
# AutoScaling and Load Balancer

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Newers ID : 4023
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College : UPES

1.Differences between ELB, ALB, and NLB. Where will you use which one?

Ans.

| Elastic Load Balancer | Application Load Balancer | Network Load Balancer |
|---|---|---|
| No target groups needed | Target Groups are involved | Target Groups are involved |
| Works on layer 4 of OSI | Works on layer 7 of OSI | Works on layer 4 of OSI |

- ELB :If we need to redirect loads on EC2 classic instances or on individual instances, use ELB
- ALB: If we need to redirect traffic on the basis of instances, IP's and Lambdas or we need to load balance HTTP and HTTPS traffic, or we need to redirect load based on hosts and paths use ALB.
- NLB: If we need to redirect TCP traffic , use NLB.

2.Differences between step scaling and target scaling.

Ans.

| Step Scaling | Target Scaling |
|---|---|
| With the help of this we can specify multiple threshold values for different responses. | Here we can specify a threshold based on a particular target, for example if we have CPU utilization above 30, it will launch a new instance. |
| Used for fine grained control | Used generally |

3.Differences between Launch configuration and launch template.

Ans.

| Launch Configuration | Launch Template |
|---|---|
| Configurations cannot be versioned | Templates can be versioned |
| Old.(less options) | New.(Allows advanced options) |
| No T2 unlimited access | T2 unlimited access |

4.Differences between EC2 health check and load balancer health check.

Ans.

EC2 Health Check : Watches for instance availability from hypervisor and networking point of view.So if instance is wrongly configured and does not respond to the network requests, it is marked as unhealthy.

ELB Health Check : This verifies network level availability.So it checks whether the specified tcp and http port is accepting requests or not.

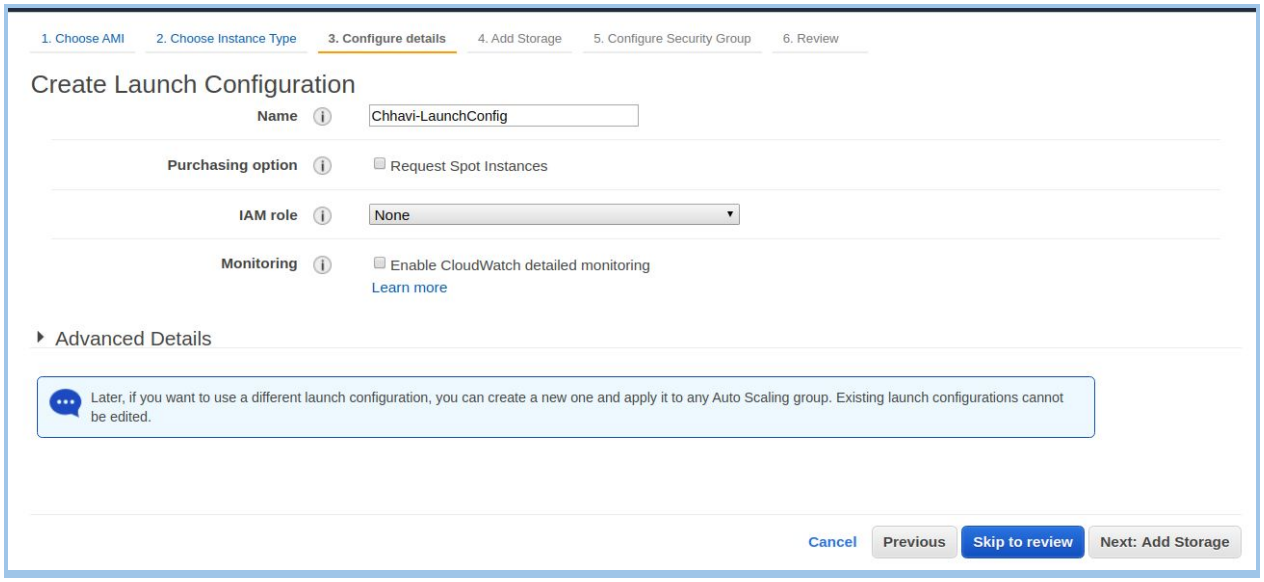
SO in case of EC2 Health check even if the instance itself is healthy (namely, the instance is reachable, hasn't crashed, etc.), our application may have died within the instance. With the EC2 health check, we really don't know if our application can handle requests or is still performing its duties correctly.

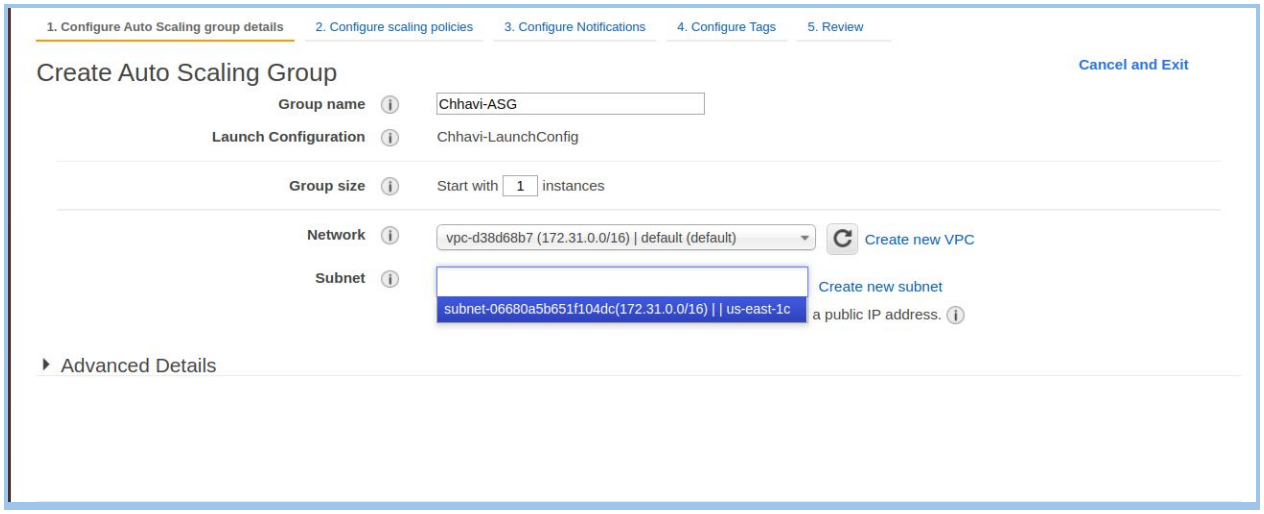
If we set the Health Check Type to ELB, then we can be sure that even if the ELB health check is failing, the instance will be terminated and a new one will take its place, giving us true failover in the event that our application goes down. As a bonus, if the EC2 instance itself goes down, we will still get the proper failover from an ELB health check because our application will be unreachable to the ELB, deemed unhealthy, and subsequently destroyed by the auto scaling group.

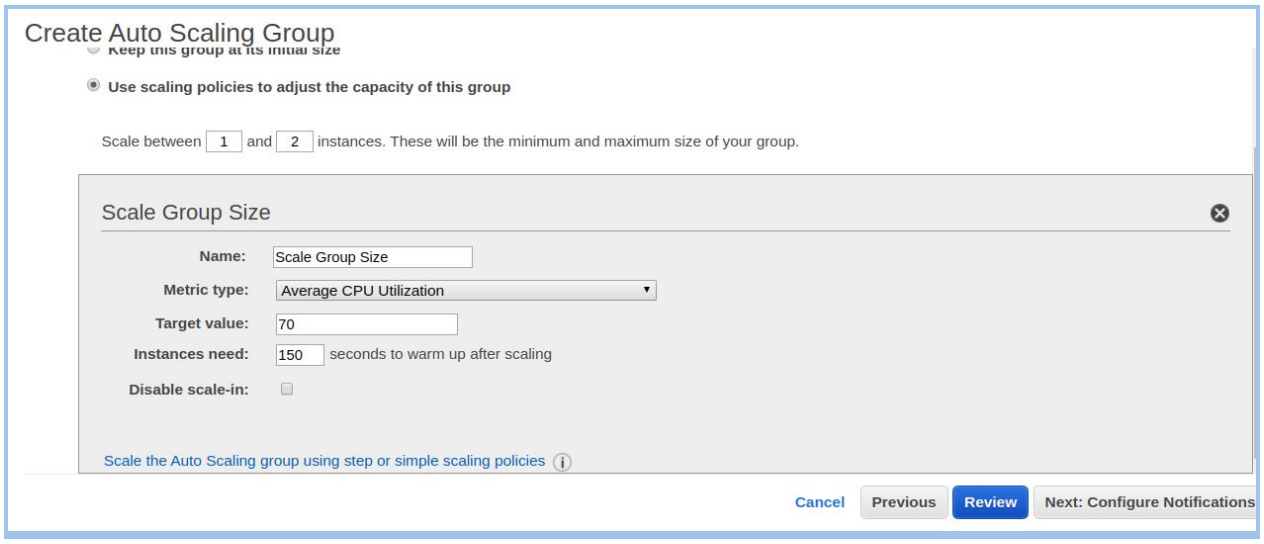
5.Create 2 auto-scaling groups with

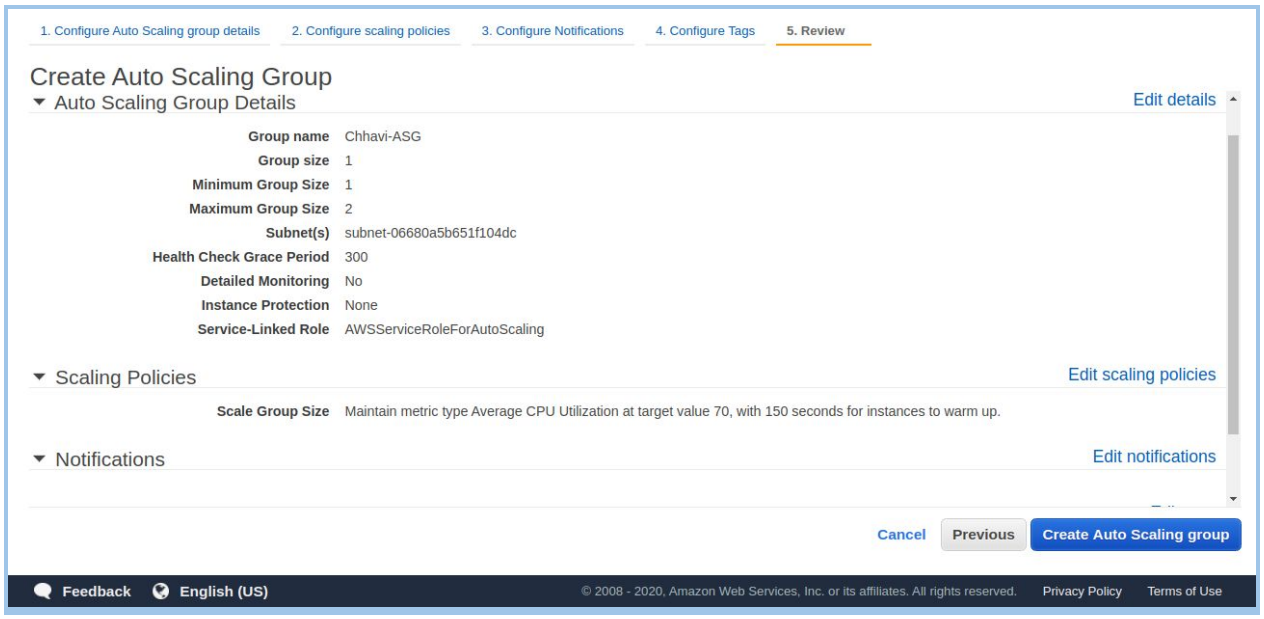
5.1 **launch configuration and**

Ans.




