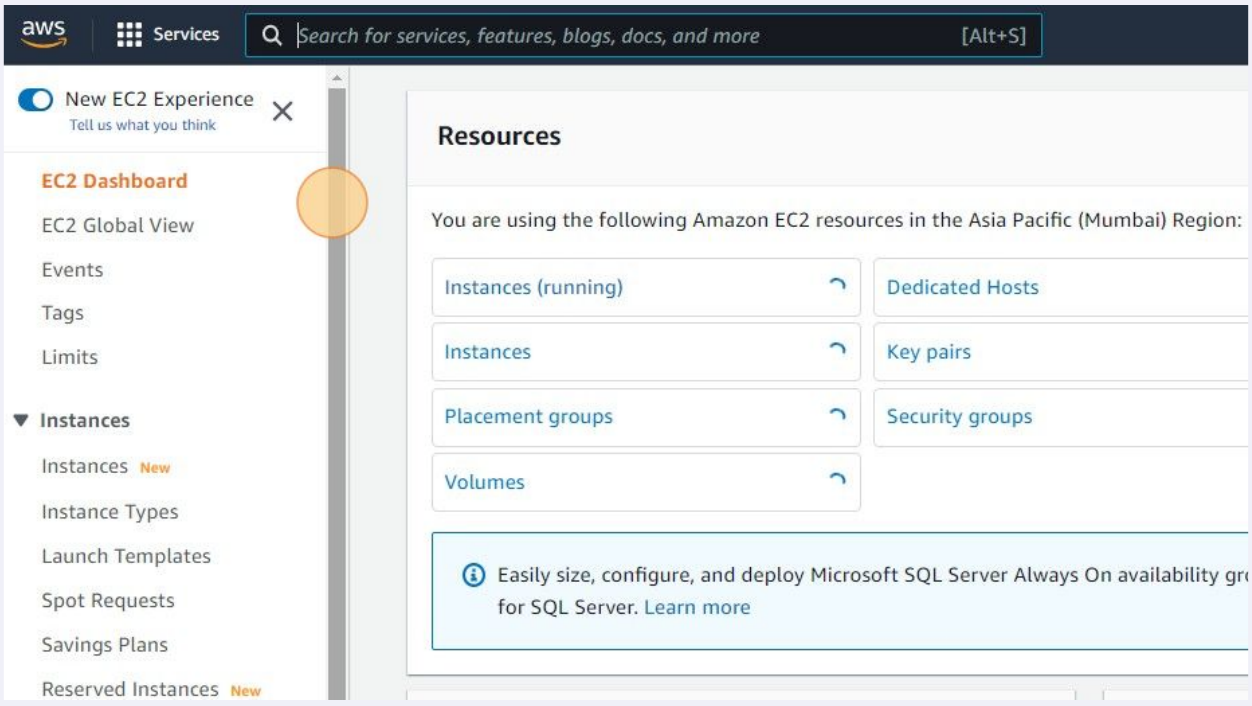


3 Type "ec2"

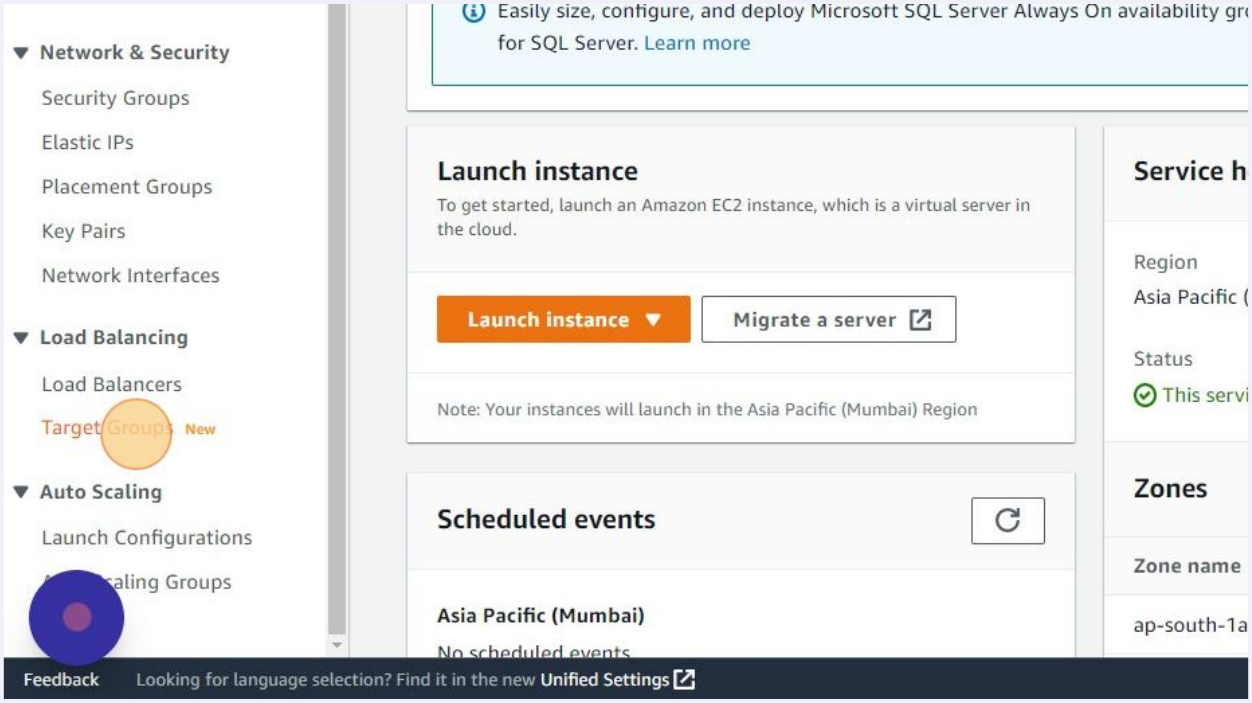
4 Click "EC2"



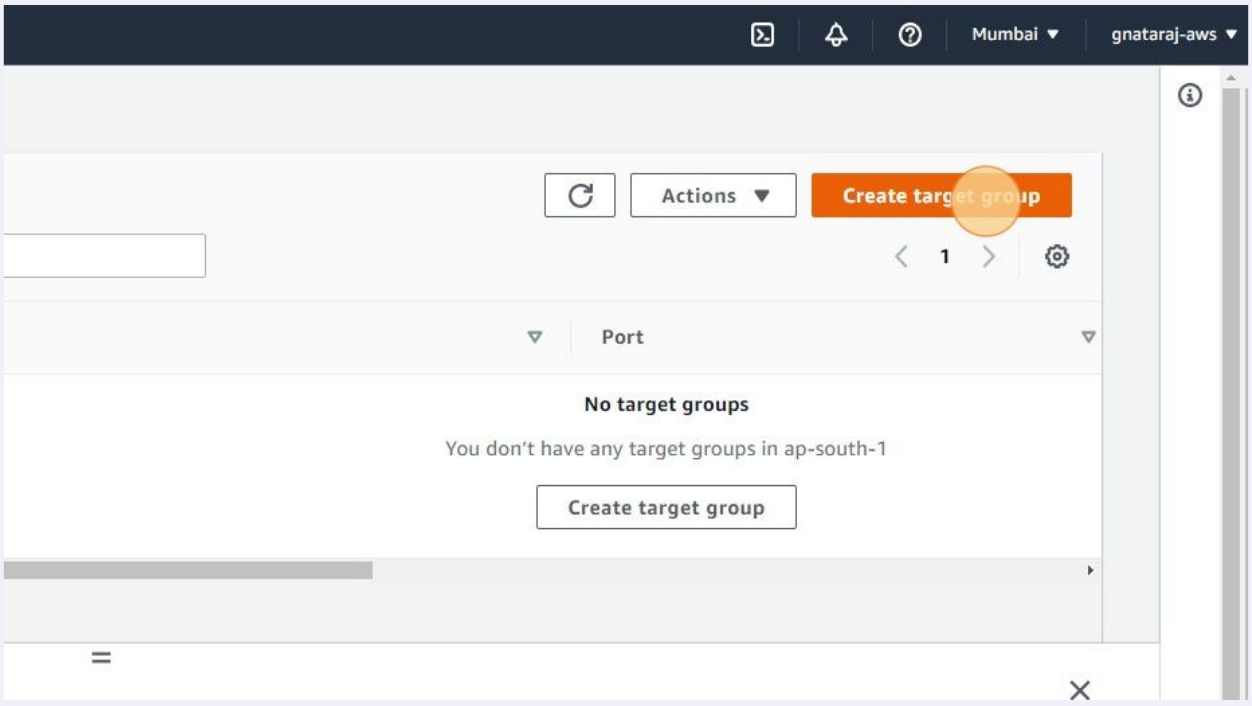
5 Click here.



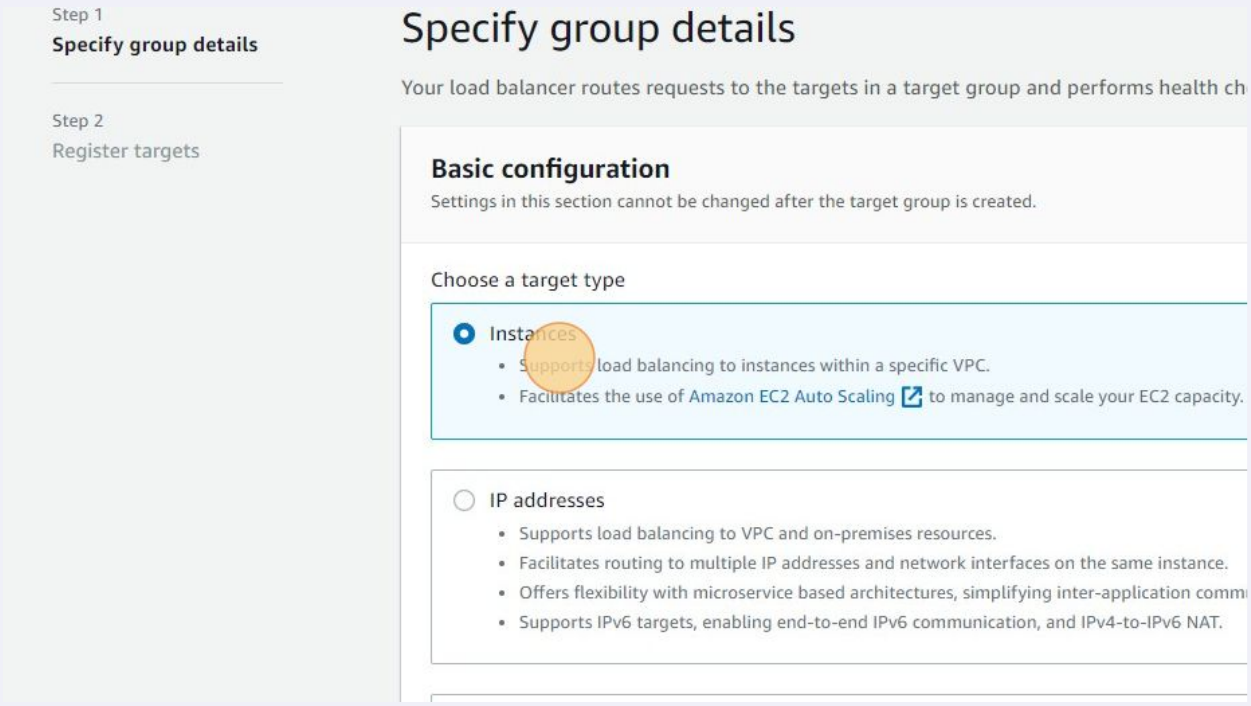
6 Click "Target Groups"



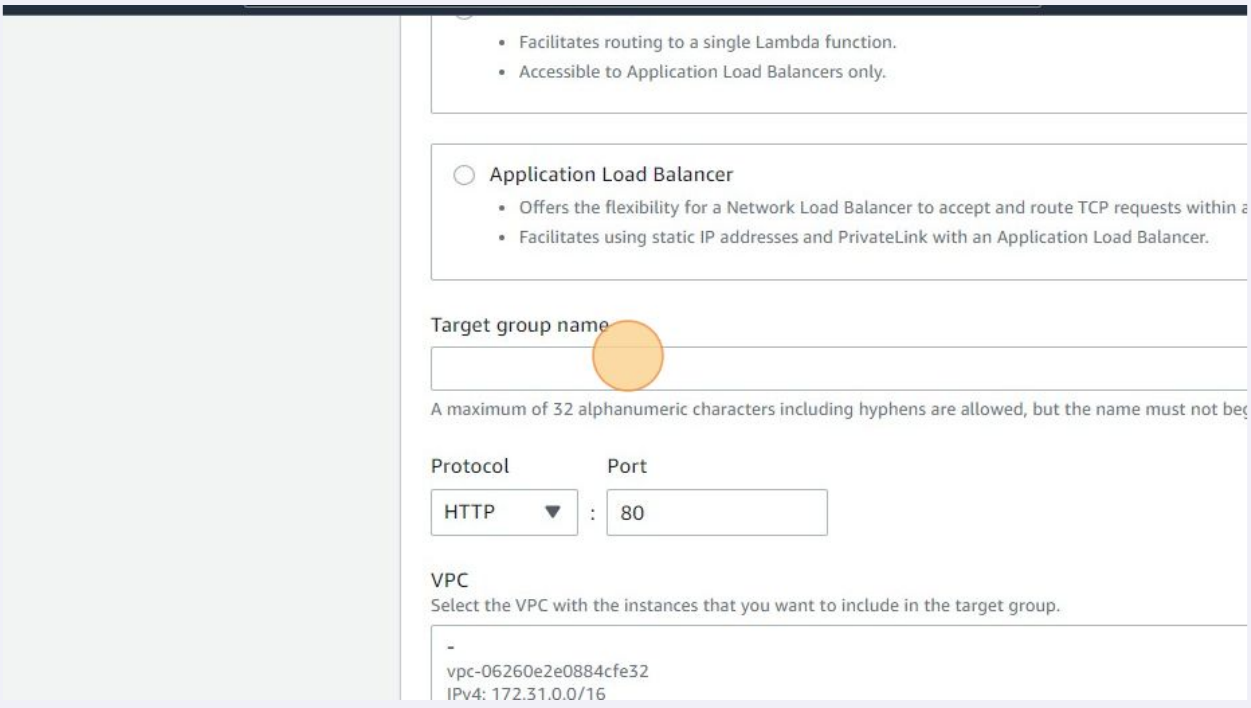
7 Click "Create target group"



8 Select "Instances" target type

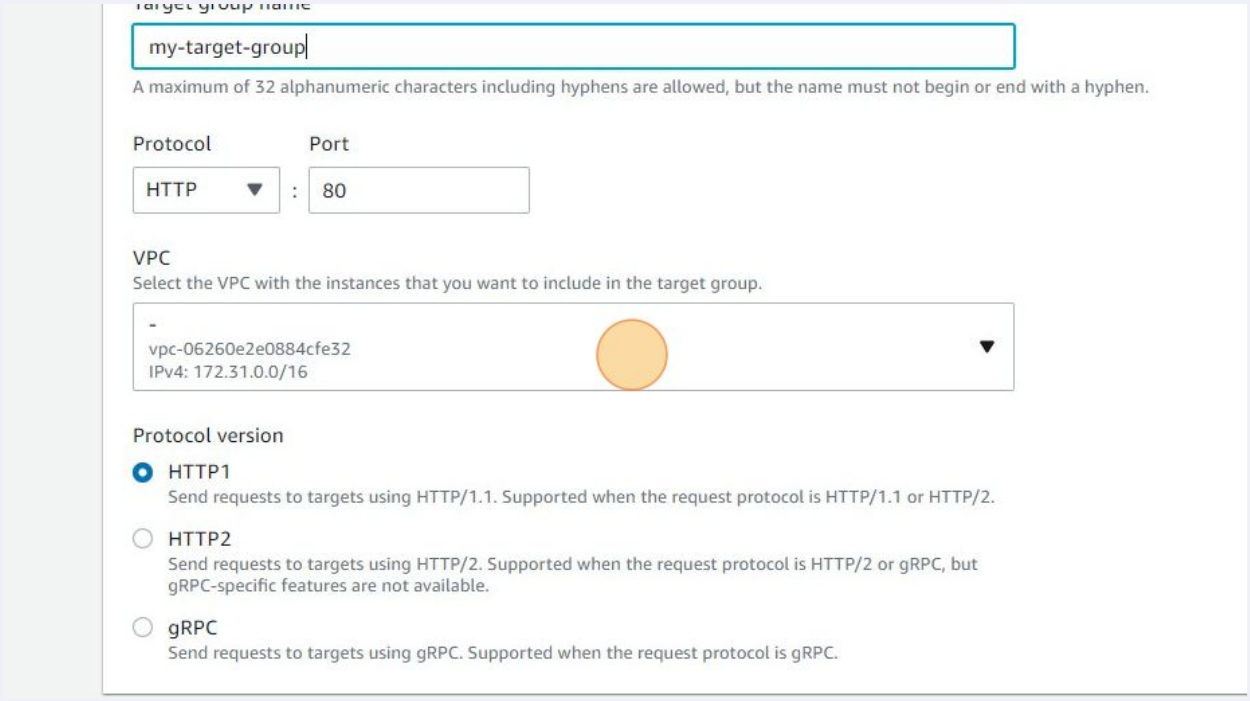


9 Click the "Target group name" field.

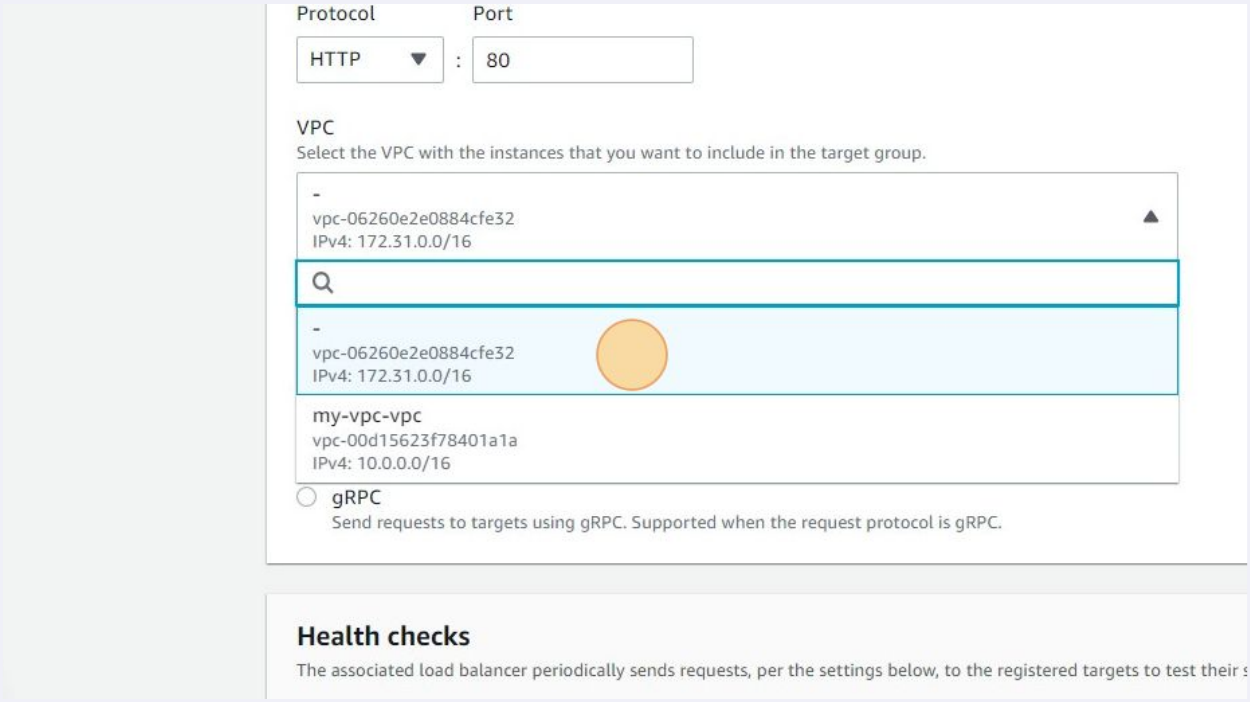


10 Type "my-target-group"

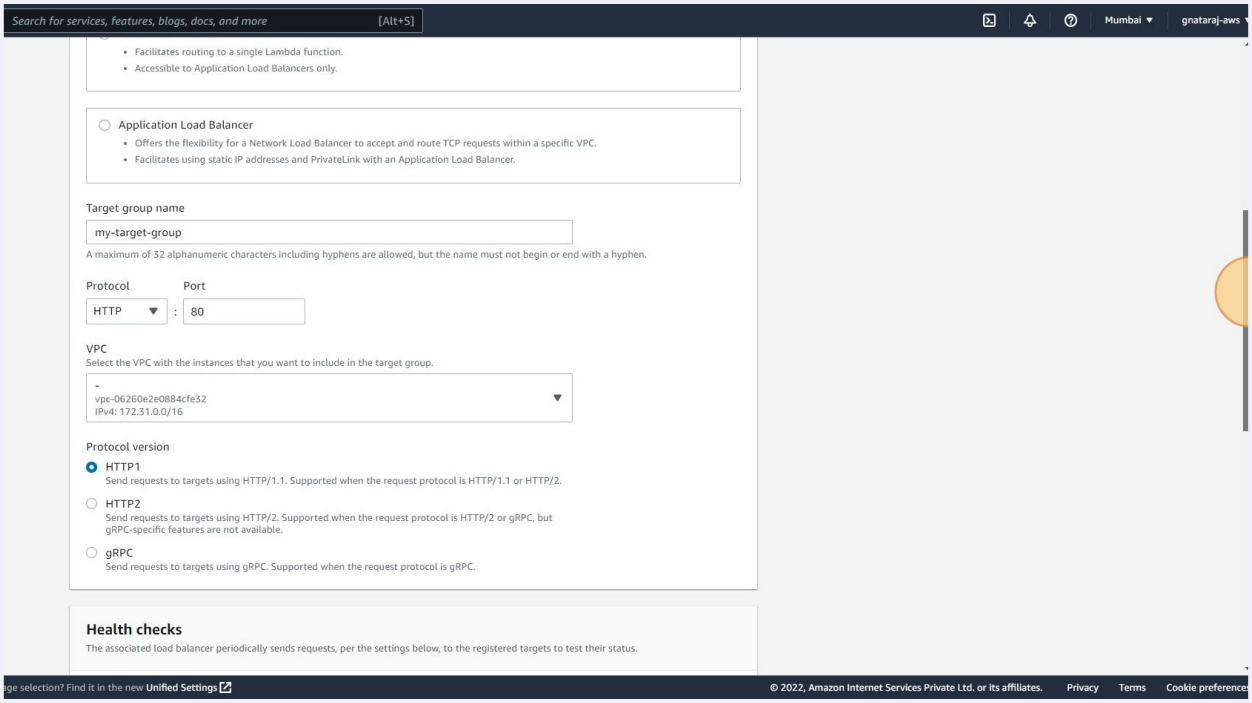
11 Click on the VPC dropdown



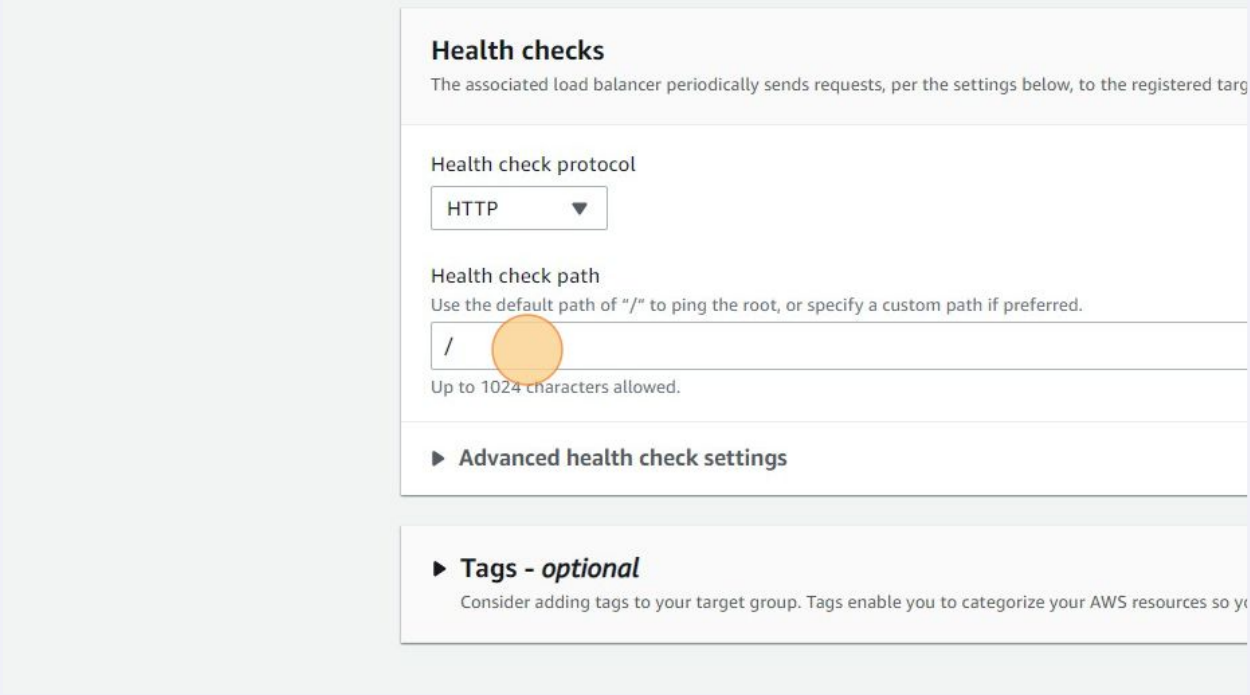
12 Select your Default VPC



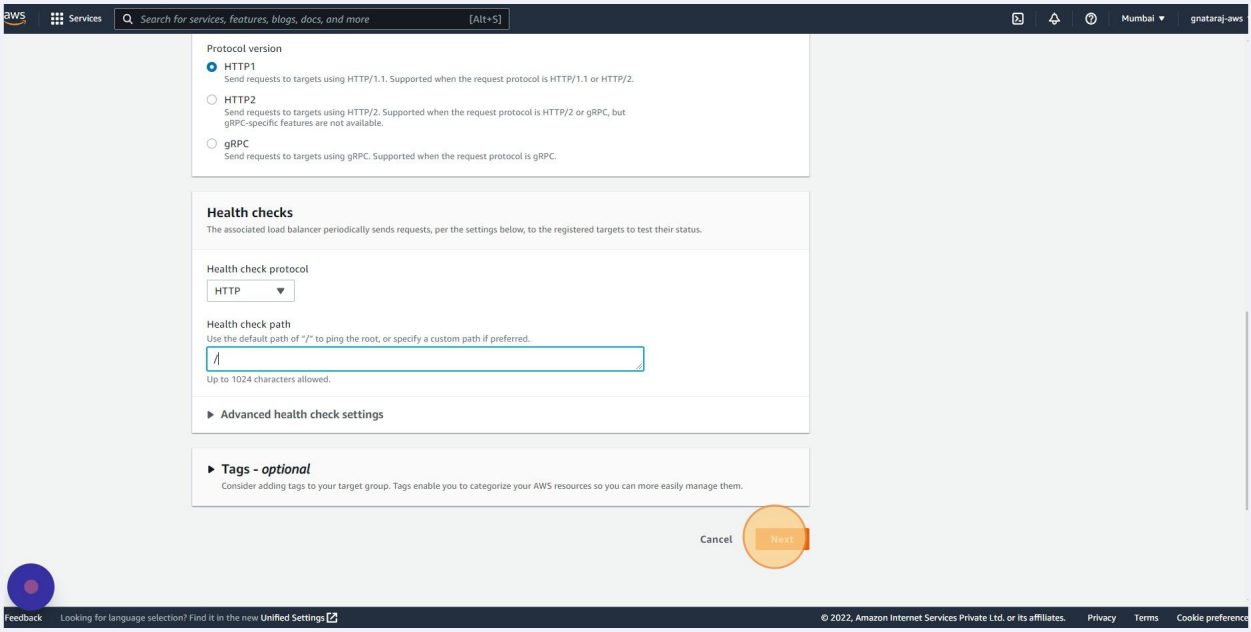
13 Select the Protocol version - HTTP1



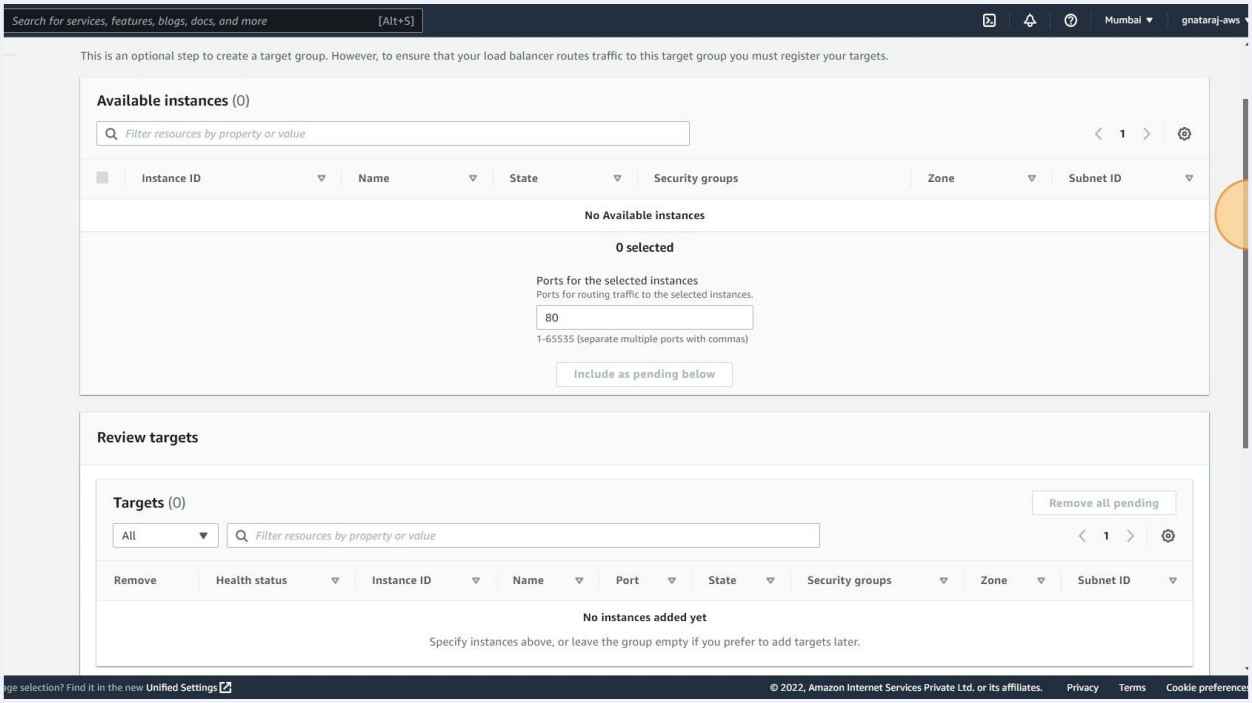
14 In the Health checks, select Protocol be HTTP and health check URL be /



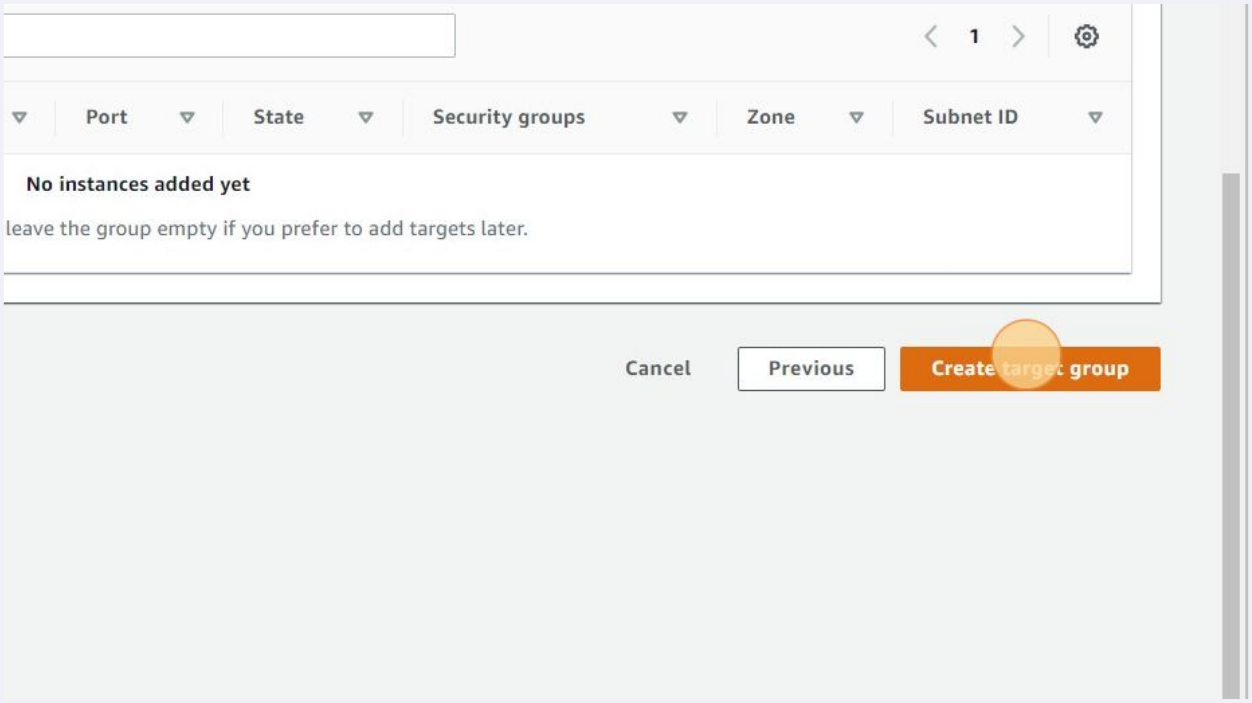
15 Click "Next"



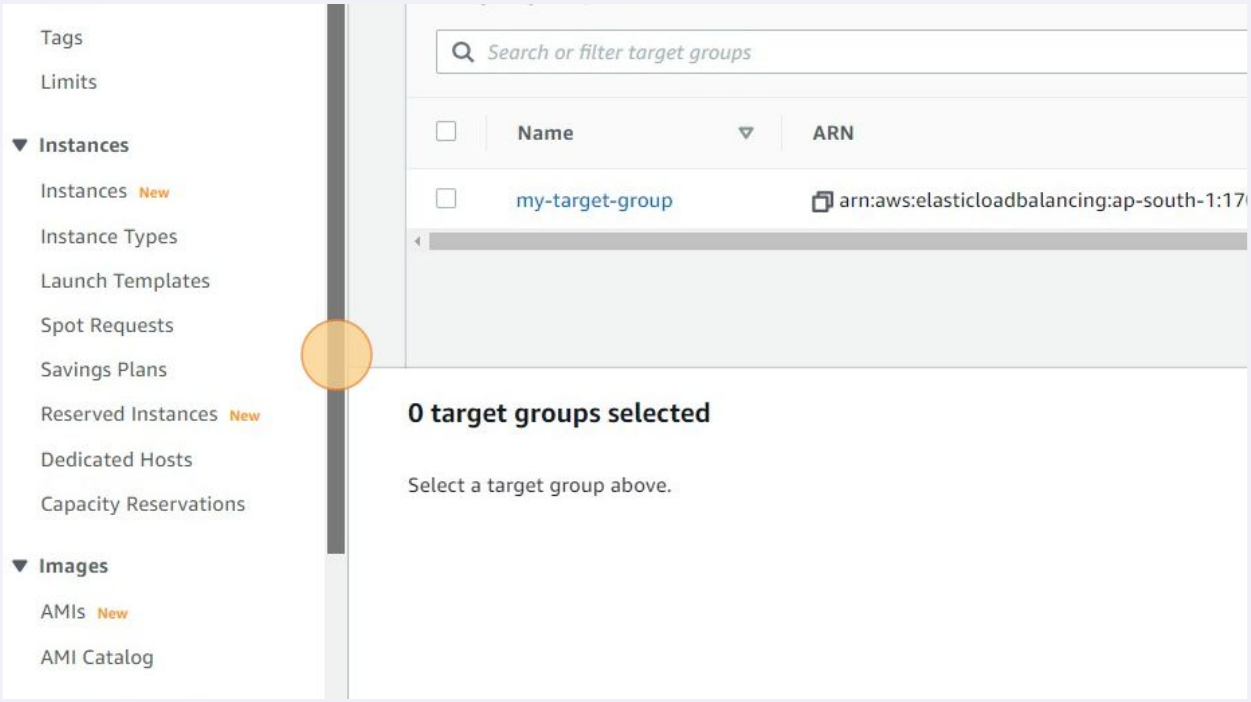
16 Notice Available instance are 0



17 Click "Create target group"

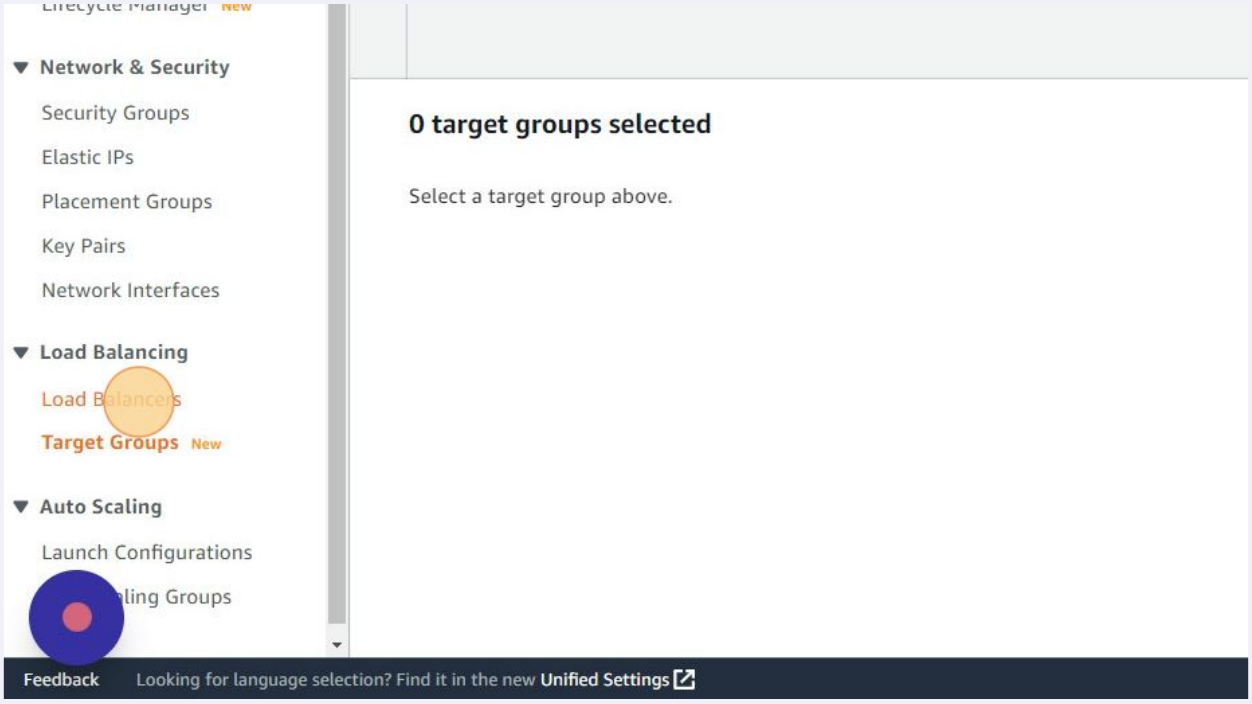


18

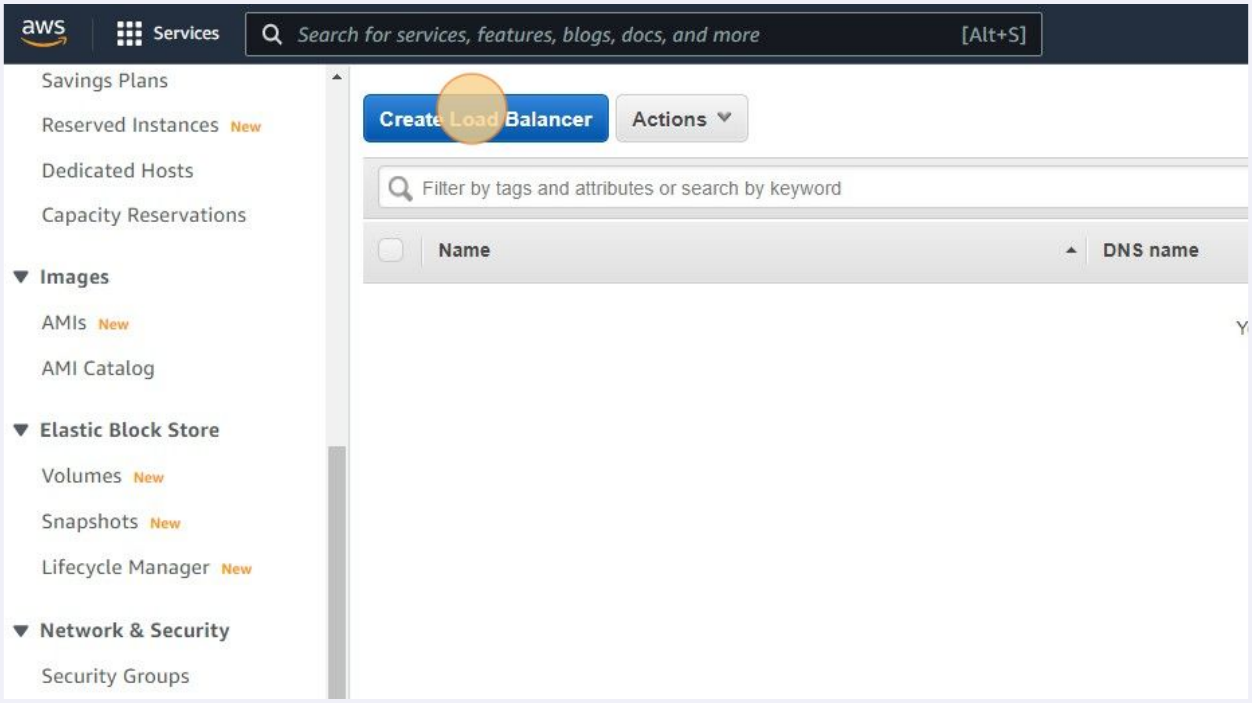


Creating Load Balancer

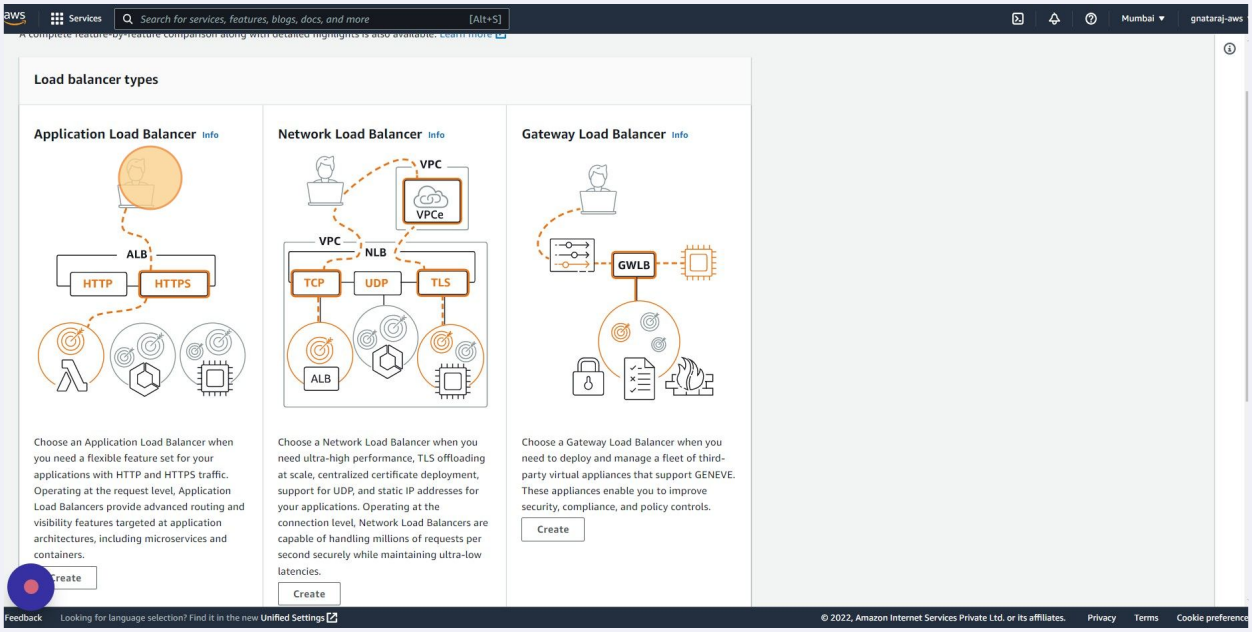
19 Click "Load Balancers"