Create Auto Scaling Group
Keep this group at its initial size
Use scaling policies to adjust the capacity of this group
Scale between 1 and 2 instances. These will be the minimum and maximum size of your group.
Scale Group Size
Name: Scale Group Size
Metric type: Average CPU Utilization
Target value: 70
Instances need: 150 seconds to warm up after scaling
Disable scale-in:
Scale the Auto Scaling group using step or simple scaling policies
Cancel
Previous
Review
Next: Configure Notifications


1. Configure Auto Scaling group details
2. Configure scaling policies
3. Configure Notifications
4. Configure Tags
5. Review
Create Auto Scaling Group
Auto Scaling Group Details
Edit details
Group name Chhavi-ASG
Group size 1
Minimum Group Size 1
Maximum Group Size 2
Subnet(s) subnet-06680a5b651f104dc
Health Check Grace Period 300
Detailed Monitoring No
Instance Protection None
Service-Linked Role AWSServiceRoleForAutoScaling
Scaling Policies
Edit scaling policies
Scale Group Size Maintain metric type Average CPU Utilization at target value 70, with 150 seconds for instances to warm up.
Notifications
Edit notifications
Cancel
Previous
Create Auto Scaling group
Feedback
English (US)
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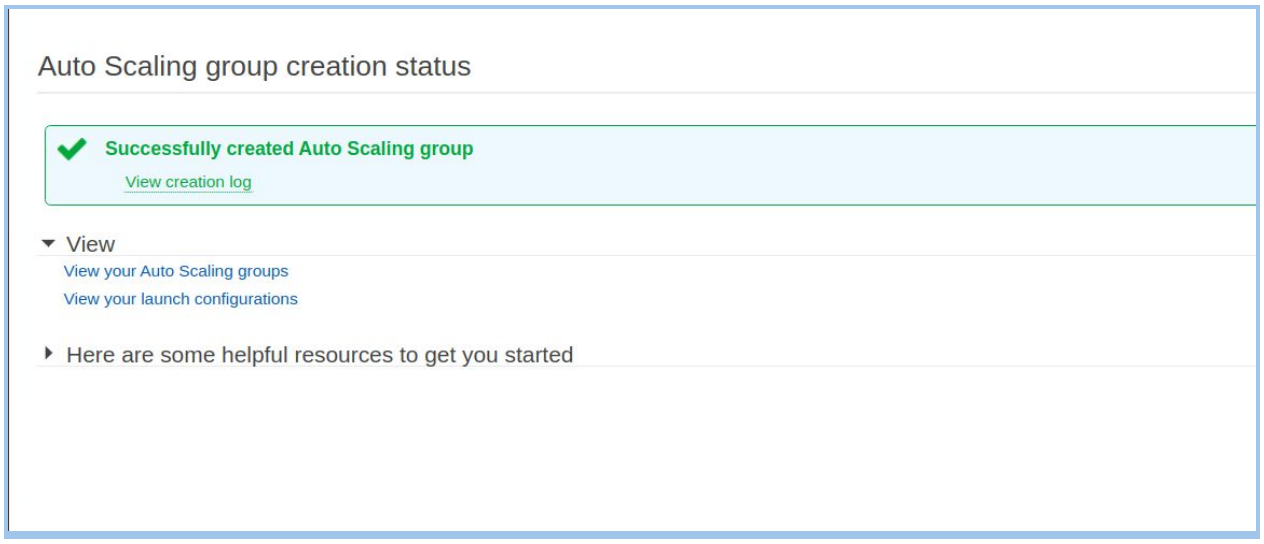
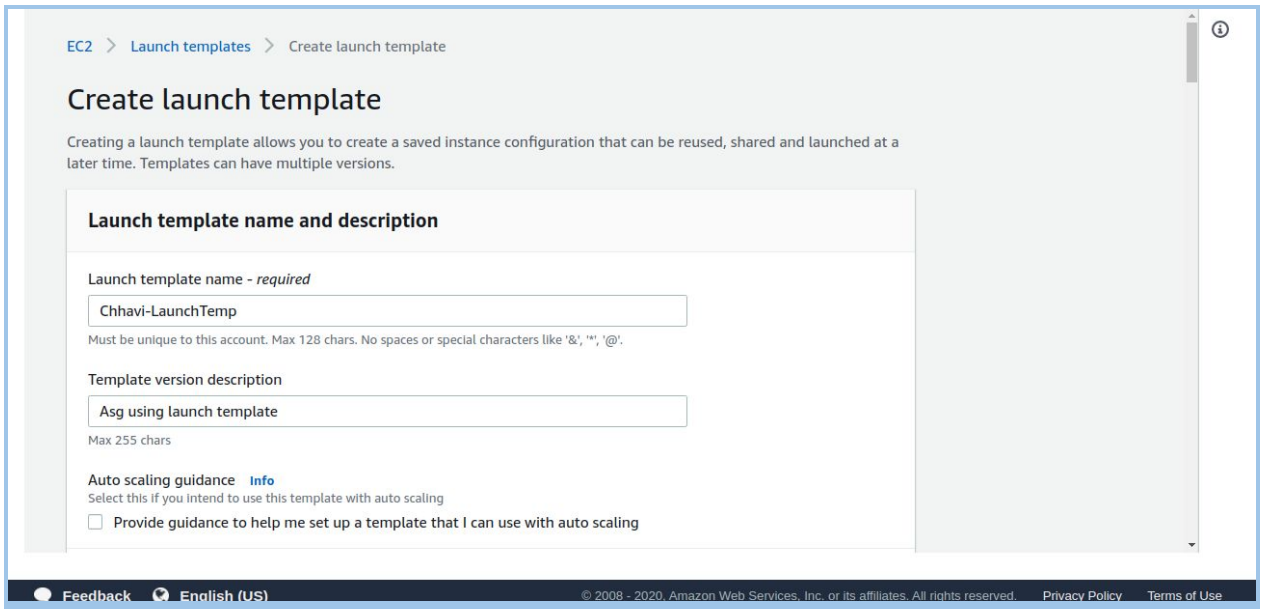
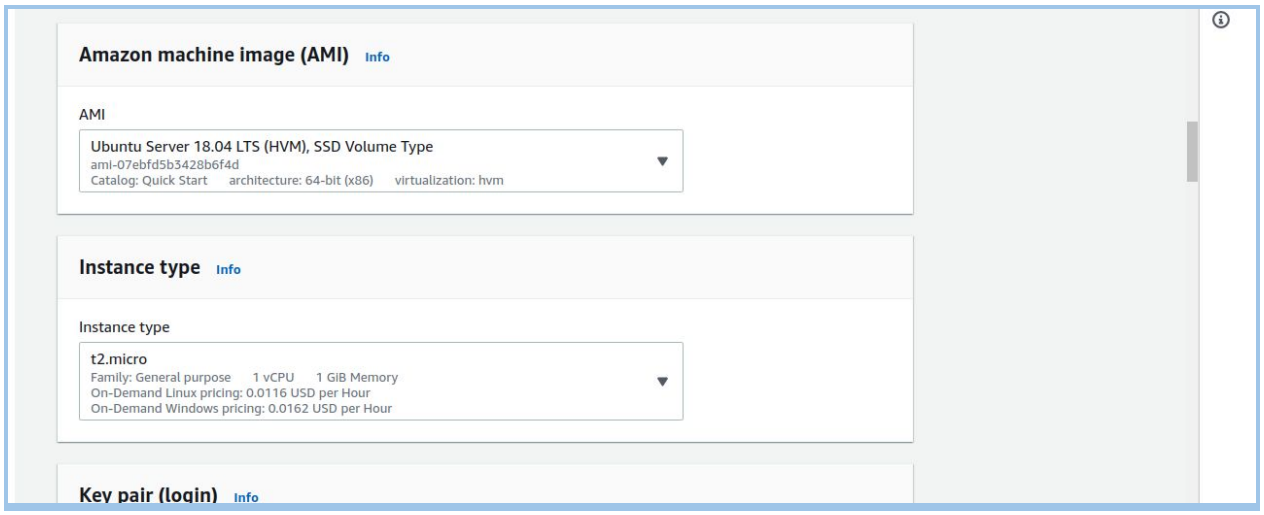
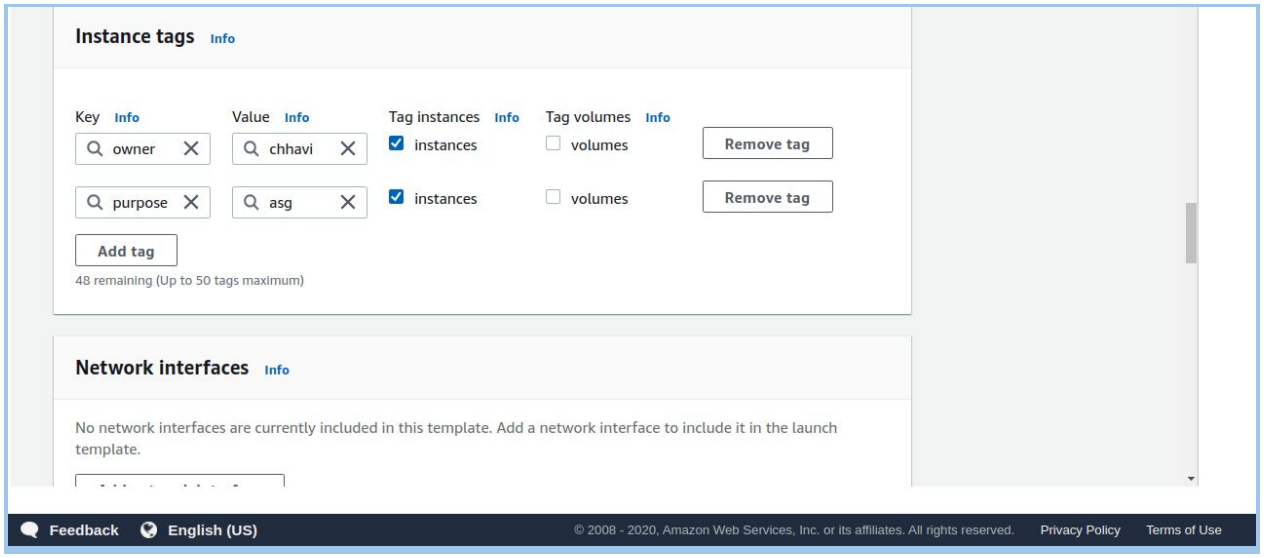



## 5.2 **launch template**

Ans.




Amazon machine image (AMI) Info
AMI
Ubuntu Server 18.04 LTS (HVM), SSD Volume Type
ami-07ebfd5b3428b6f4d
Catalog: Quick Start architecture: 64-bit (x86) virtualization: hvm
Instance type Info
Instance type
t2.micro
Family: General purpose 1 vCPU 1 GiB Memory
On-Demand Linux pricing: 0.0116 USD per Hour
On-Demand Windows pricing: 0.0162 USD per Hour
Key pair (login) Info


Instance tags Info
Key Info
Value Info
Tag instances Info
Tag volumes Info
owner
chhavi
instances
volumes
Remove tag
purpose
asg
instances
volumes
Remove tag
Add tag
48 remaining (Up to 50 tags maximum)
Network interfaces Info
No network interfaces are currently included in this template. Add a network interface to include it in the launch template.
Feedback
English (US)
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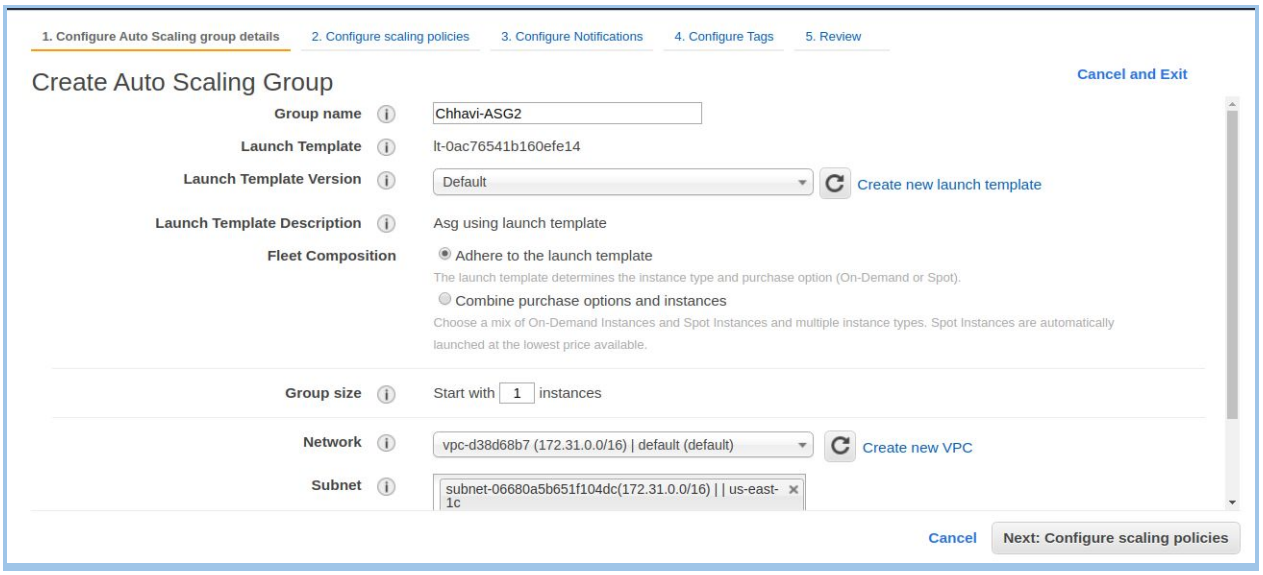
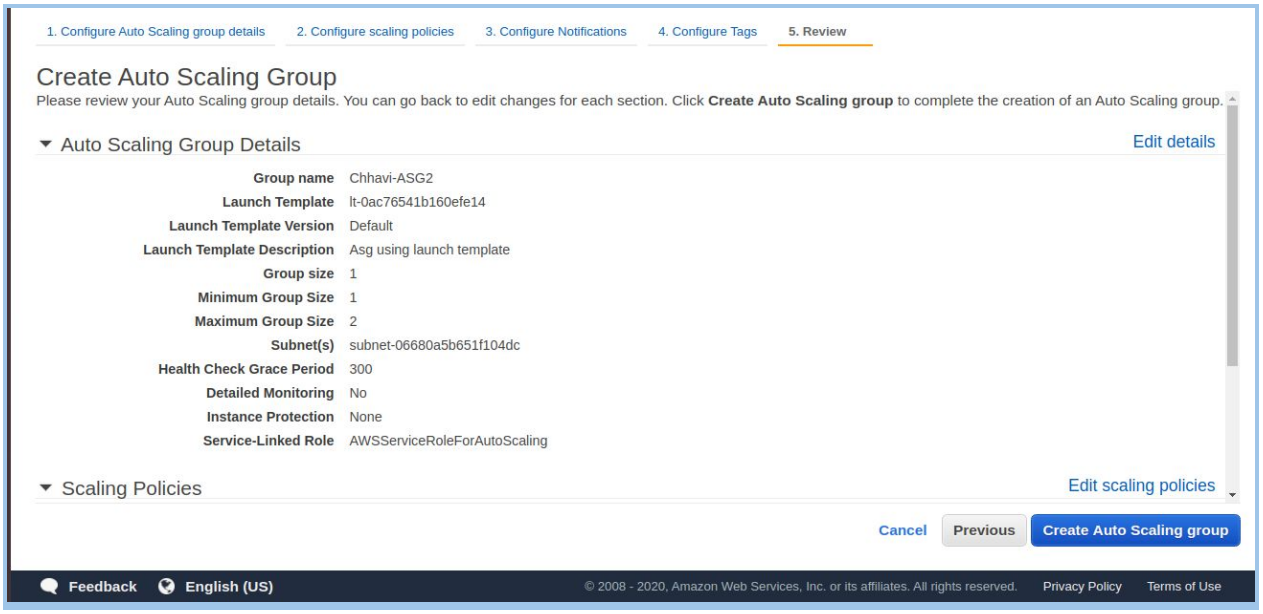

1. Configure Auto Scaling group details
2. Configure scaling policies
3. Configure Notifications
4. Configure Tags
5. Review
Create Auto Scaling Group
Cancel and Exit
Group name
Chhavi-ASG2
Launch Template
lt-0ac76541b160efe14
Launch Template Version
Default
Create new launch template
Launch Template Description
Asg using launch template
Fleet Composition
Adhere to the launch template
The launch template determines the instance type and purchase option (On-Demand or Spot).
Combine purchase options and instances
Choose a mix of On-Demand Instances and Spot Instances and multiple instance types. Spot Instances are automatically launched at the lowest price available.
Group size
Start with 1 instances
Network
vpc-d38d68b7 (172.31.0.0/16) | default (default)
Create new VPC
Subnet
subnet-06680a5b651f104dc(172.31.0.0/16) | | us-east-1c
Cancel
Next: Configure scaling policies


1. Configure Auto Scaling group details
2. Configure scaling policies
3. Configure Notifications
4. Configure Tags
5. Review
Create Auto Scaling Group
Please review your Auto Scaling group details. You can go back to edit changes for each section. Click Create Auto Scaling group to complete the creation of an Auto Scaling group.
Auto Scaling Group Details
Edit details
Group name Chhavi-ASG2
Launch Template lt-0ac76541b160efe14
Launch Template Version Default
Launch Template Description Asg using launch template
Group size 1
Minimum Group Size 1
Maximum Group Size 2
Subnet(s) subnet-06680a5b651f104dc
Health Check Grace Period 300
Detailed Monitoring No
Instance Protection None
Service-Linked Role AWSServiceRoleForAutoScaling
Scaling Policies
Edit scaling policies
Cancel
Previous
Create Auto Scaling group
Feedback
English (US)
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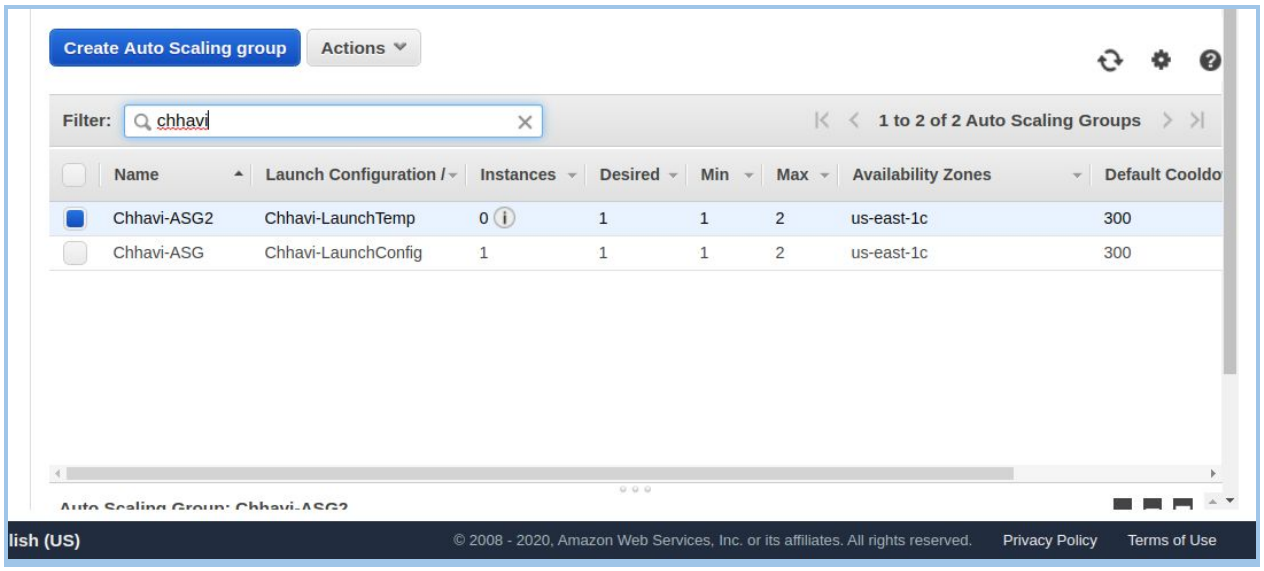
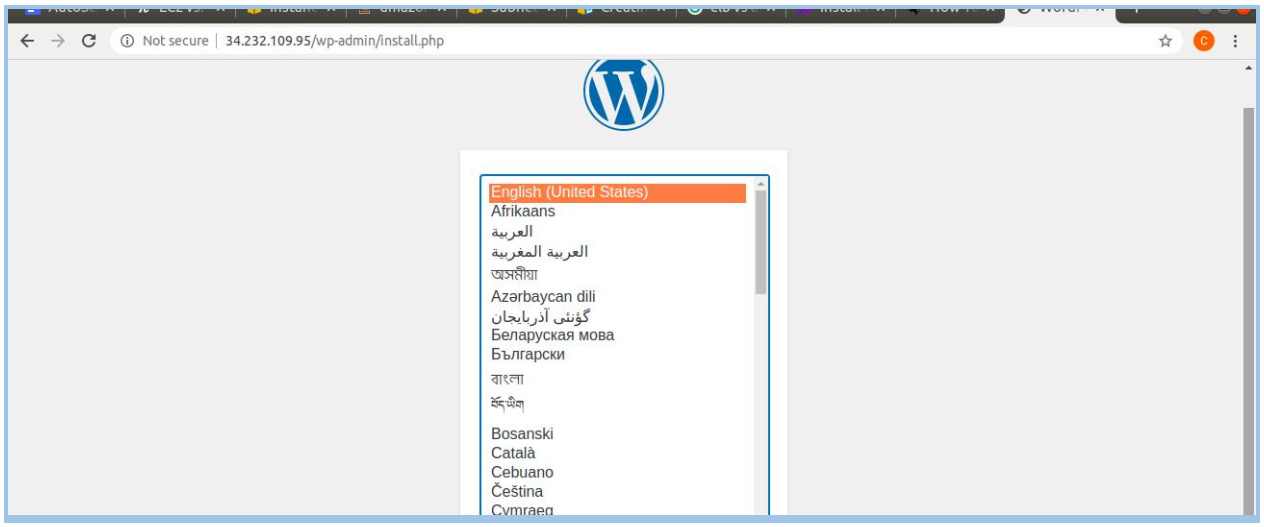
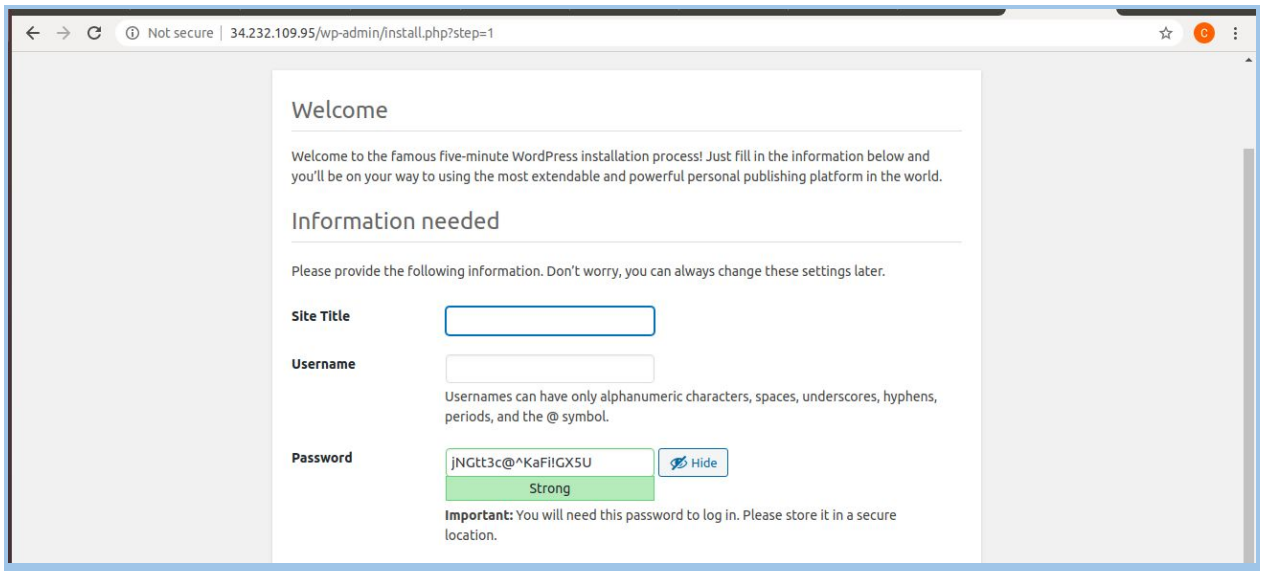


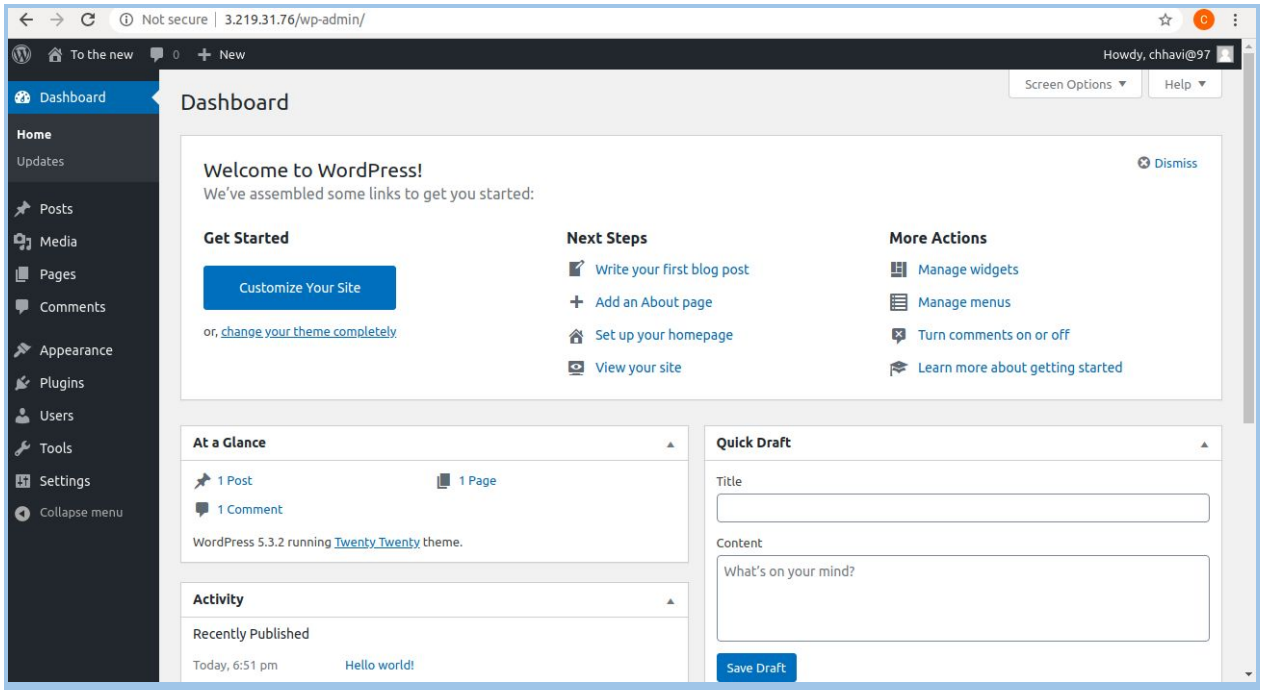

6.Setup auto scaling Wordpress application with the Application load balancer. Auto-scaling should be triggered based on CPU usage of EC2 instances.