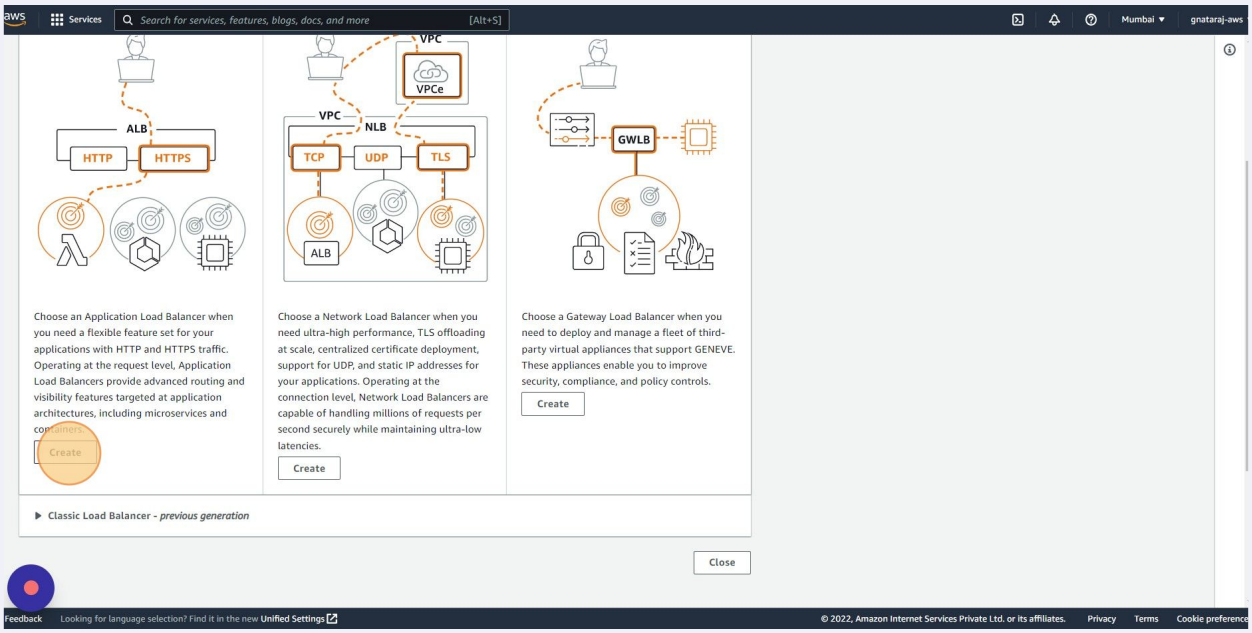
20 Click "Create Load Balancer"



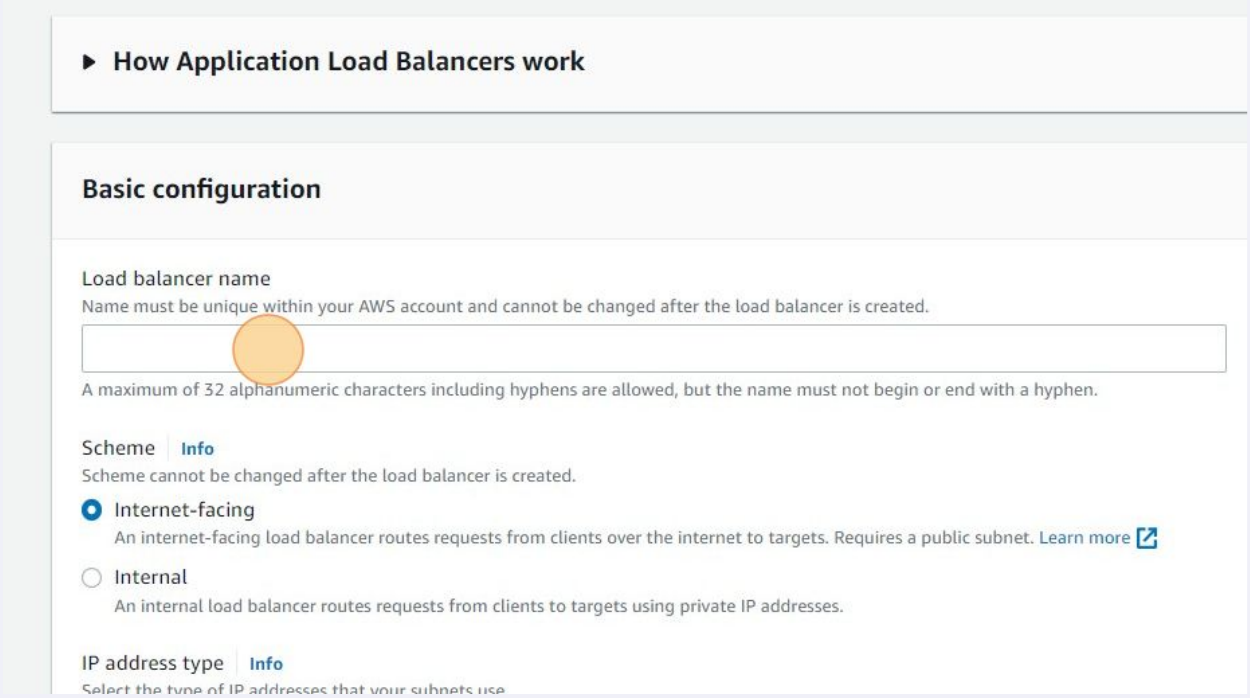
21 Select Application Load Balancer



22 Click "Create"

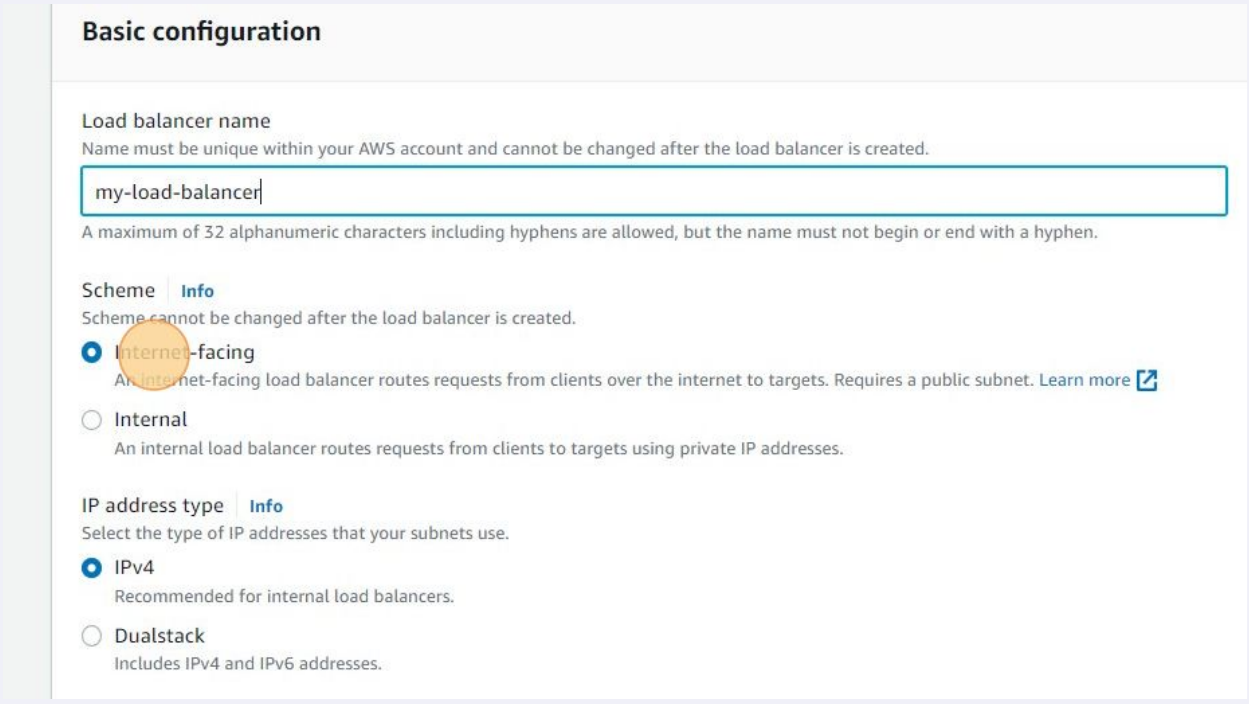


23 Click the "Load balancer name" field.

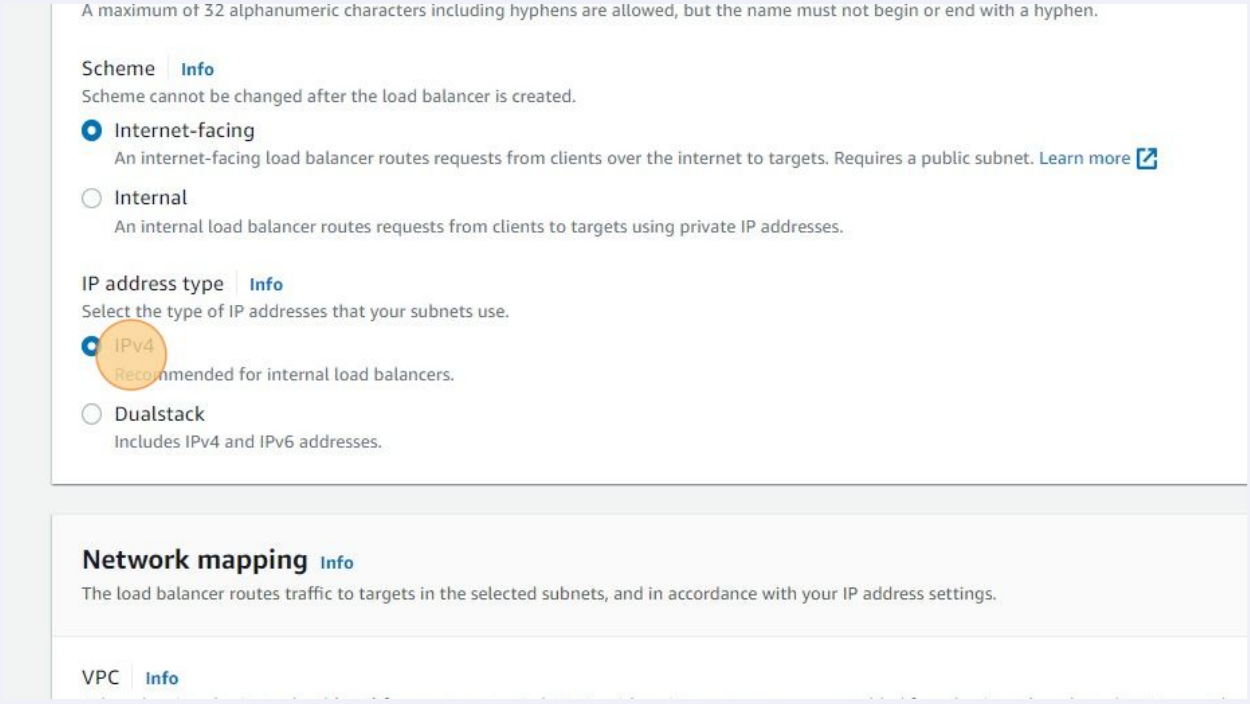


24 Type "my-load-balancer"

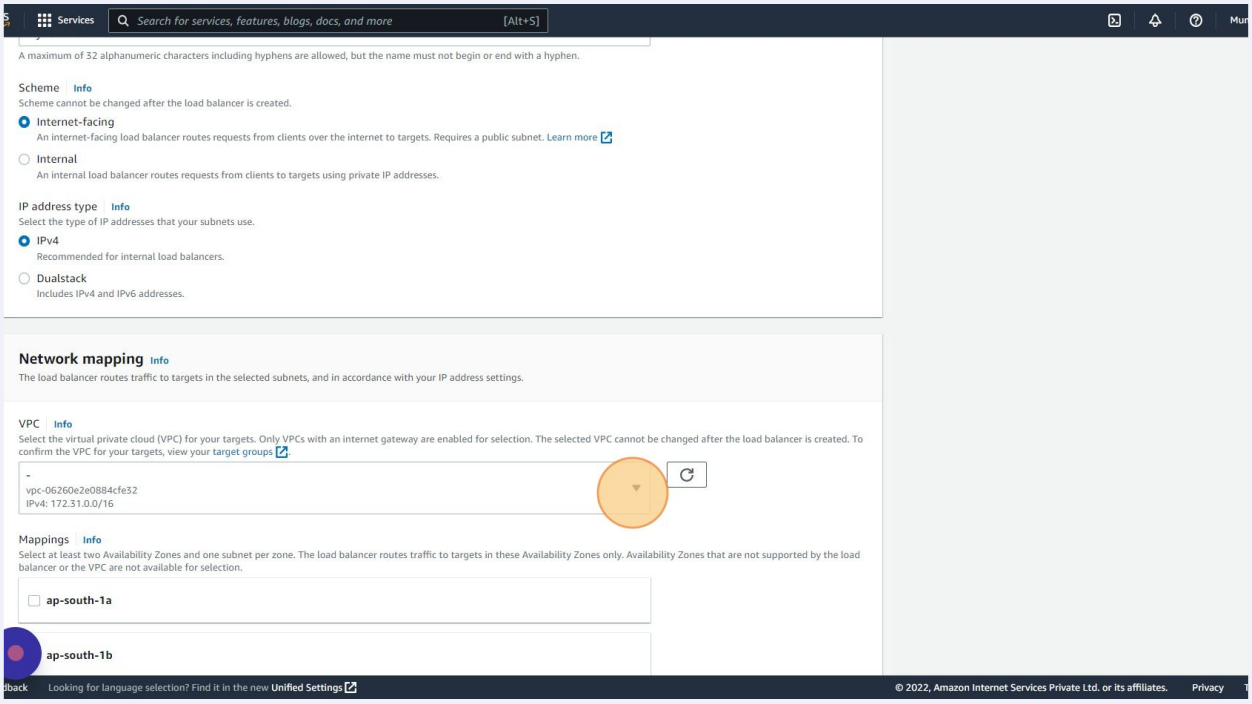
25 Click "Internet-facing"



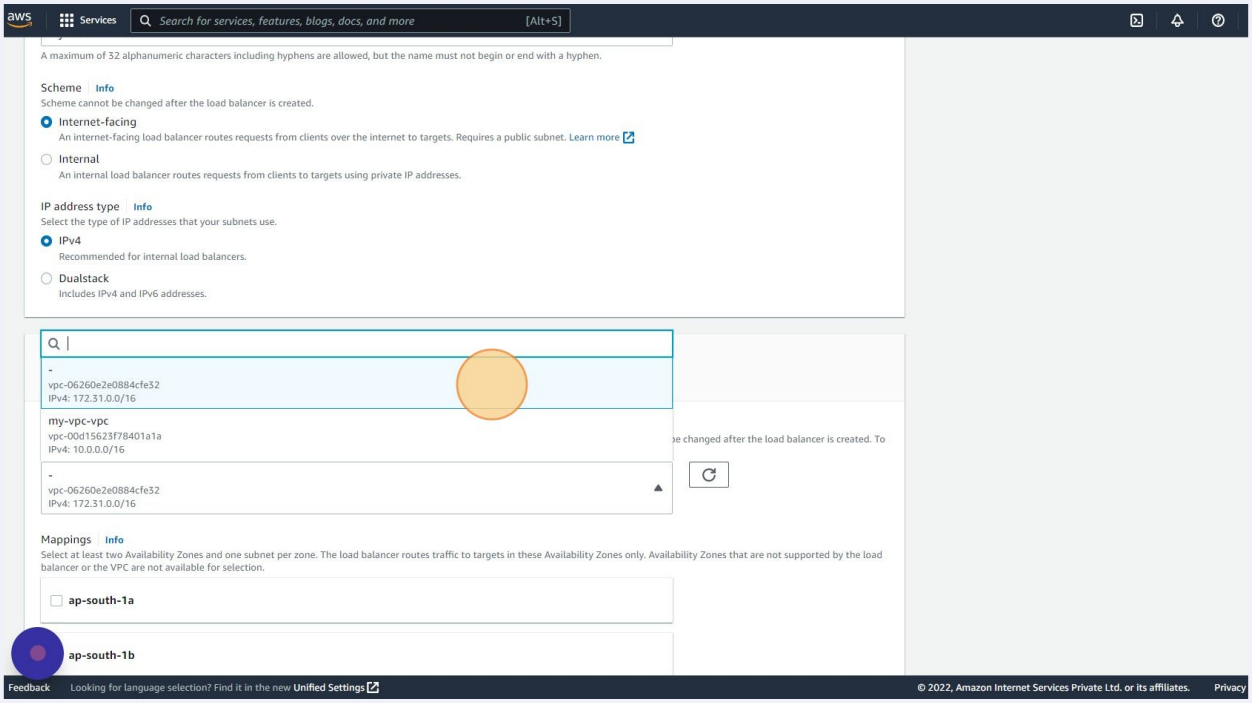
26 Click "IPv4"



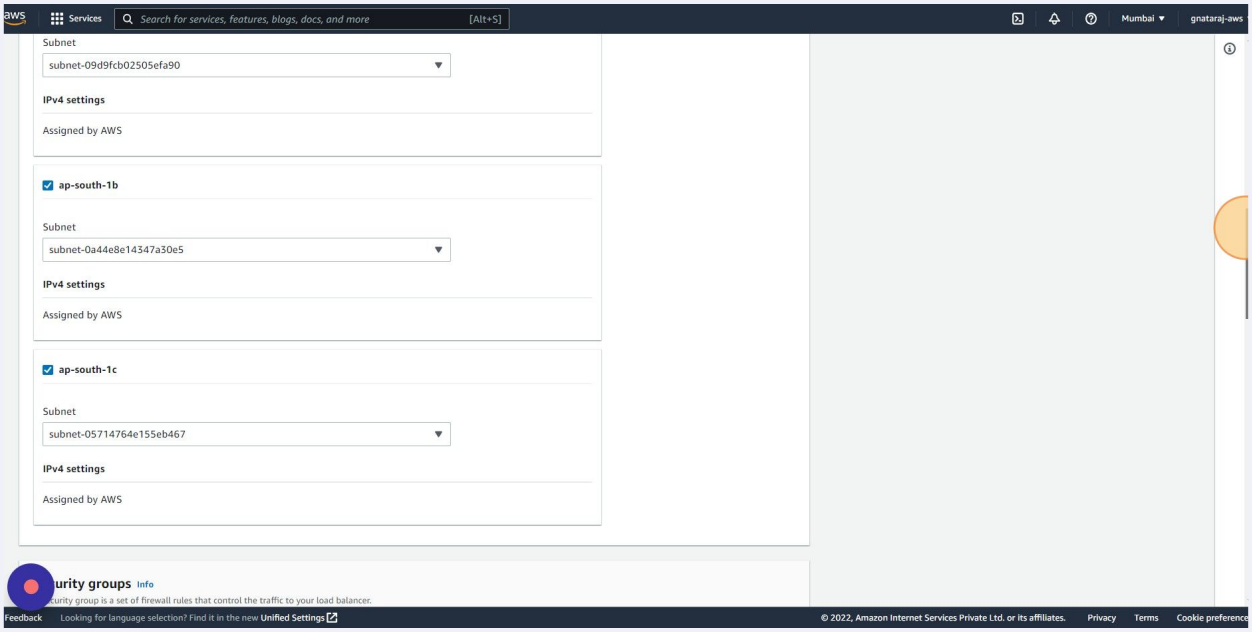
27 In the VPC drop down,



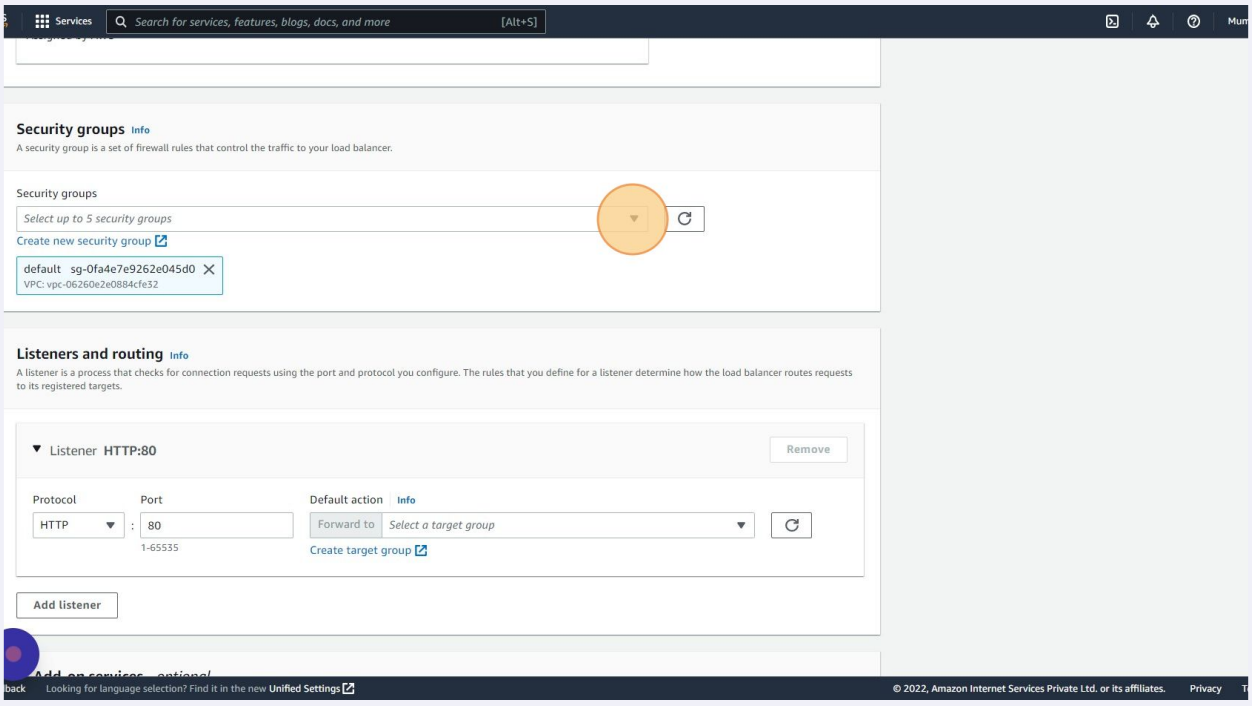
28 Select the Default VPC



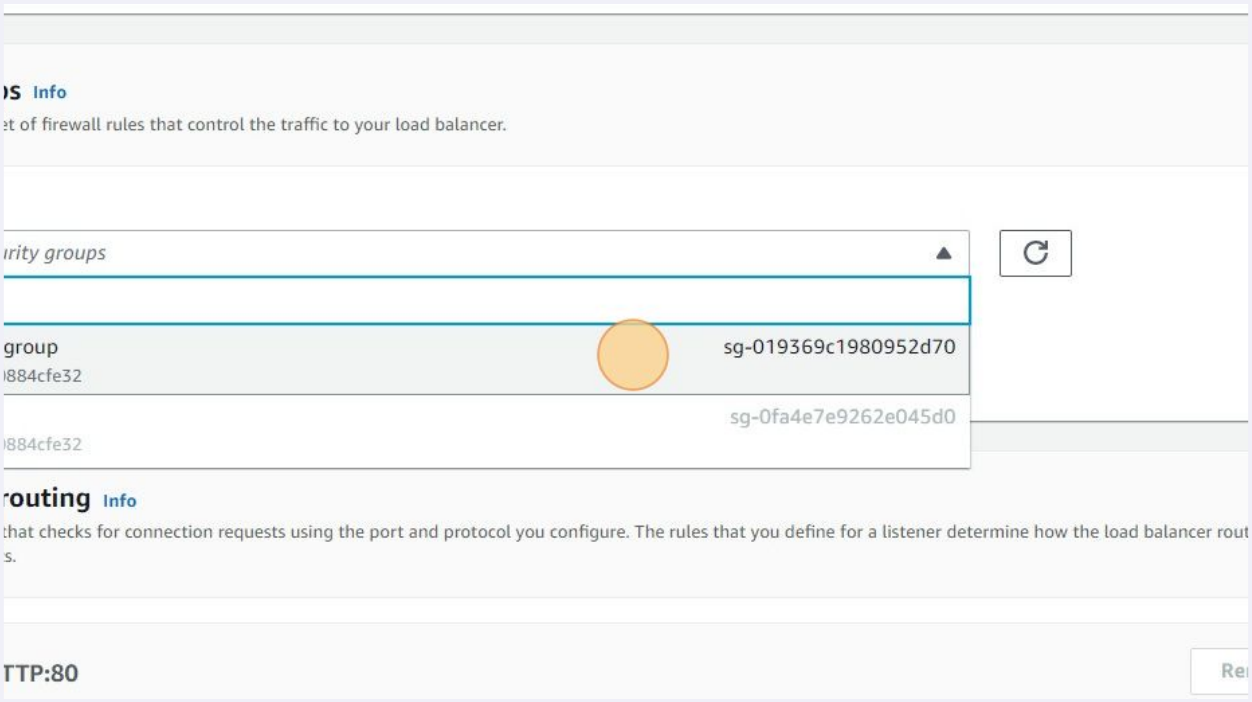
29 Select all the Availability zones and subnets



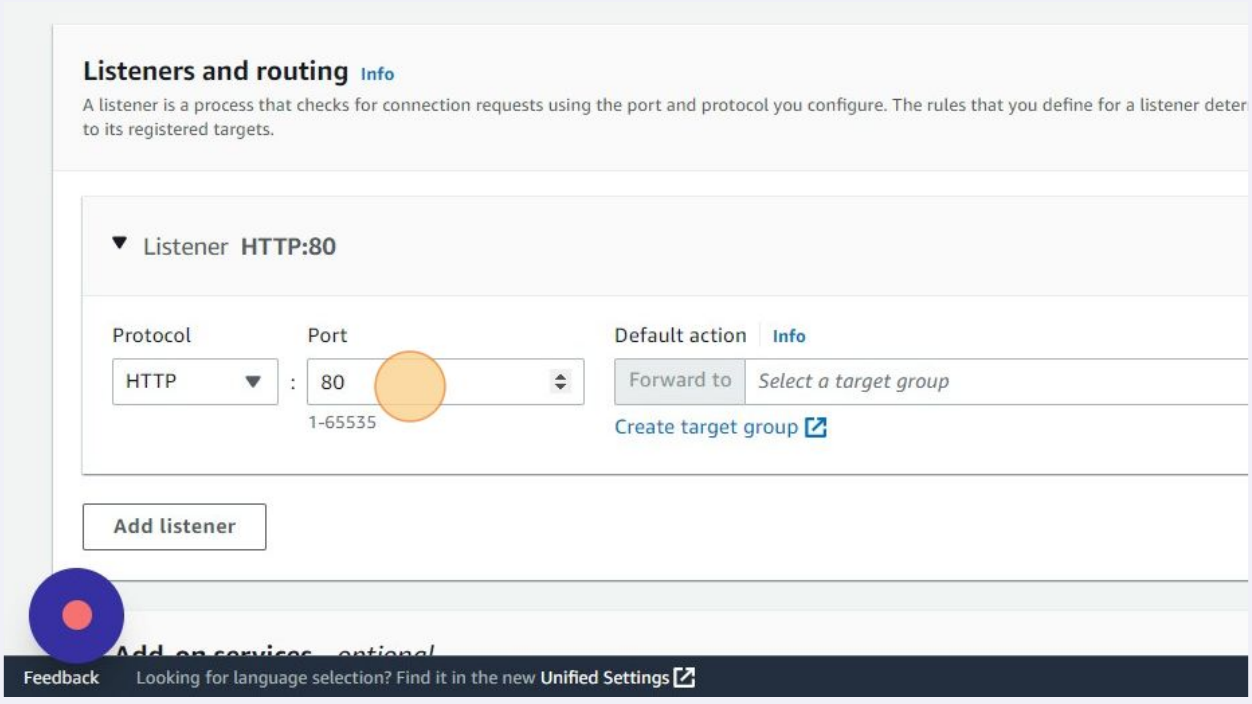
30 In the security group dropdown



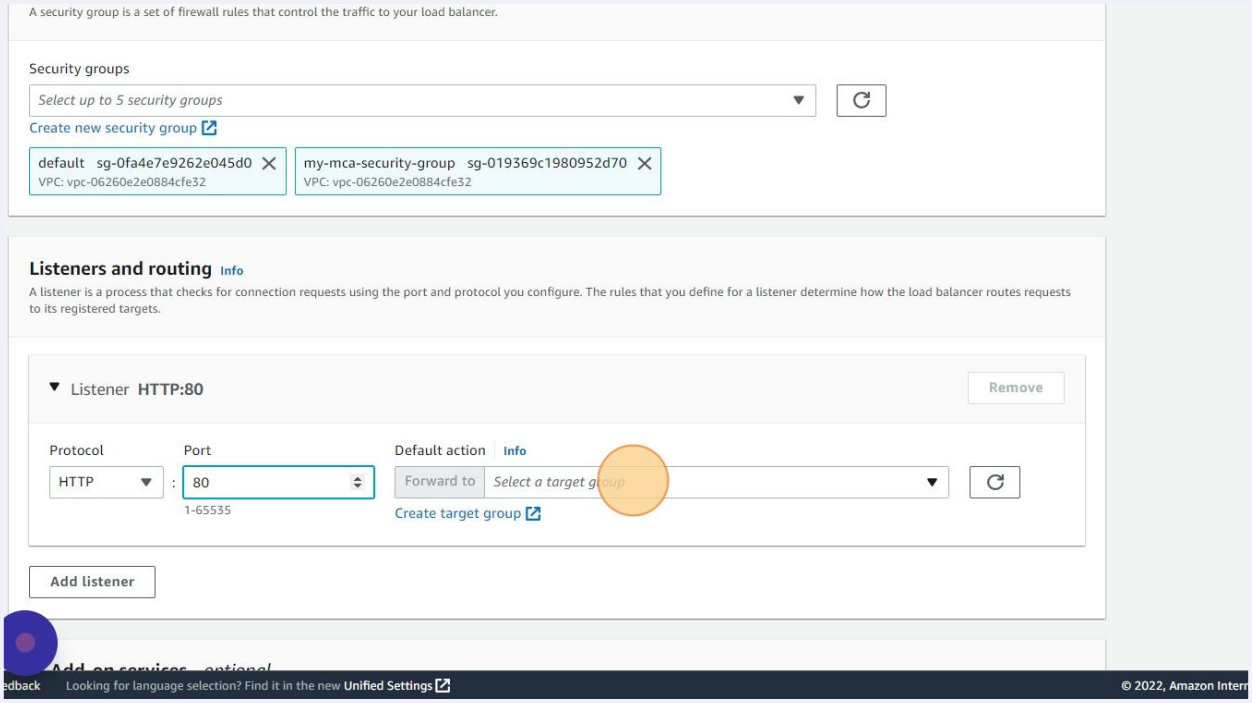
31 Select the previously created security group



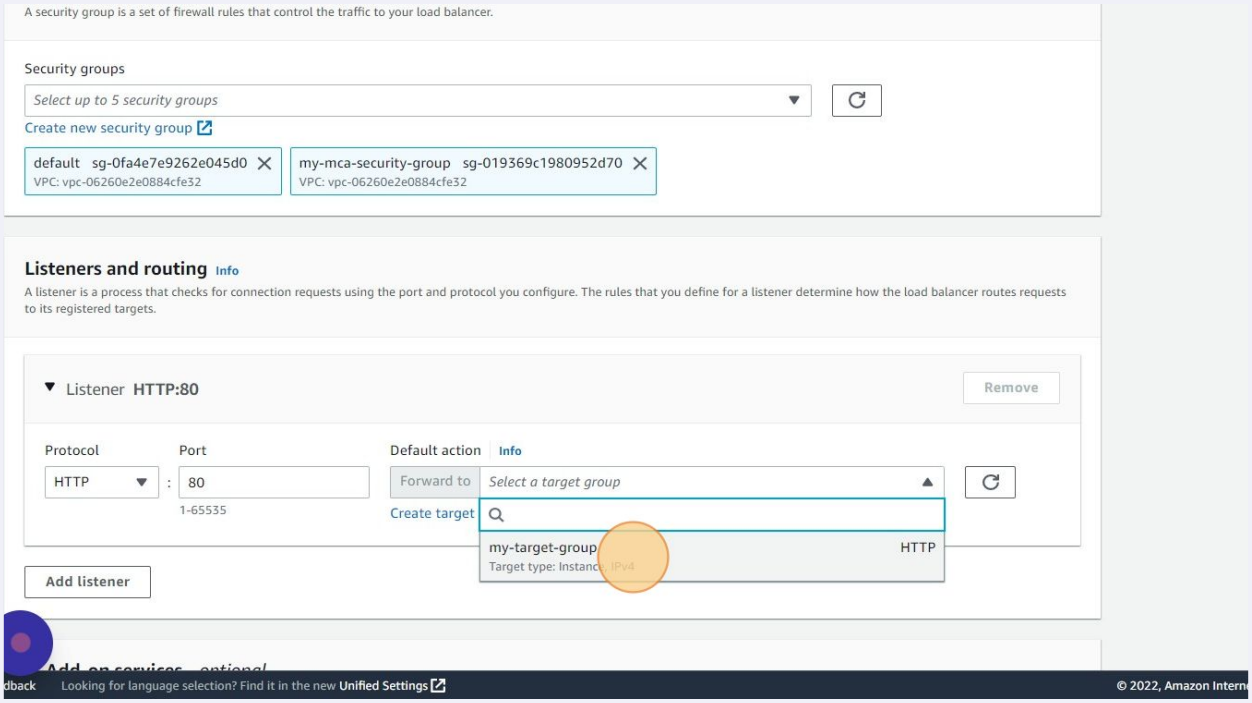
32 Click the "Port" field.



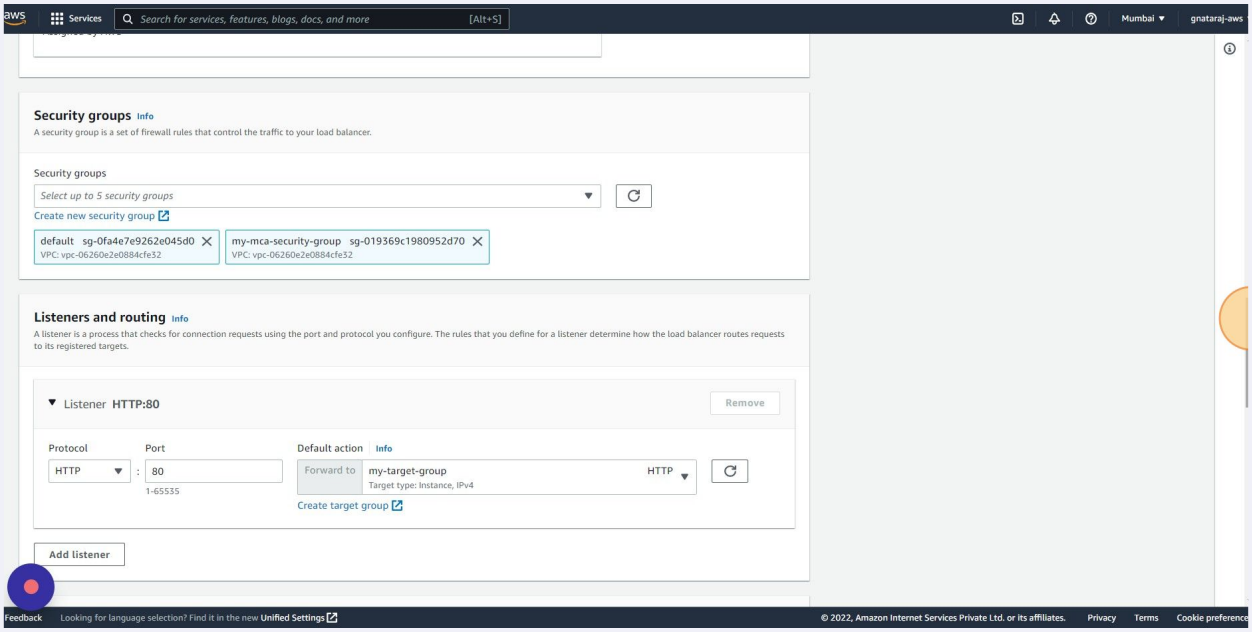
33 Click "Select a target group"



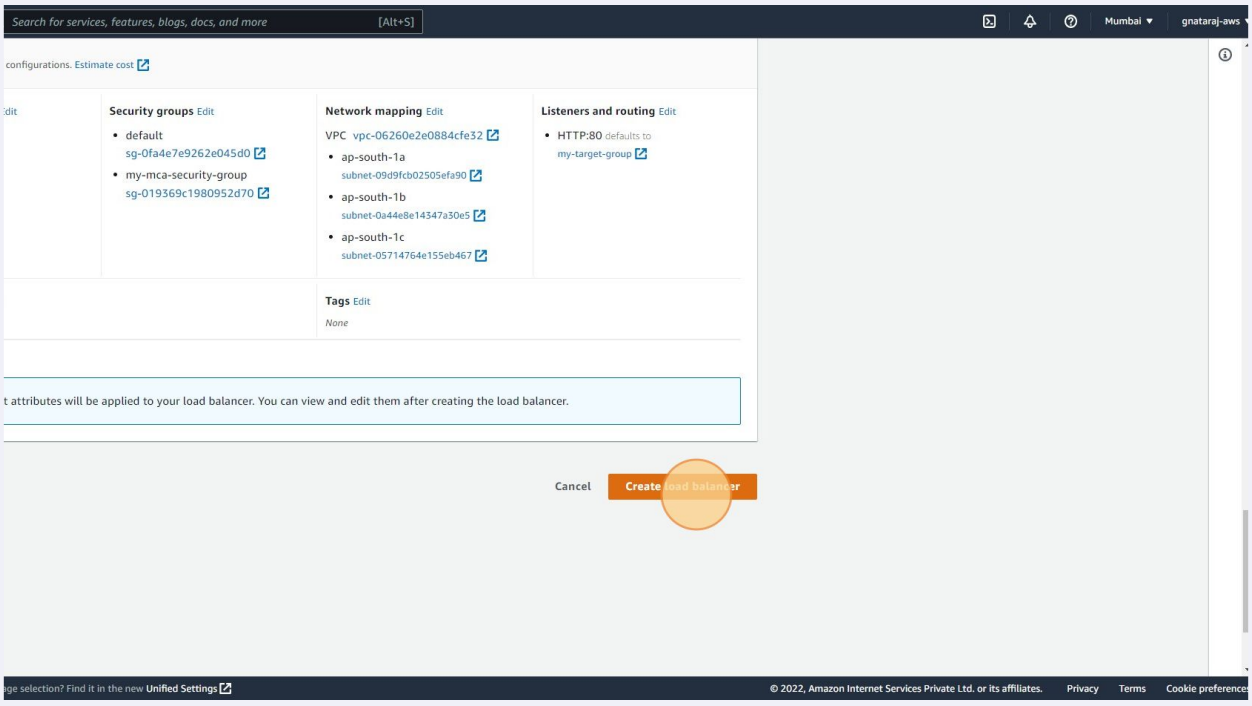
34 In the listeners and routing, select the target group created earlier



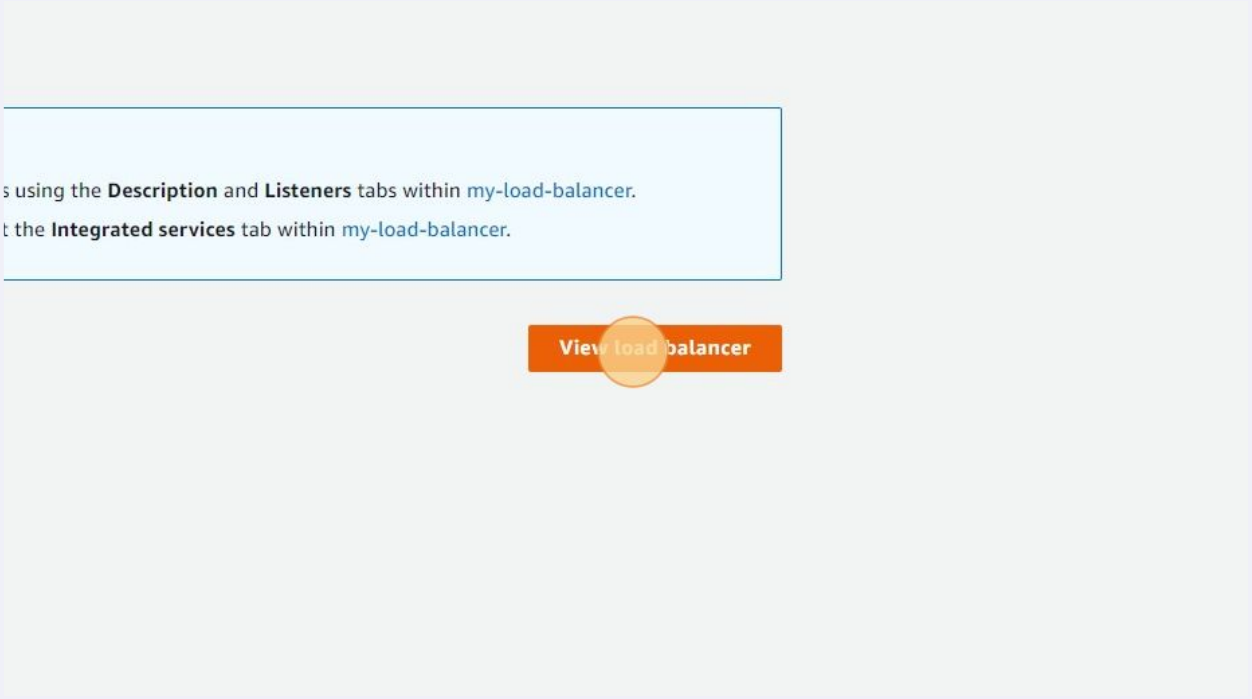
35



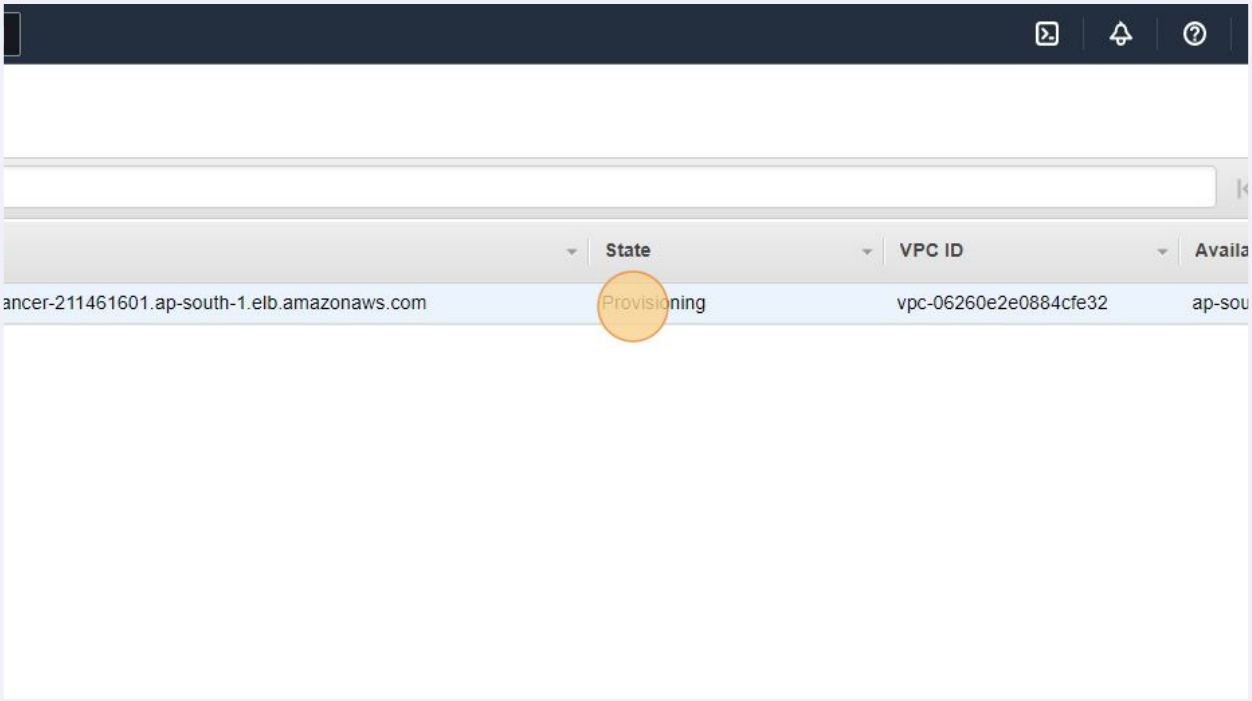
36 Click "Create load balancer"