Ans.

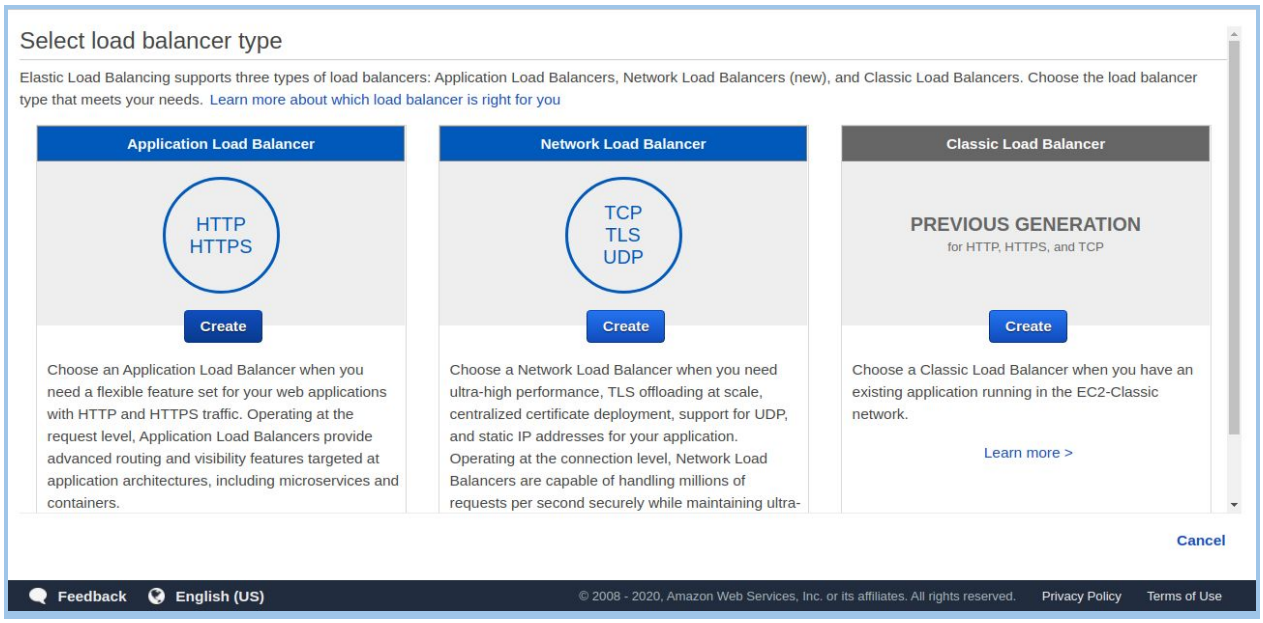
Wordpress on instance.



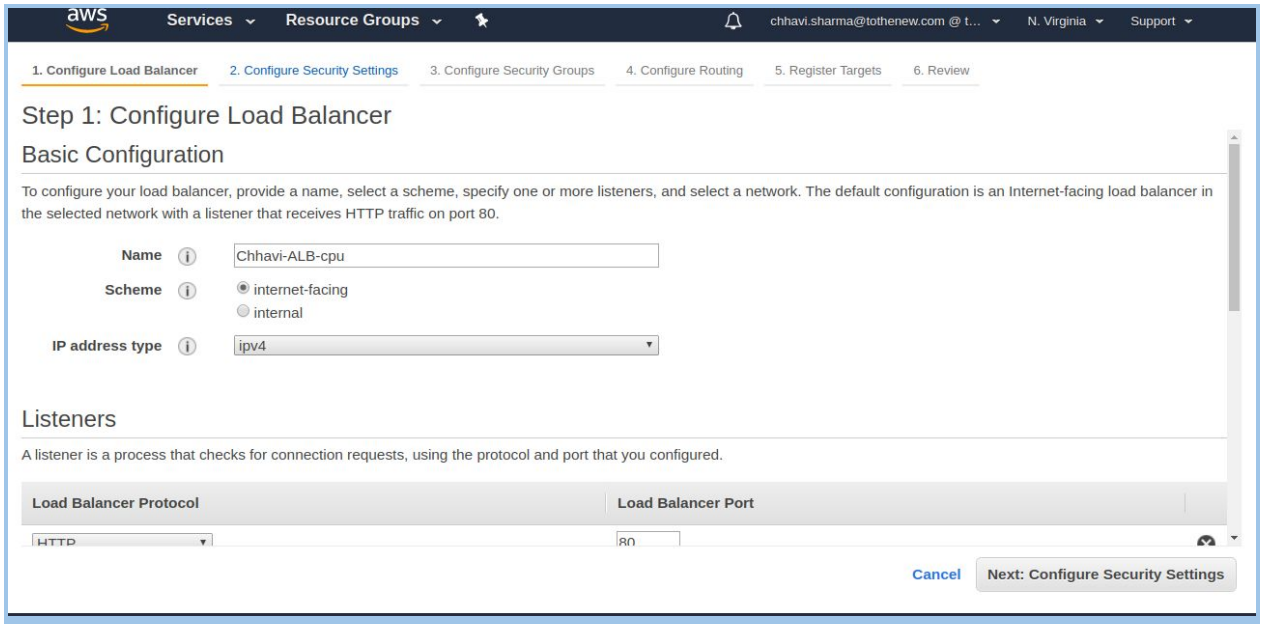

Not secure | 34.232.109.95/wp-admin/install.php?step=1
Welcome
Welcome to the famous five-minute WordPress installation process! Just fill in the information below and you'll be on your way to using the most extendable and powerful personal publishing platform in the world.
Information needed
Please provide the following information. Don't worry, you can always change these settings later.
Site Title
Username
Usernames can have only alphanumeric characters, spaces, underscores, hyphens, periods, and the @ symbol.
Password
jNGtt3c@^KaFI!GX5U
Hide
Strong
Important: You will need this password to log in. Please store it in a secure location.


Not secure | 3.219.31.76/wp-admin/
To the new
New
Howdy, chhavi@97
Dashboard
Home
Updates
Posts
Media
Pages
Comments
Appearance
Plugins
Users
Tools
Settings
Collapse menu
Screen Options
Help
Welcome to WordPress!
We've assembled some links to get you started:
Dismiss
Get Started
Customize Your Site
or, change your theme completely
Next Steps
Write your first blog post
Add an About page
Set up your homepage
View your site
More Actions
Manage widgets
Manage menus
Turn comments on or off
Learn more about getting started
At a Glance
1 Post
1 Page
1 Comment
WordPress 5.3.2 running Twenty Twenty theme.
Activity
Recently Published
Today, 6:51 pm
Hello world!
Quick Draft
Title
Content
What's on your mind?
Save Draft