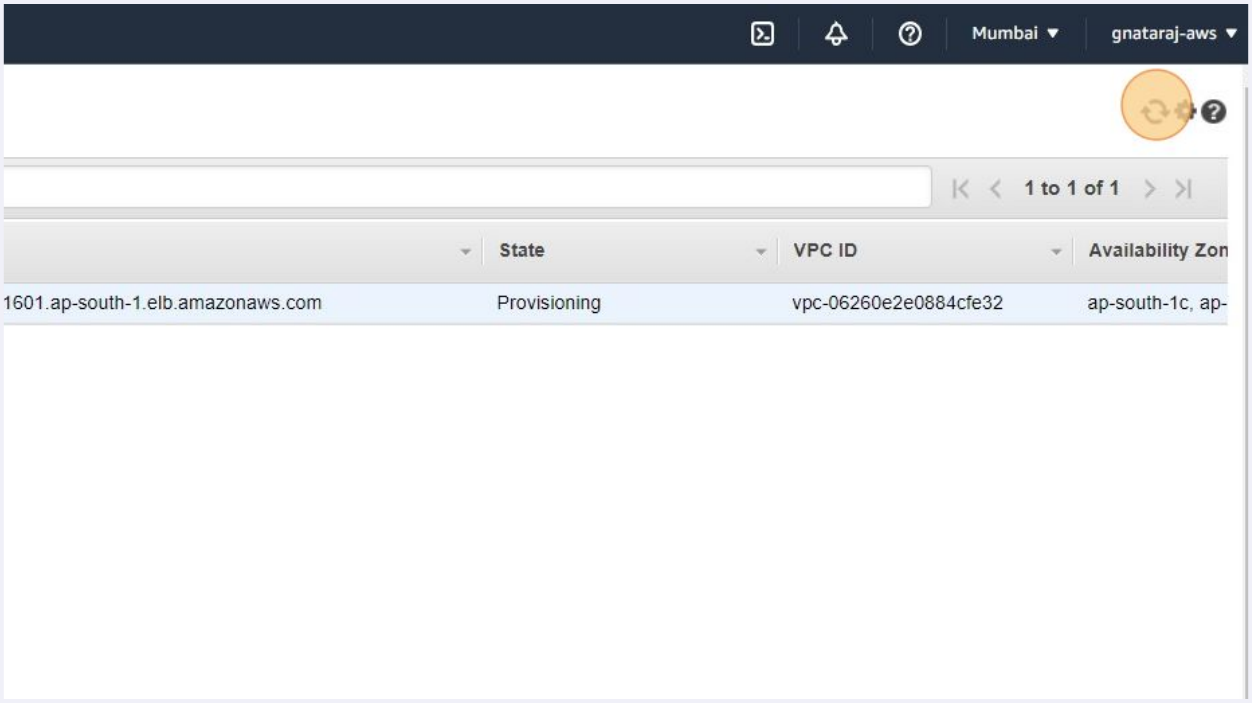
37 Click "View load balancer"



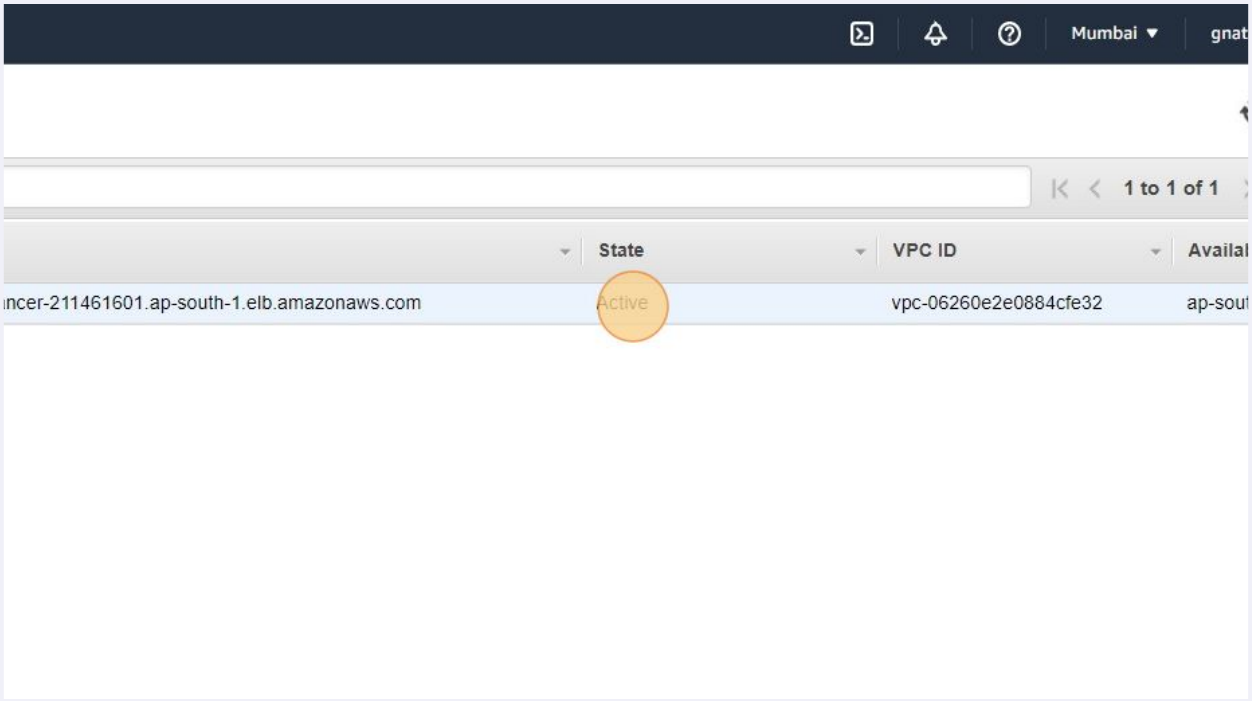
38 Watch the state - Provisioning



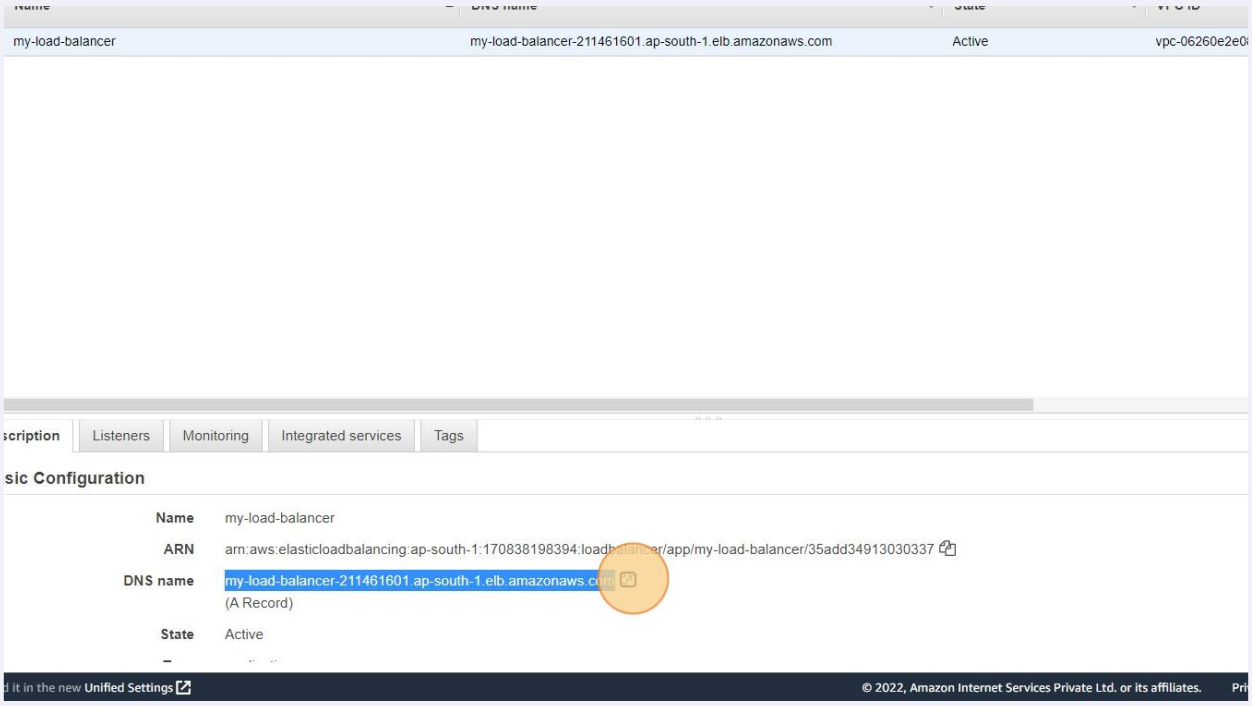
39 Refresh



40 Wait till it becomes "Active"



41 Copy the DNS name of the Load balancer



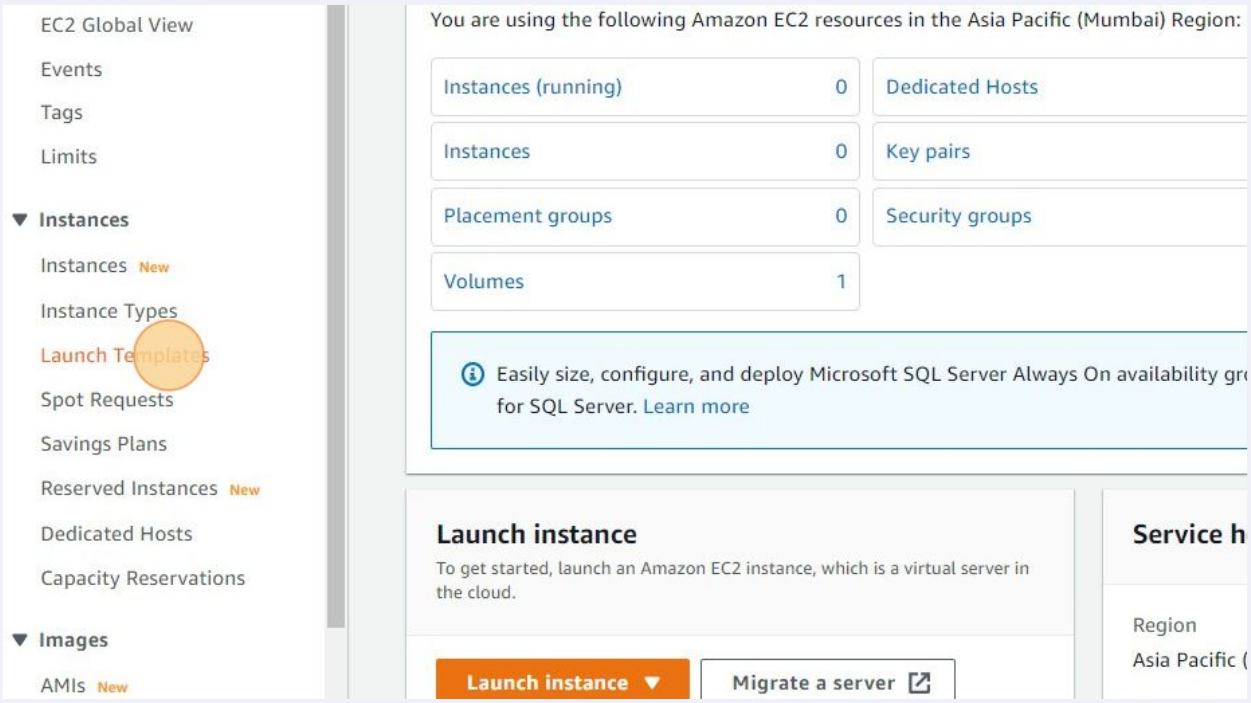
42 Open a new browser tab and paste the URL
Notice the following message:
"503 Service Temporarily Unavailable"

3: Creating Launch Template and Autoscaling Group and Testing the Autoscaling

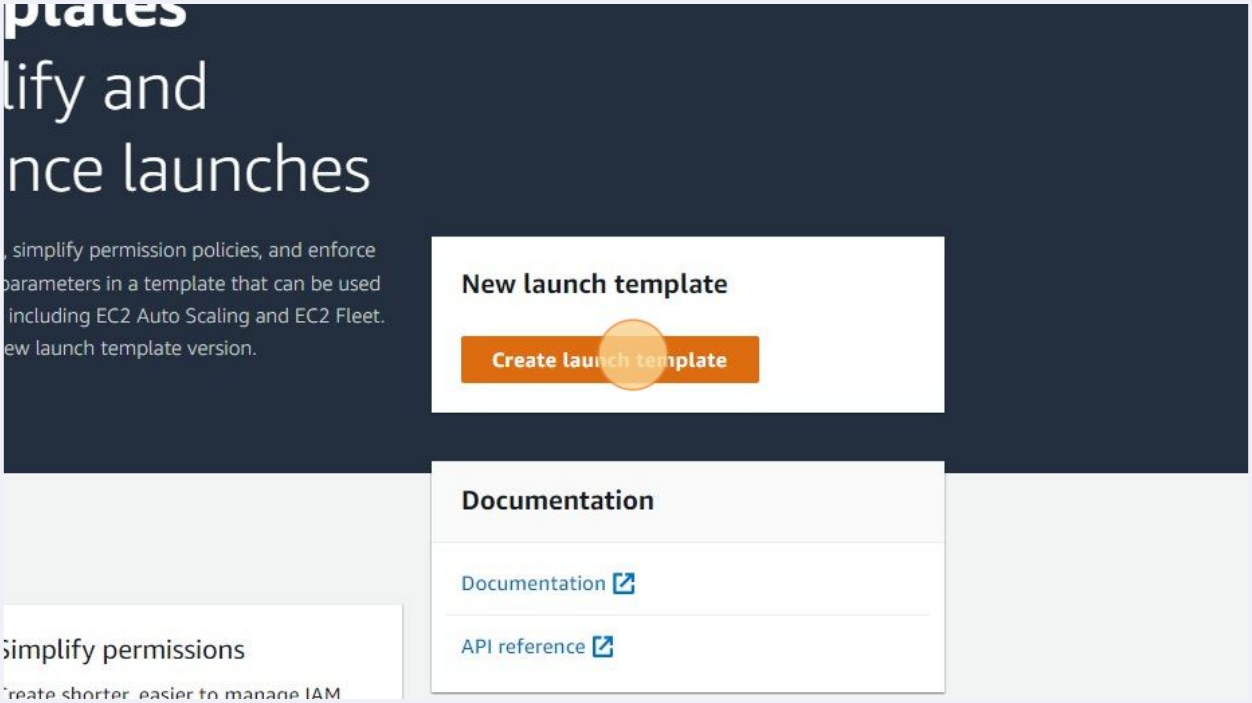
1 Navigate to https://ap-south-1.console.aws.amazon.com/ec2/home?region=ap-south-1#Home:

Creating Lauch Configuration

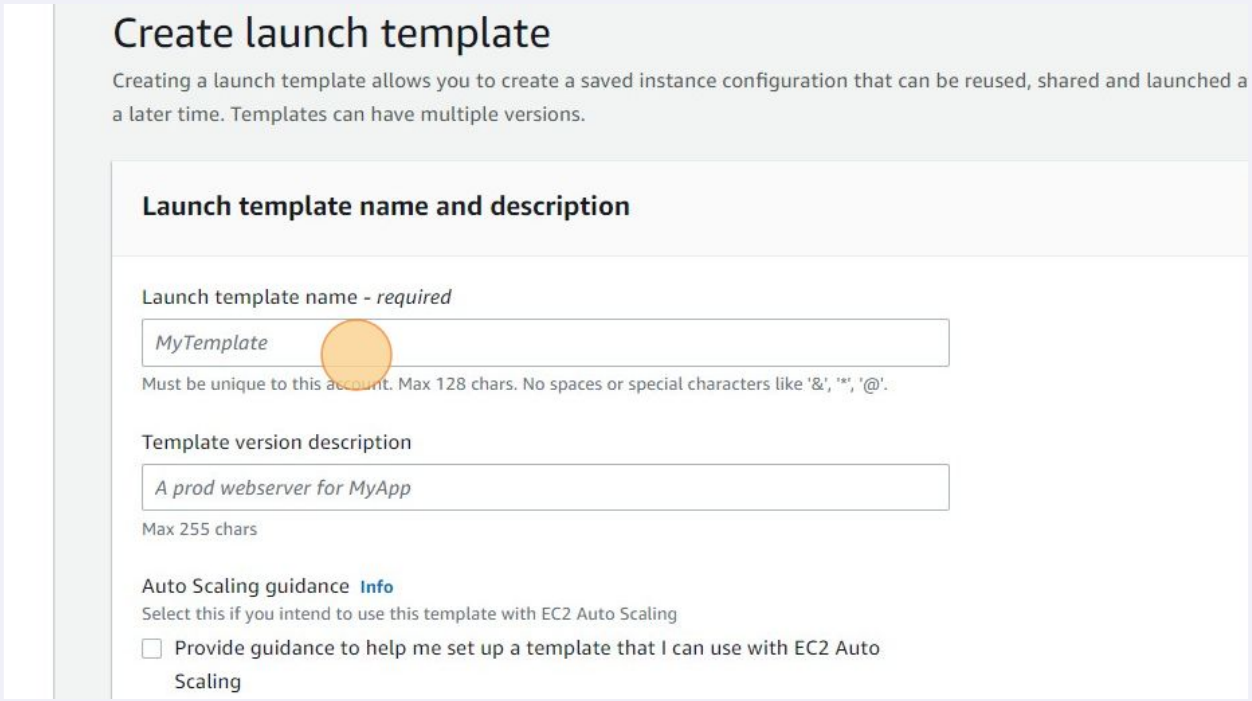
2 Click "Launch Templates"



3 Click "Create launch template"



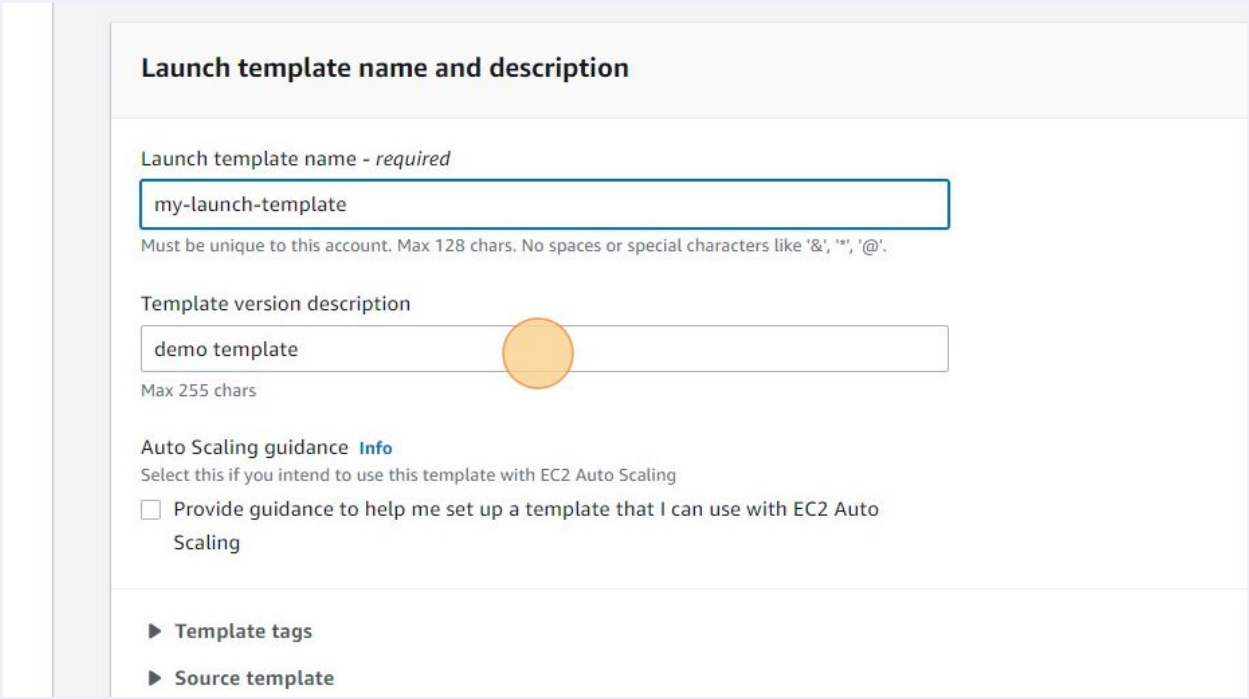
4 Click the "Launch template name - required" field.



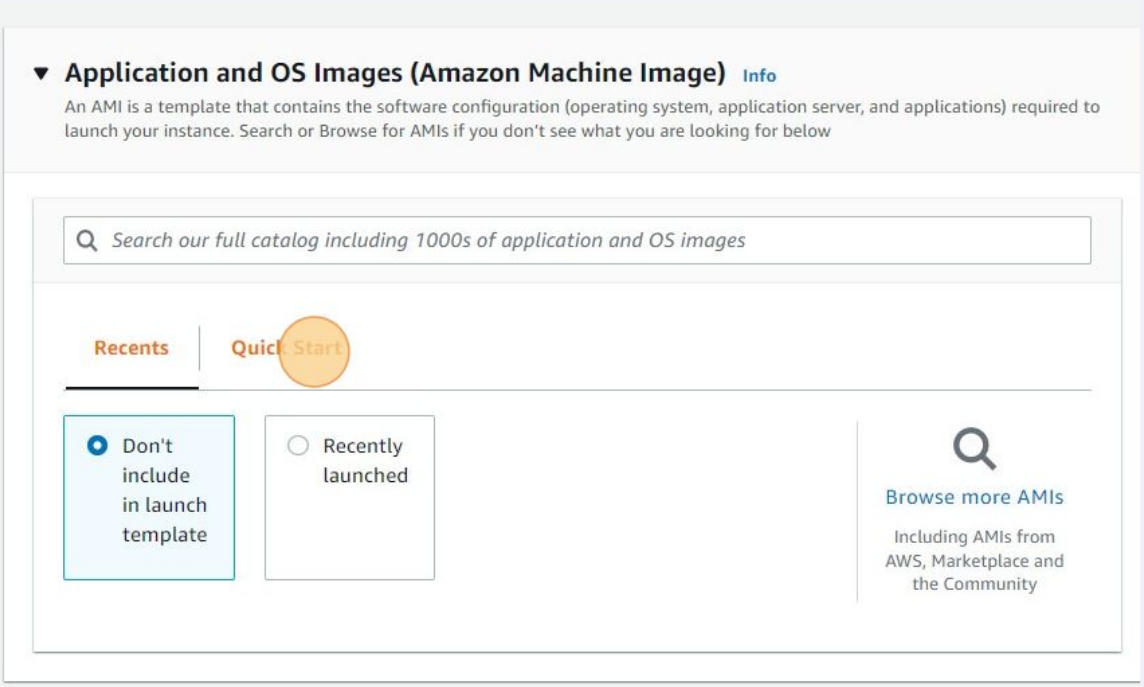
5 Type "my-launch-template" (or choose any name for the template

6 Type some description for the template like "demo template"

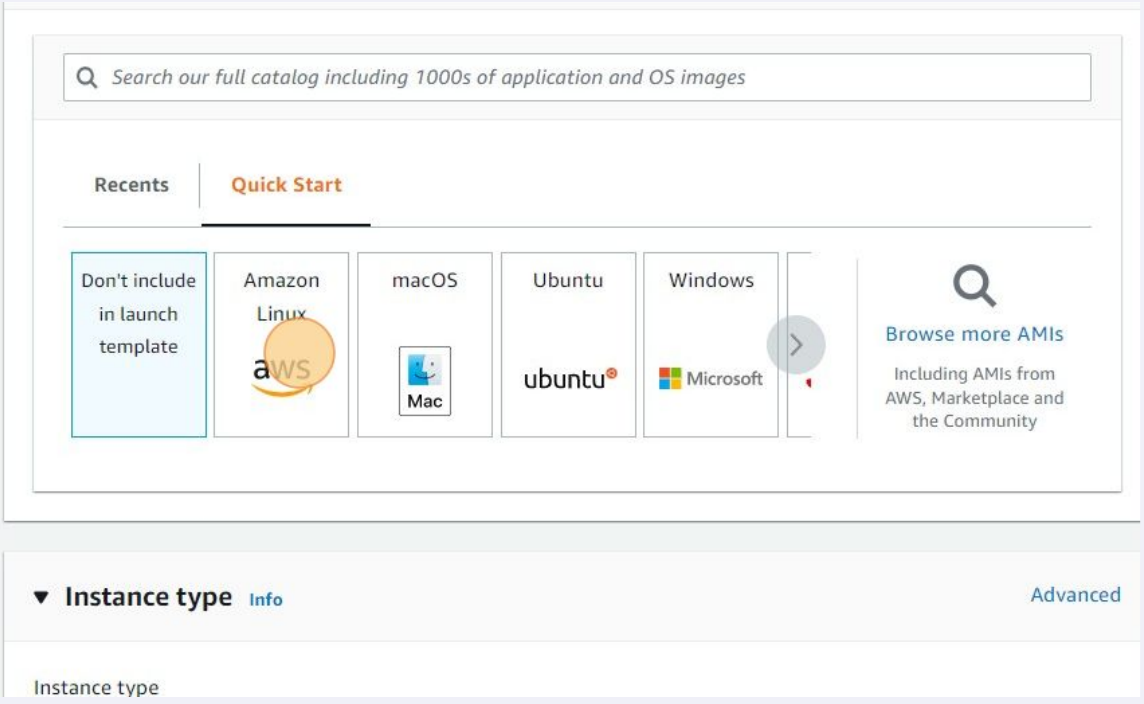
7 Click the "Template version description" field.



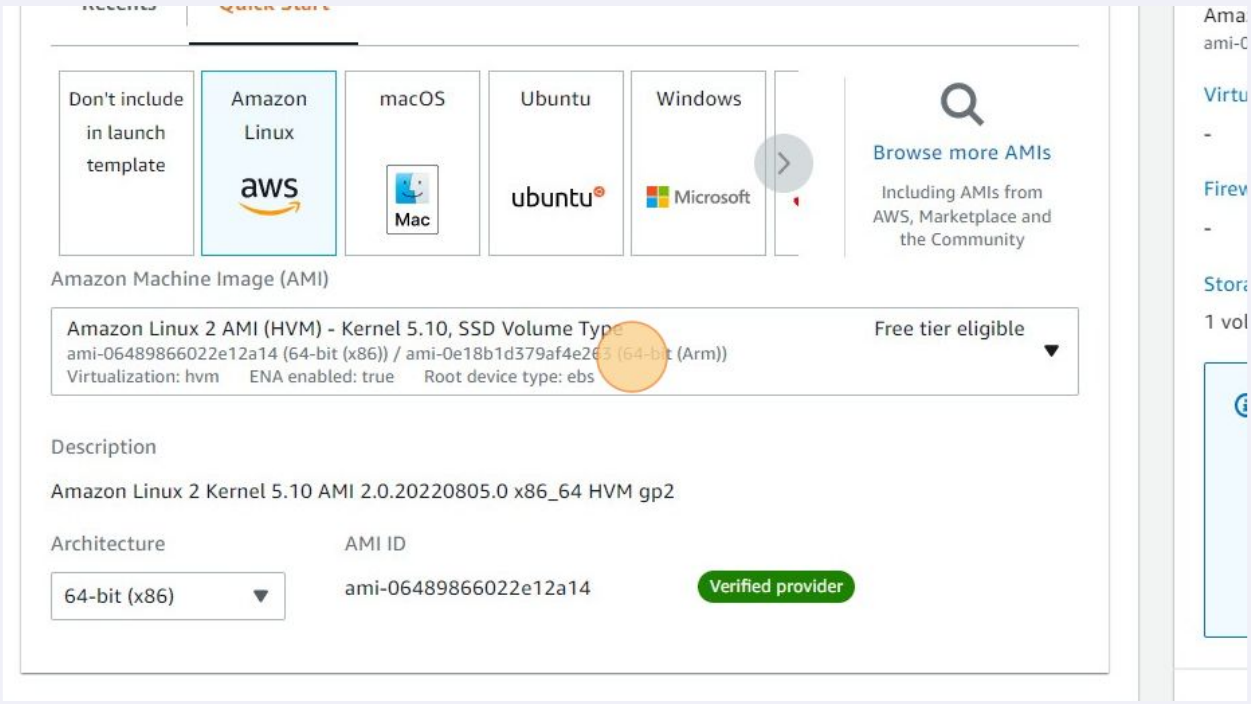
8 In the Application and OS images, go to "Quick Start"



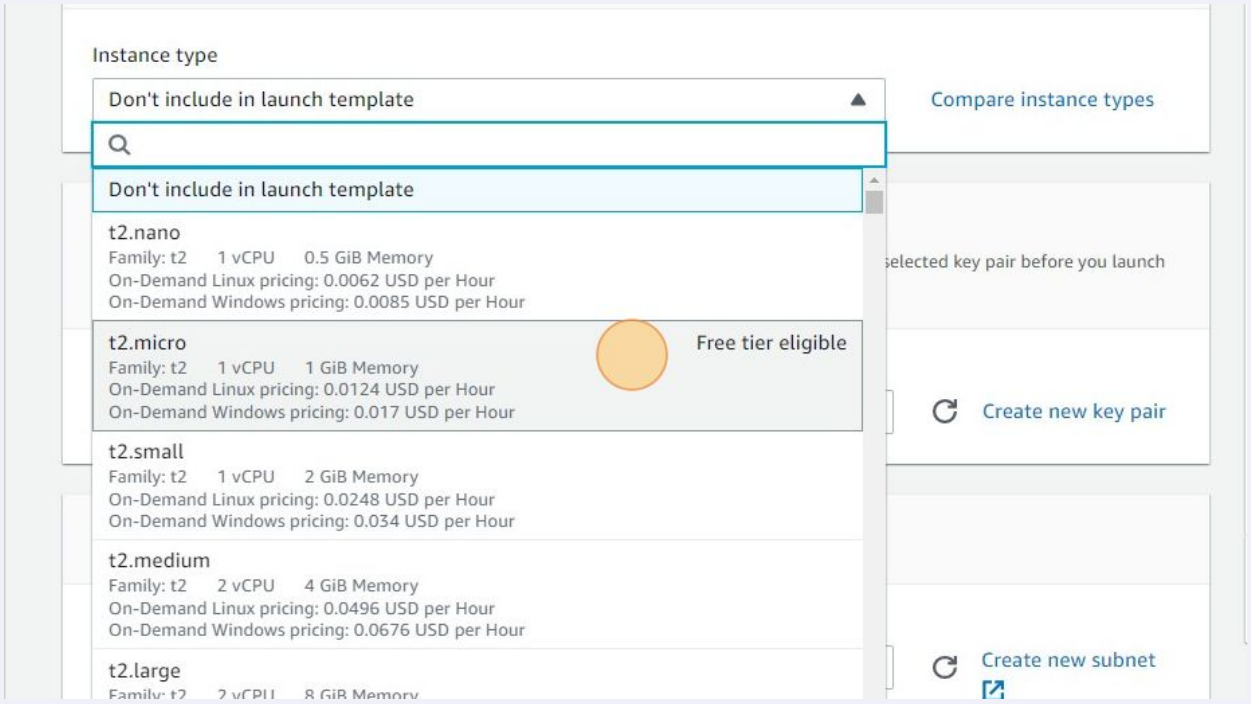
9 Select Amazon Linux



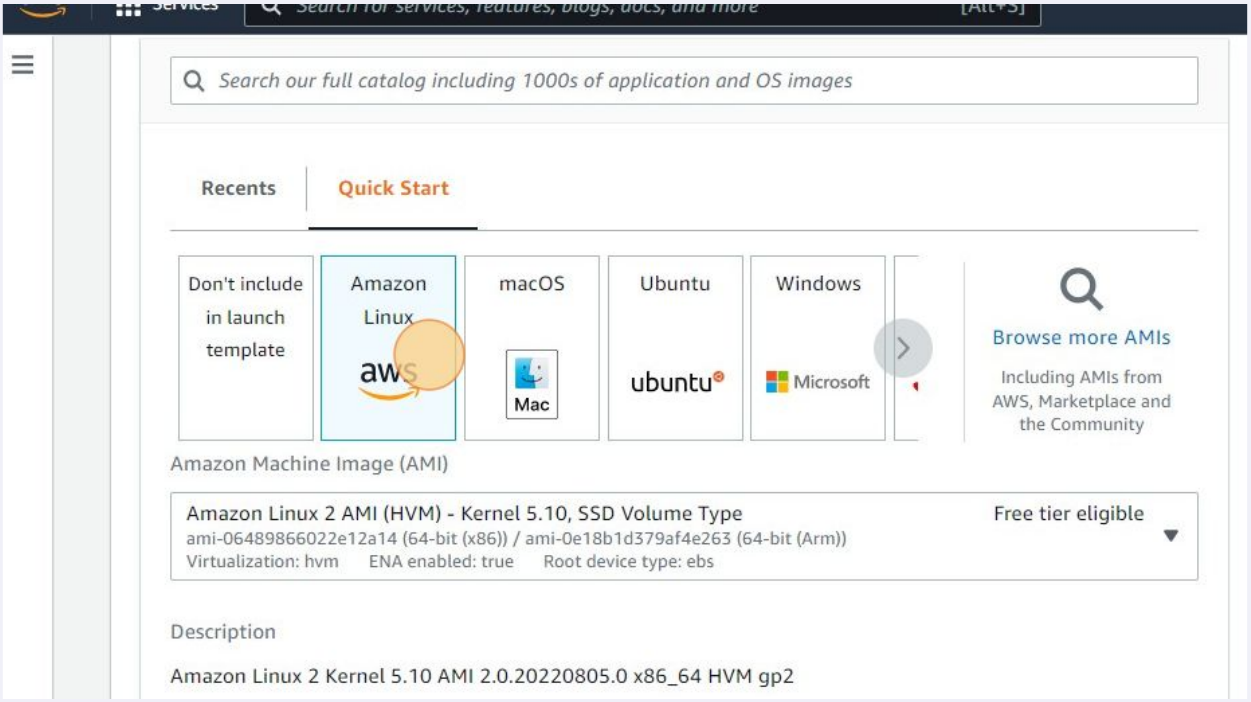
10 Click "ami-06489866022e12a14 (64-bit (x86)) / ami-0e18b1d379af4e263 (64-bit (Arm))"



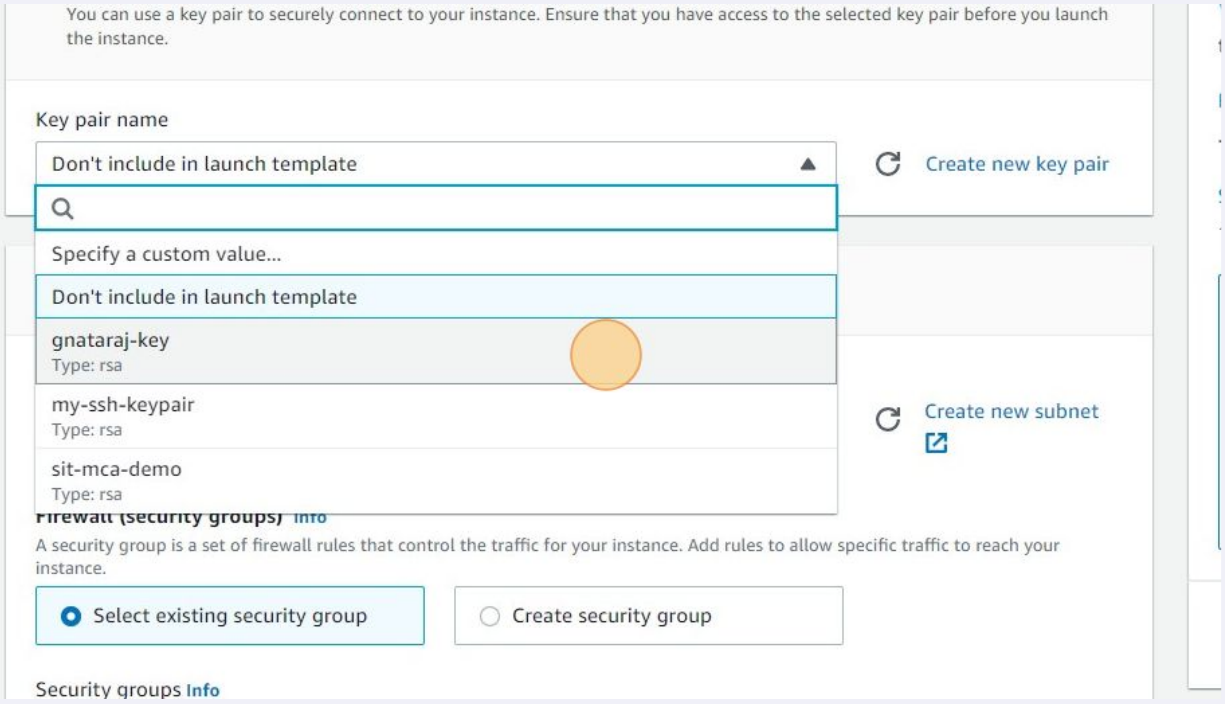
11 In the instance type, select the t2.micro, "Free tier eligible"



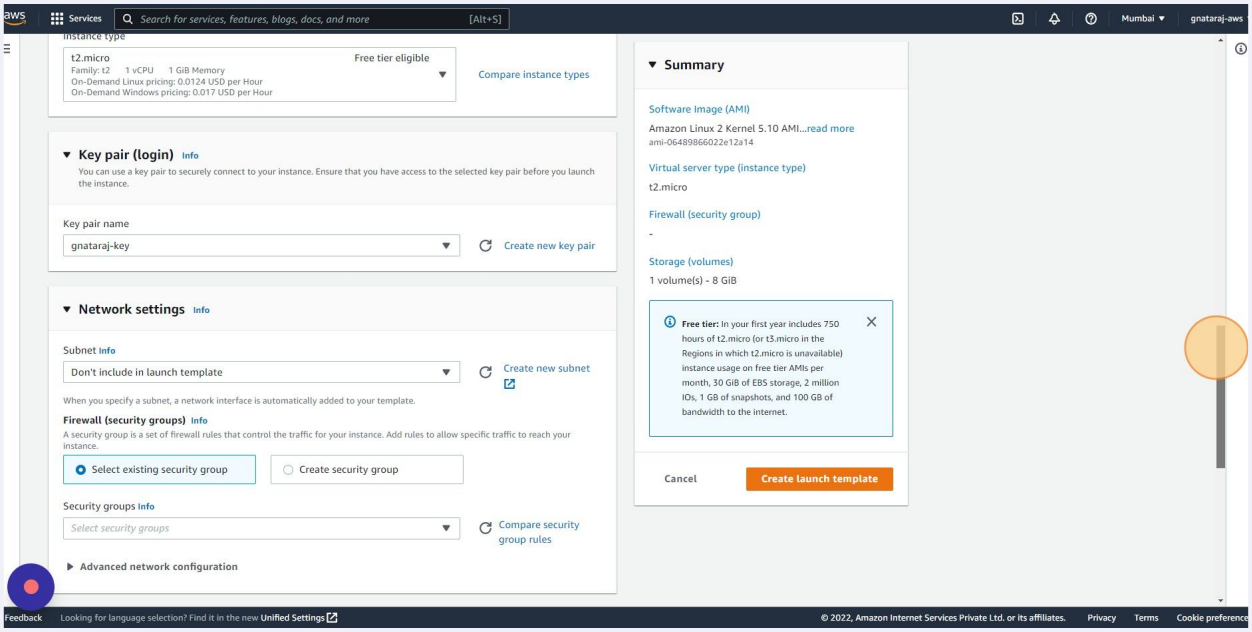
12 Click here.



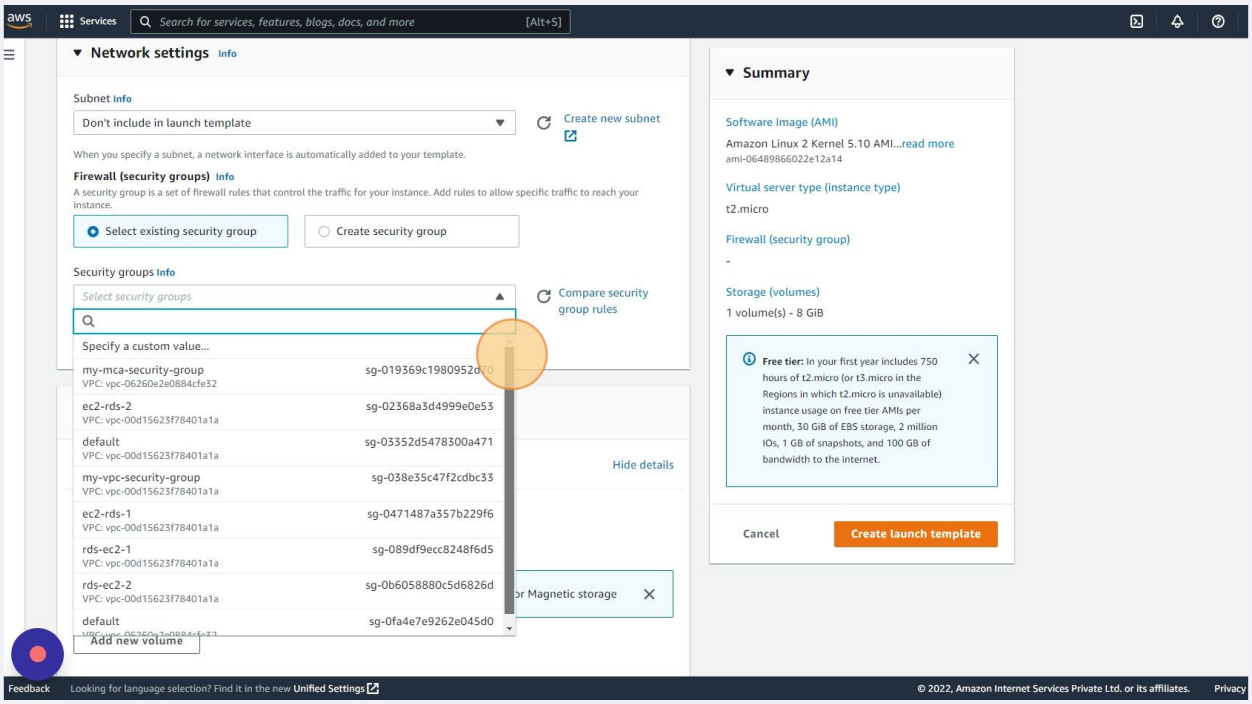
13 In the key pair, select the keypair you created before



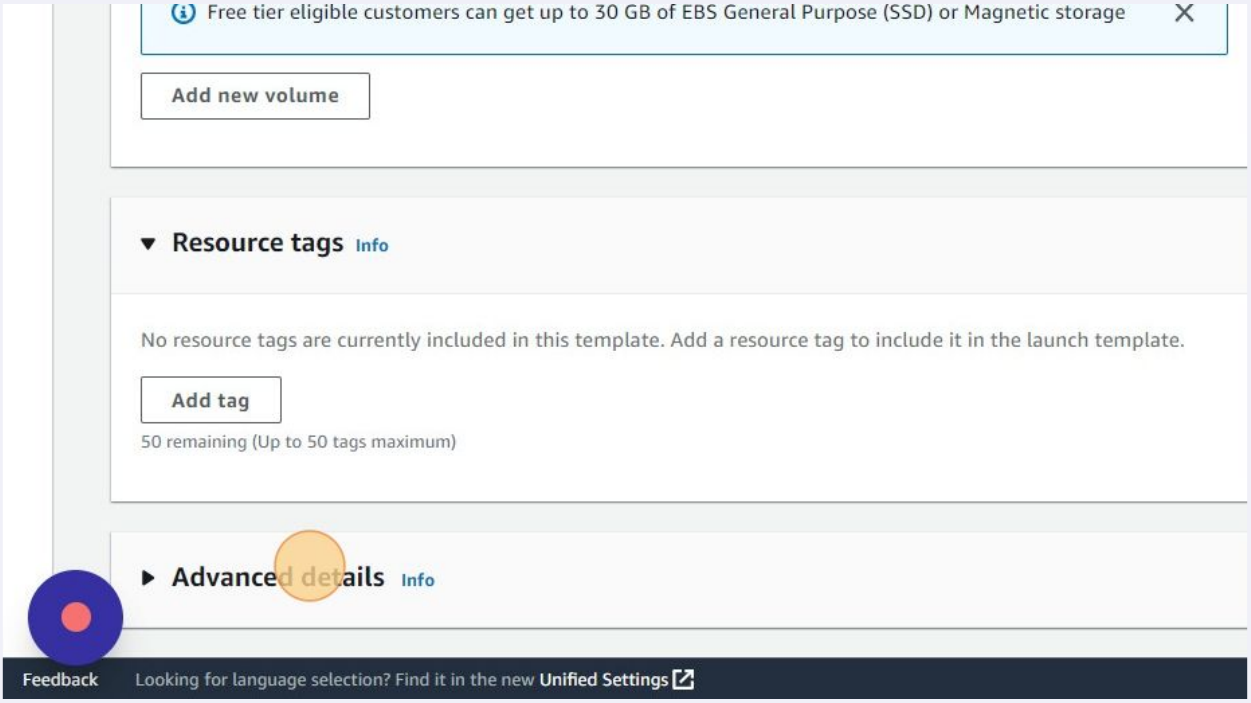
14 Click here.