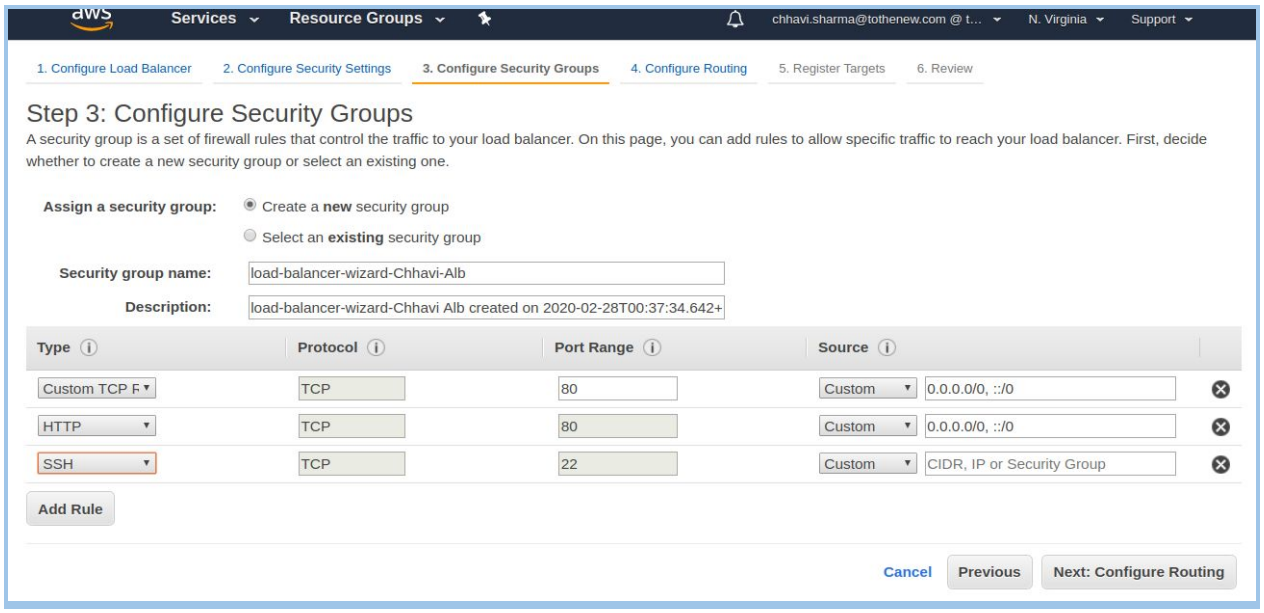
## Create an Application Load Balancer



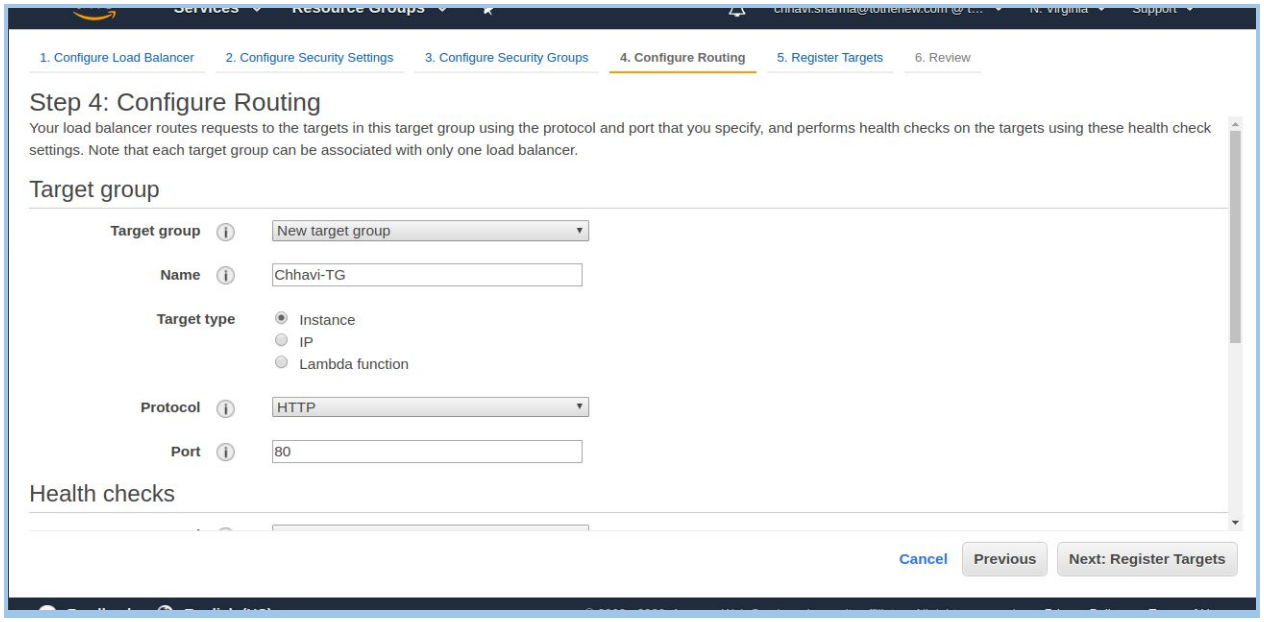

## Configure load balancer



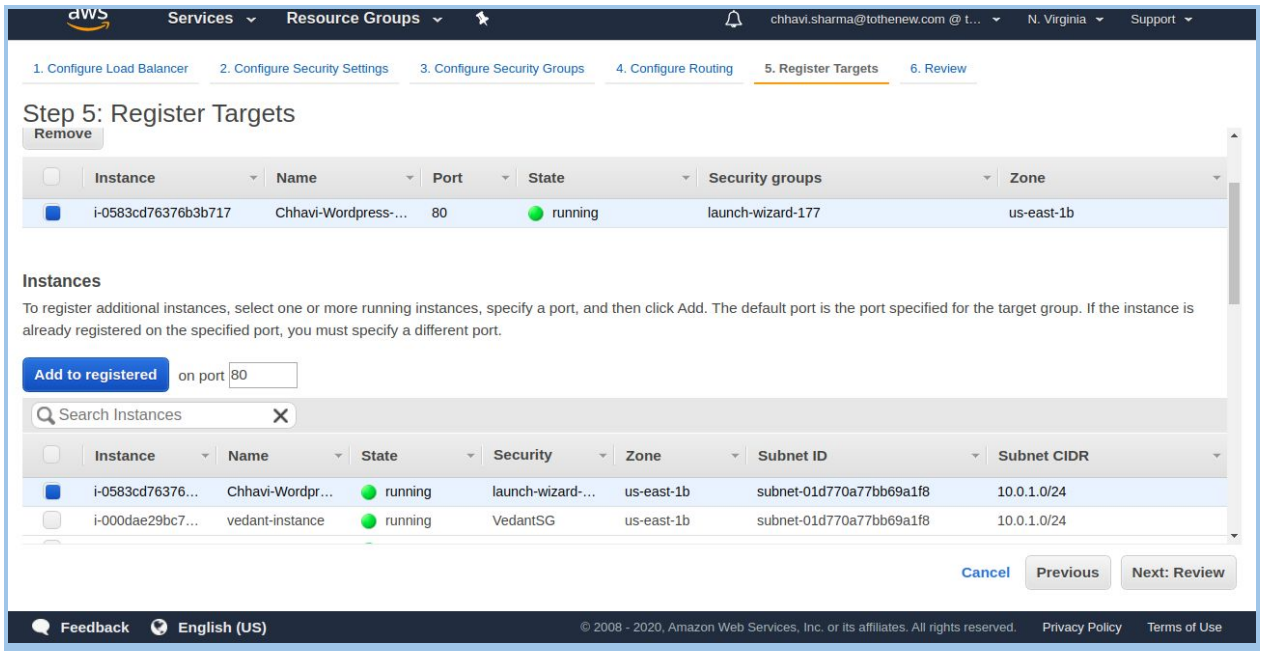

## Configure Security Groups




## Configure Routing




## Register Targets


Services
Resource Groups
chhavi.sharma@tothenew.com @ t...
N. Virginia
Support
1. Configure Load Balancer
2. Configure Security Settings
3. Configure Security Groups
4. Configure Routing
5. Register Targets
6. Review
Step 5: Register Targets
Remove
Instance
Name
Port
State
Security groups
Zone
i-0583cd76376b3b717
Chhavi-Wordpress-...
80
running
launch-wizard-177
us-east-1b
Instances
To register additional instances, select one or more running instances, specify a port, and then click Add. The default port is the port specified for the target group. If the instance is already registered on the specified port, you must specify a different port.
Add to registered
on port 80
Search Instances
Instance
Name
State
Security
Zone
Subnet ID
Subnet CIDR
i-0583cd76376...
Chhavi-Wordpr...
running
launch-wizard-...
us-east-1b
subnet-01d770a77bb69a1f8
10.0.1.0/24
i-000dae29bc7...
vedant-instance
running
VedantSG
us-east-1b
subnet-01d770a77bb69a1f8
10.0.1.0/24
Cancel
Previous
Next: Review
Feedback
English (US)
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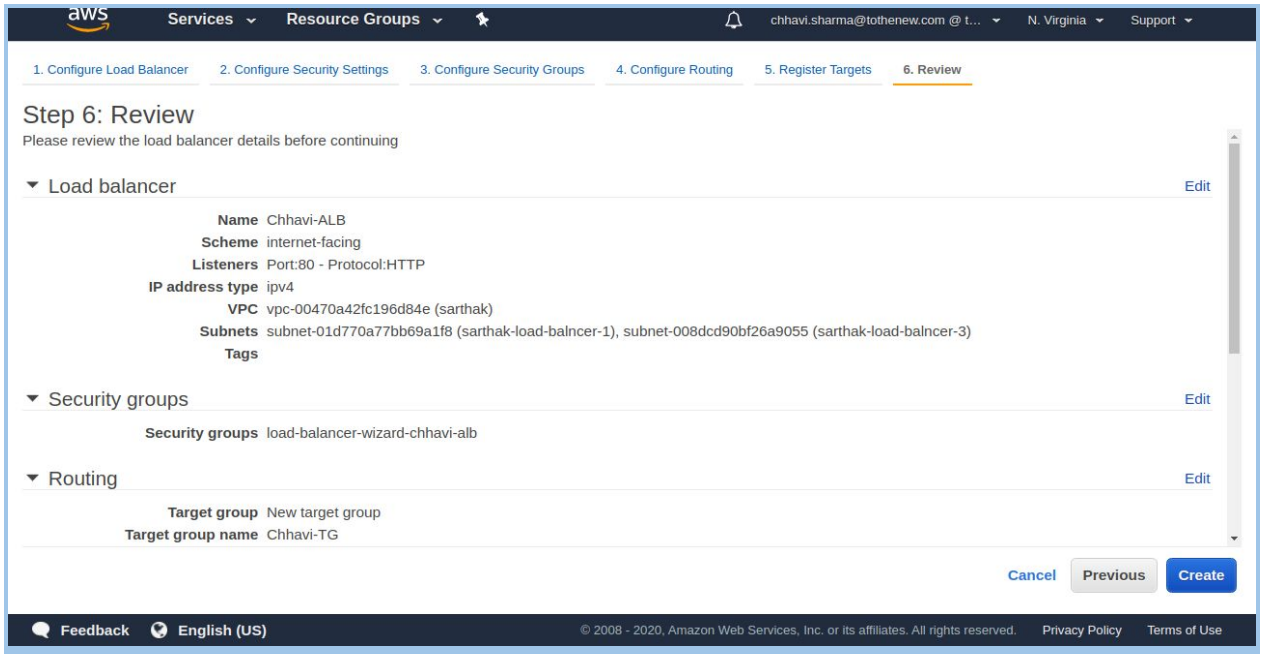
## Review


Services
Resource Groups
chhavi.sharma@tothenew.com @ t...
N. Virginia
Support
1. Configure Load Balancer
2. Configure Security Settings
3. Configure Security Groups
4. Configure Routing
5. Register Targets
6. Review
Step 6: Review
Please review the load balancer details before continuing
Load balancer
Edit
Name Chhavi-ALB
Scheme internet-facing
Listeners Port:80 - Protocol:HTTP
IP address type ipv4
VPC vpc-00470a42fc196d84e (sarthak)
Subnets subnet-01d770a77bb69a1f8 (sarthak-load-balncer-1), subnet-008dcd90bf26a9055 (sarthak-load-balncer-3)
Tags
Security groups
Edit
Security groups load-balancer-wizard-chhavi-alb
Routing
Edit
Target group New target group
Target group name Chhavi-TG
Cancel
Previous
Create
Feedback
English (US)
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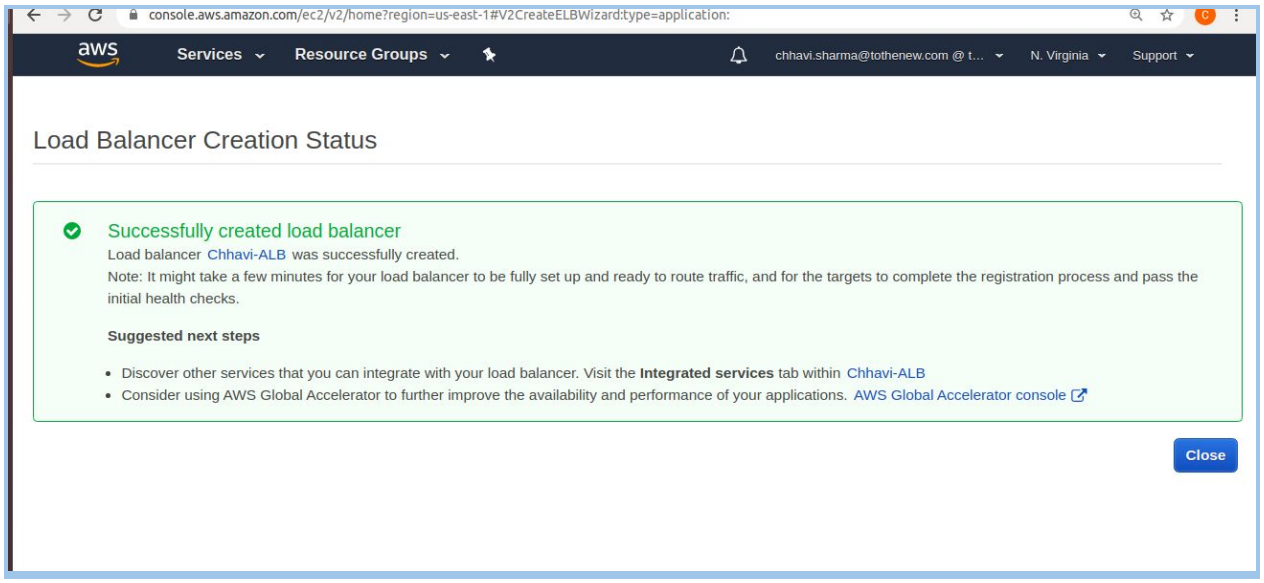
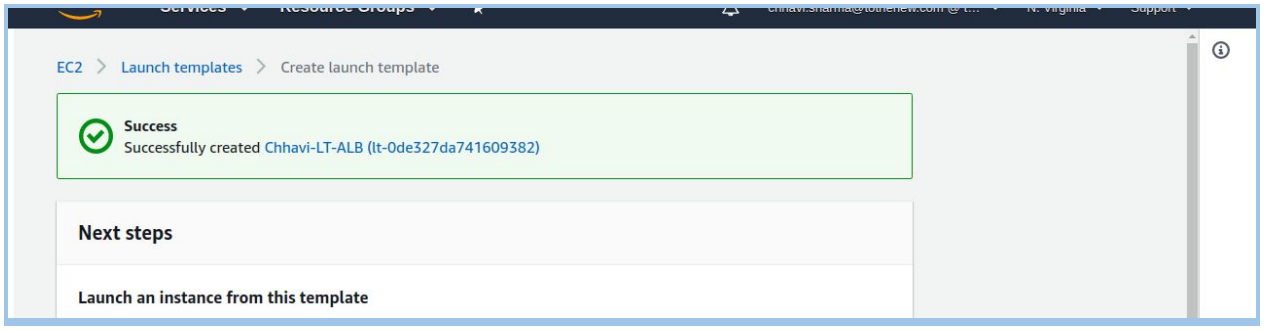
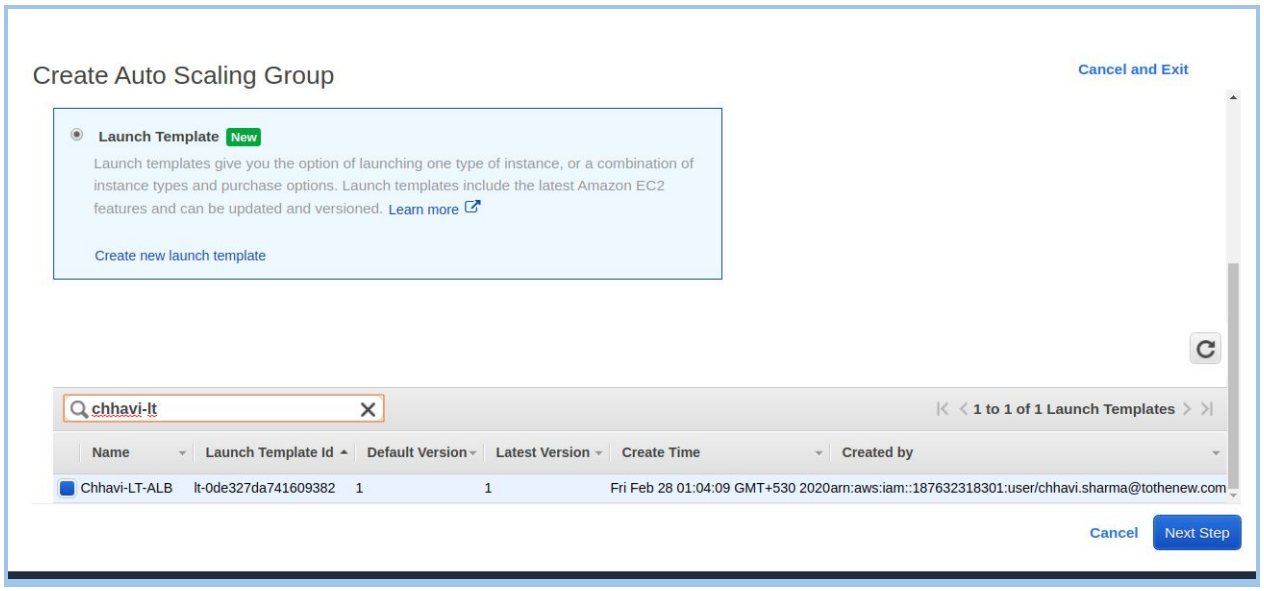


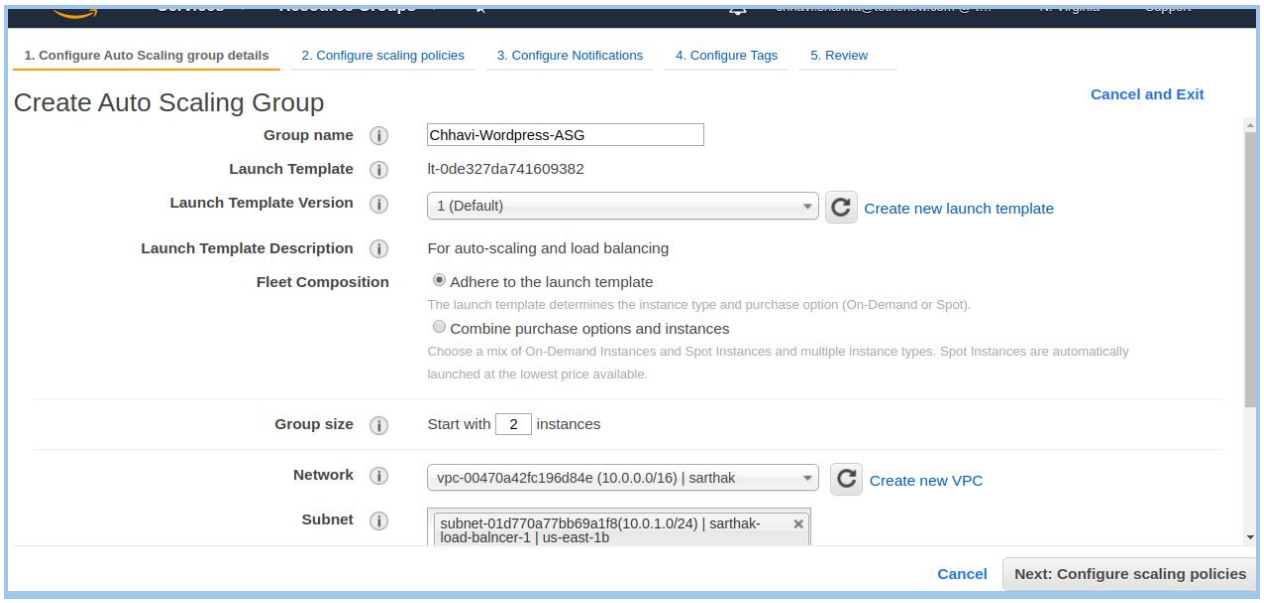

Create a launch template with the AMI of the Wordpress instance.



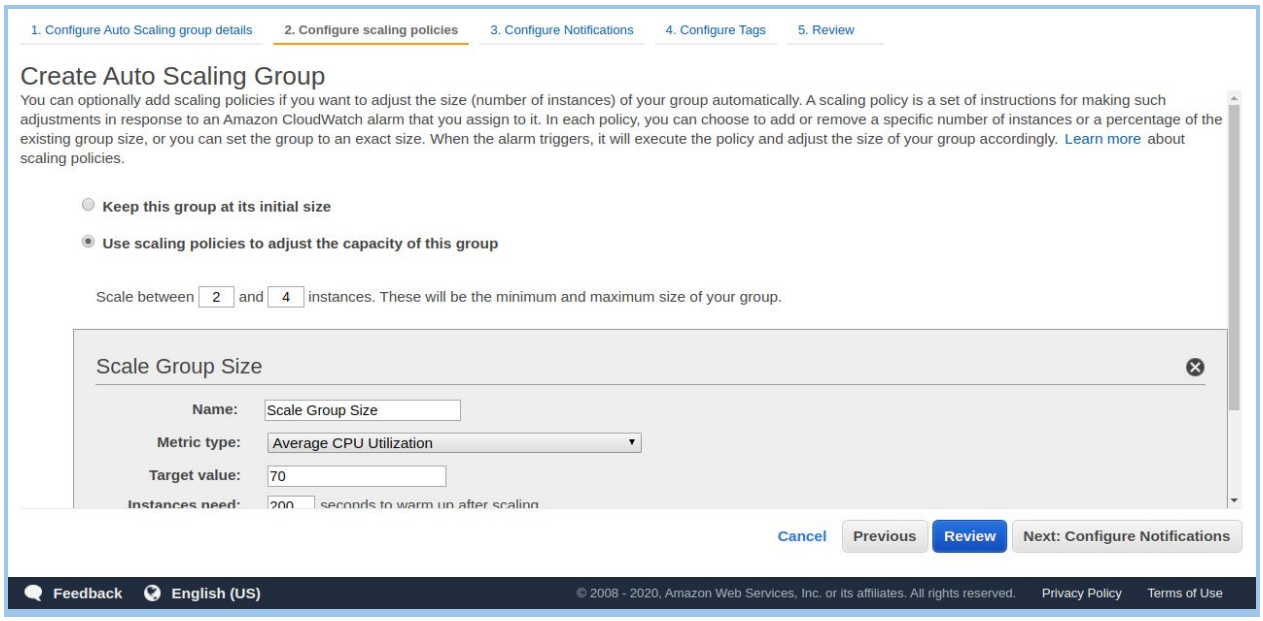

Now create a new auto-scaling group.



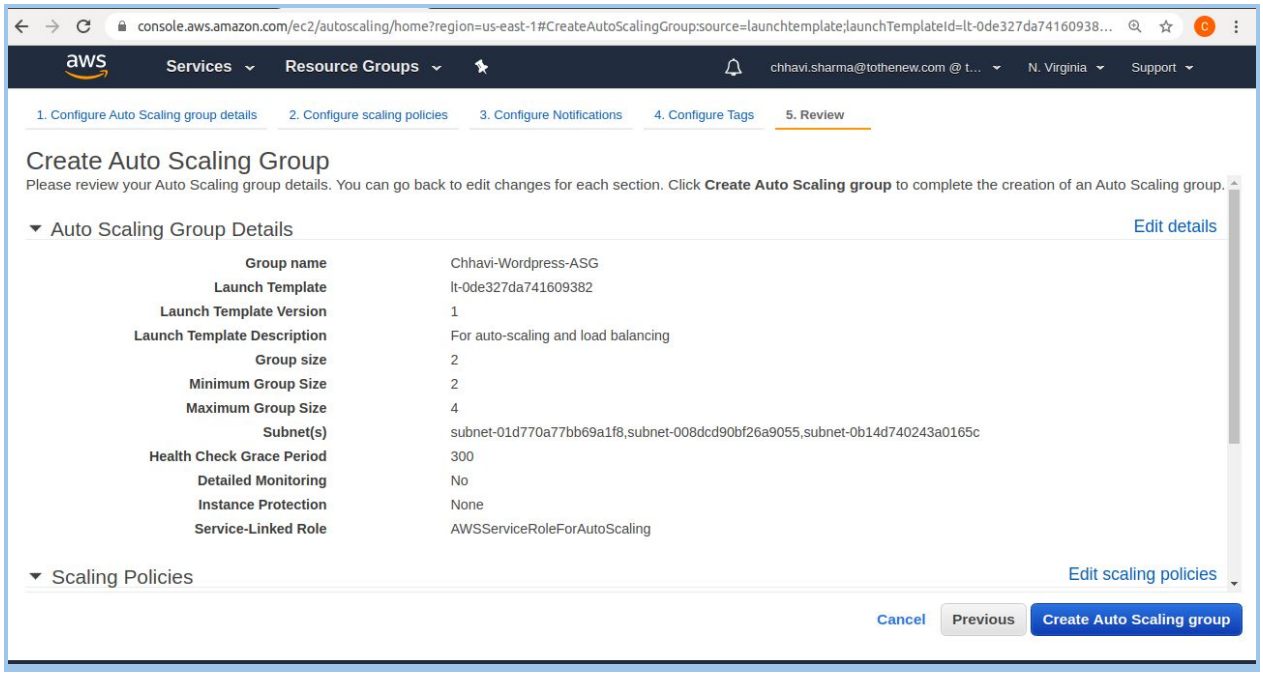

Fill in the details.



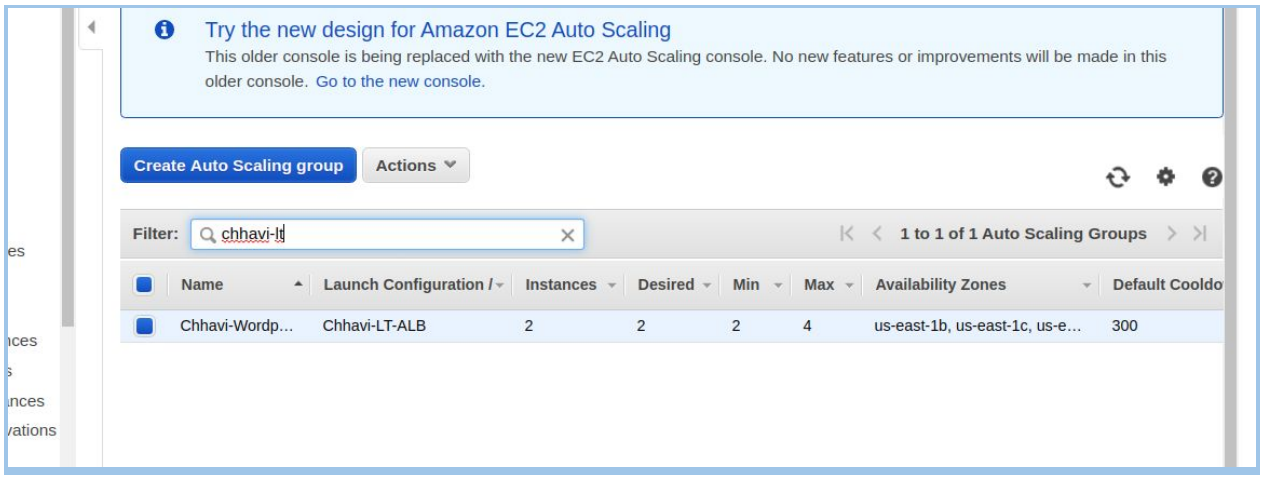

Add scaling policies.