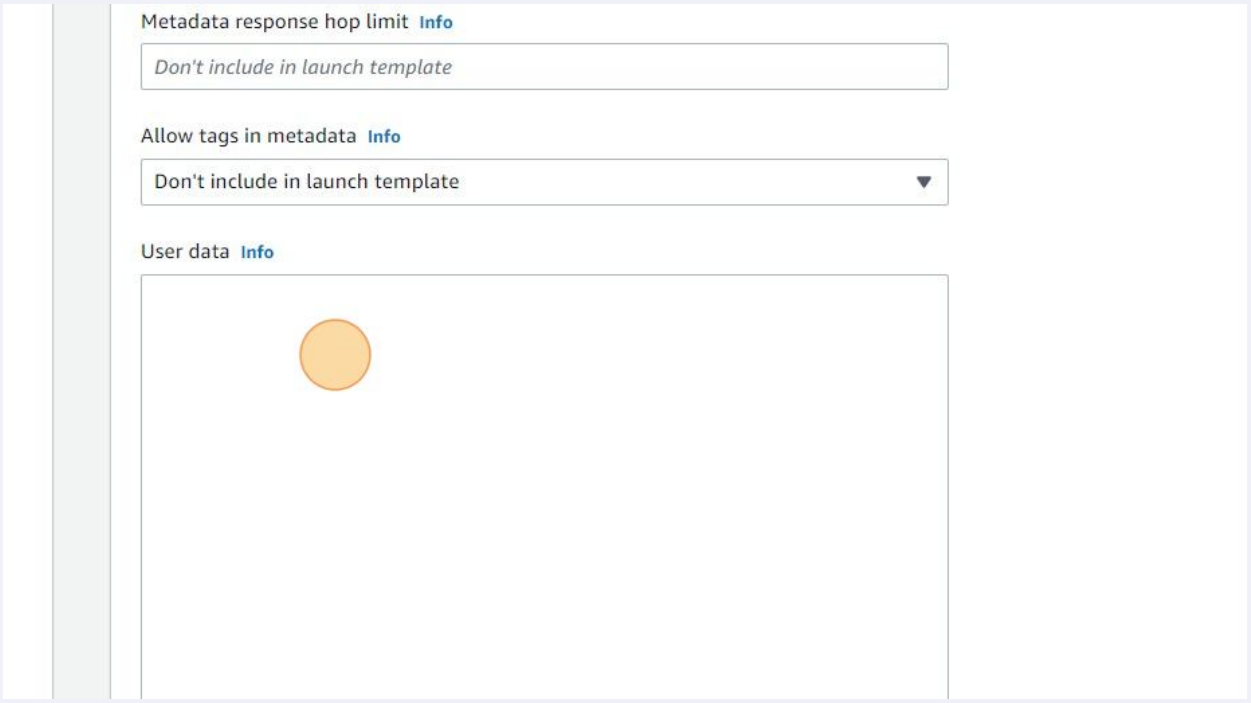
15 In the security group, select the security group you created earlier



16 Click "Advanced details"

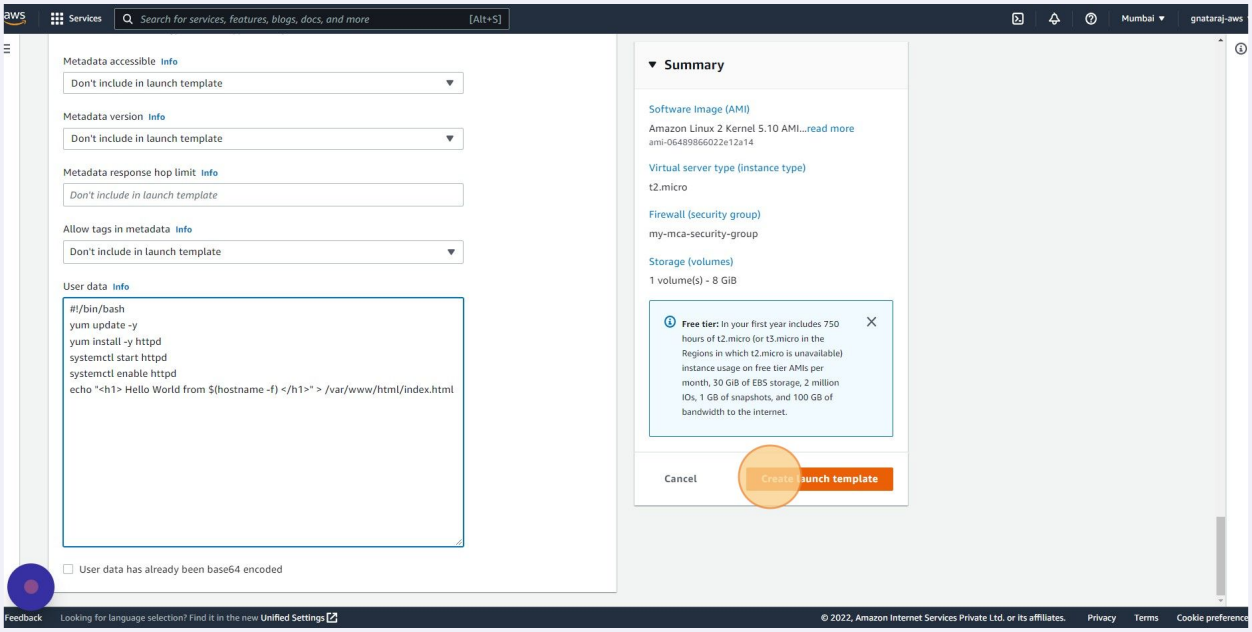


17 Click the "User data Info" field.

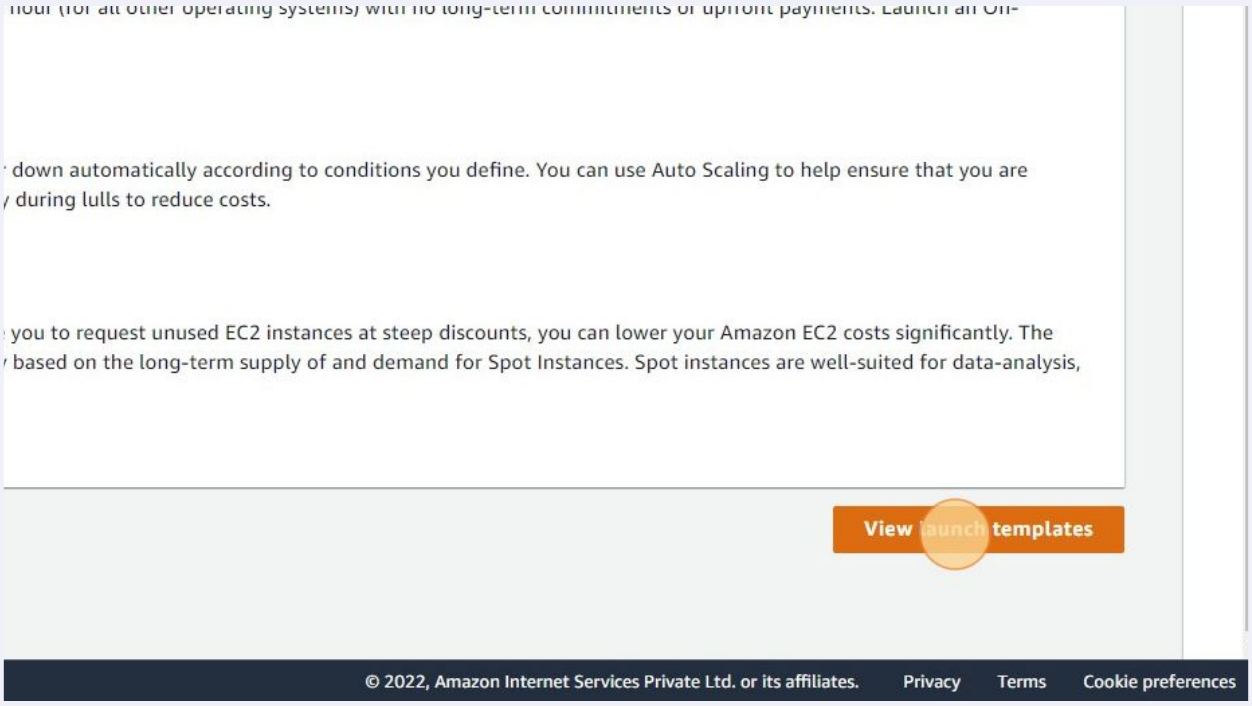


18 Copy the content from https://raw.githubusercontent.com/gnataraj/aws-autoscaling/main/userdata.txt

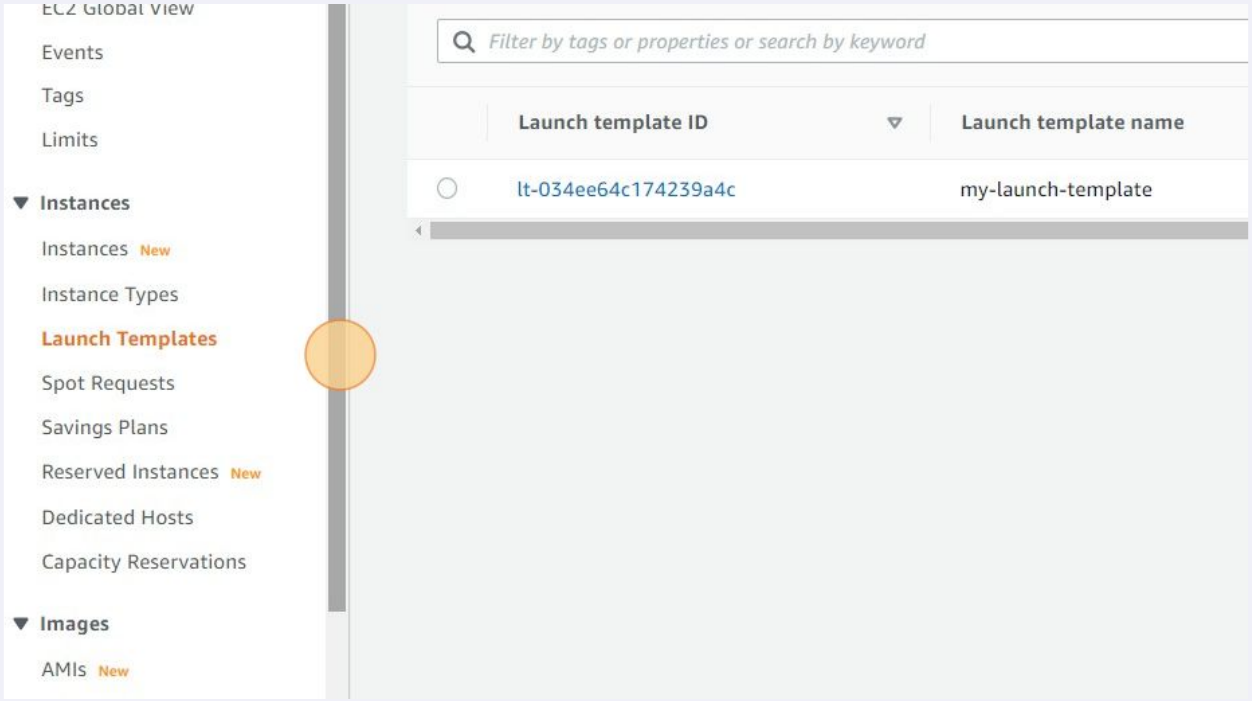
19 Paste the content in the User data section and Click "Create launch template"



20 Click "View launch templates"

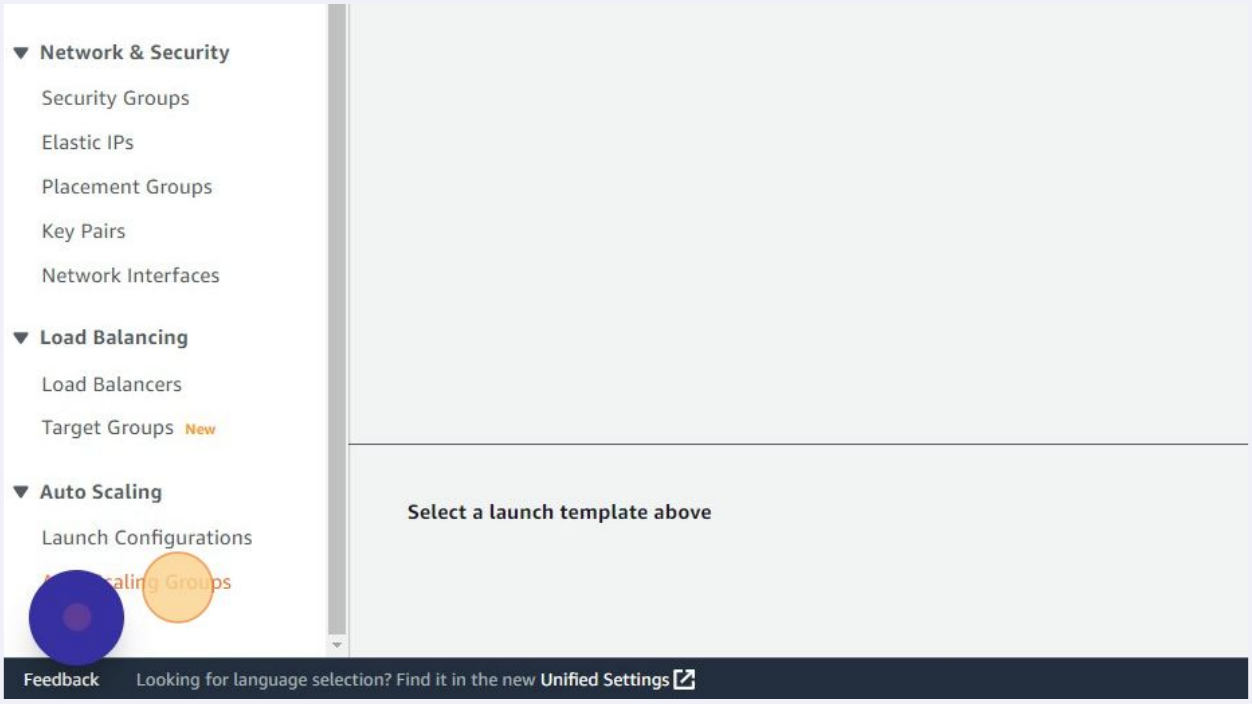


21 Click here.

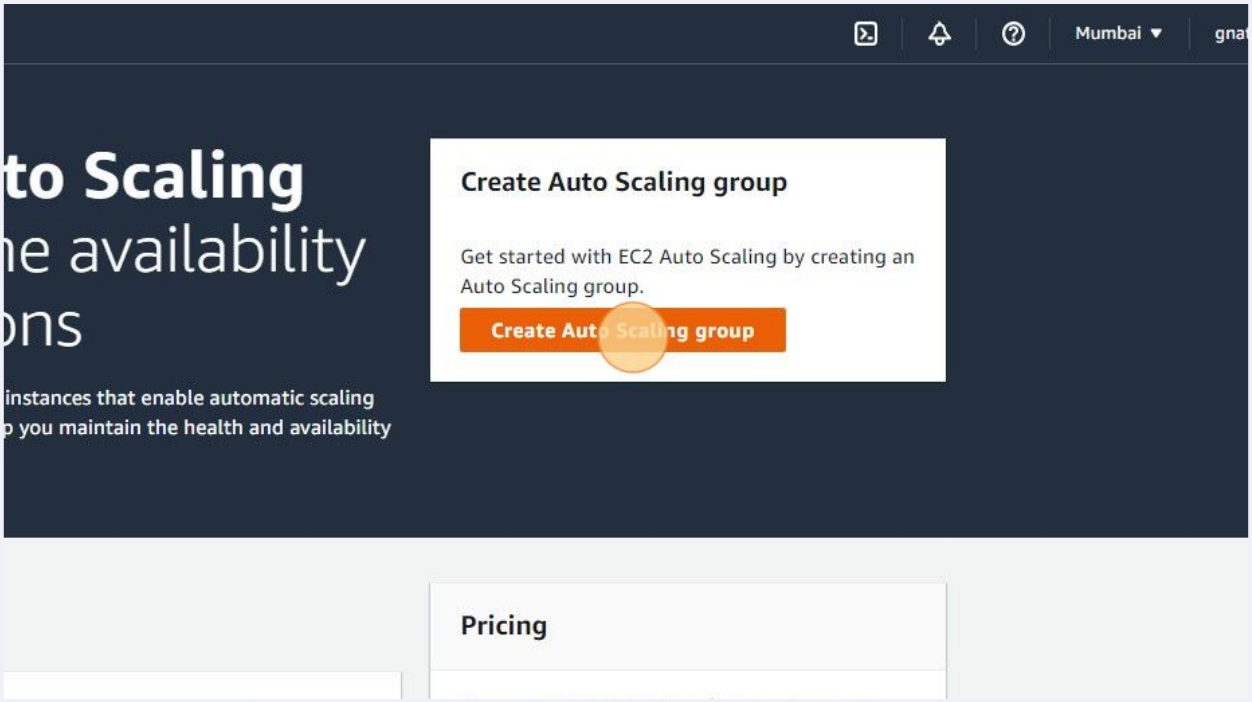


Creating Autoscaling Group

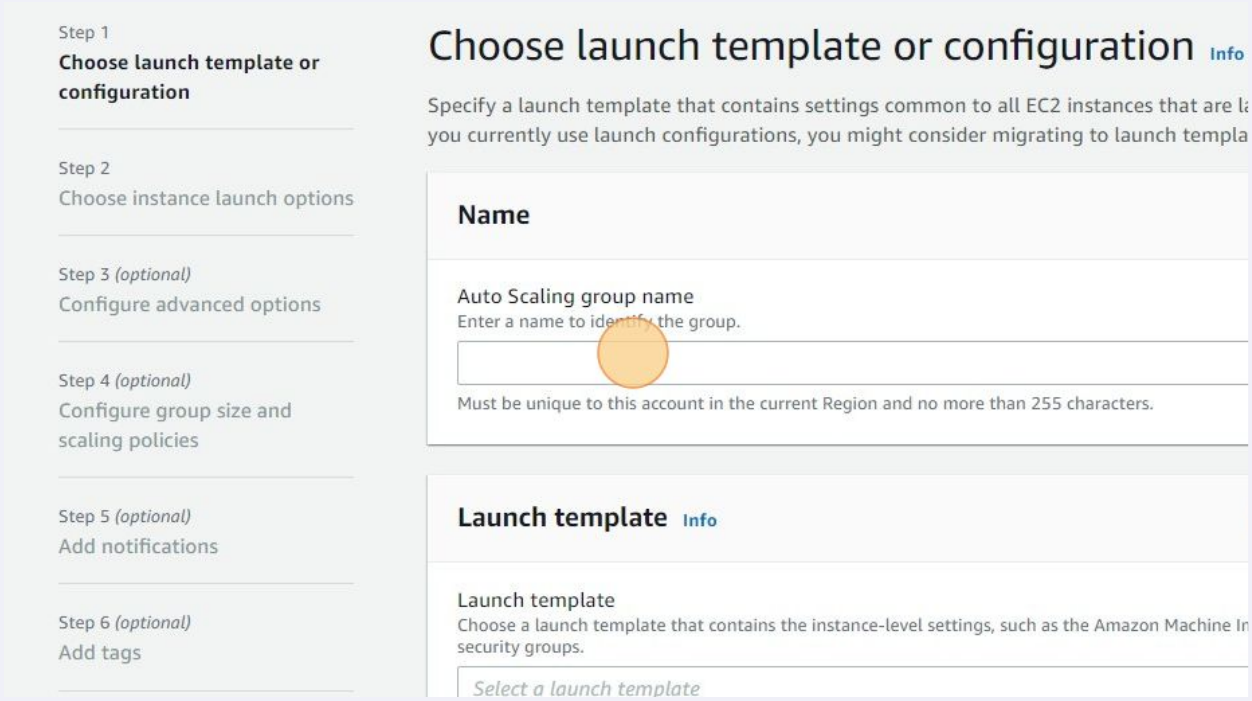
22 Click "Auto Scaling Groups"



23 Click "Create Auto Scaling group"

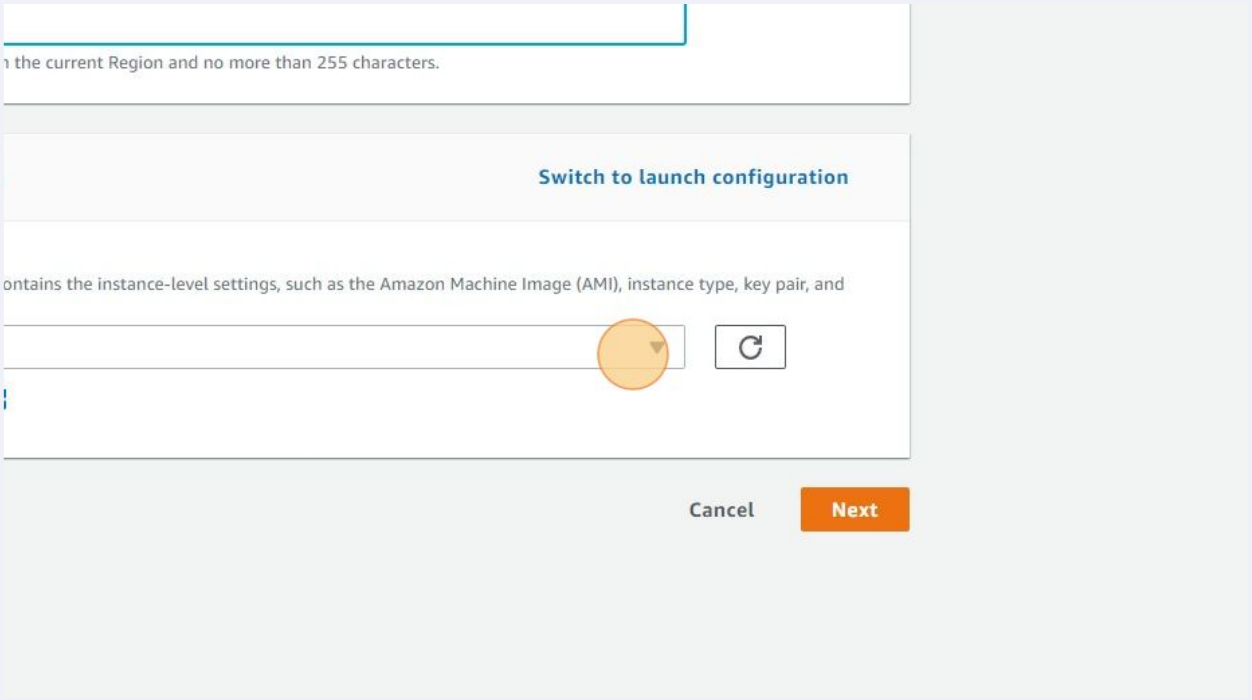


24 Click the "Auto Scaling group name" field.

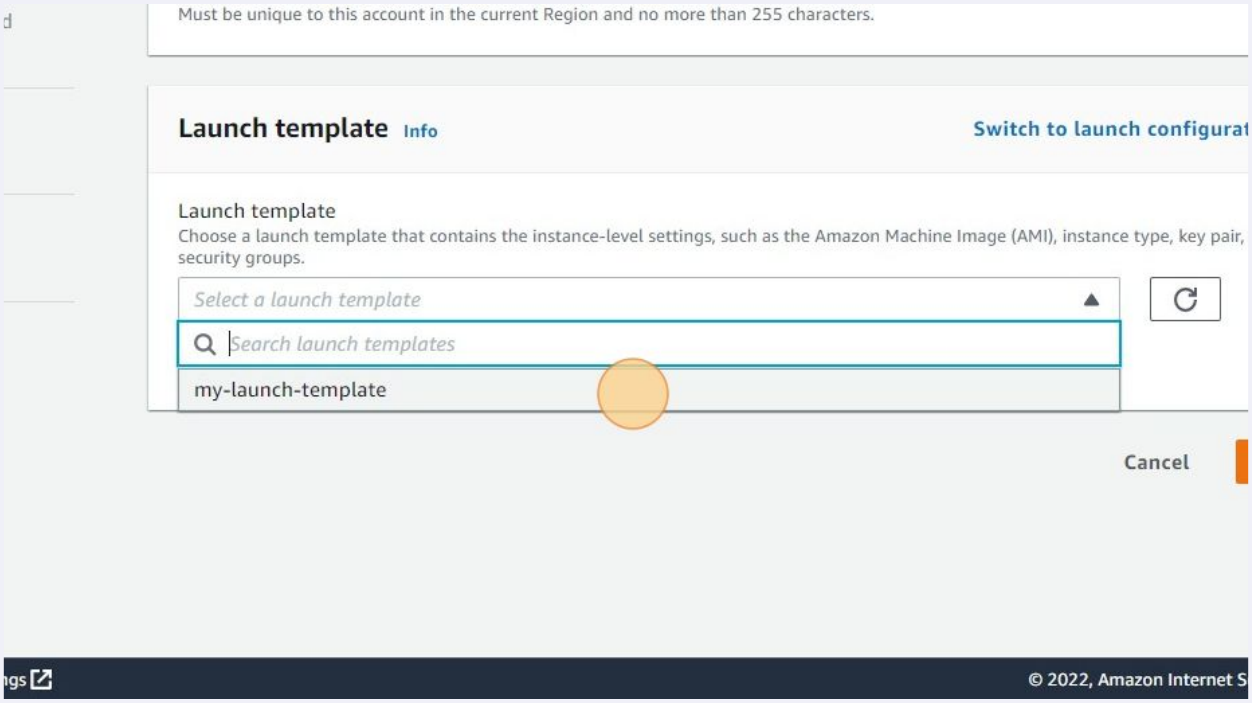


25 Type "my-auto-scaling-group"

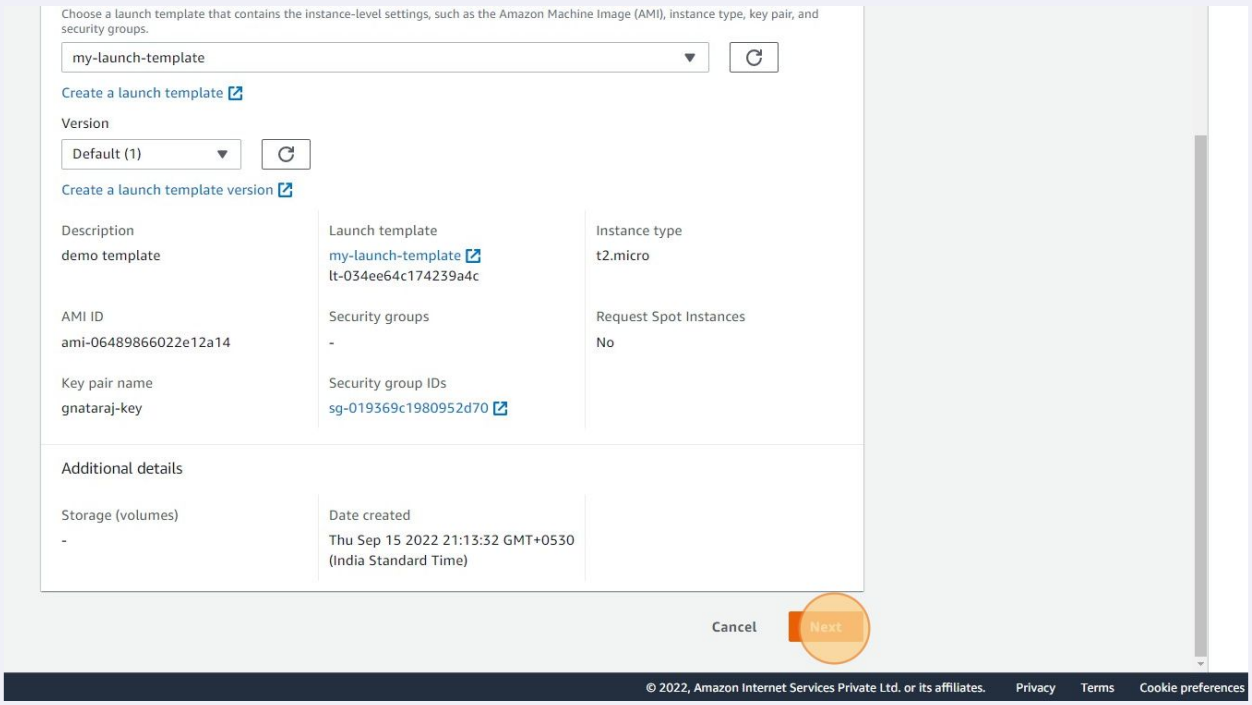
26 Click "Select a launch template"



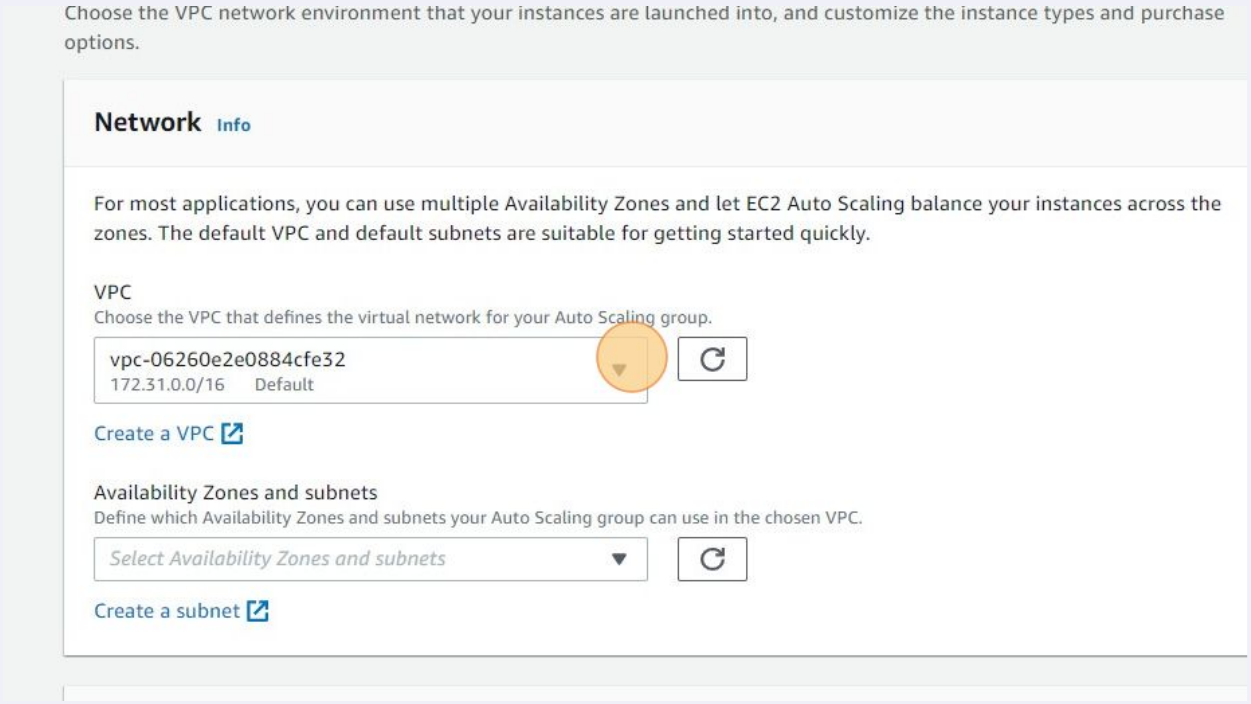
27 Select the Launch template you created before



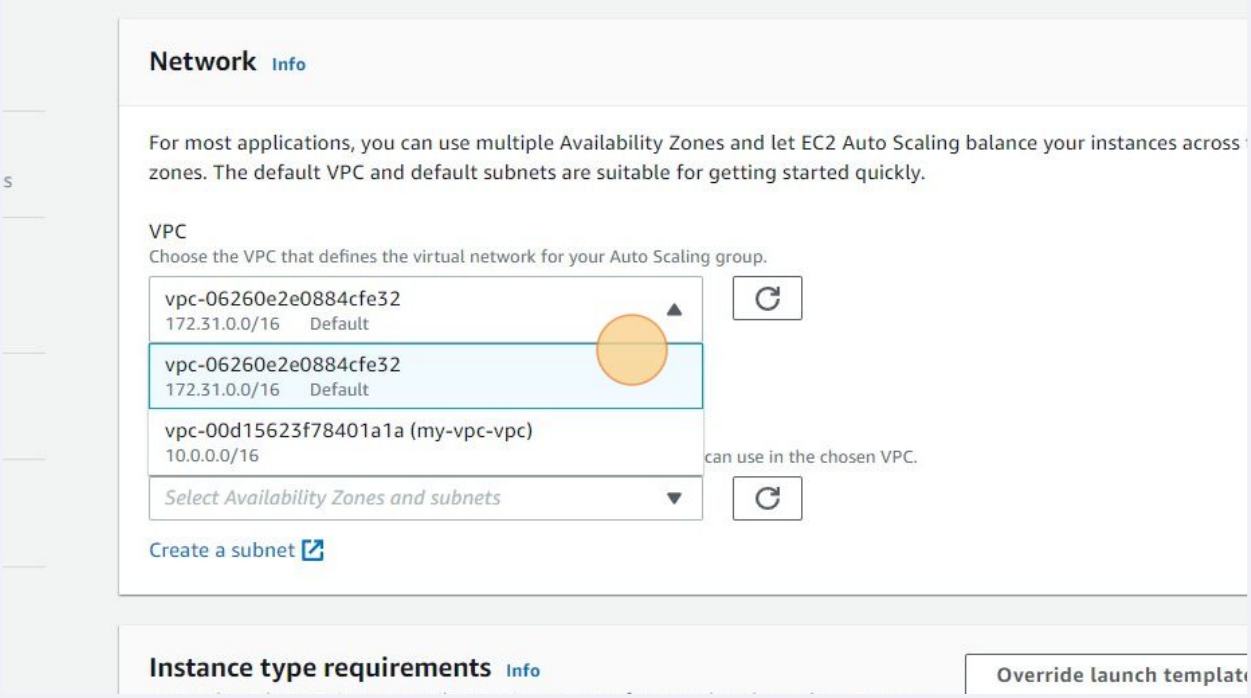
28 Click "Next"



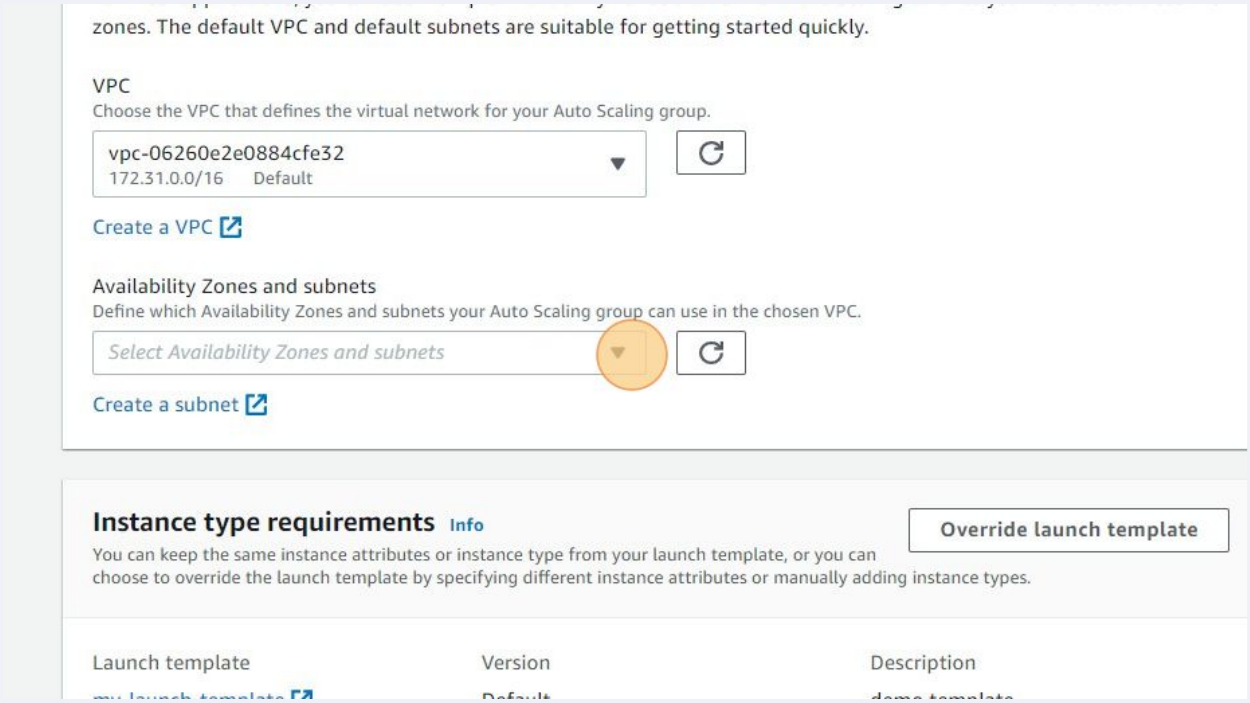
29 Click here.



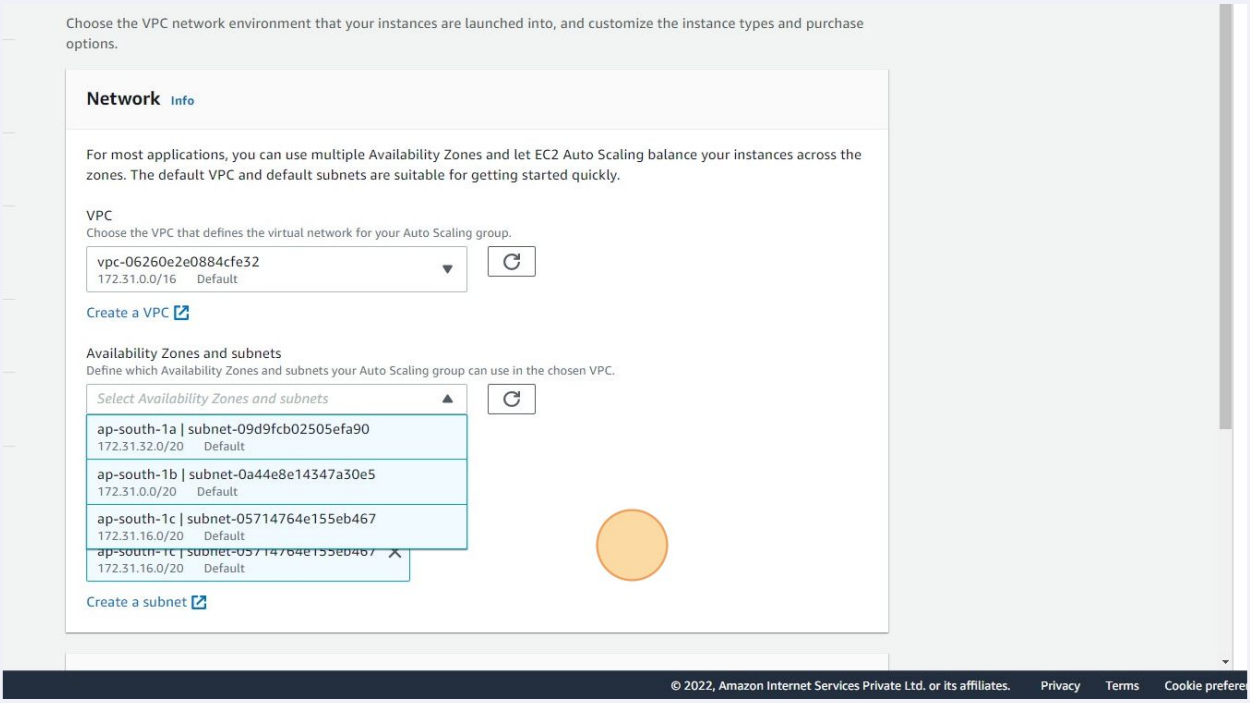
30 Select the Default VPC in Network section



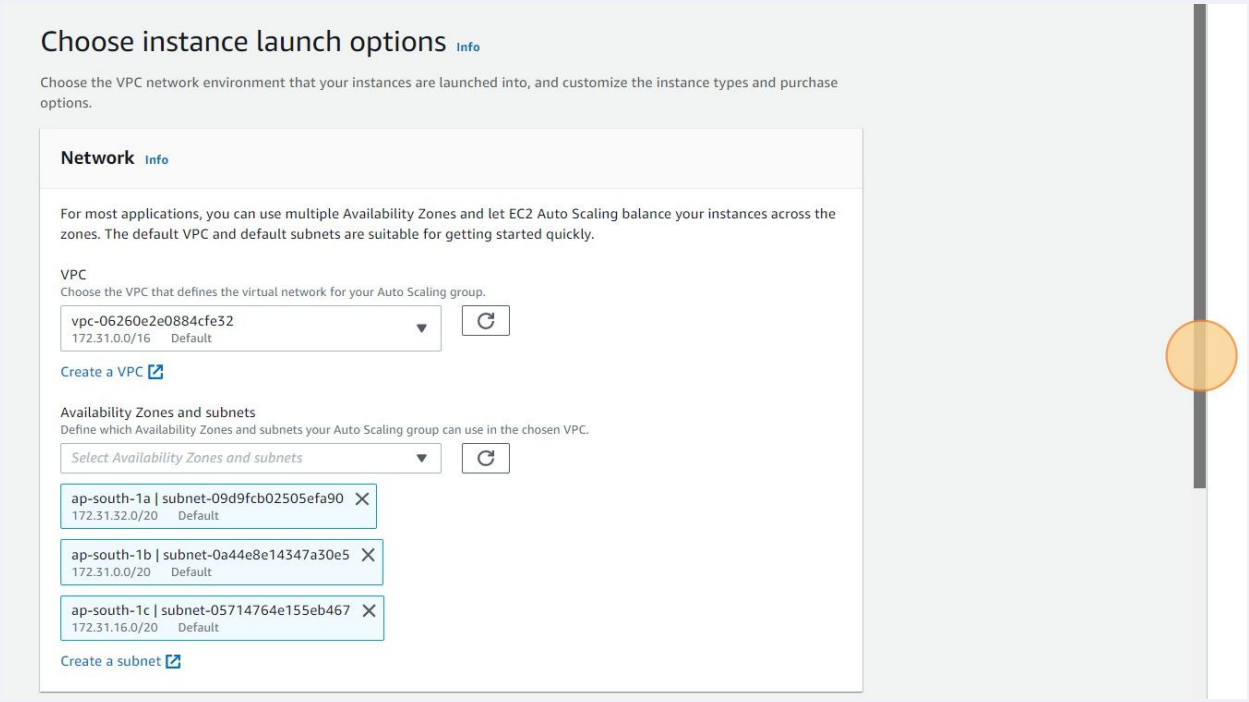
31 Click here.