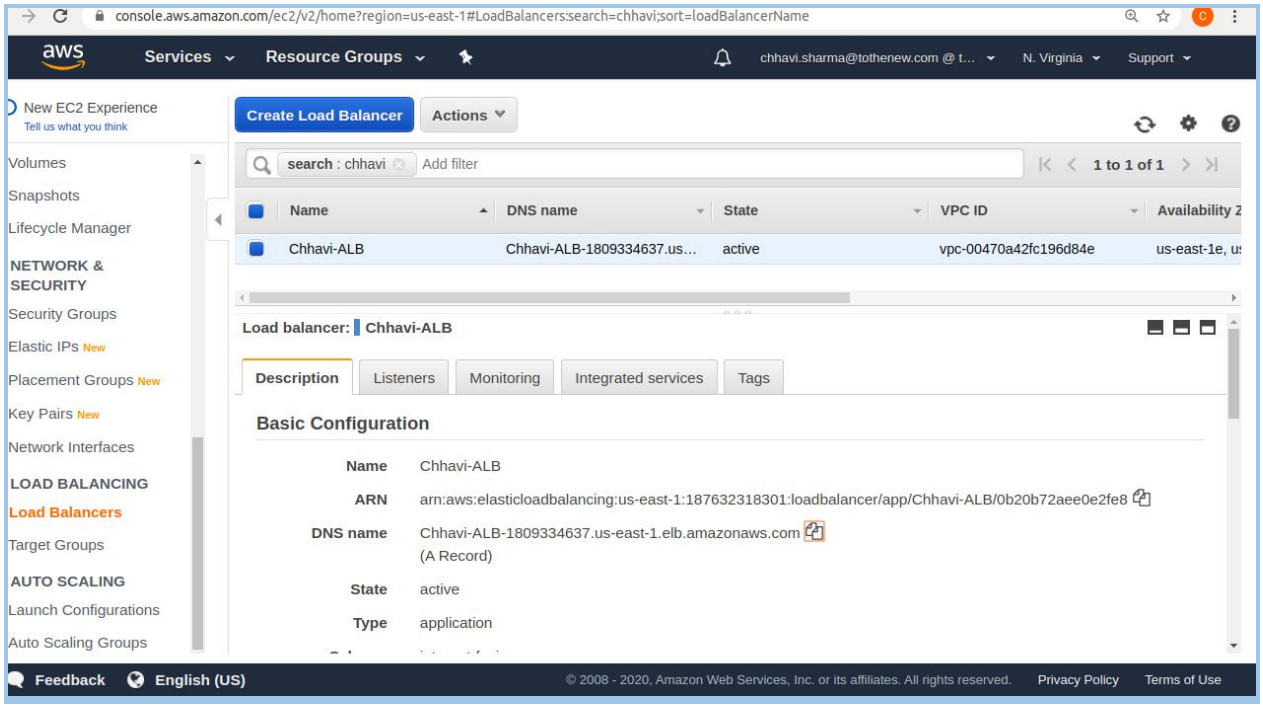

Review

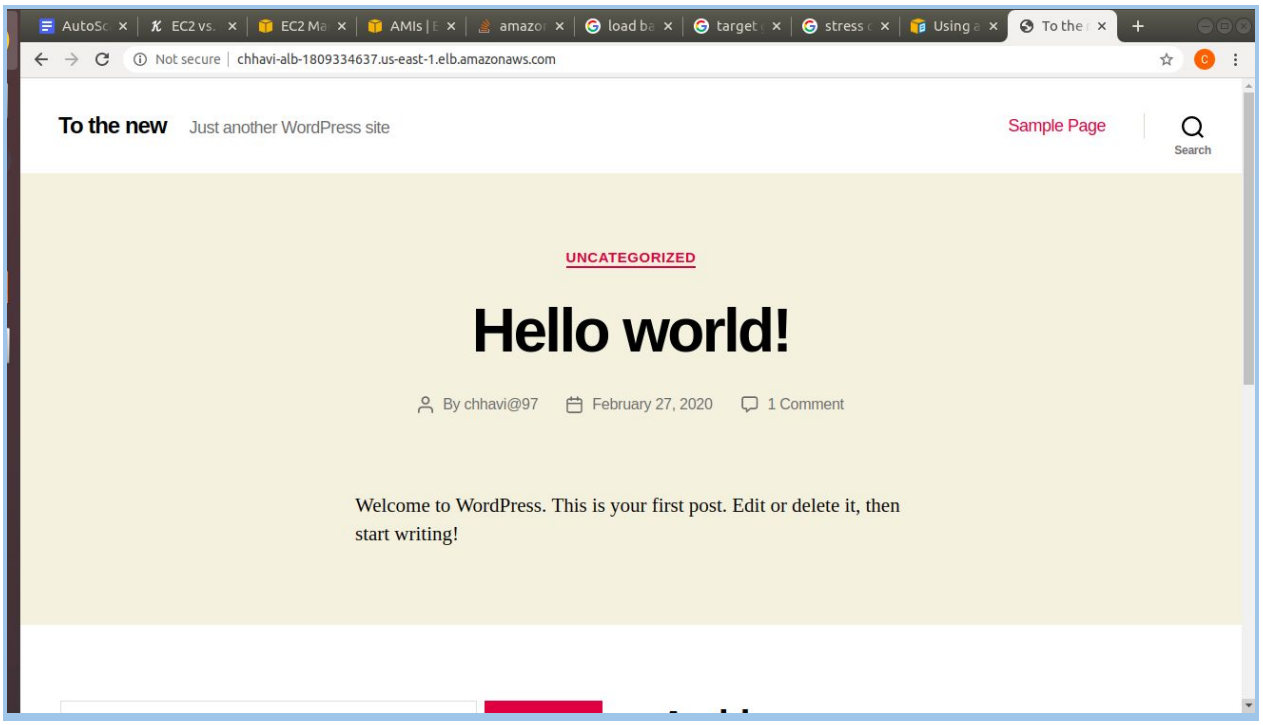



Now the min instances running are 2




Copy the arn of the load balancer and paste in the URL

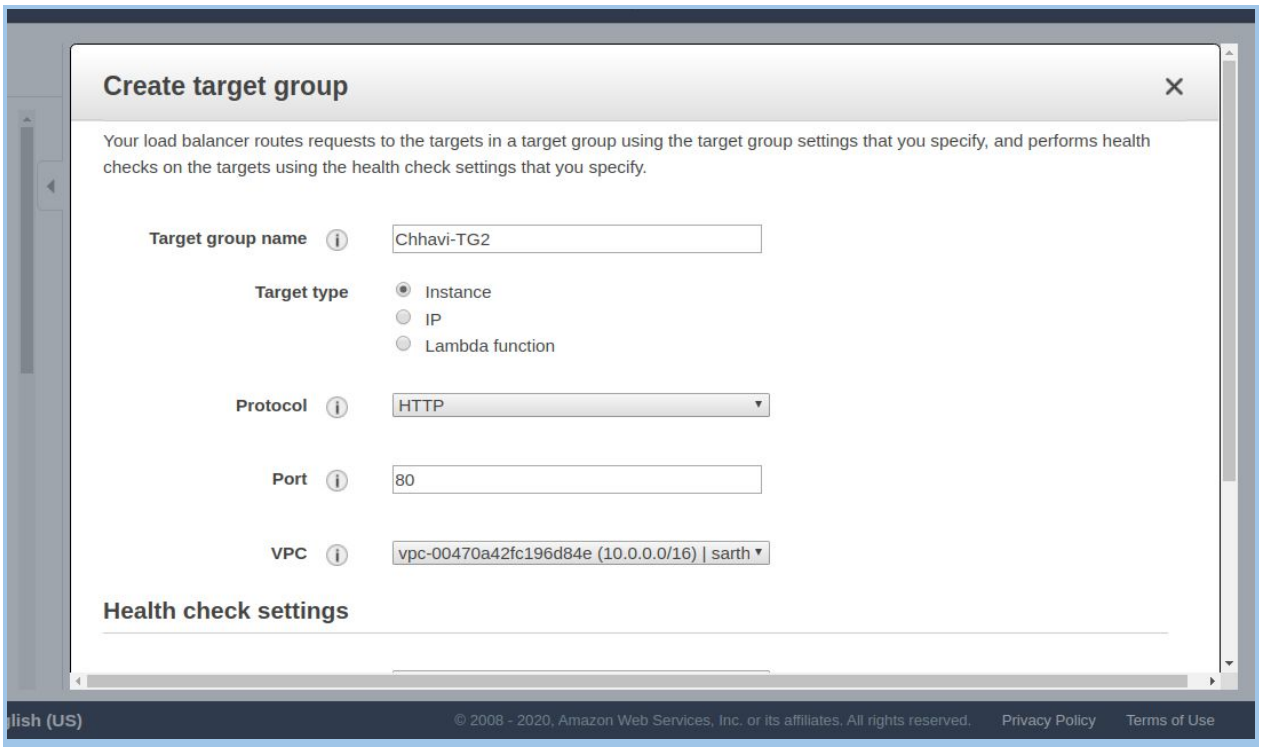





7.Create another Wordpress website and use the ALB created above to send traffic to this website based on the hostname(path based.)

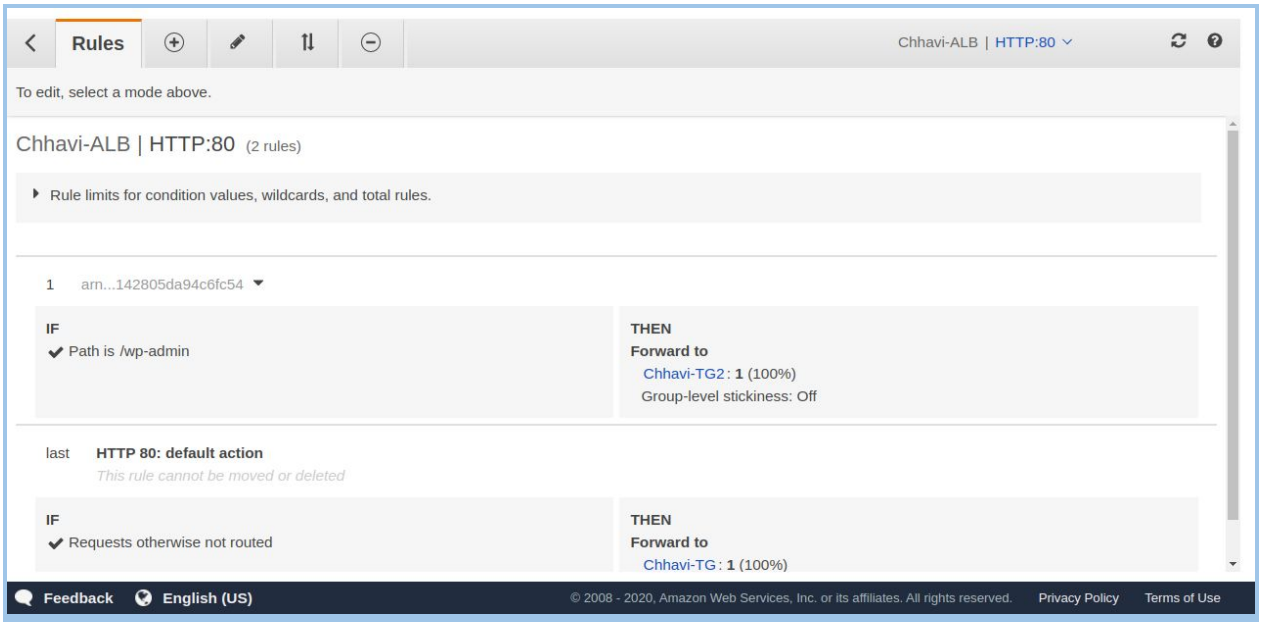
Ans.

Create another Target Group -TG2

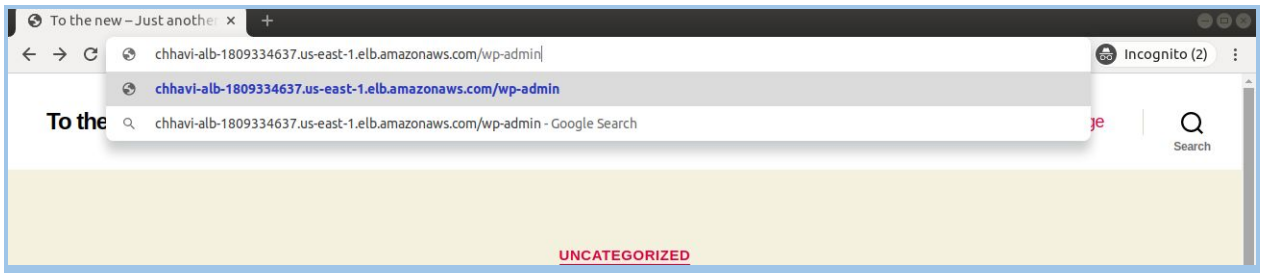



Now add an instance to the target group.

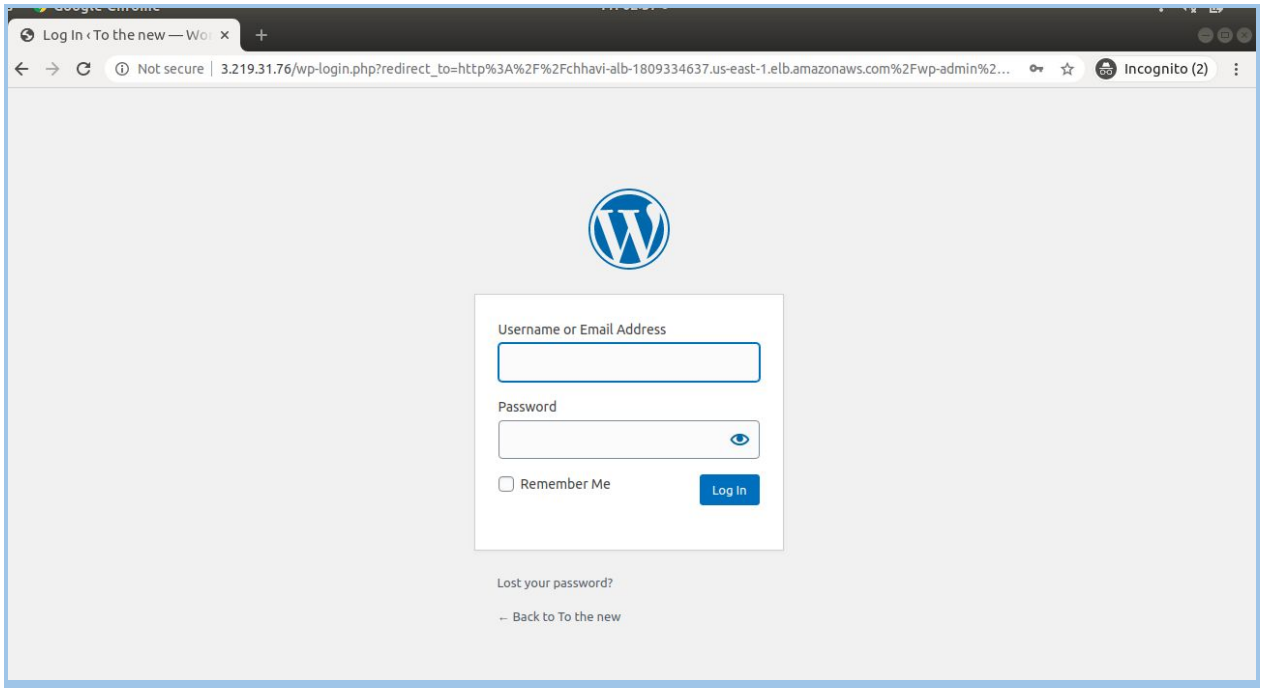
After this Edit the HTTP 80 listener and a new rule for path /admin(redirect to TG2).