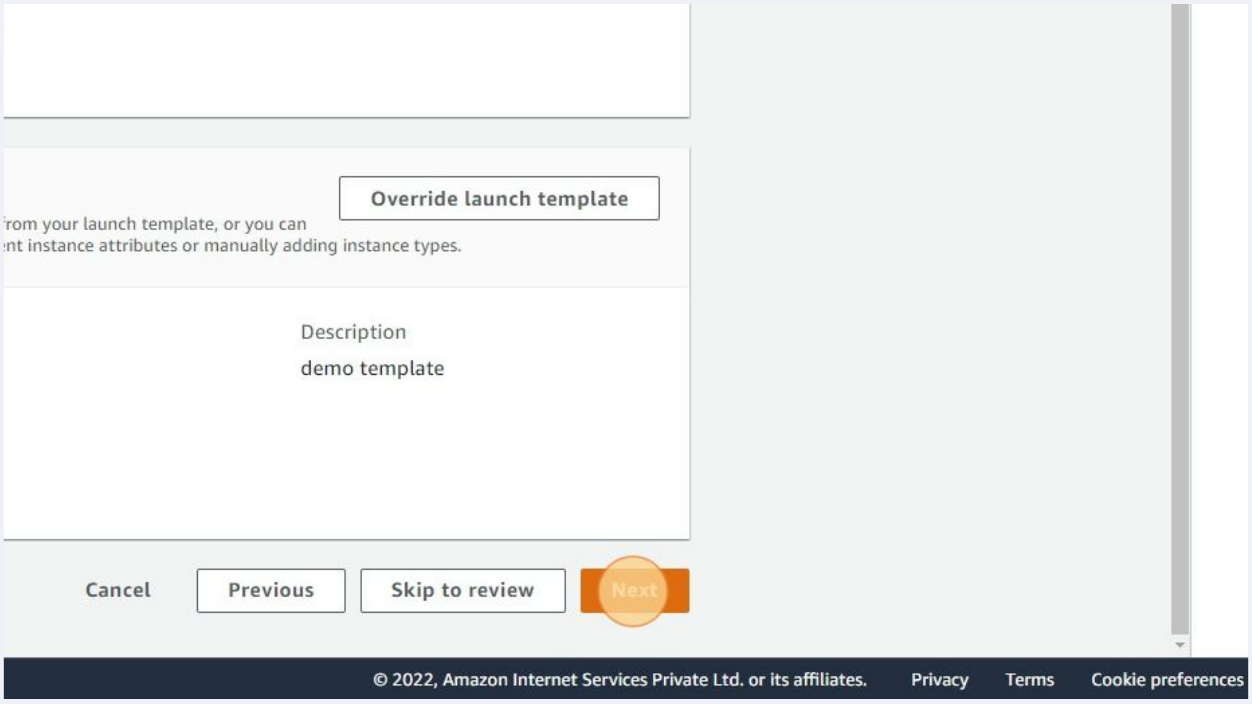
32 In the availability zone, select all the zones and subnets



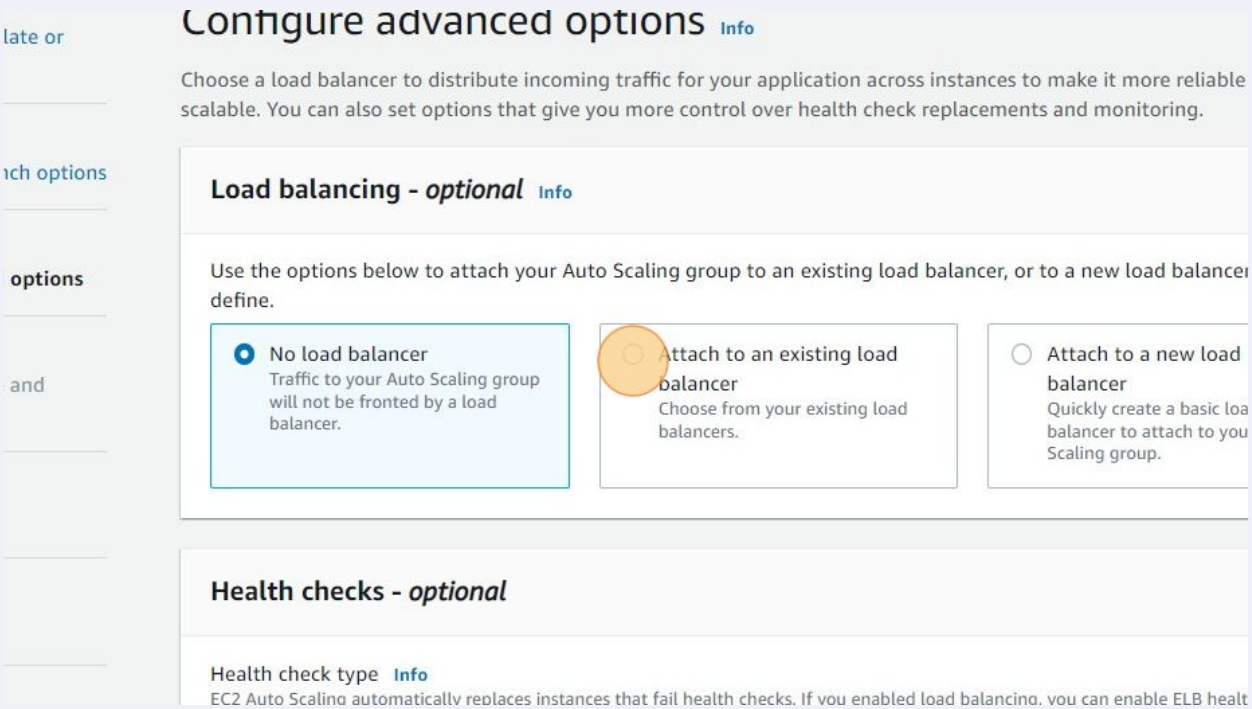
33



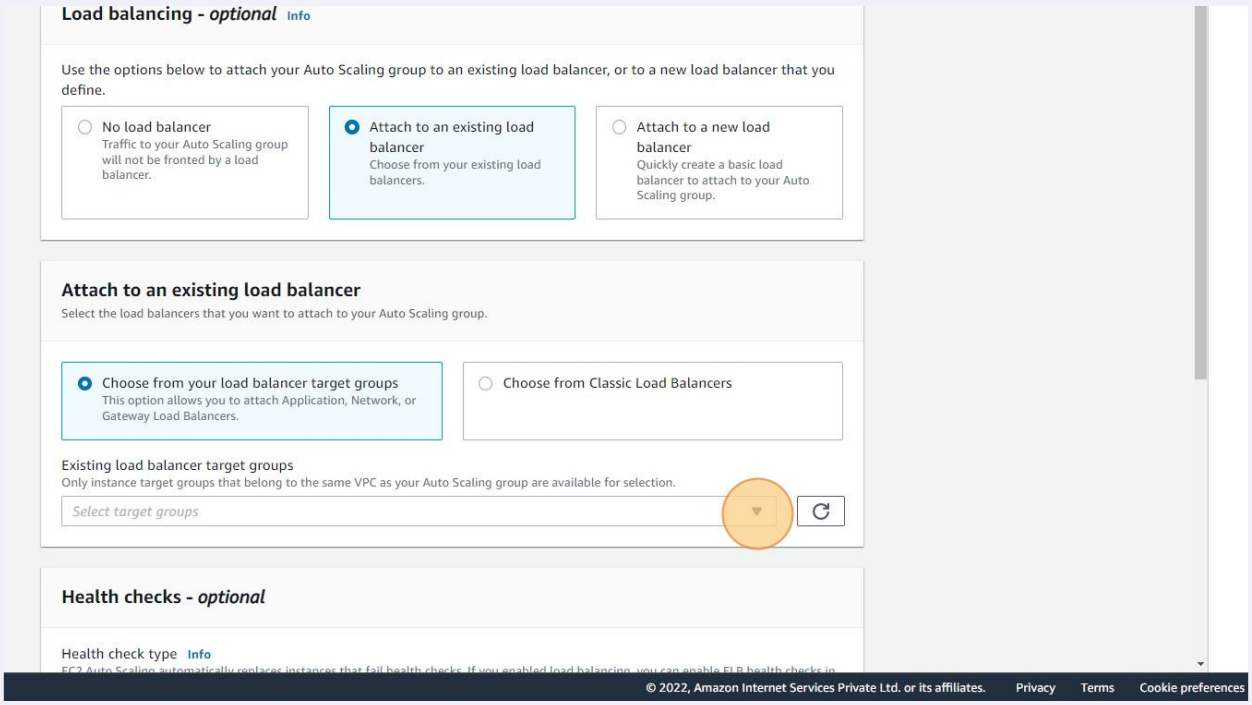
34 Click "Next"



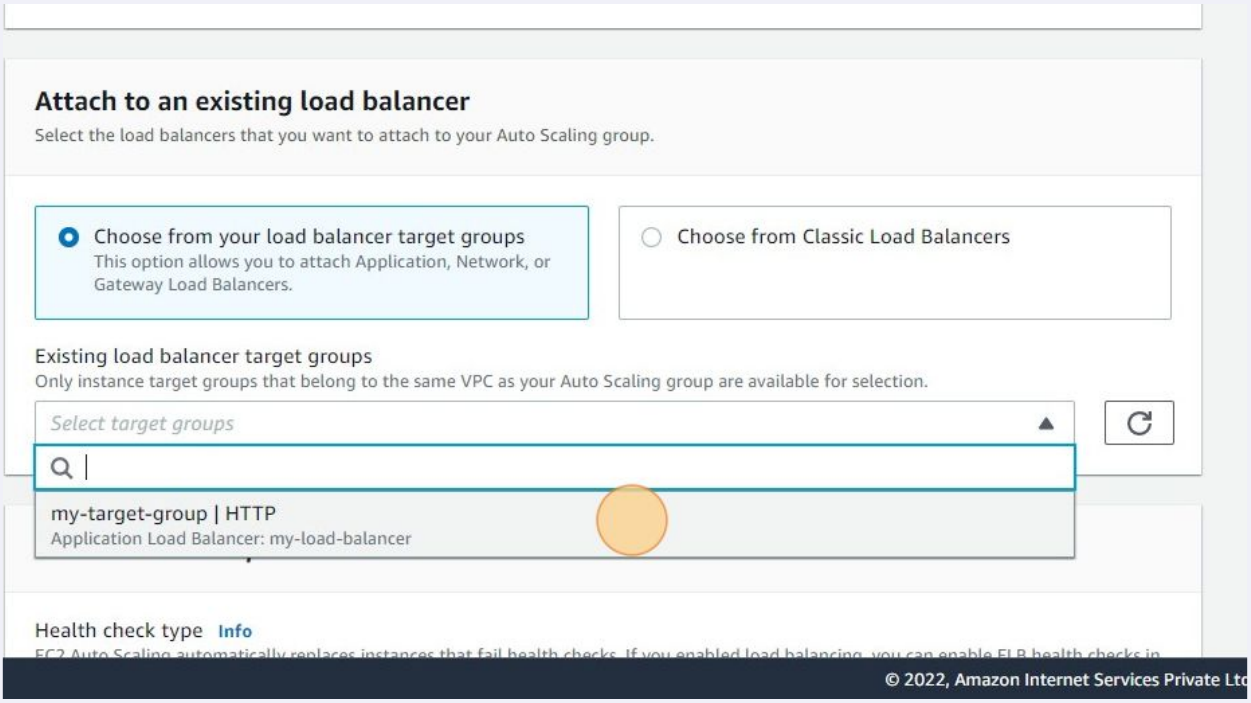
35 In the Load Balancing, Click the "Attach to an existing load balancer chooses from your existing load balancers." field.



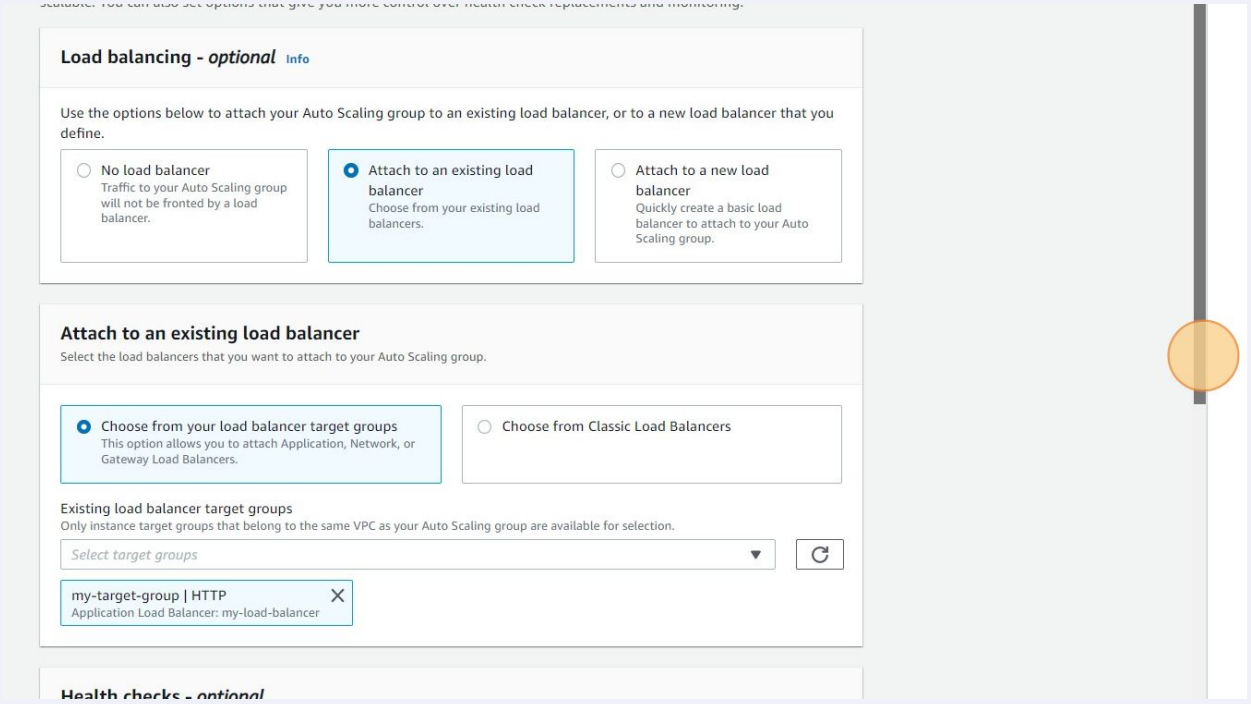
36 Select Choose form your load balancer target group, in the Attach to an existing load balancer section



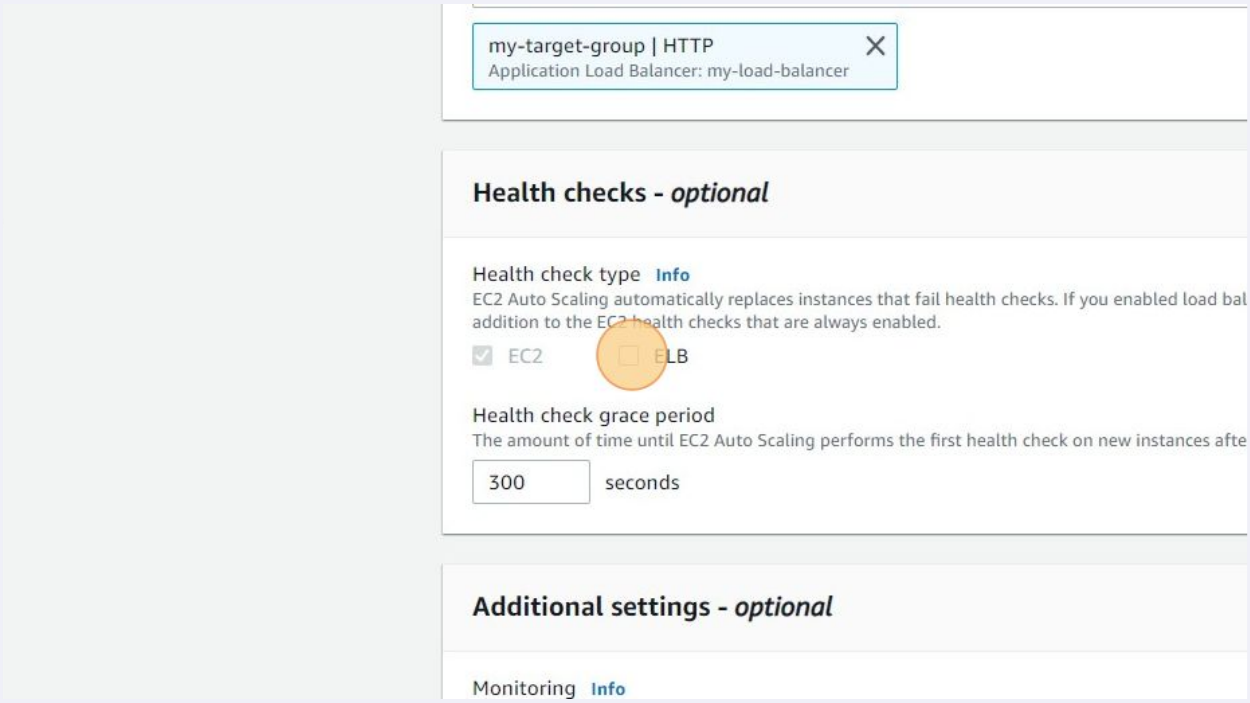
37 Select the previously created target group



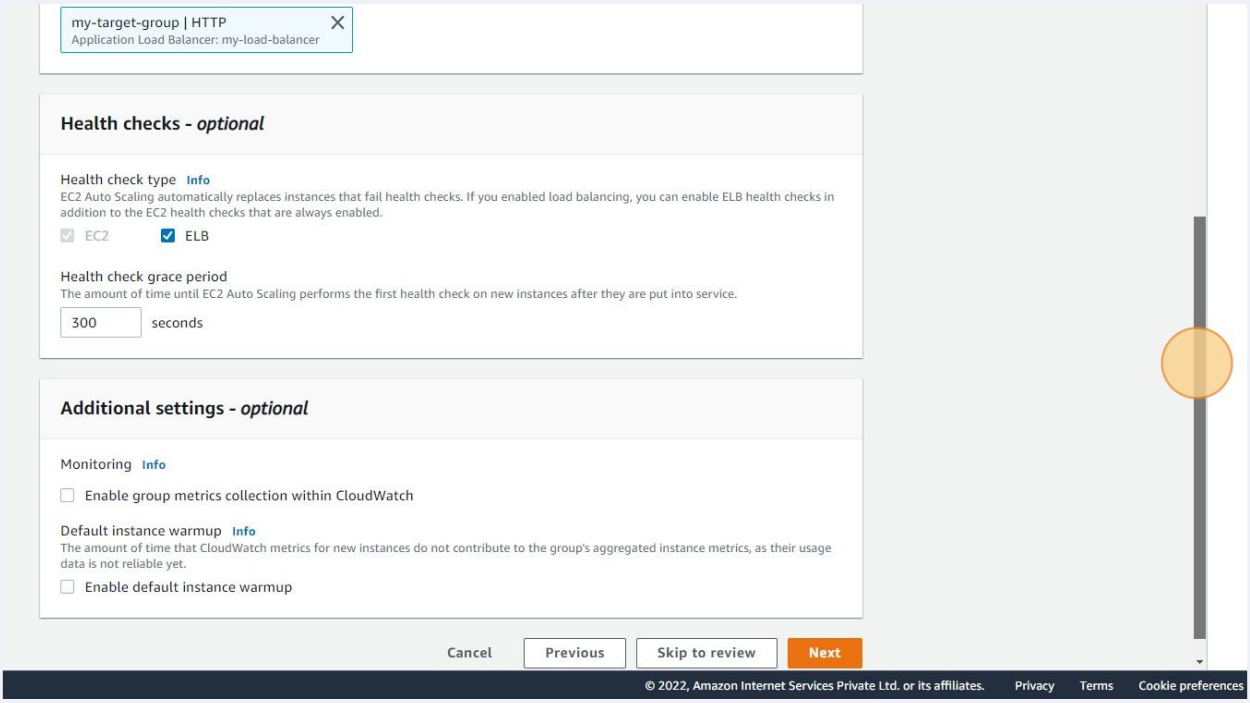
38



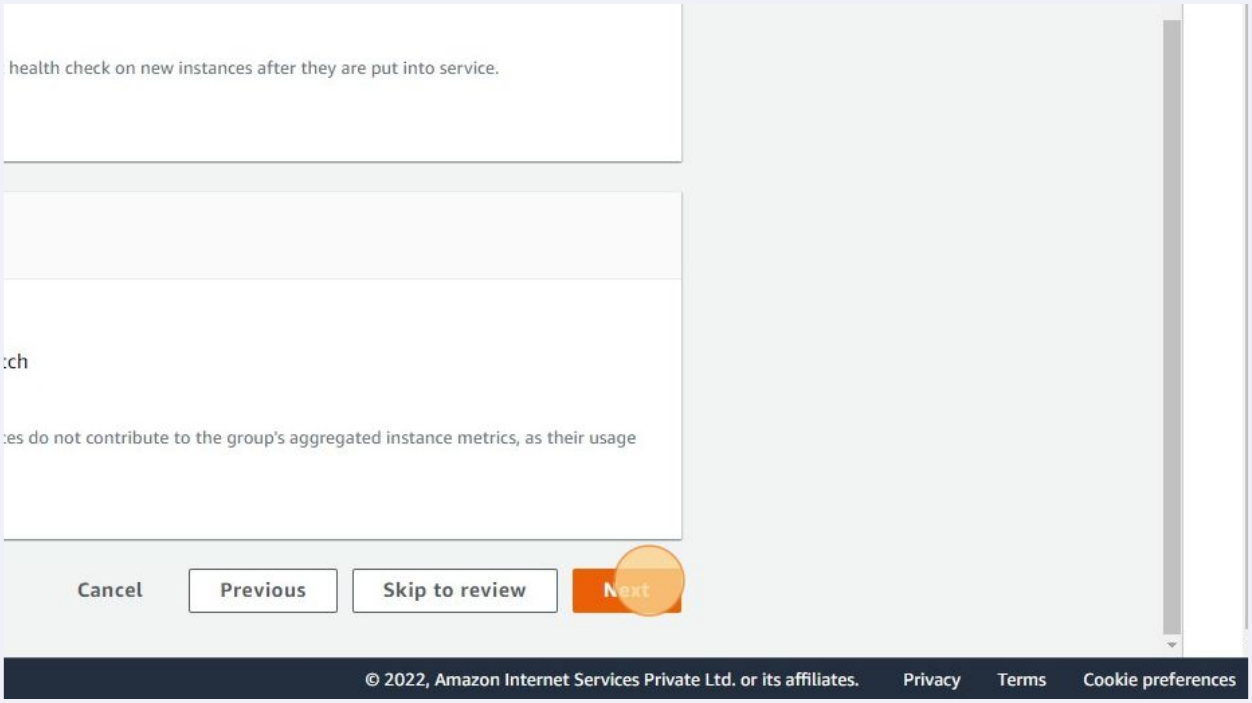
39 In the health checks, Select the "ELB" field.



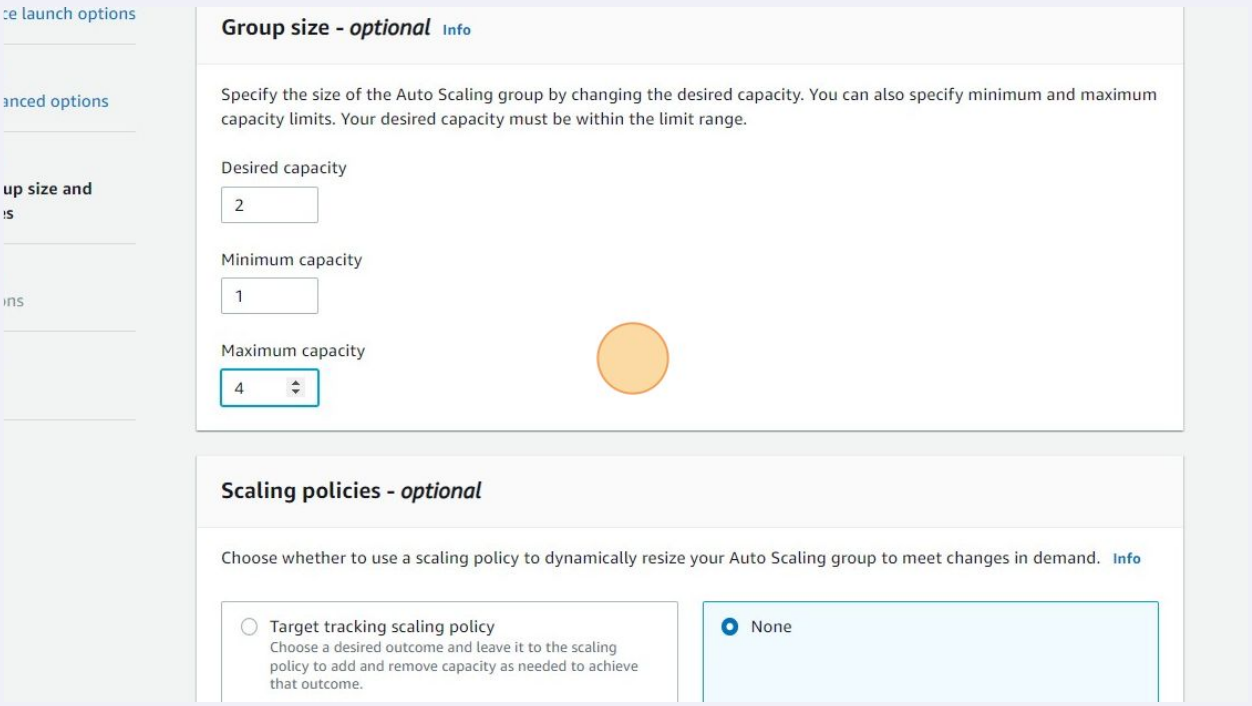
40



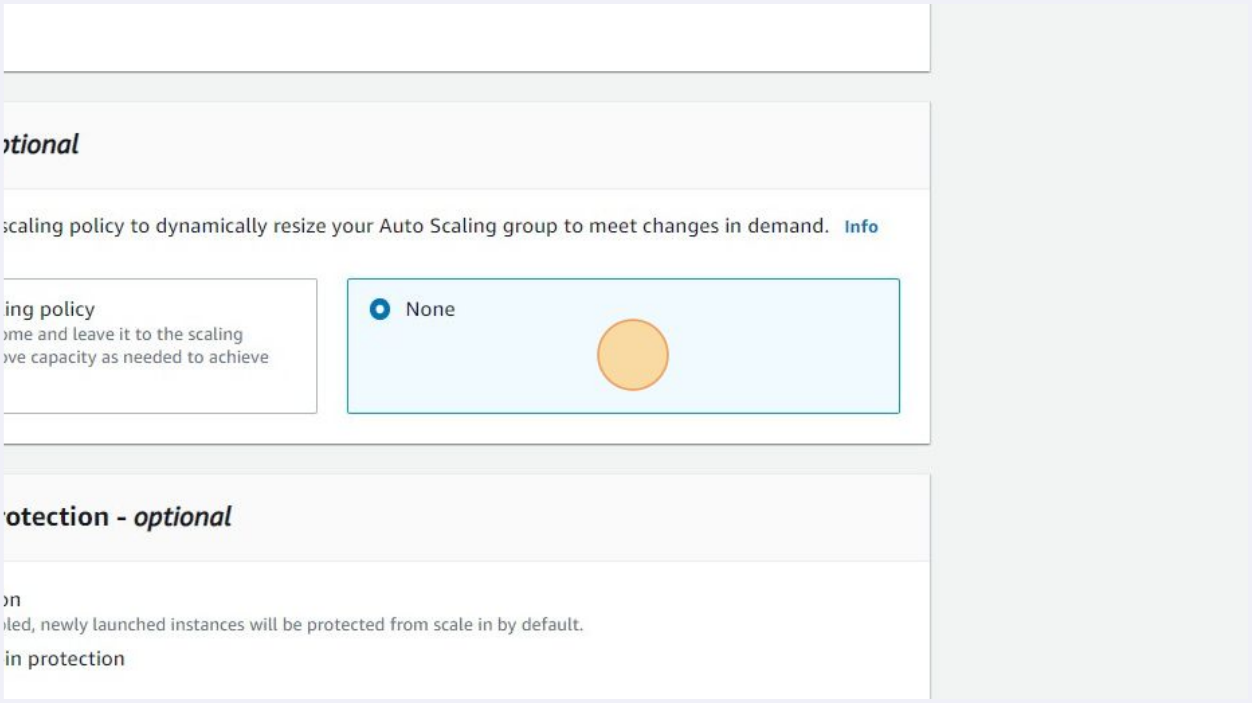
41 Click "Next"



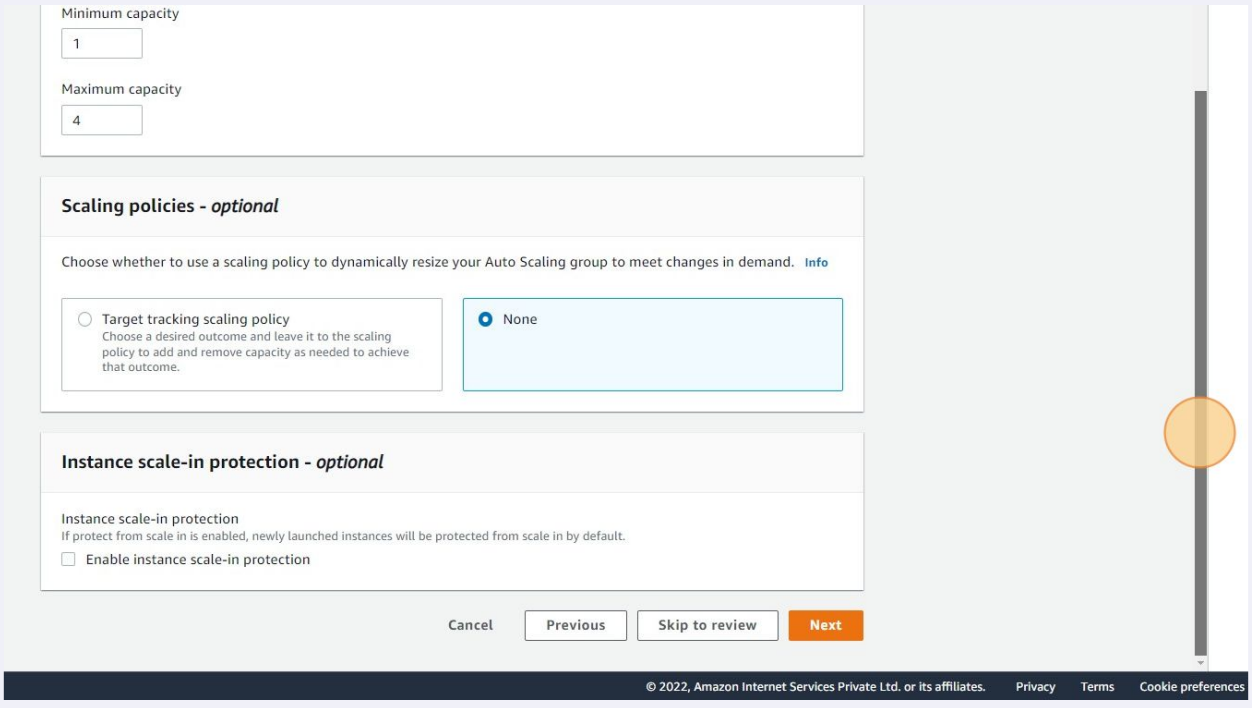
42 In the group size, mark
Desired capacity = 2
Minimum capacity =1
Maximum capacity = 4



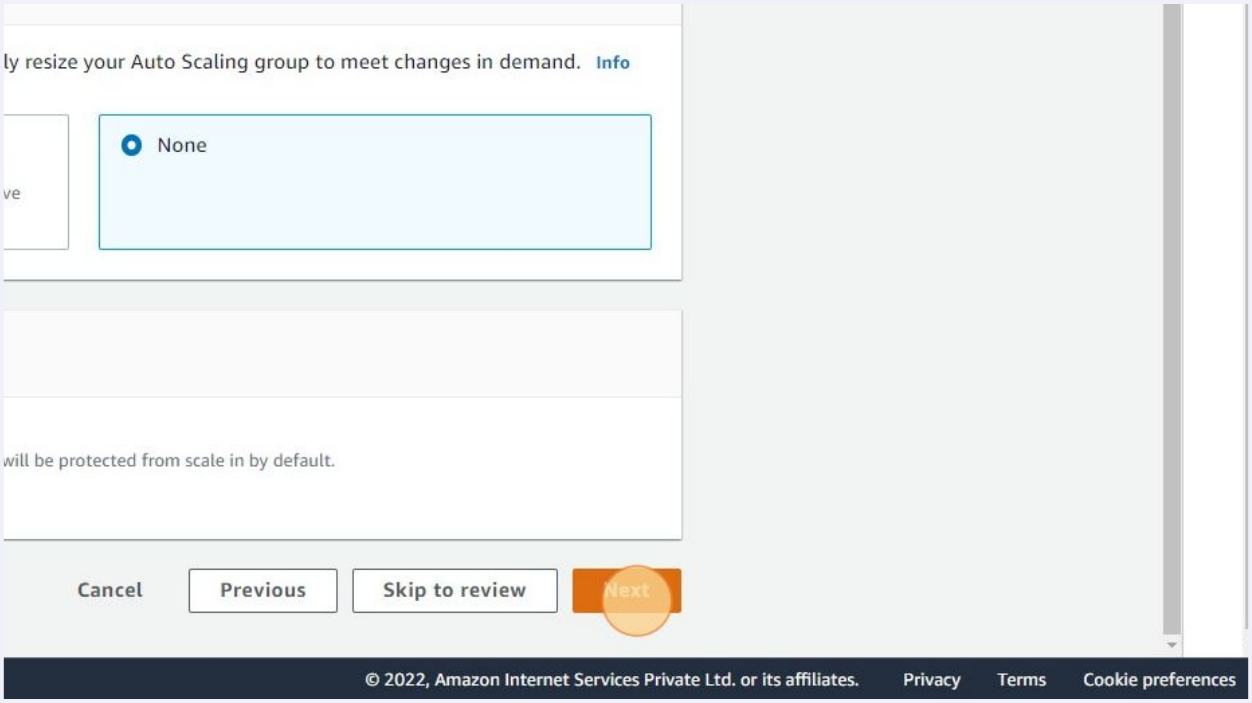
43 Click here.



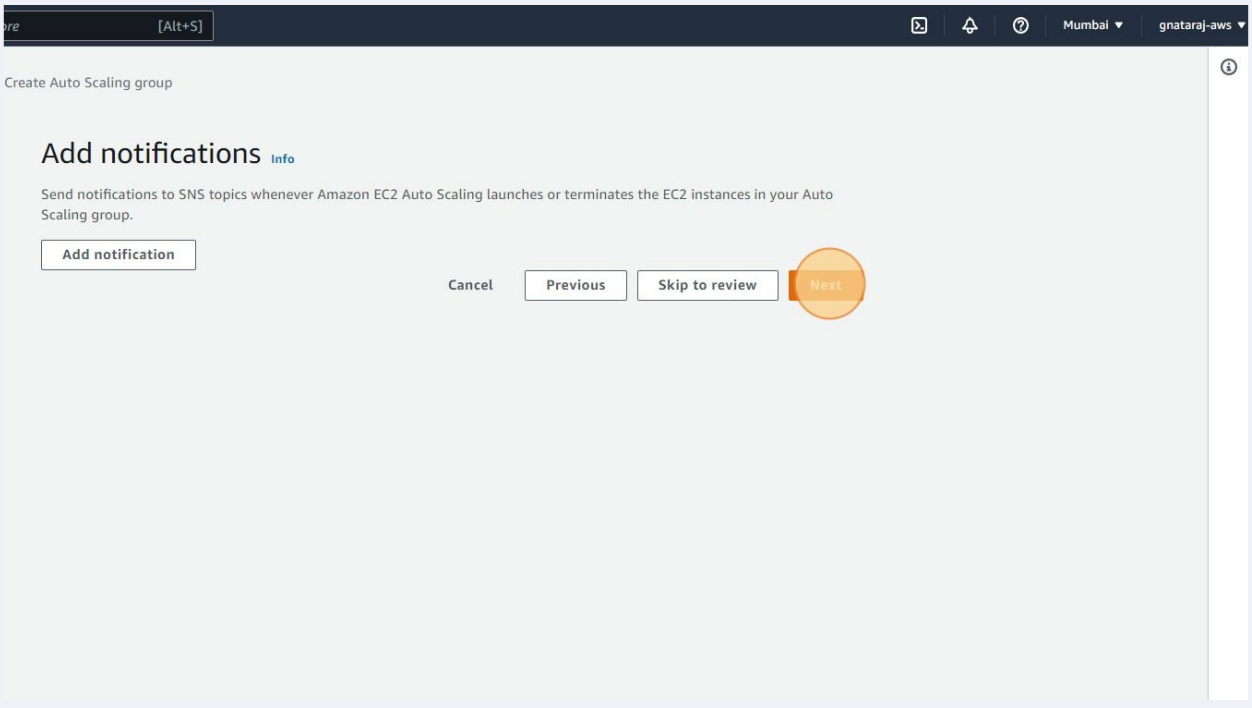
44 In the scaling policies - select None



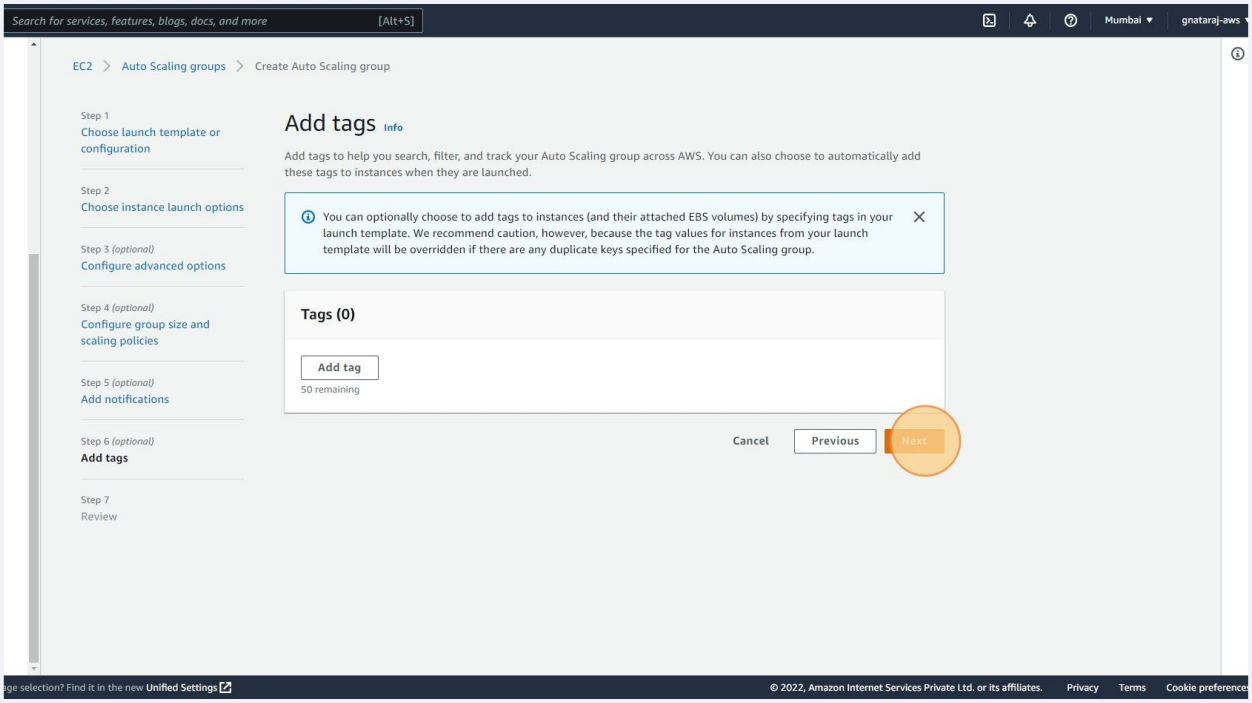
45 Click "Next"



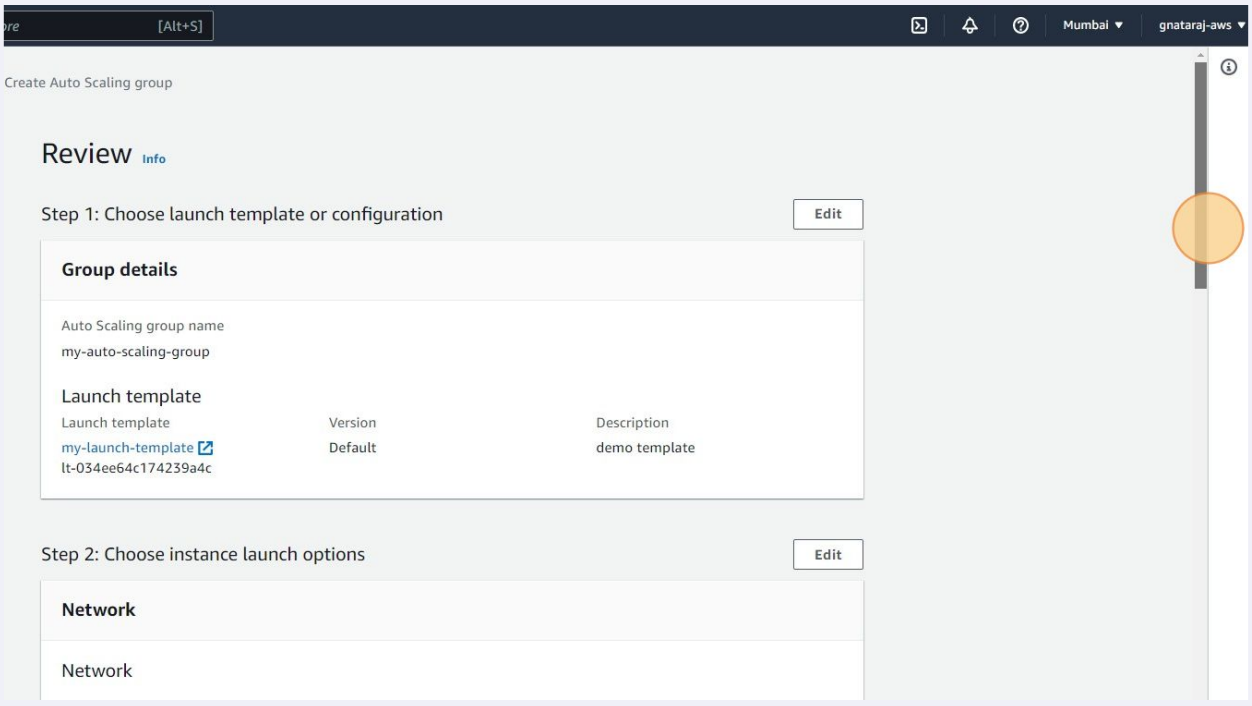
46 Click "Next" in Add notifications



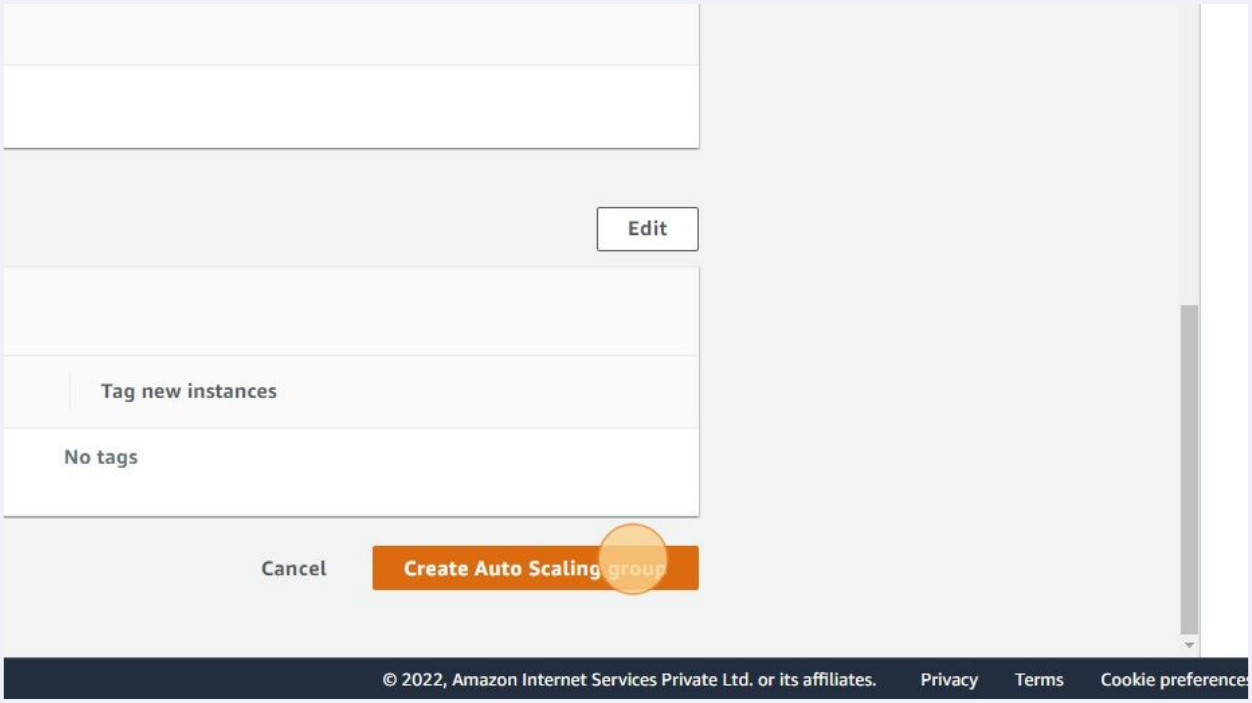
47 Click "Next" in Add tags



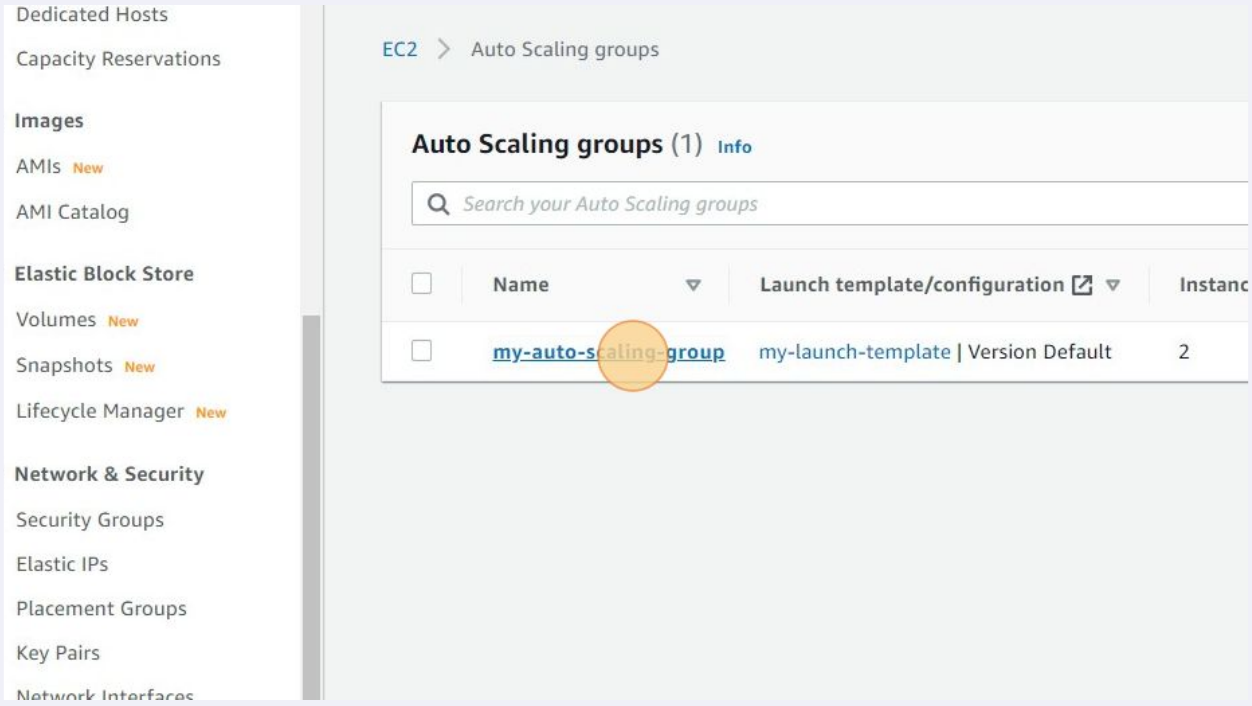
48 Review



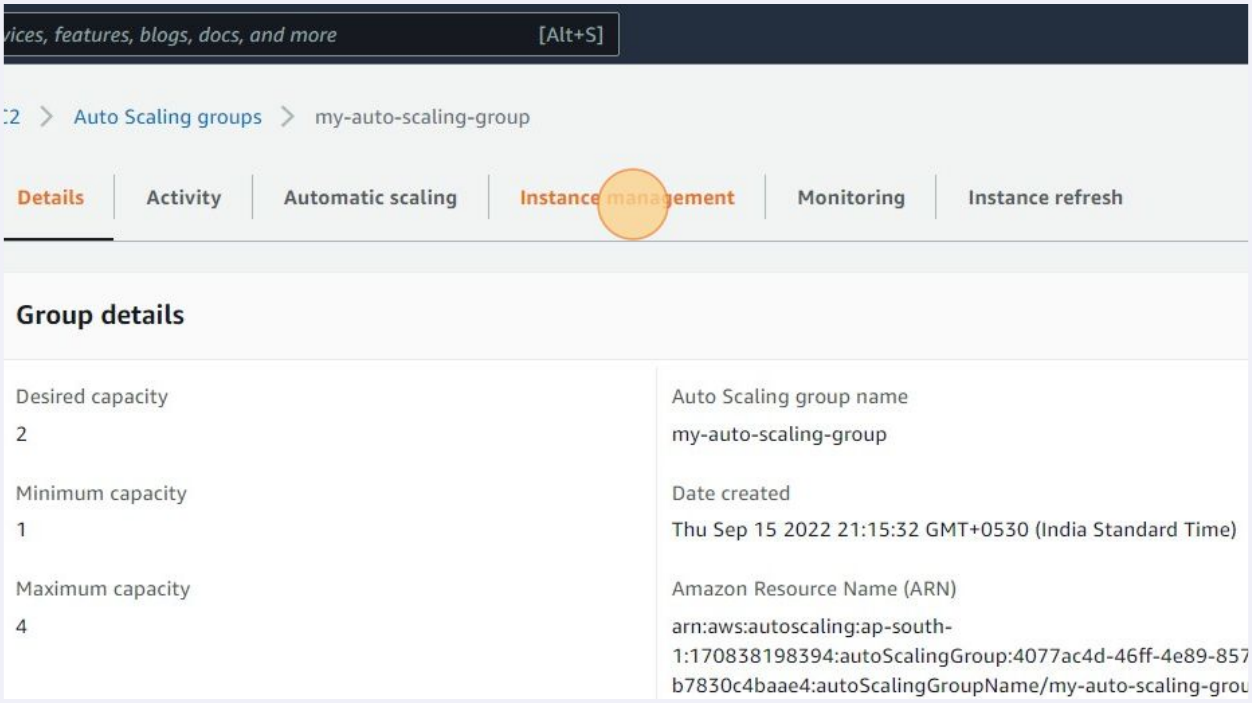
49 Click "Create Auto Scaling group"



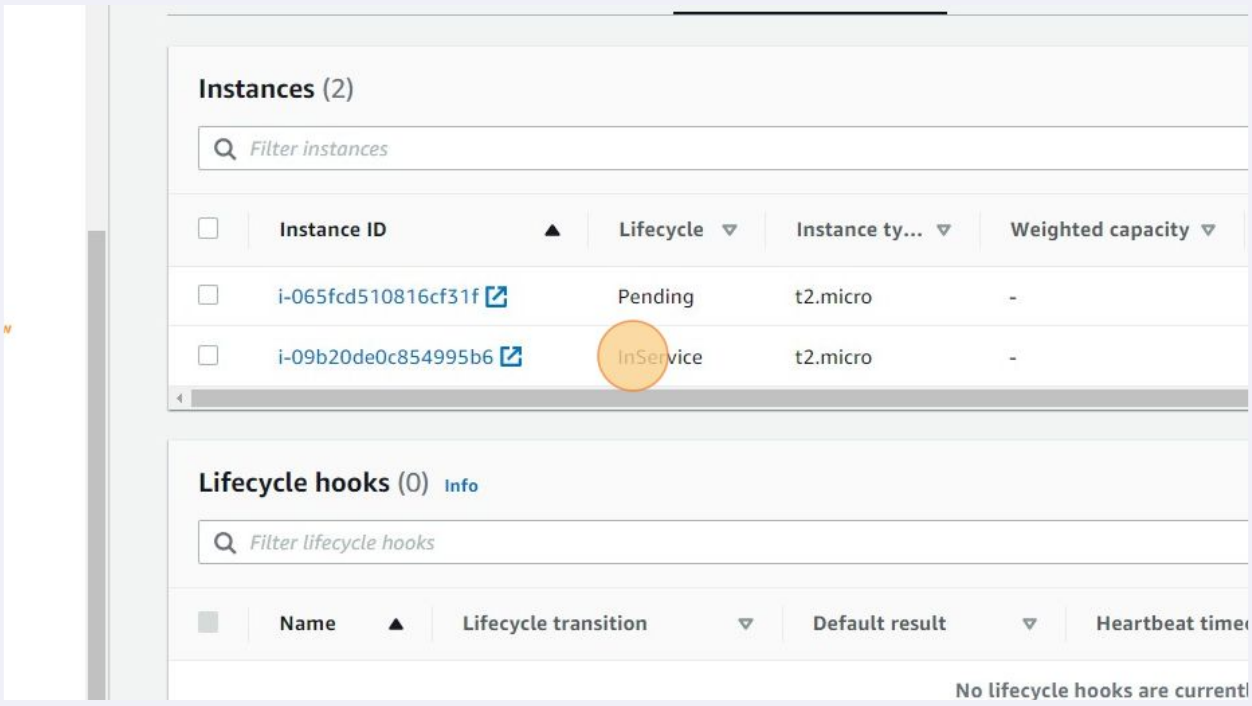
50 Click on the autoscaling group you created "my-auto-scaling-group"



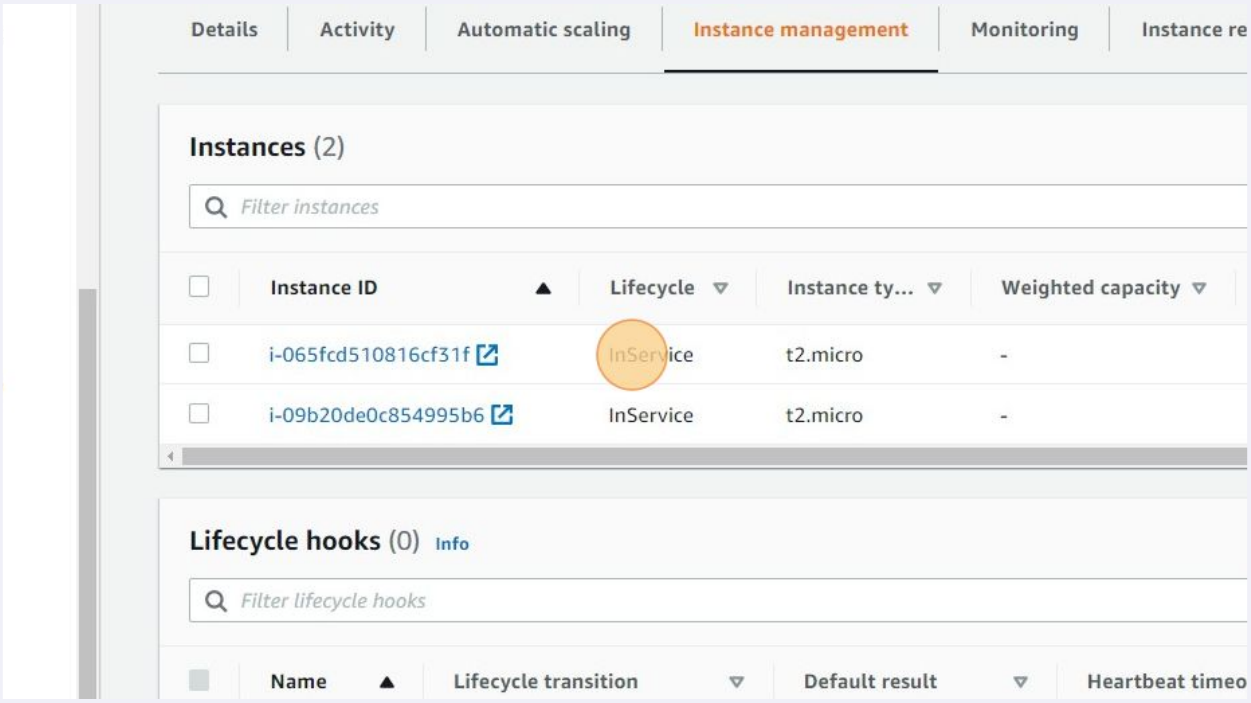
51 Click "Instance management"



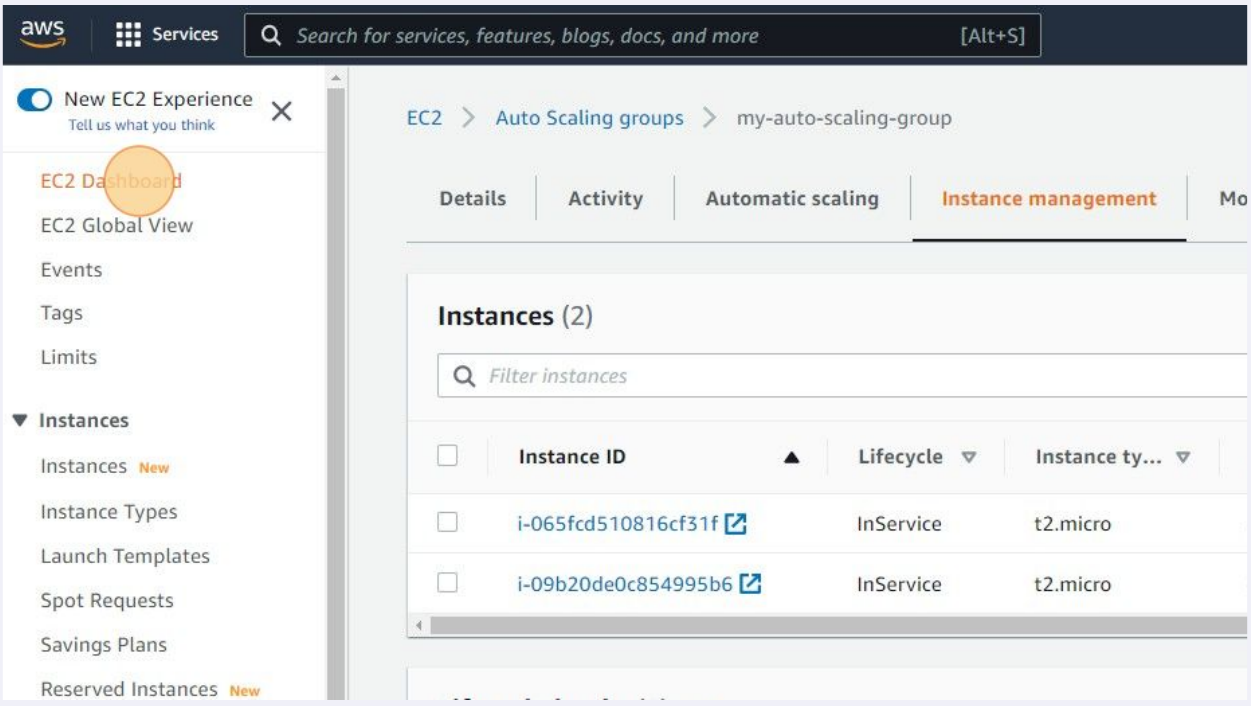
52 Watch instance LifeCycle (Pending/InService)



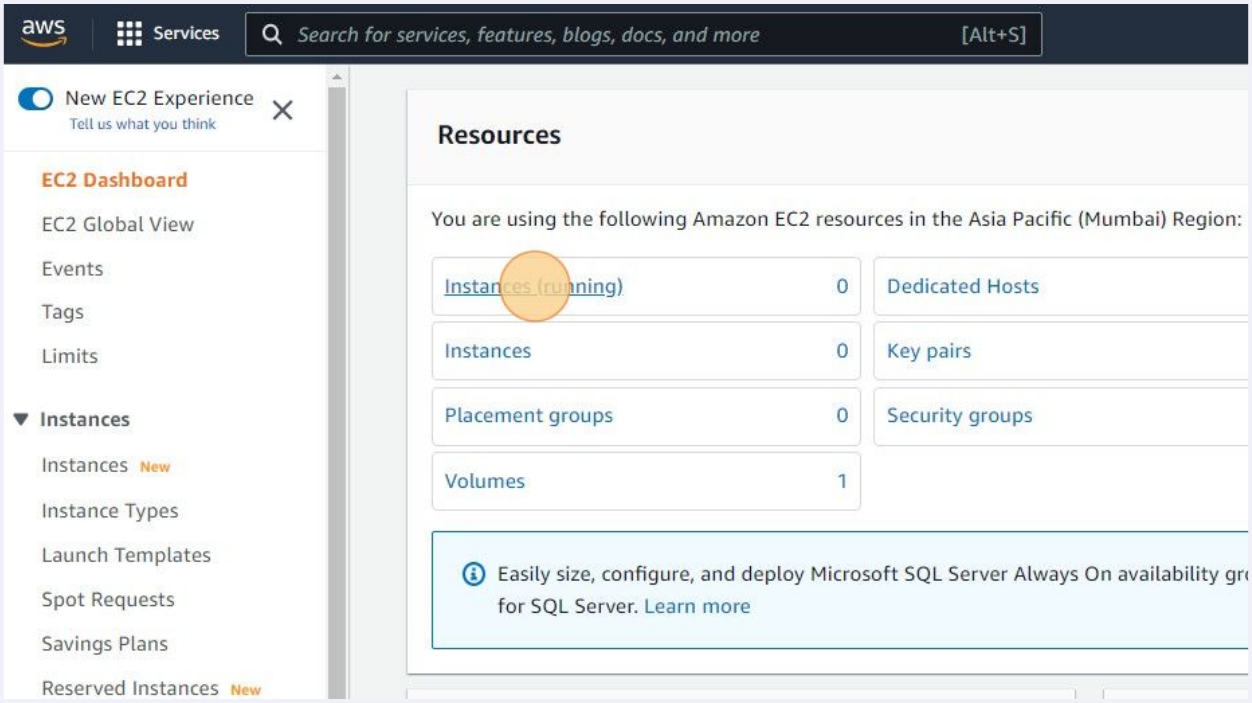
53 Wait till all becomes InService



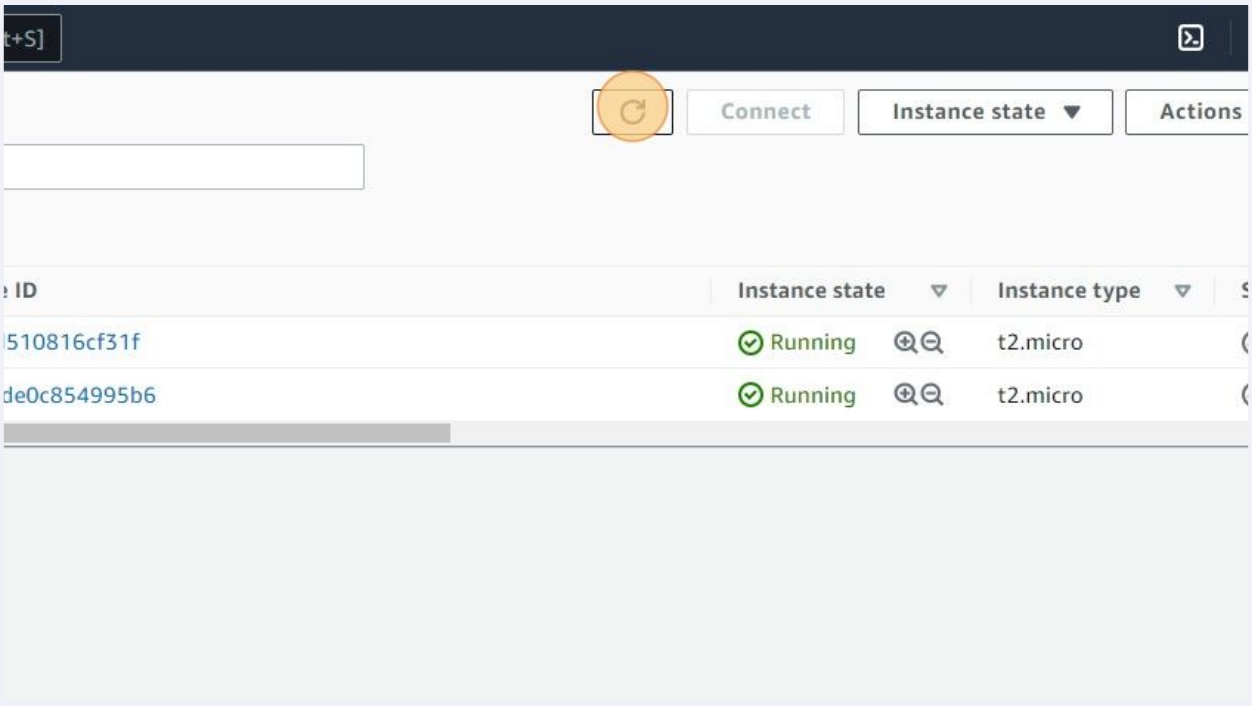
54 Click "EC2 Dashboard"



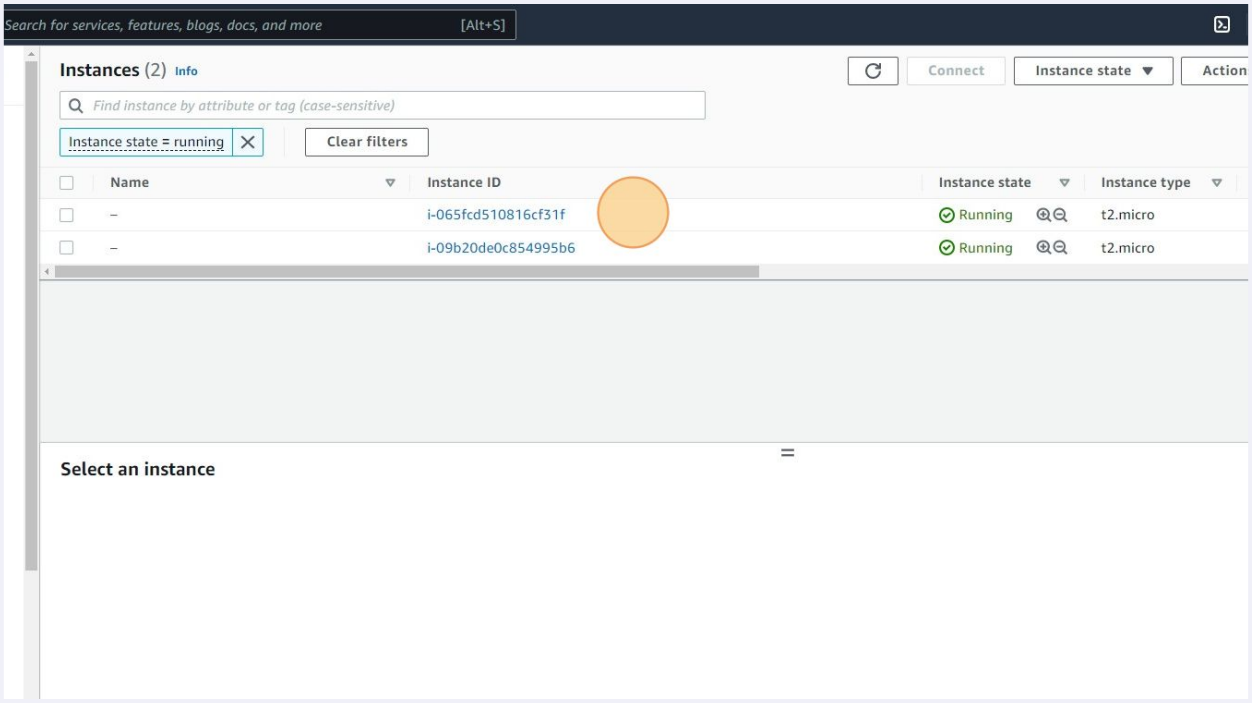
55 Click Instances (running) .



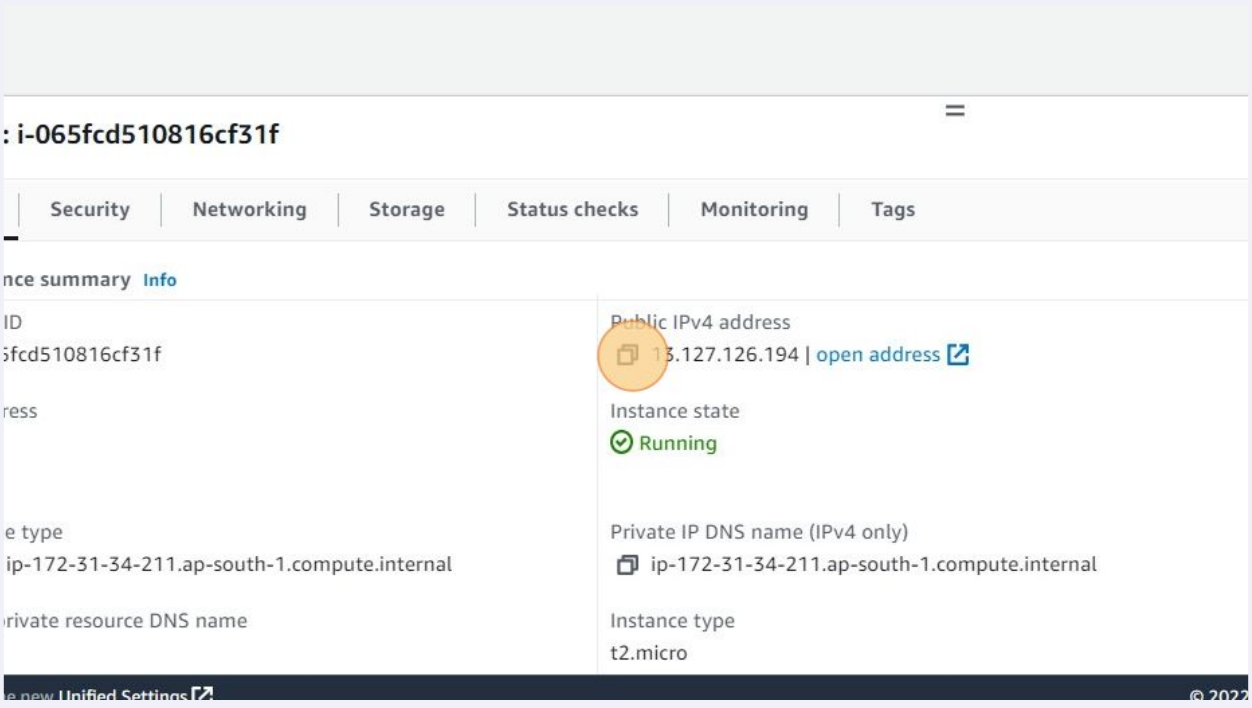
56 You can notice two instances running



57 Click any of the instances



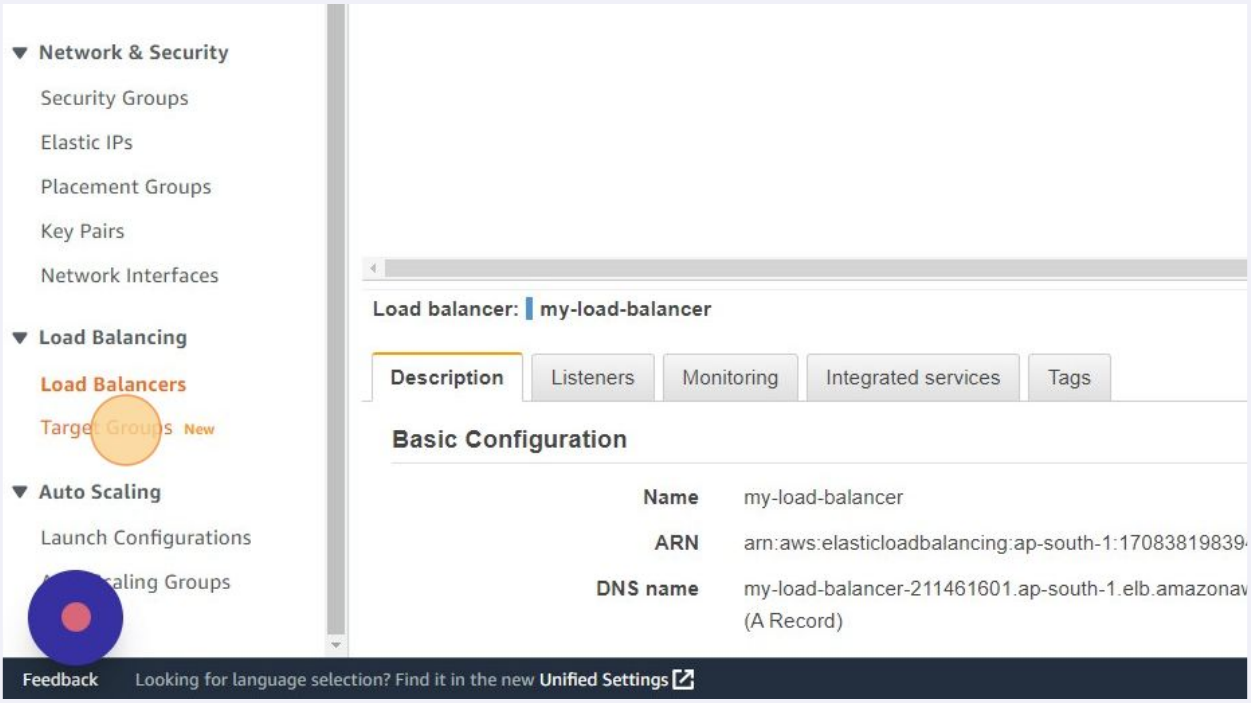
58 Copy the Public IPv4 address



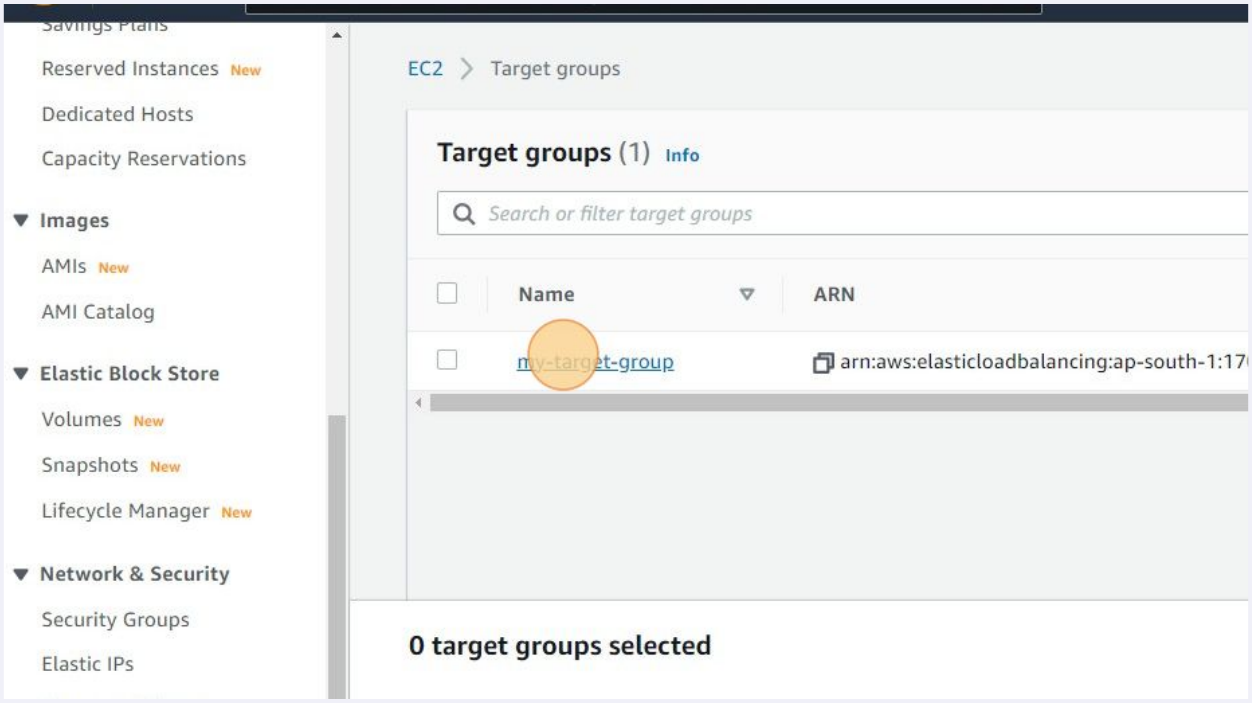
59 Open a new tab and paste the public IPv4 address and check the webpage is viewable

60 Repeat and check the web page from another instance

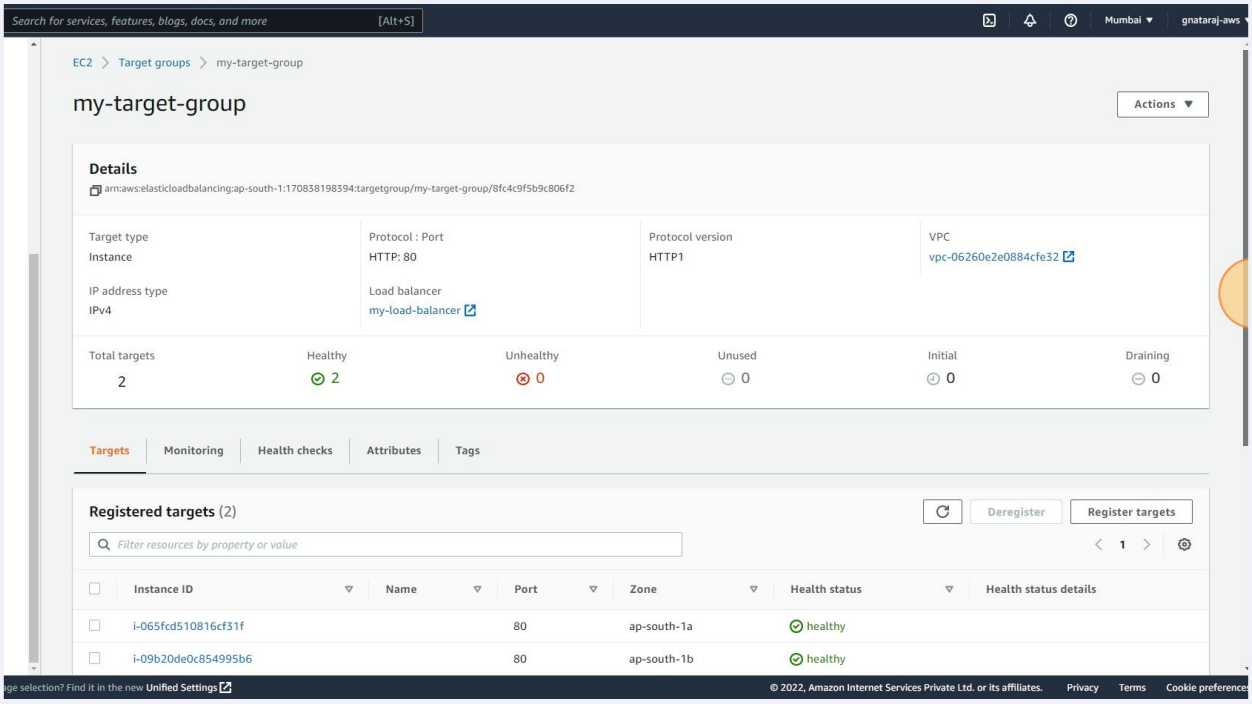
61 Click "Target Groups"



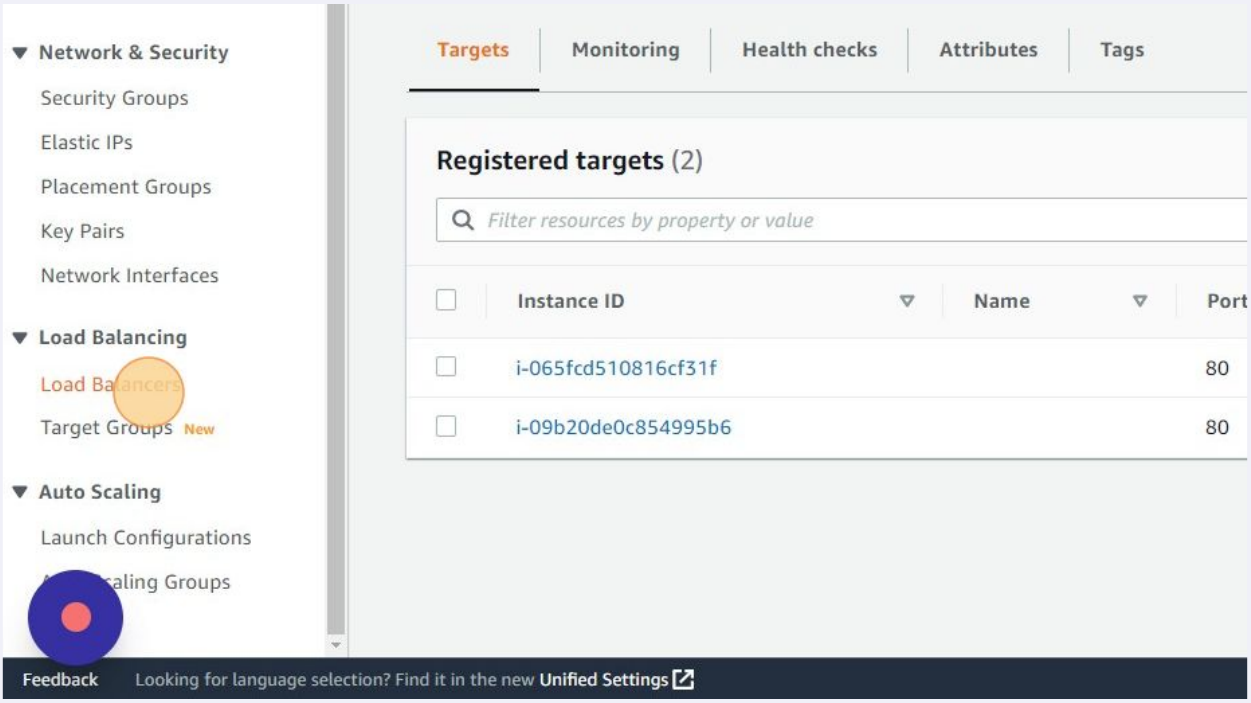
62 Click "my-target-group"



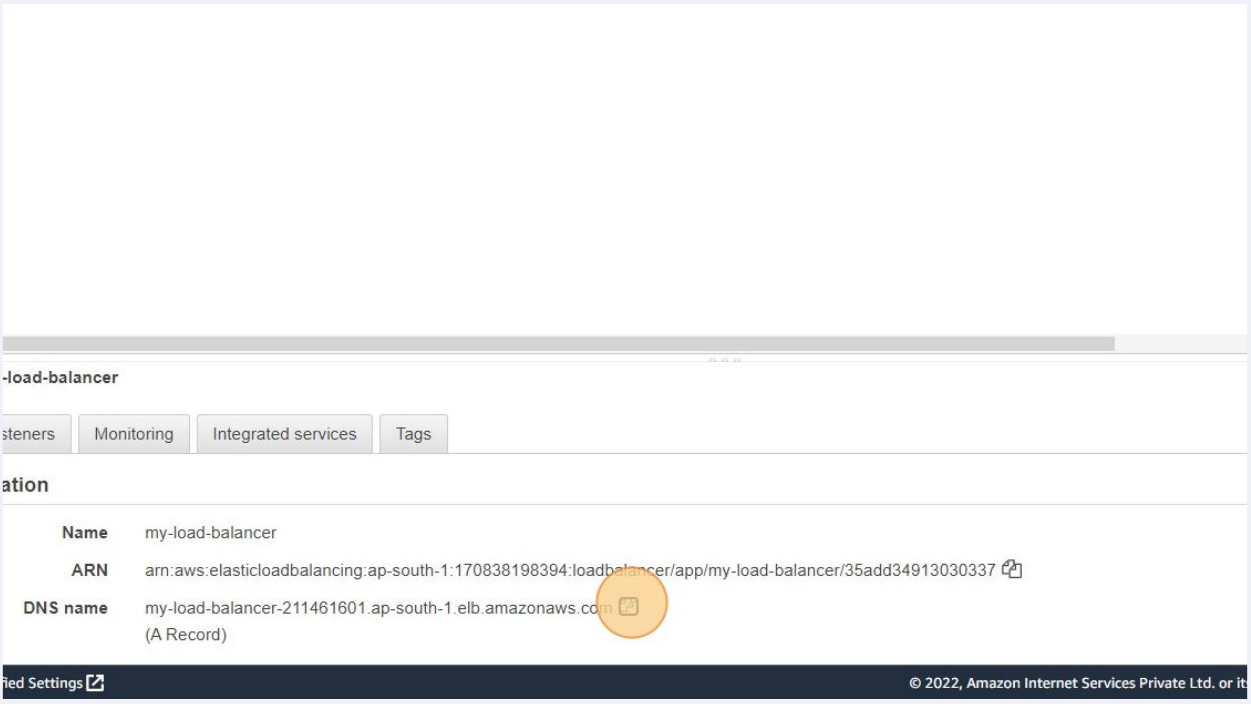
63 Check two EC2 instances are registered.



64 Click "Load Balancers"



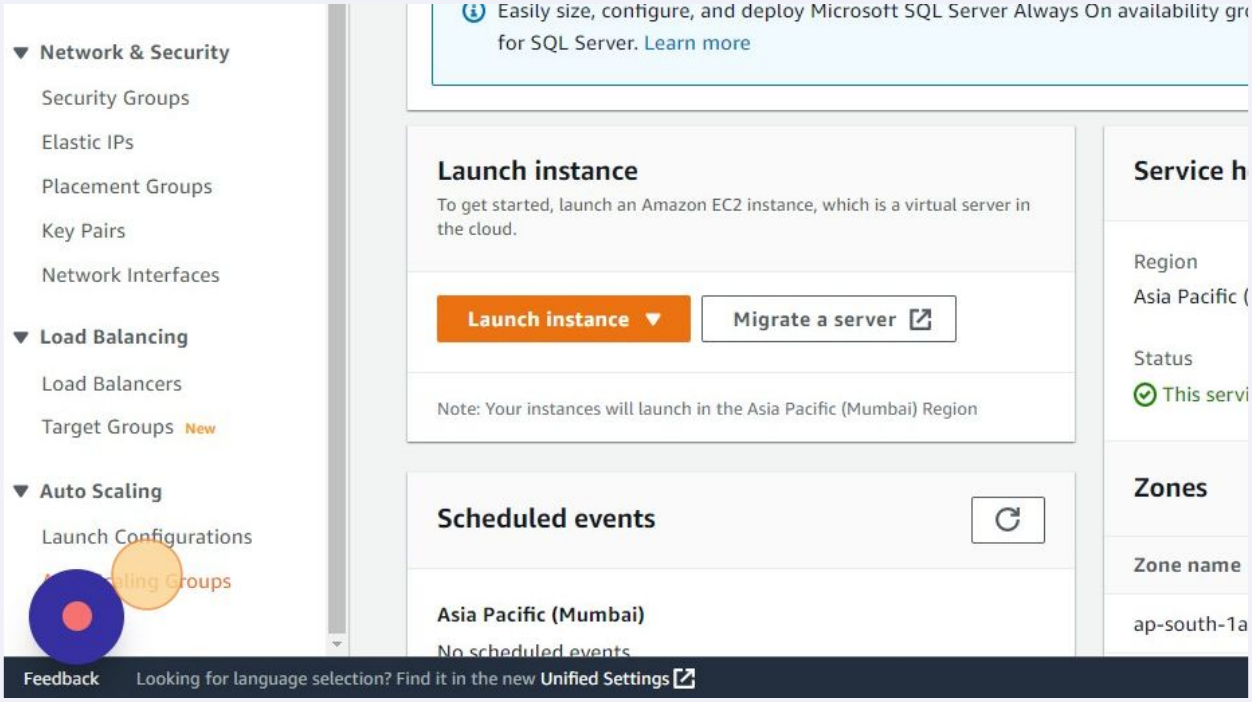
65 Copy the Load Balancer DNS name



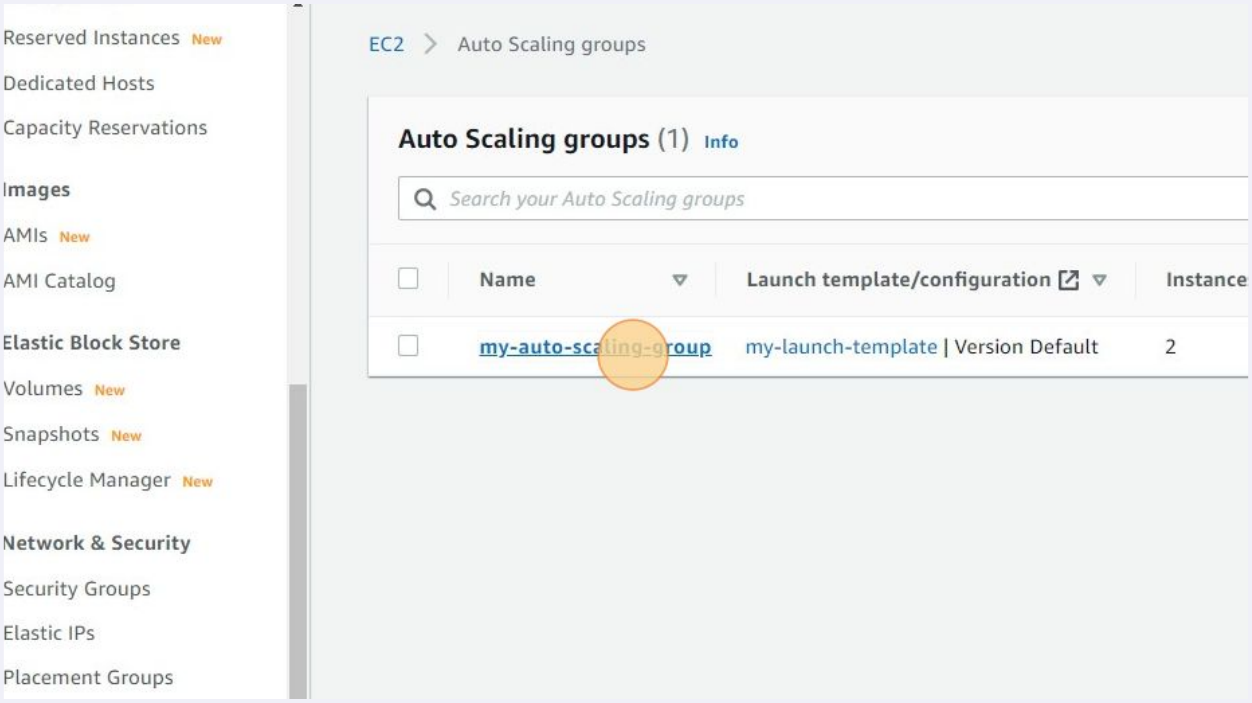
66 In a new tab paste the domain name and check you are able to access the page.

Testing the Scale Out

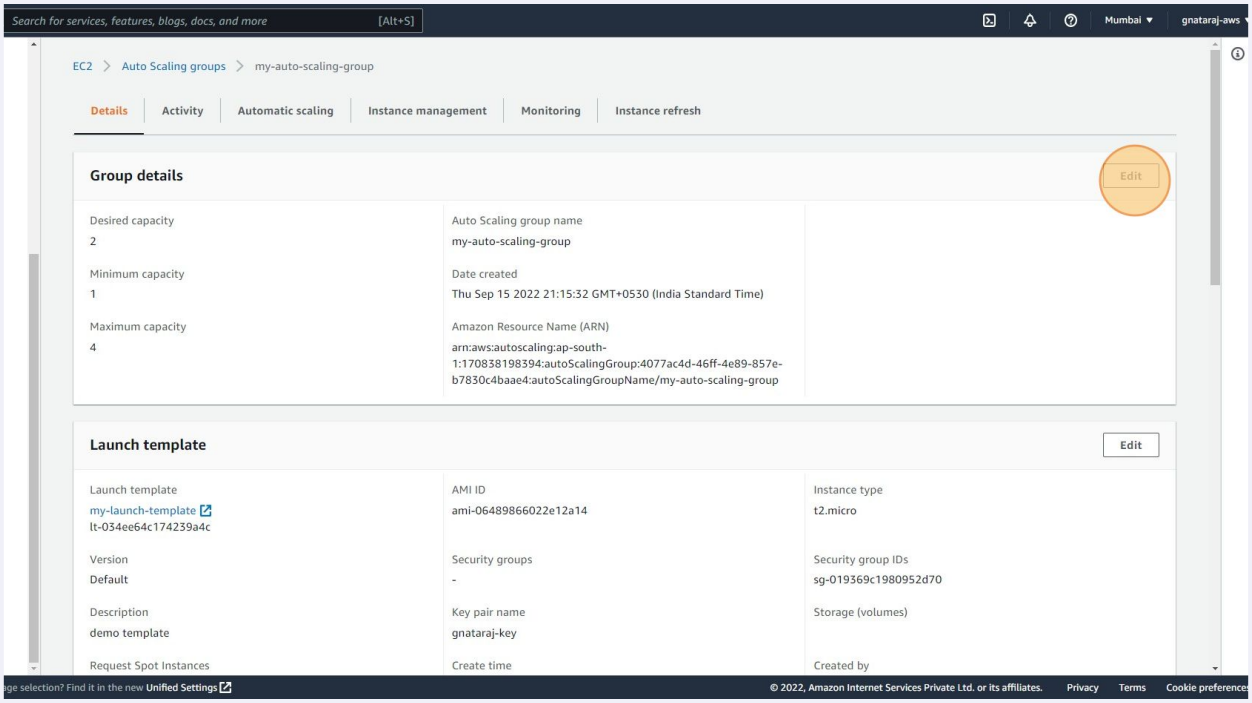
67 Click "Auto Scaling Groups"



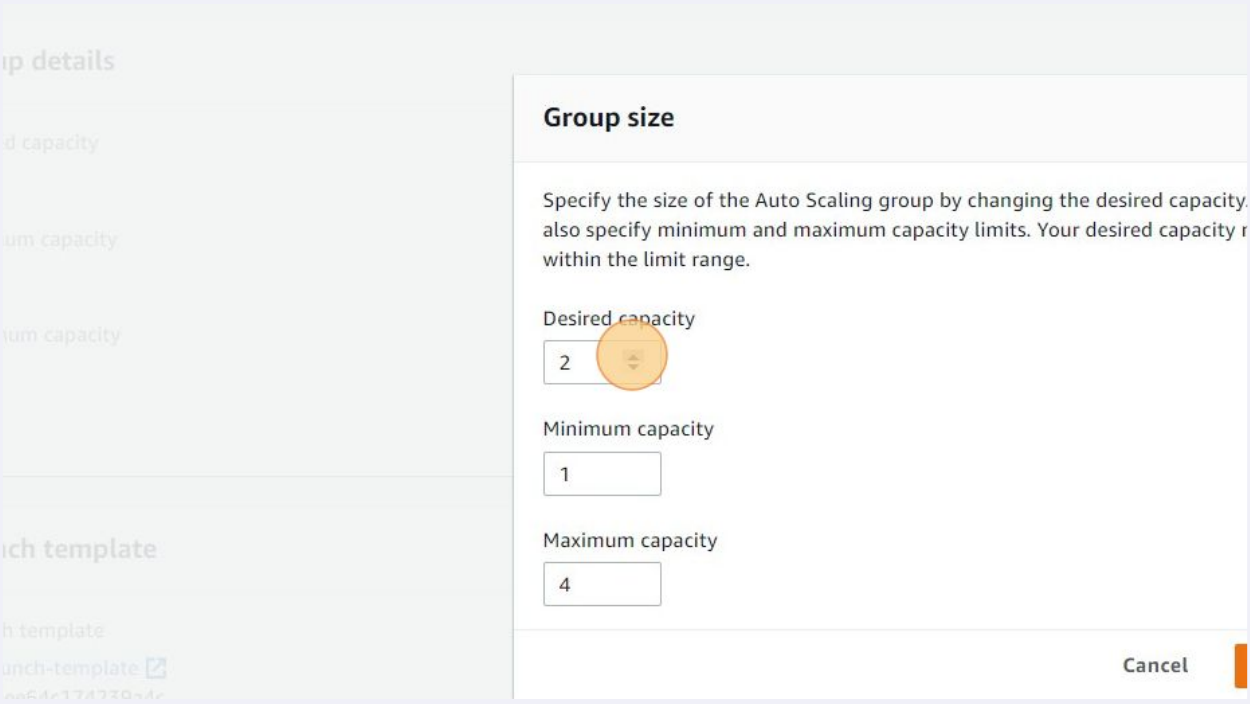
68 Click "my-auto-scaling-group"



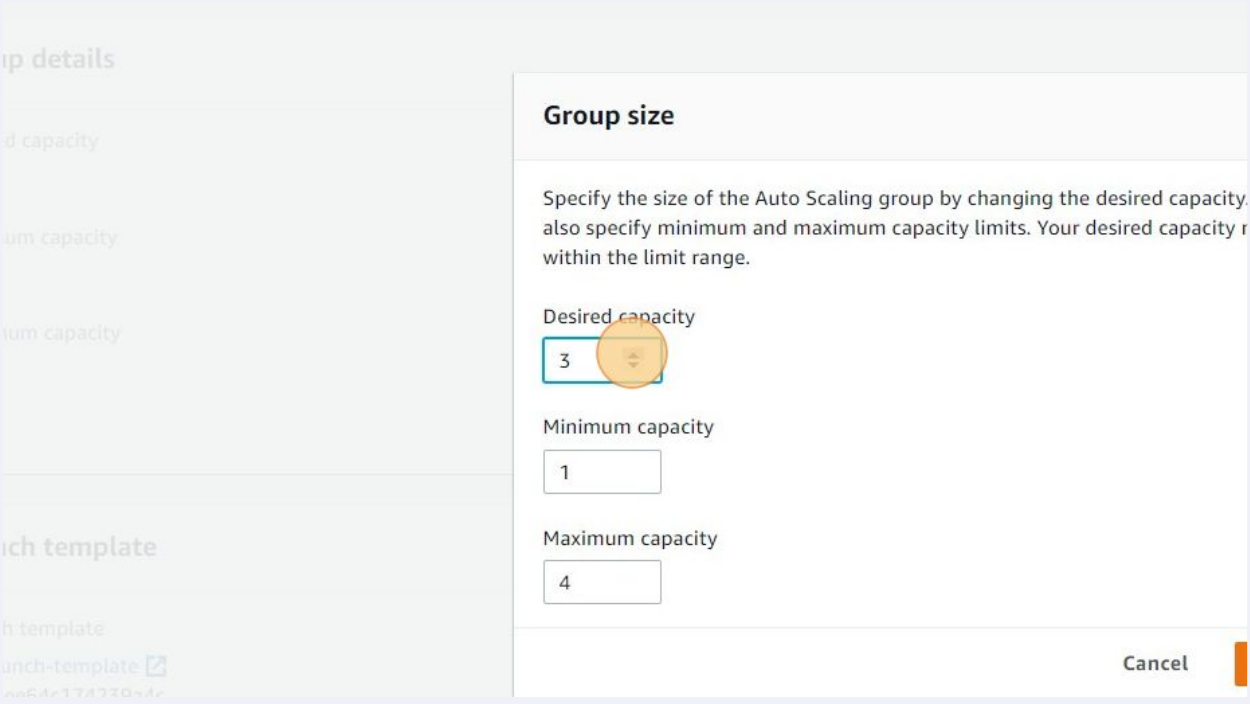
69 Edit on the Group details



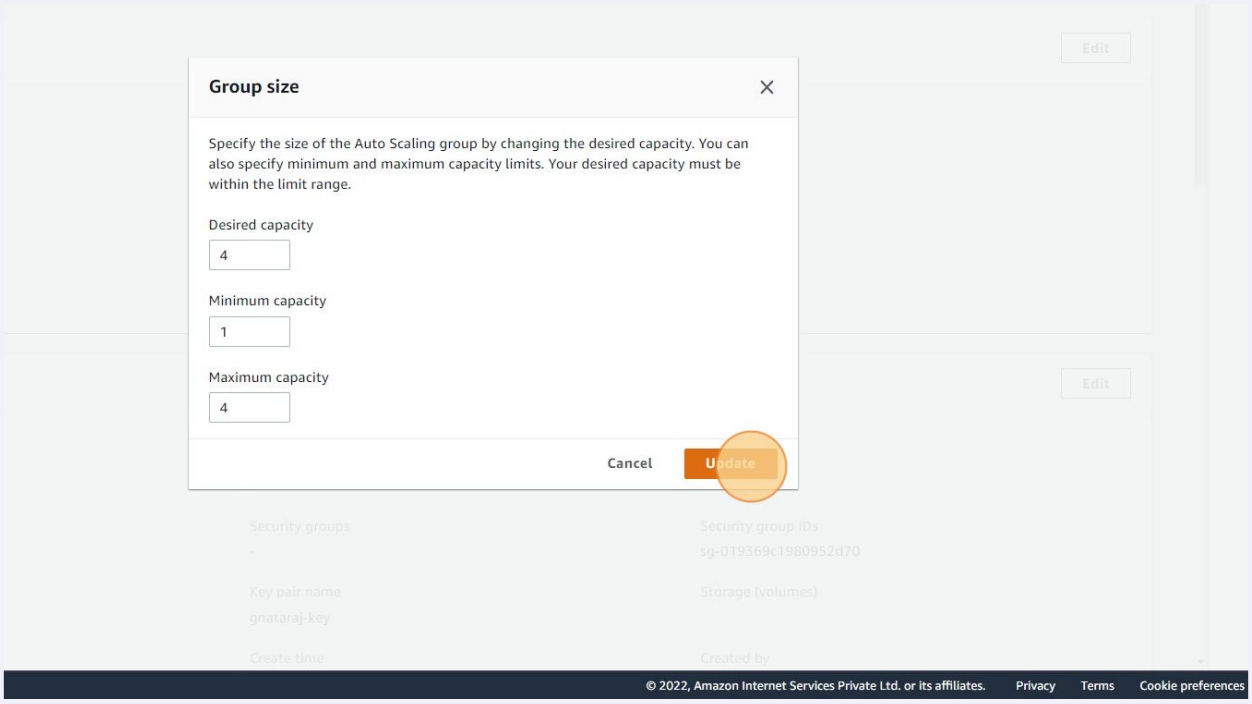
70 Click the "Desired capacity" field.



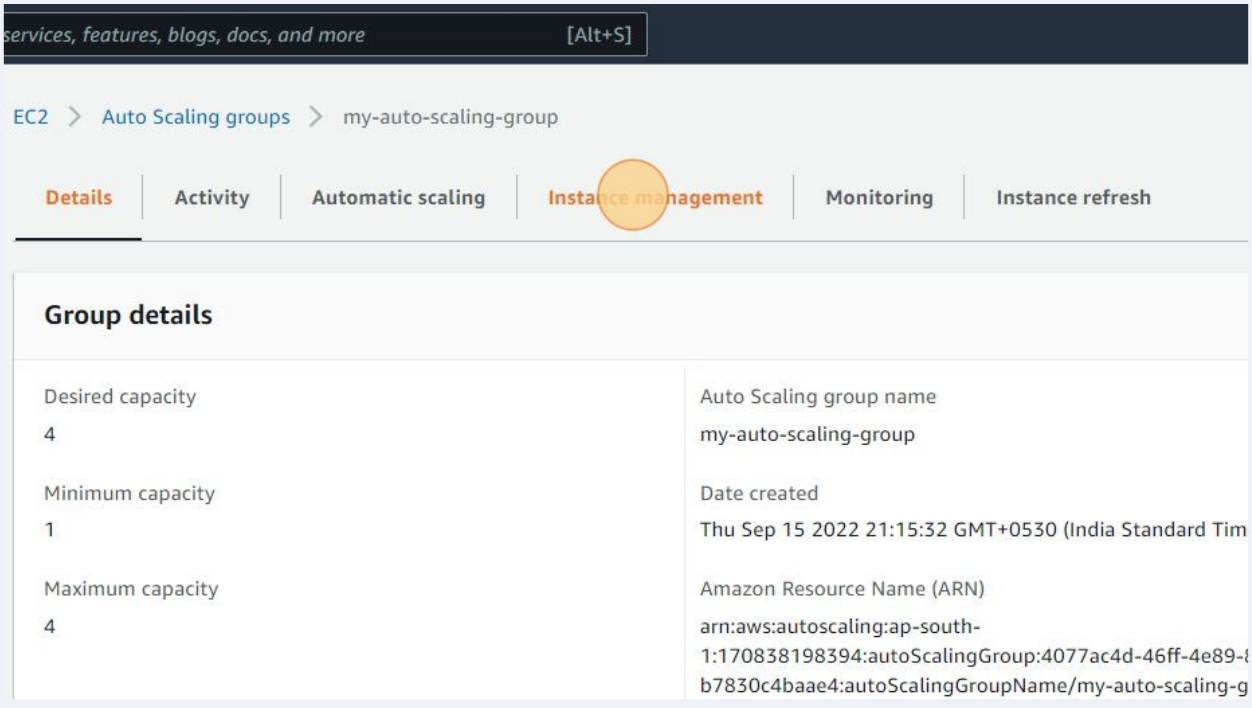
71 Click the "Desired capacity" field.



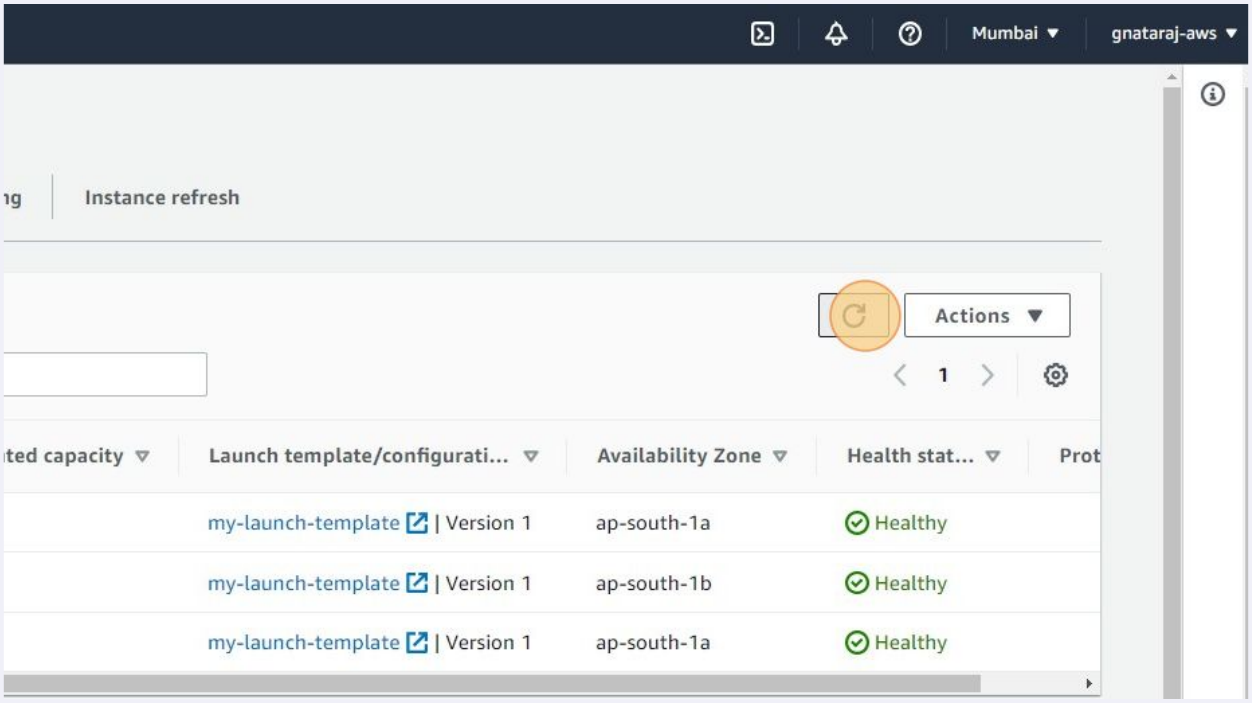
72 Update the "Desired capacity" field to 4 and Click "Update"



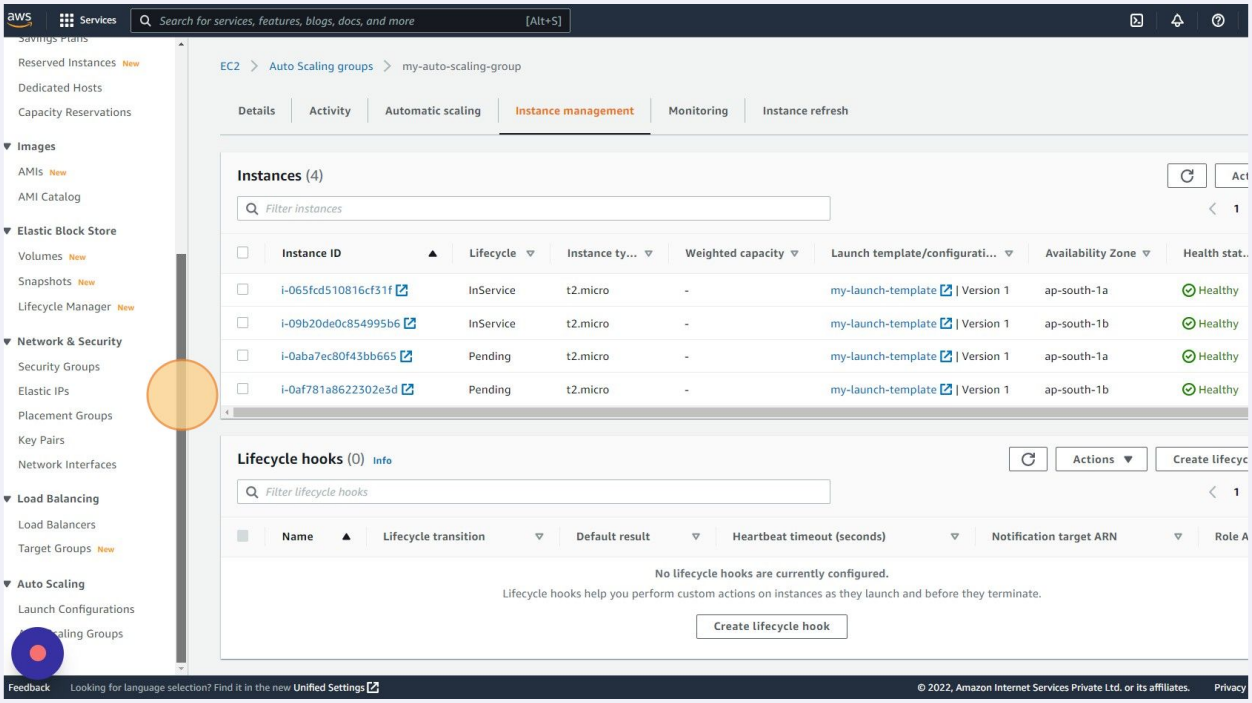
73 Click "Instance management"



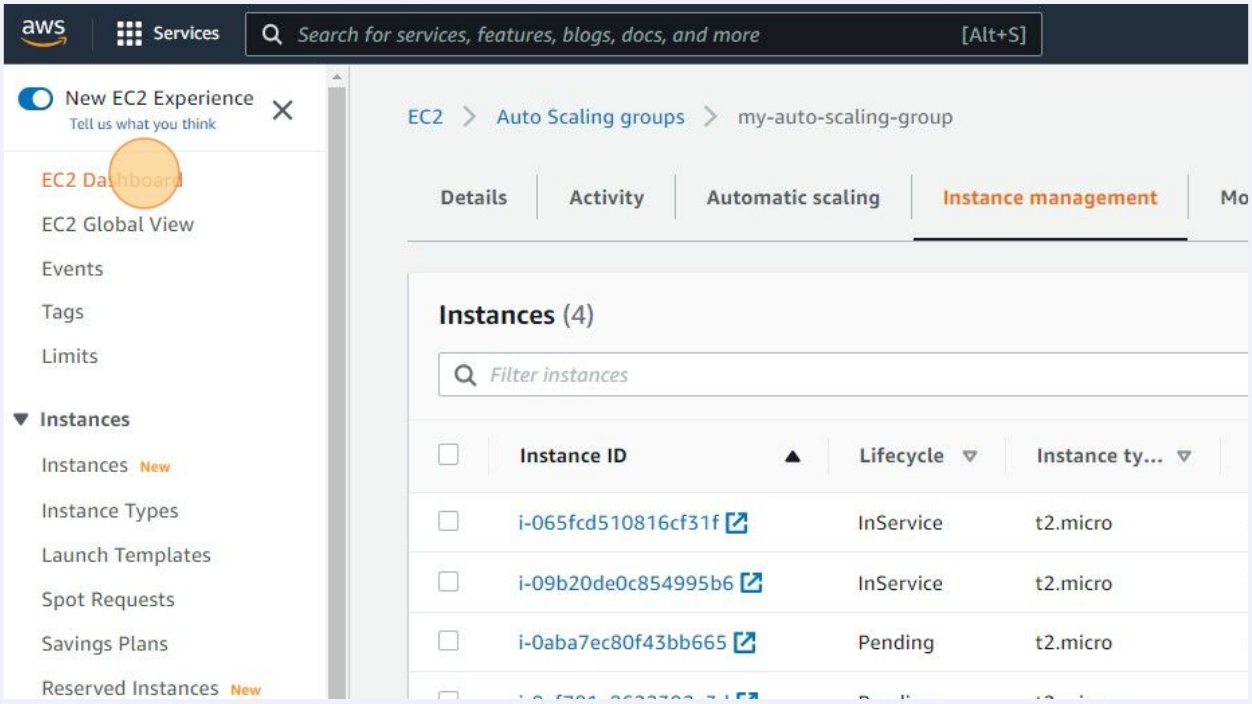
74 Wait till the instances count become Desired Capacity, i, e 4



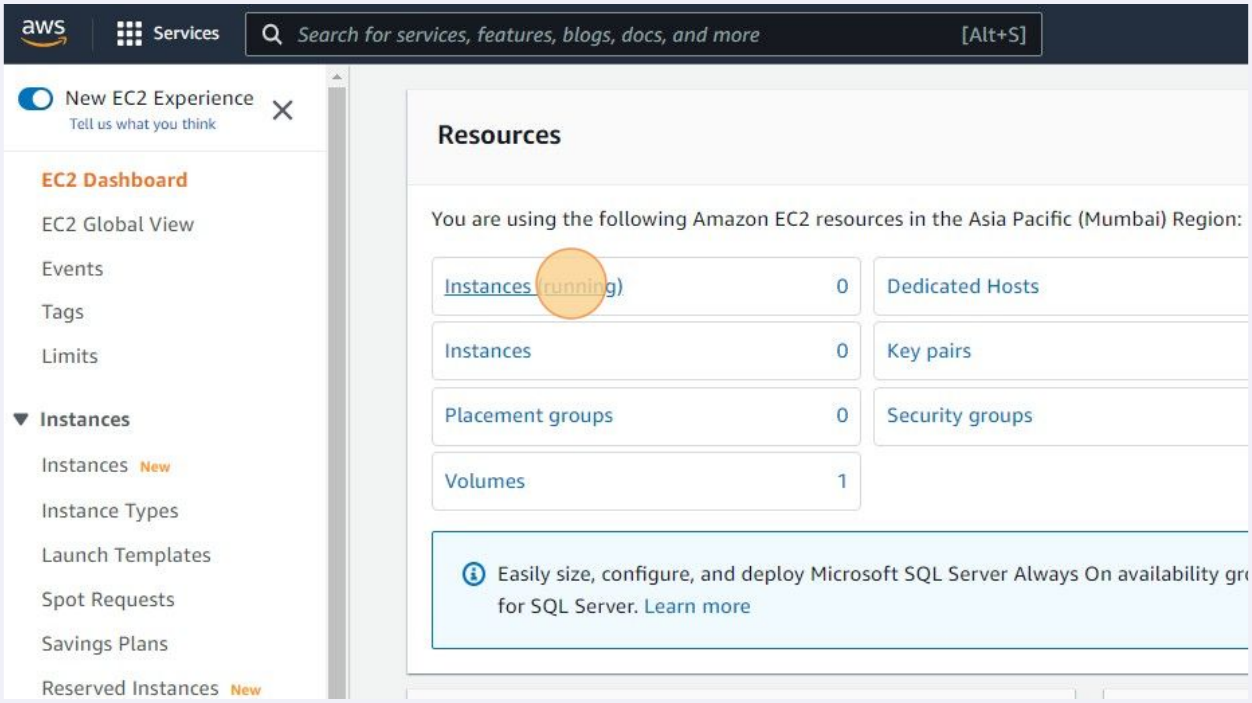
75 Click here.



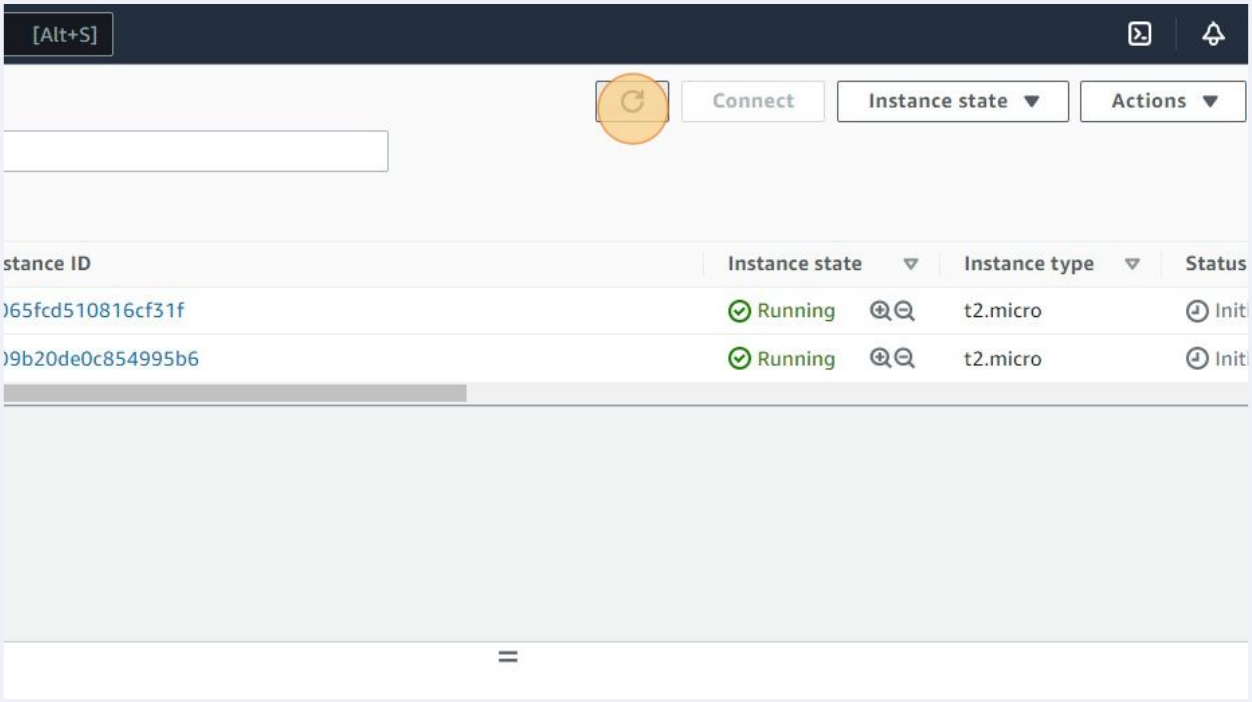
76 Click "EC2 Dashboard"



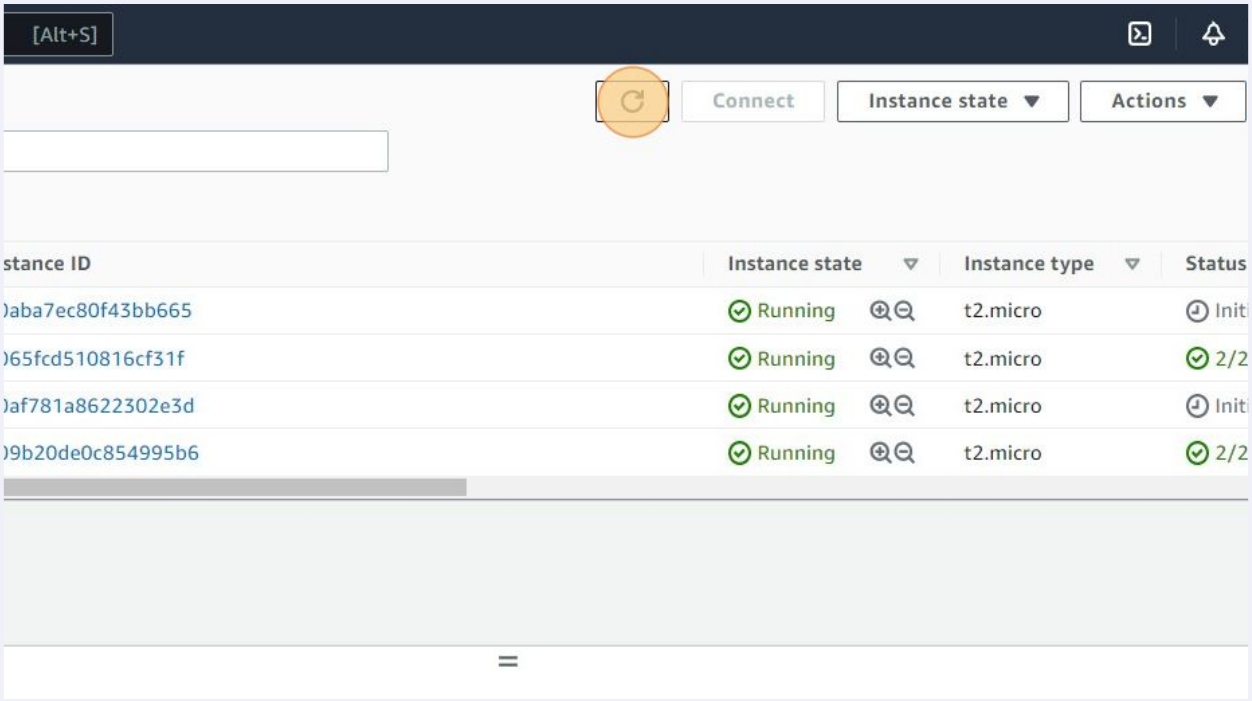
77 Click on the instances



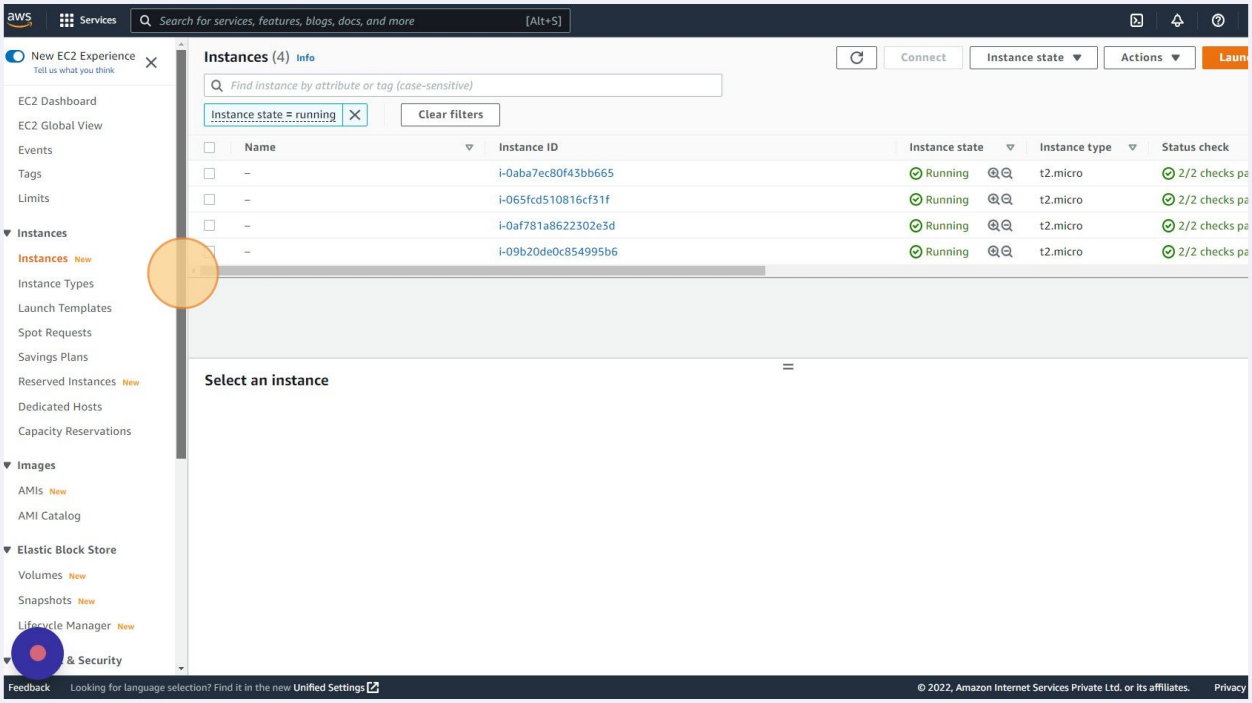
78 Click Refresh



79 Click refresh

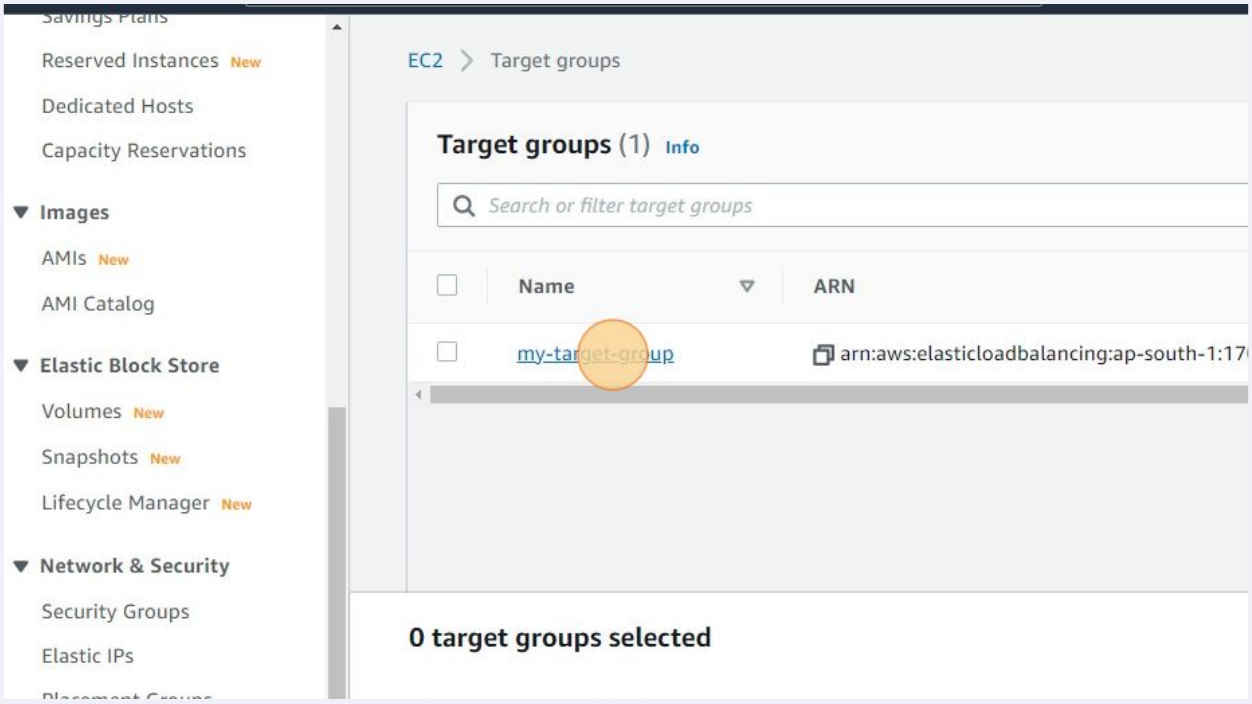


80 Wait till all the four instances comes to running state

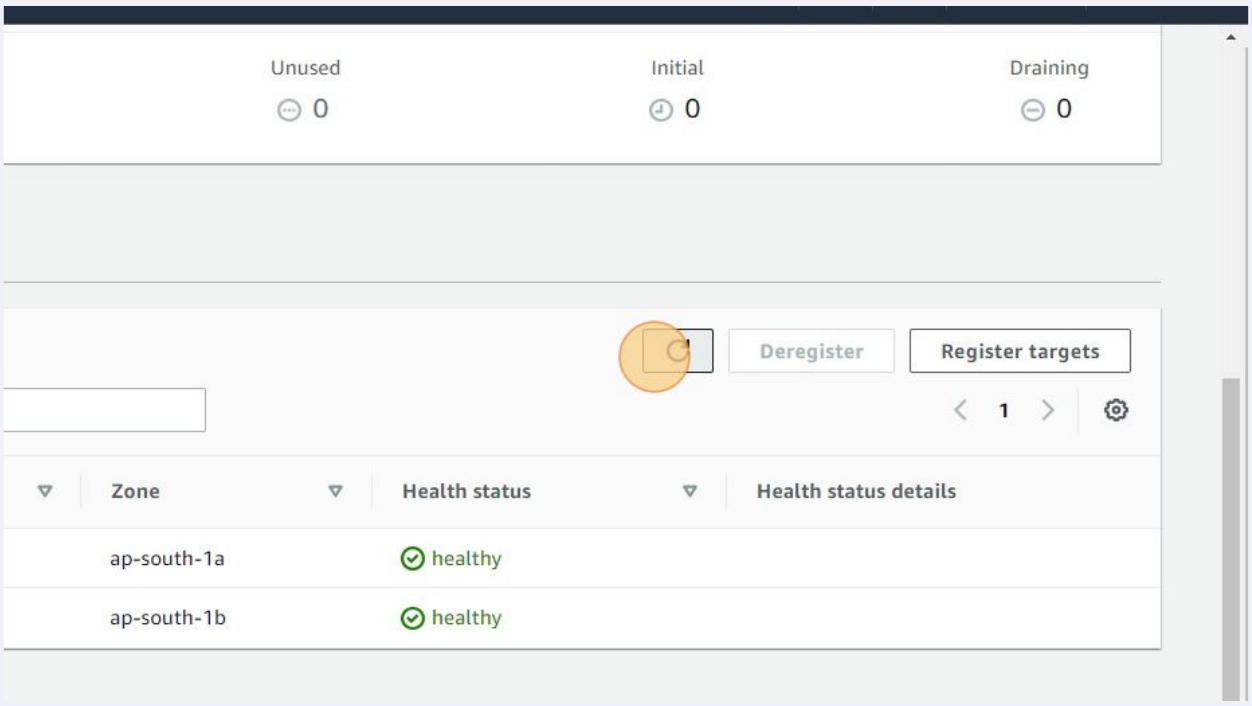


81 Click "Target Groups"

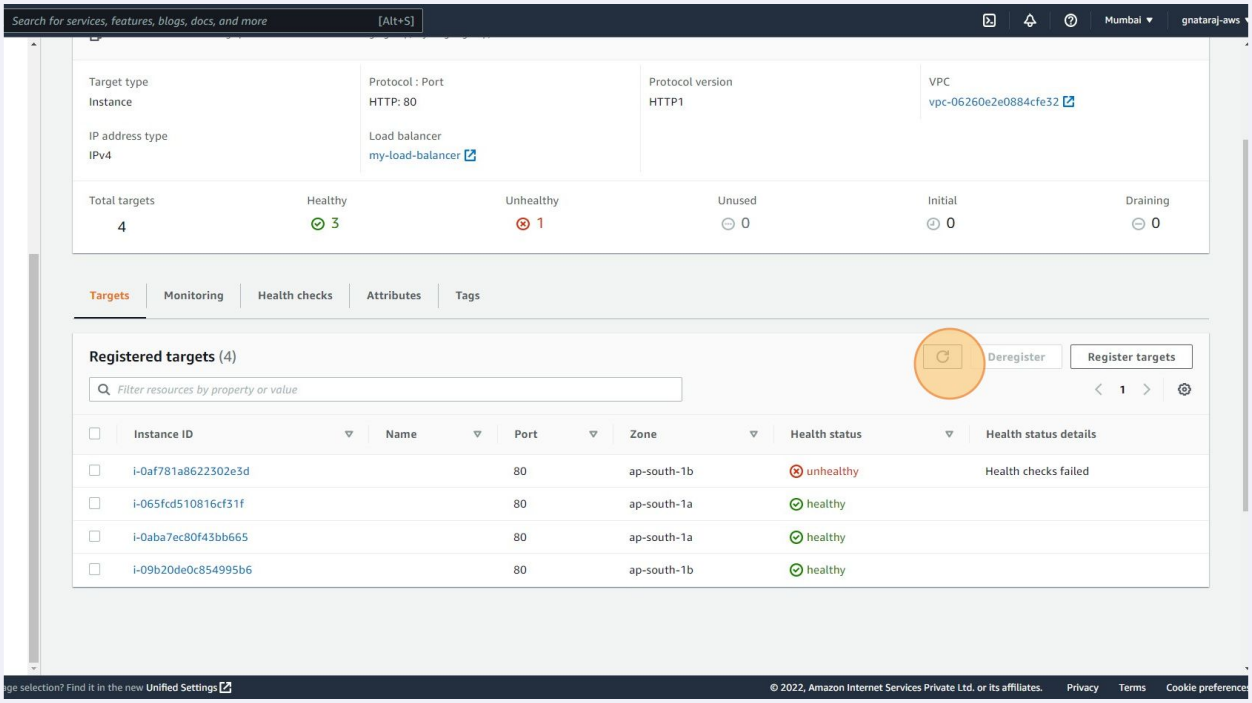
82 Click "my-target-group"



83 Click this refresh button.

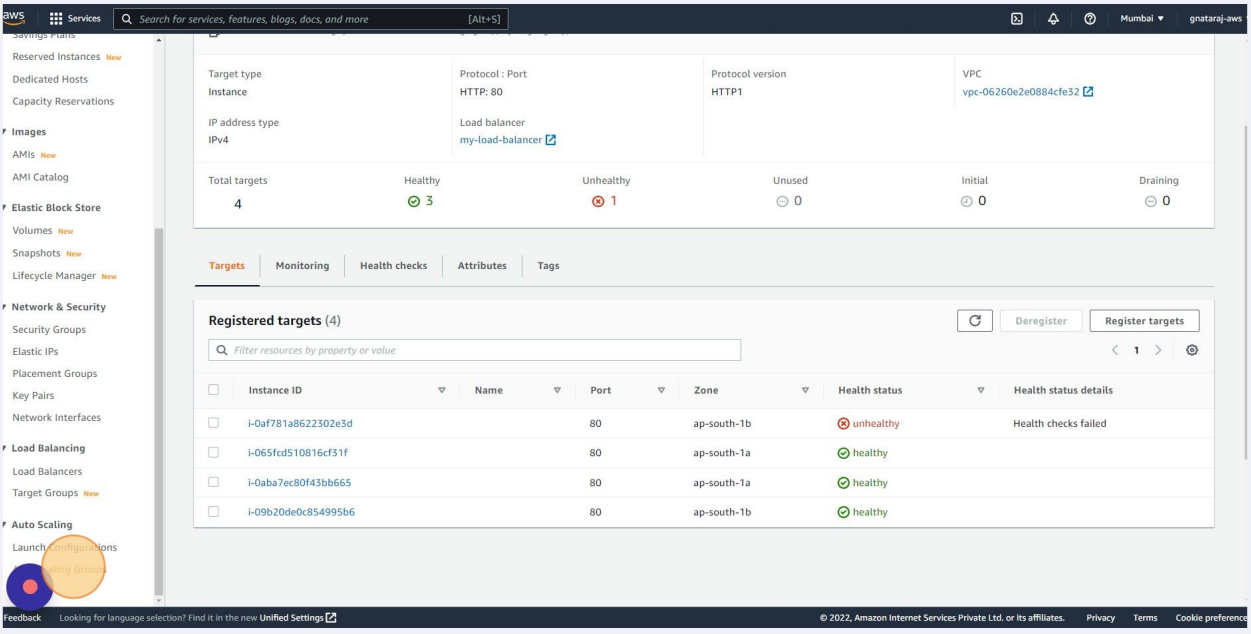


84 Click here.

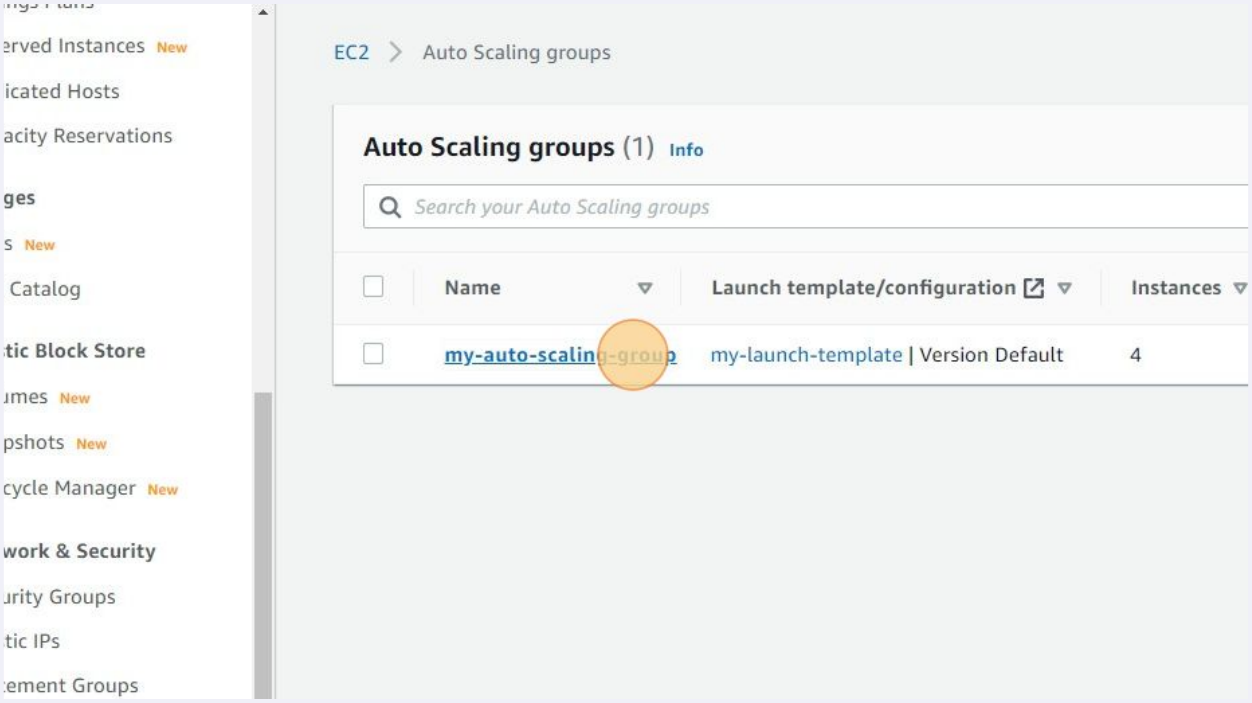


Testing the Scale In

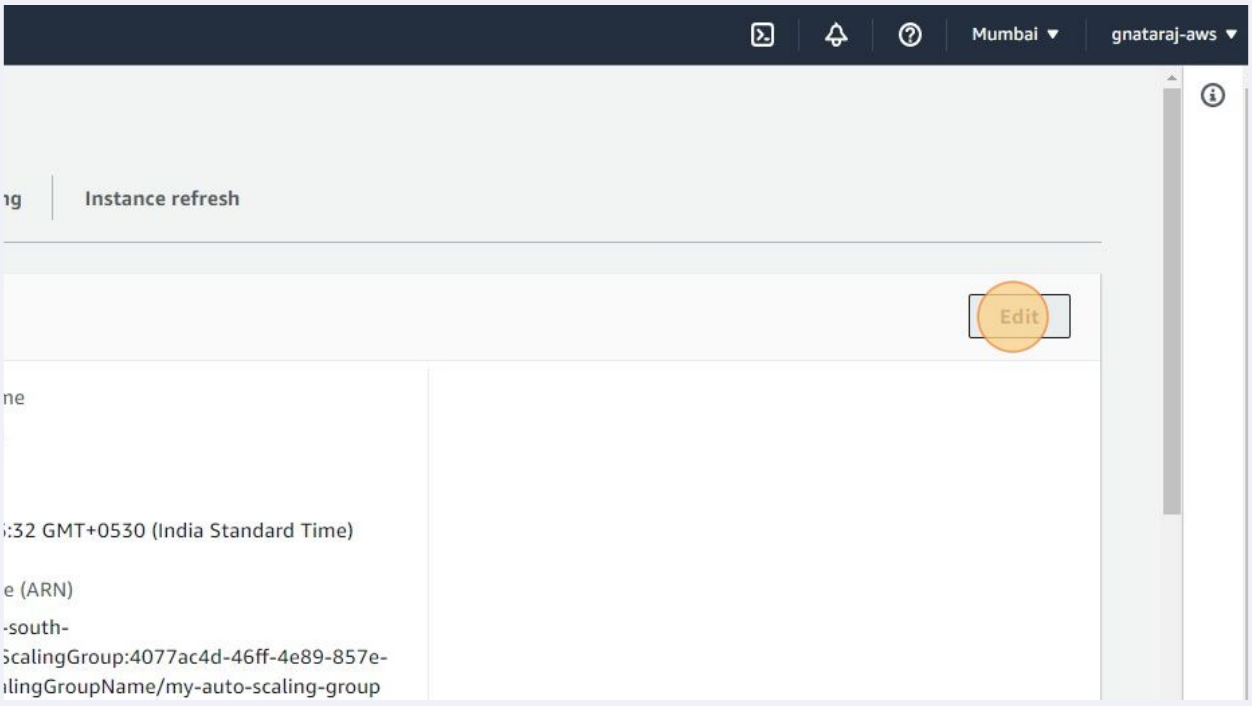
85 Click "Auto Scaling Groups"



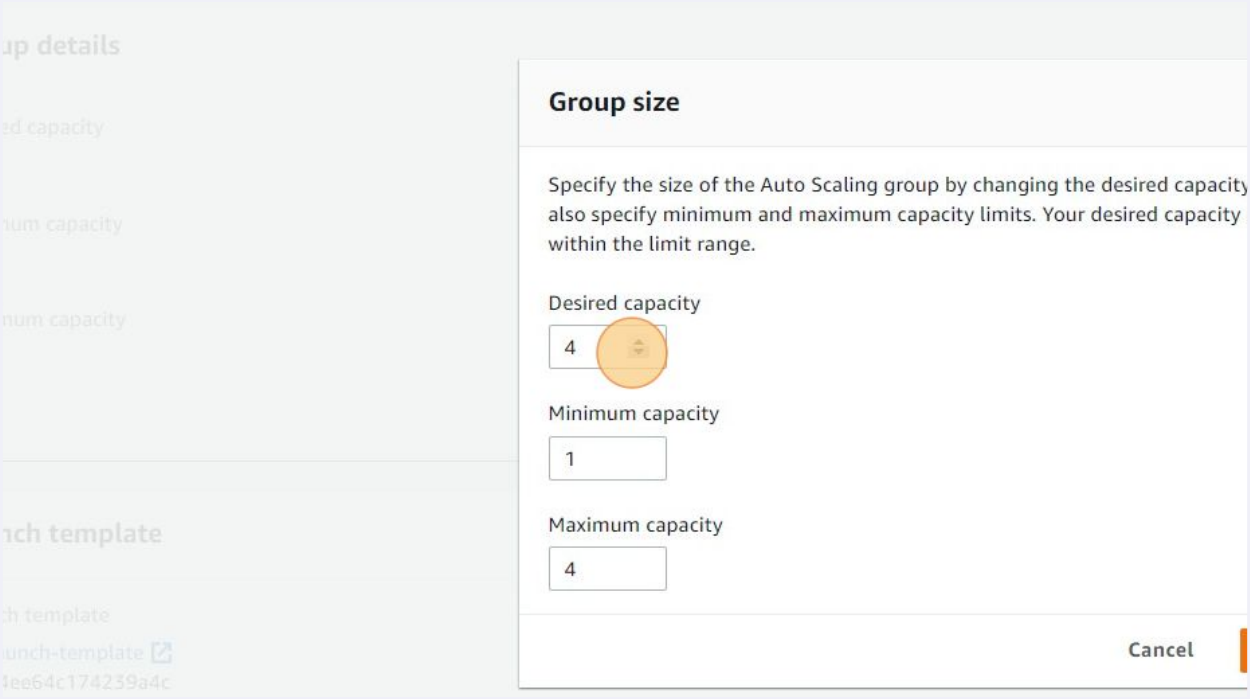
86 Click "my-auto-scaling-group"



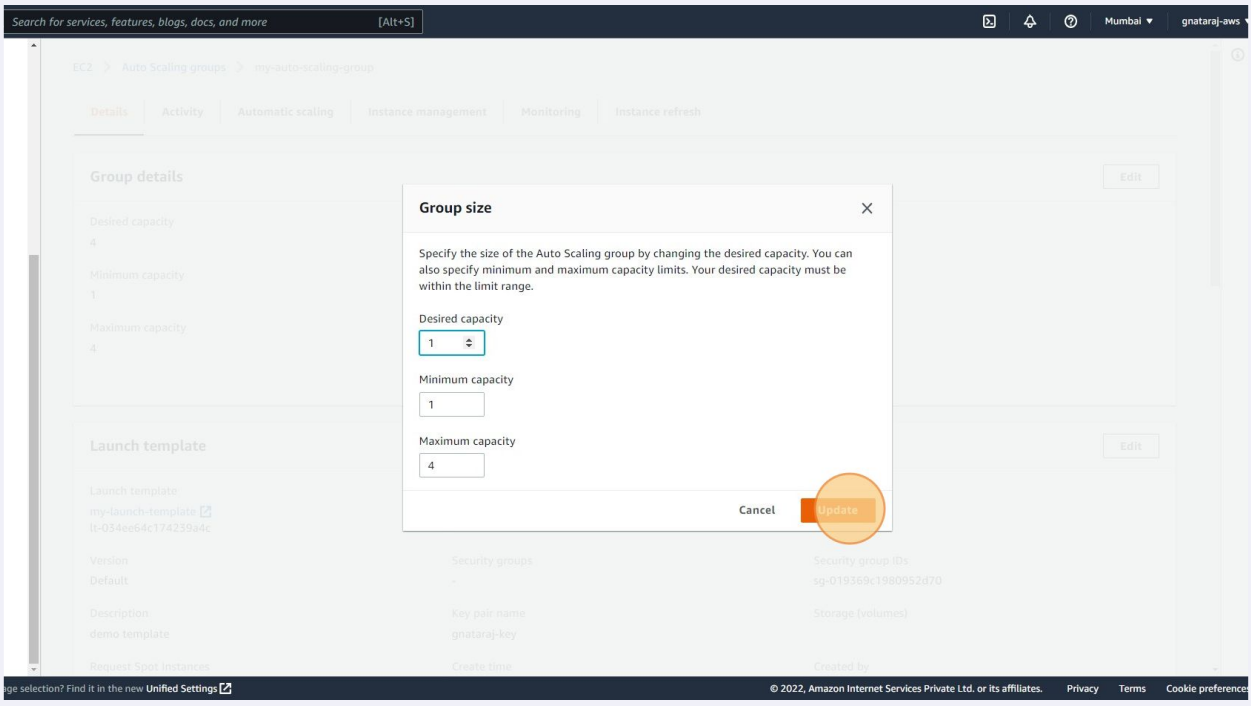
87 Click "Edit"



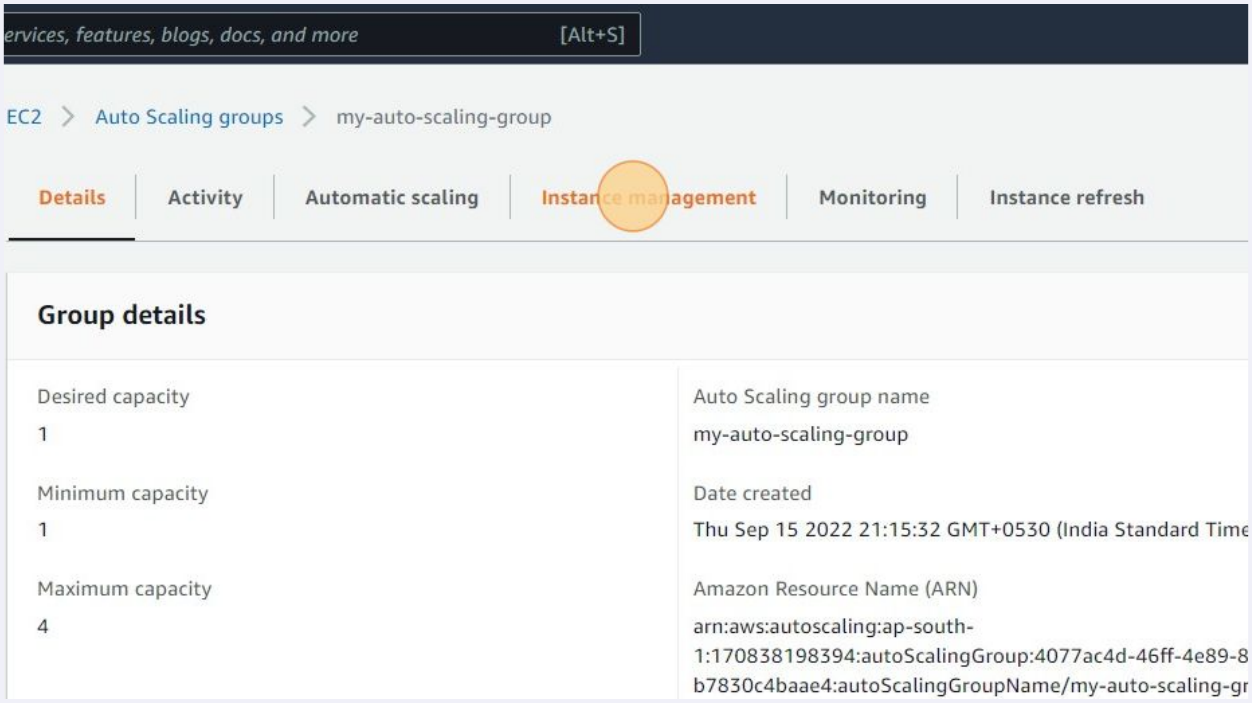
88 Double-click the "Desired capacity" field.



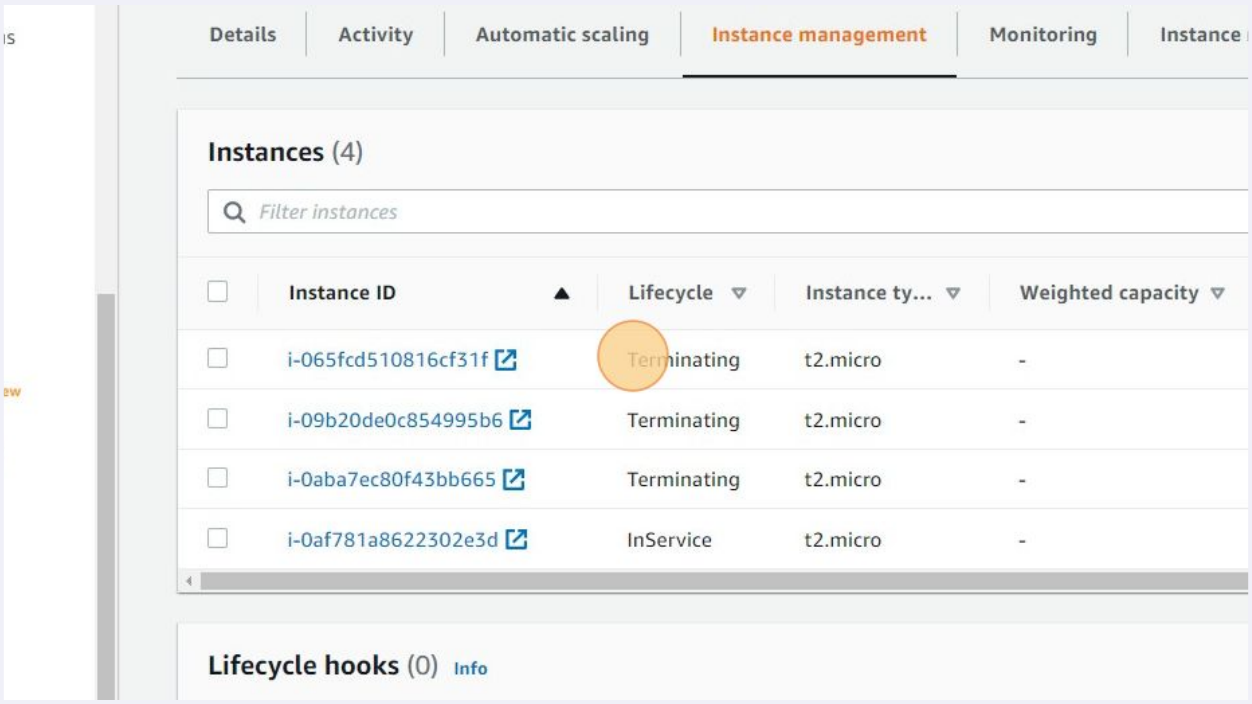
89 Set the desired capacity to 1 and click "Update"



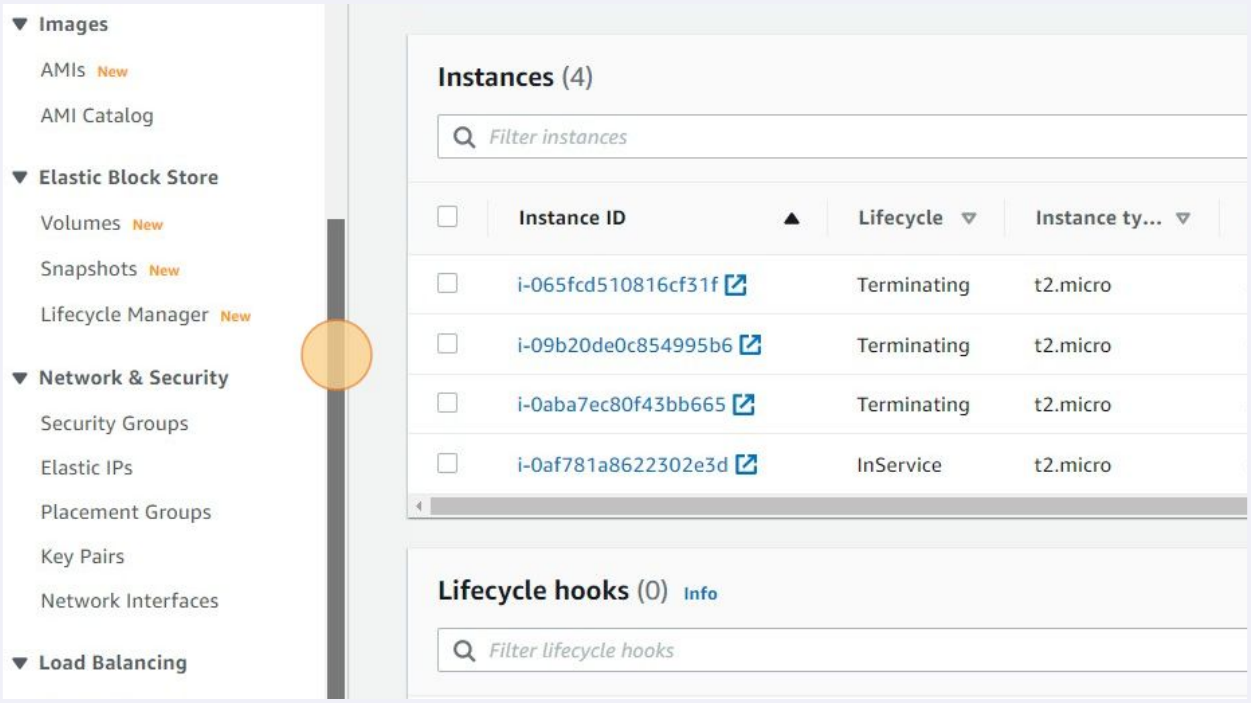
90 Click "Instance management"



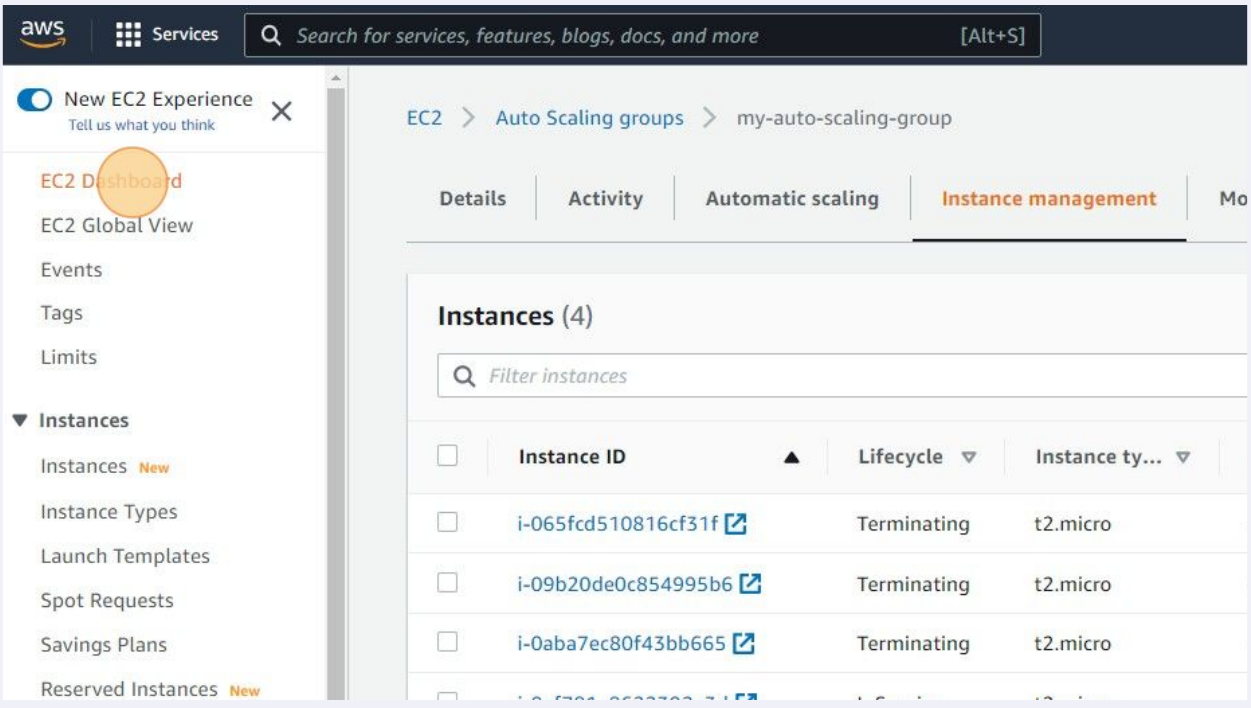
91 Check that Lifecycle of the 3 instances in terminating state



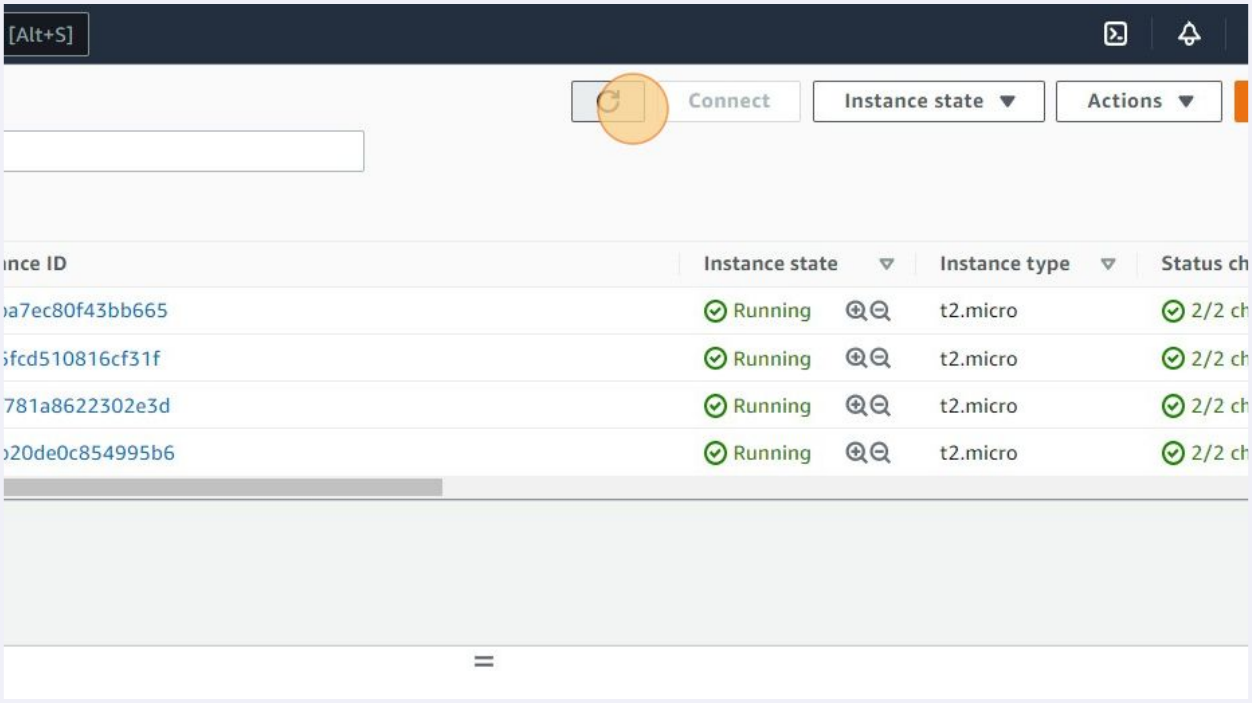
92 Click here.



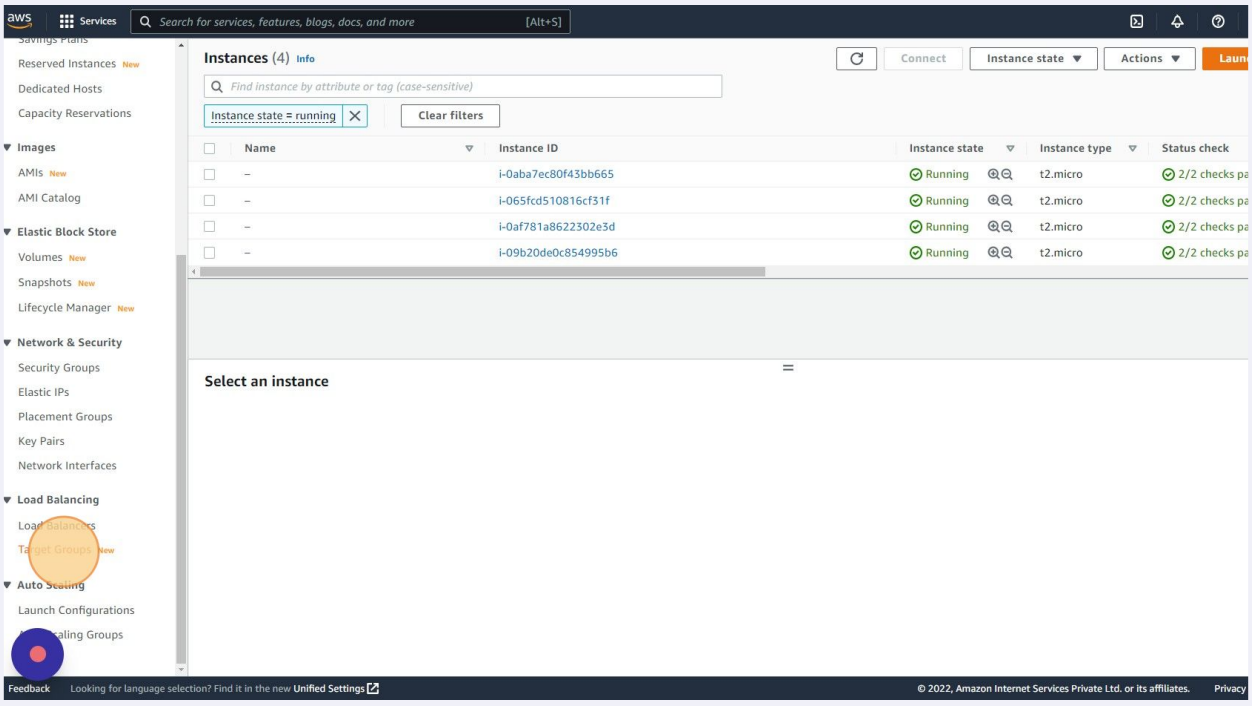
93 Click "EC2 Dashboard"



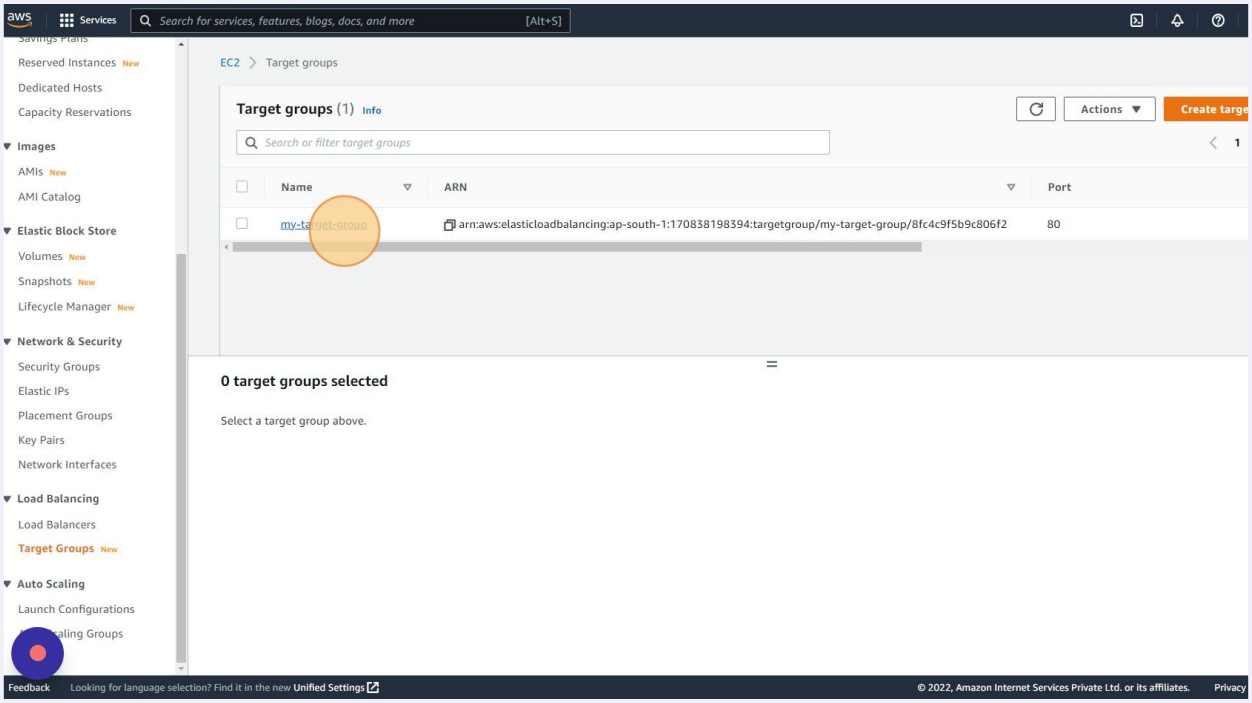
94 Click this button.



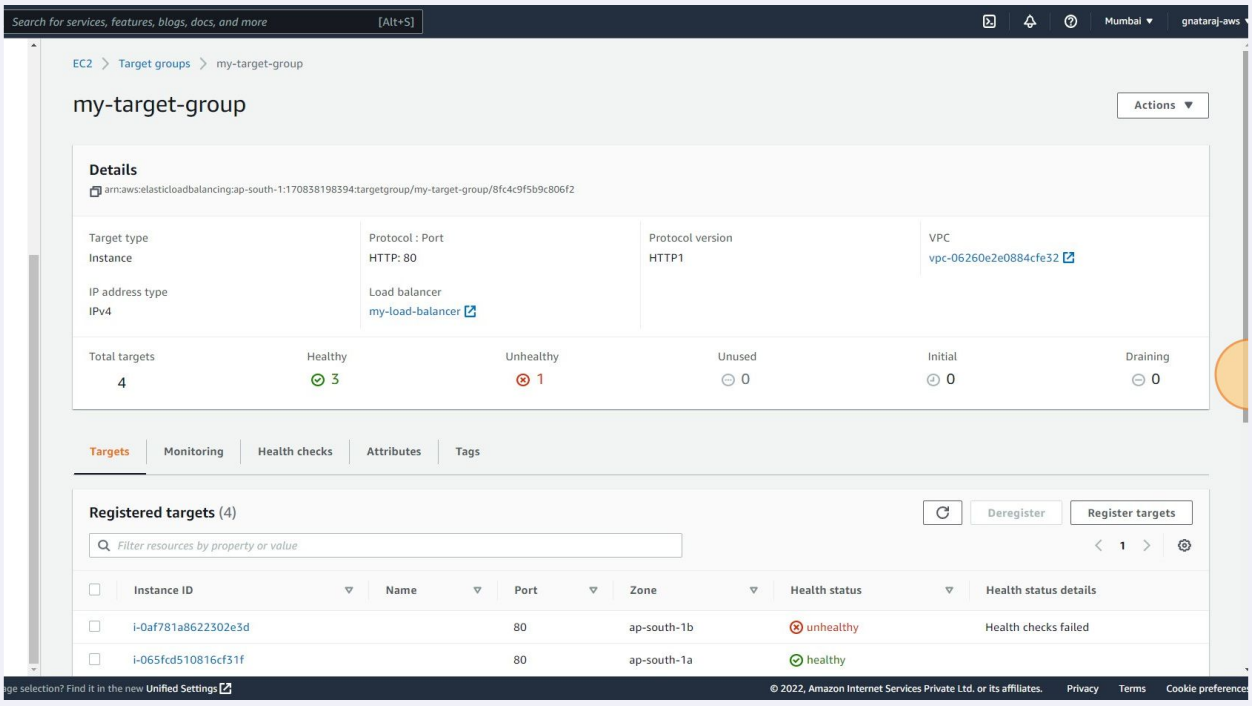
95 Click "Target Groups"



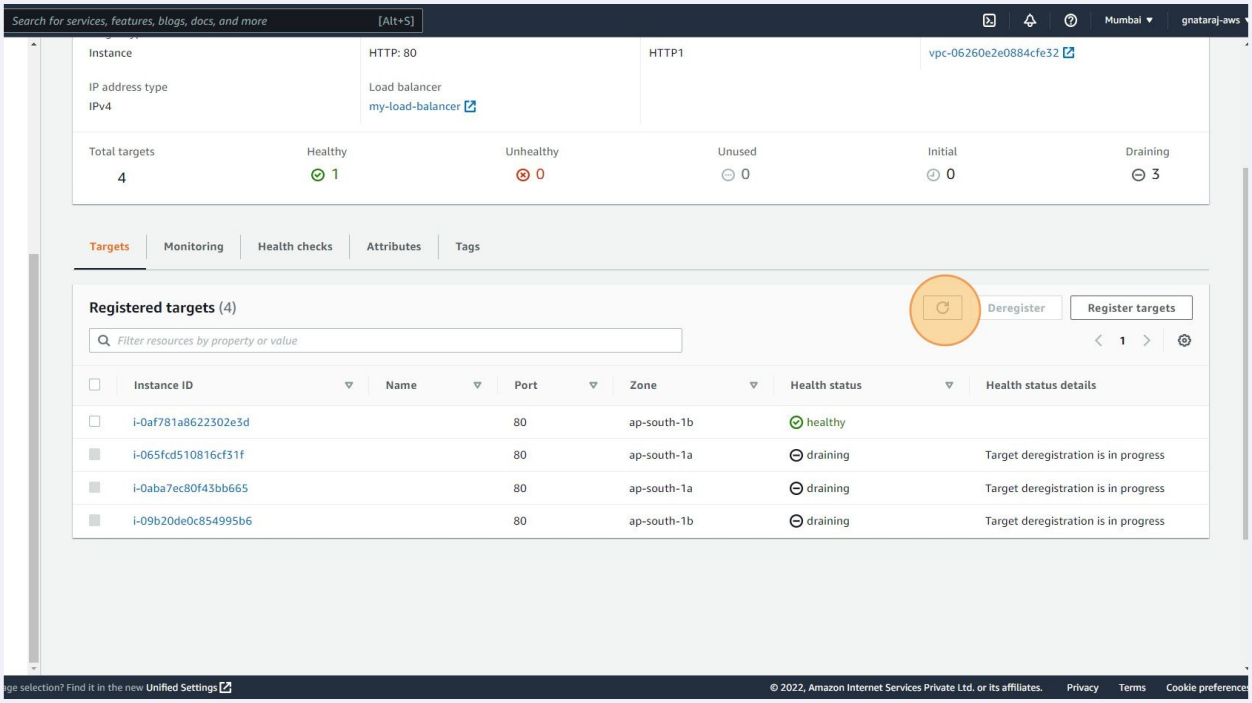
96 Click "my-target-group"



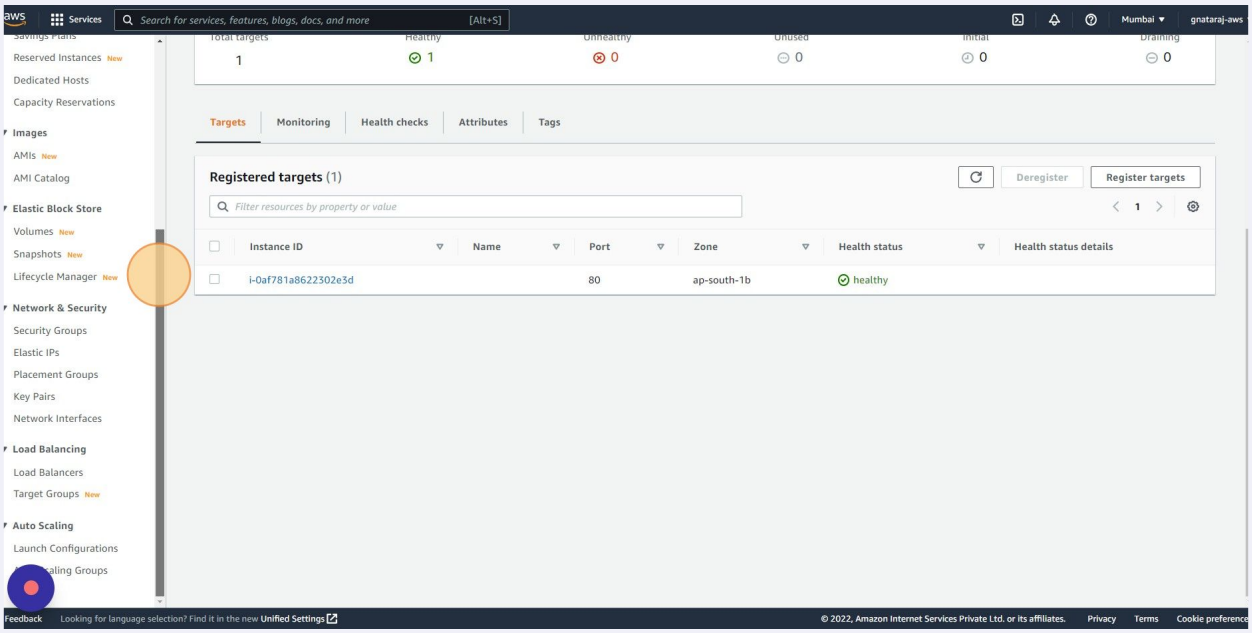
97 Click refresh



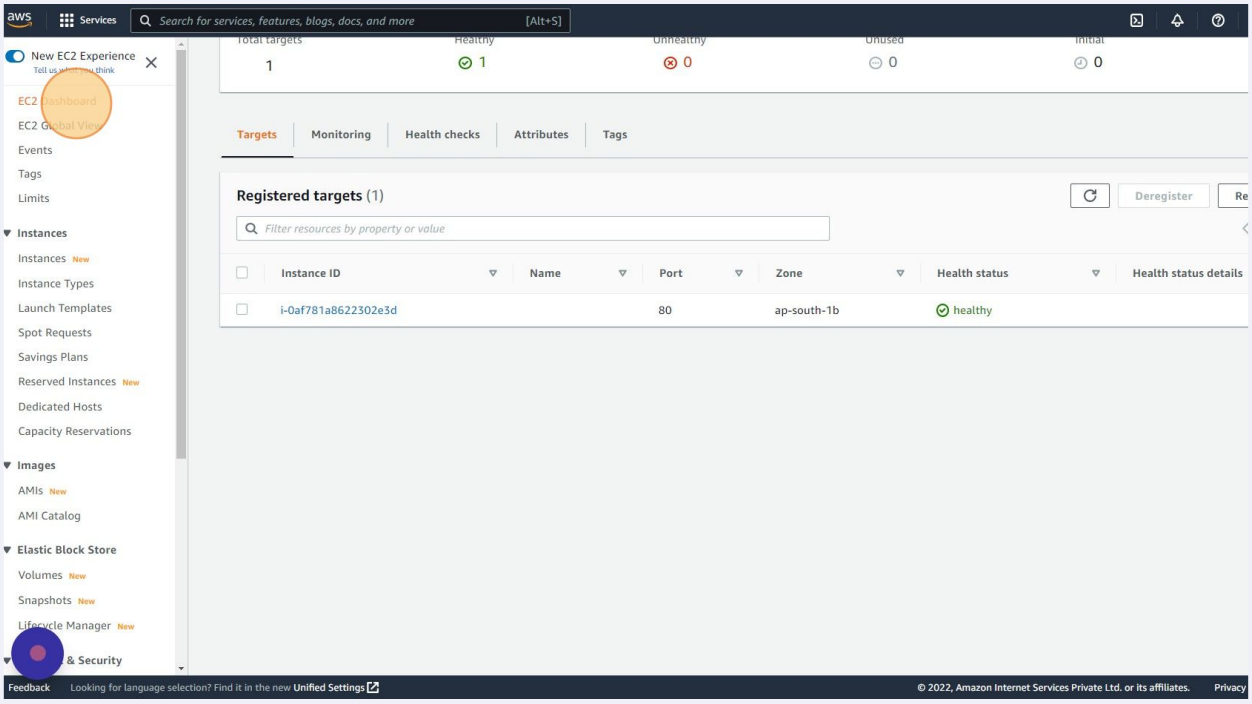
98 Watch the Health Status for draining



99 Wait for a very long, long time to terminate the instance in the targets.



100 Click "EC2 Dashboard"



101 Click here.