Now output with only ALB dns

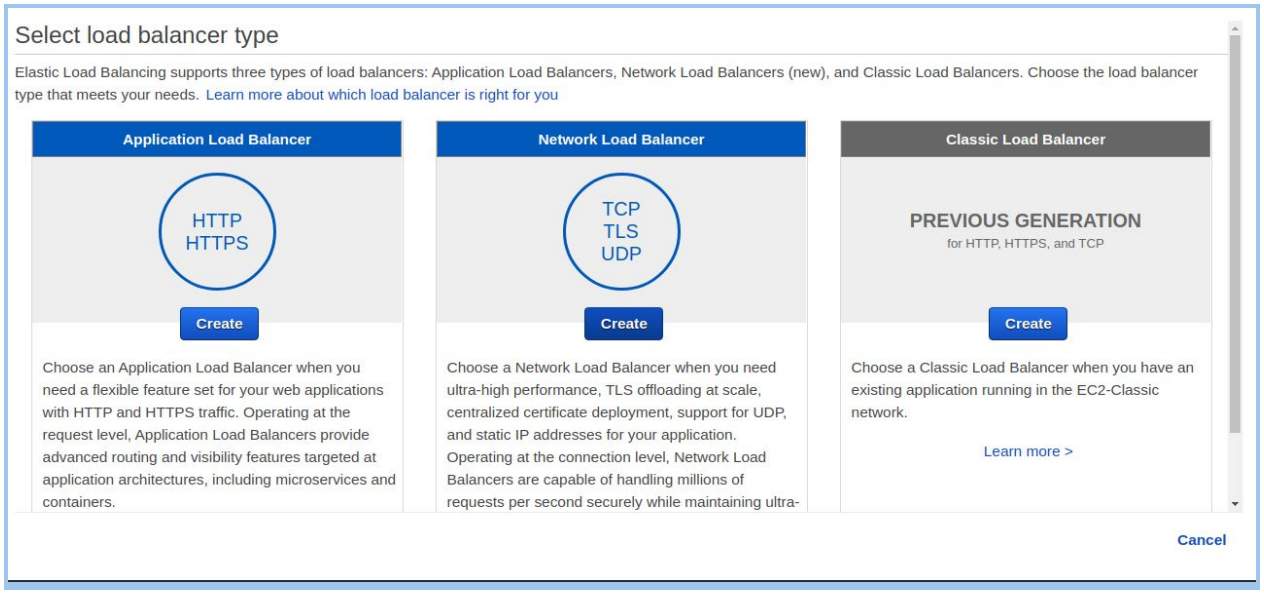


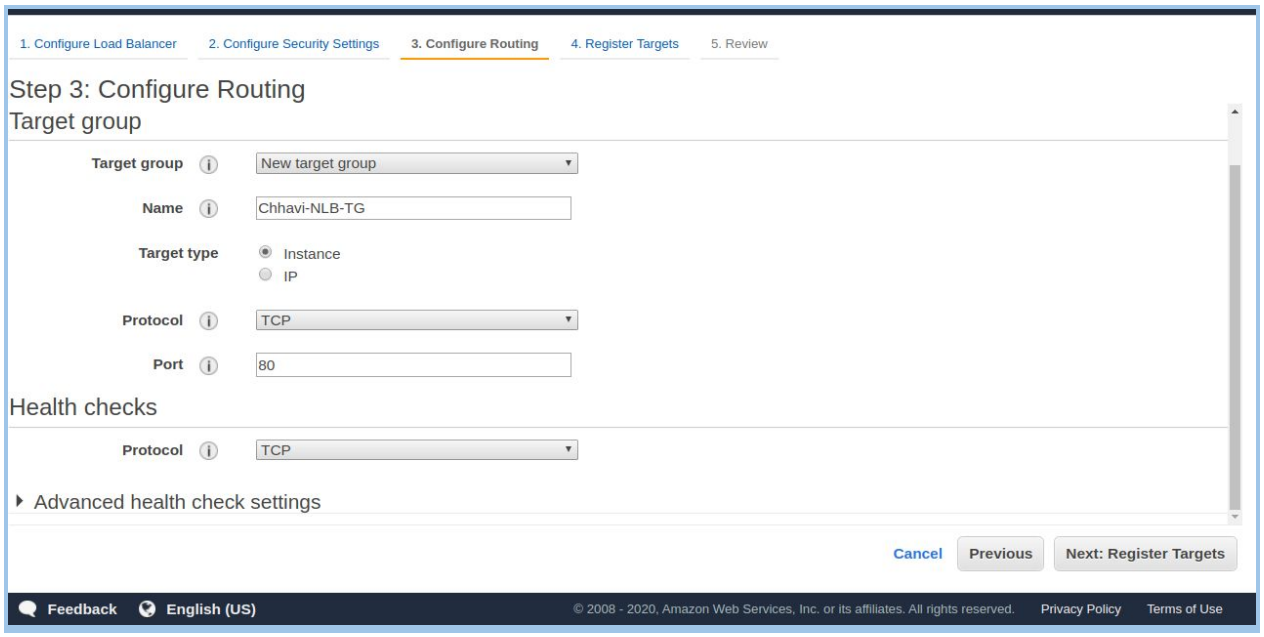

Output with ALB/wp-admin

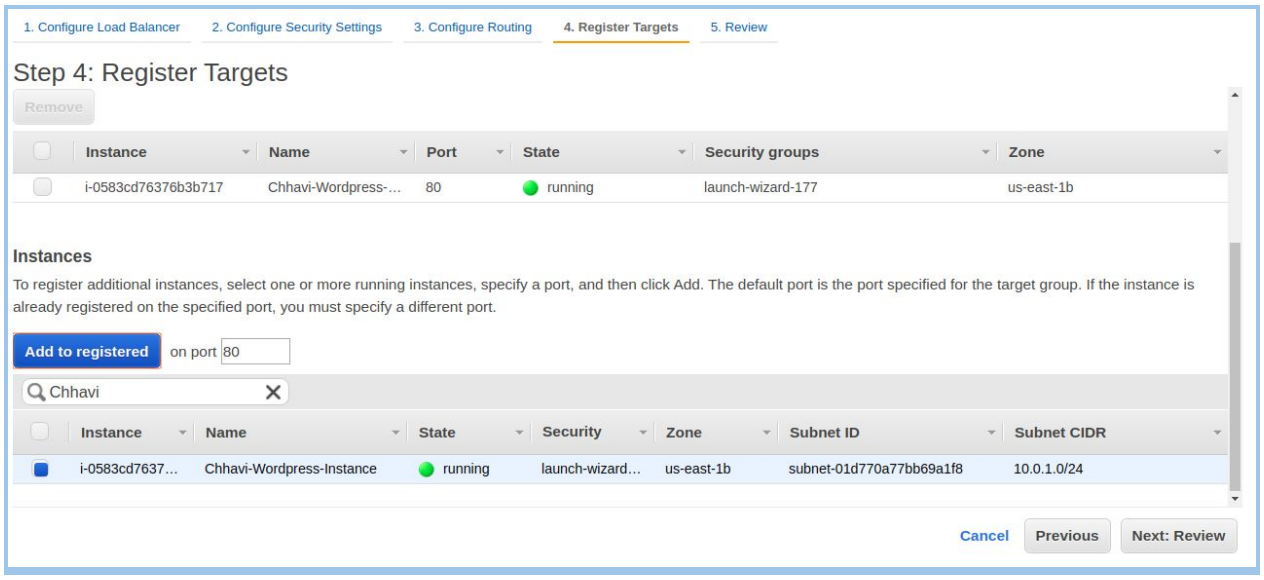


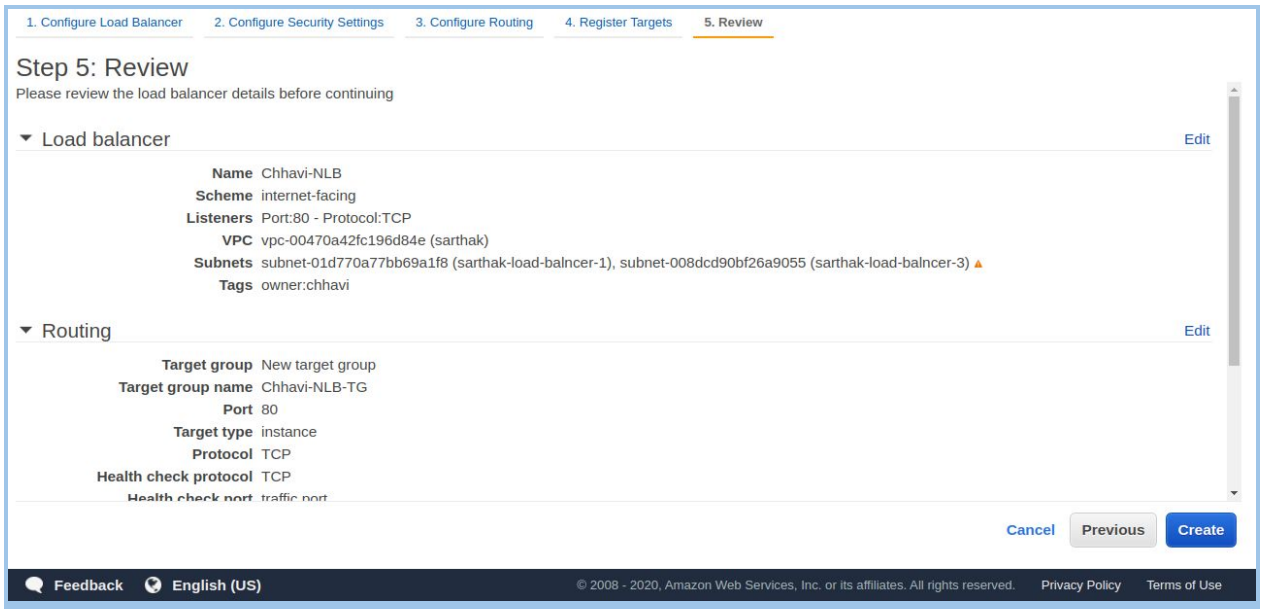
8.Use NLB that replaces the ALB in the above setup.

Ans.




1. Configure Load Balancer
2. Configure Security Settings
3. Configure Routing
4. Register Targets
5. Review
Step 4: Register Targets
Remove
Instance
Name
Port
State
Security groups
Zone
i-0583cd76376b3b717
Chhavi-Wordpress-…
80
running
launch-wizard-177
us-east-1b
Instances
To register additional instances, select one or more running instances, specify a port, and then click Add. The default port is the port specified for the target group. If the instance is already registered on the specified port, you must specify a different port.
Add to registered
on port 80
Chhavi
Instance
Name
State
Security
Zone
Subnet ID
Subnet CIDR
i-0583cd7637…
Chhavi-Wordpress-Instance
running
launch-wizard…
us-east-1b
subnet-01d770a77bb69a1f8
10.0.1.0/24
Cancel
Previous
Next: Review


1. Configure Load Balancer
2. Configure Security Settings
3. Configure Routing
4. Register Targets
5. Review
Step 5: Review
Please review the load balancer details before continuing
Load balancer
Edit
Name Chhavi-NLB
Scheme internet-facing
Listeners Port:80 - Protocol:TCP
VPC vpc-00470a42fc196d84e (sarthak)
Subnets subnet-01d770a77bb69a1f8 (sarthak-load-balncer-1), subnet-008dcd90bf26a9055 (sarthak-load-balncer-3)
Tags owner:chhavi
Routing
Edit
Target group New target group
Target group name Chhavi-NLB-TG
Port 80
Target type instance
Protocol TCP
Health check protocol TCP
Health check port traffic port
Cancel
Previous
Create
Feedback
English (US)
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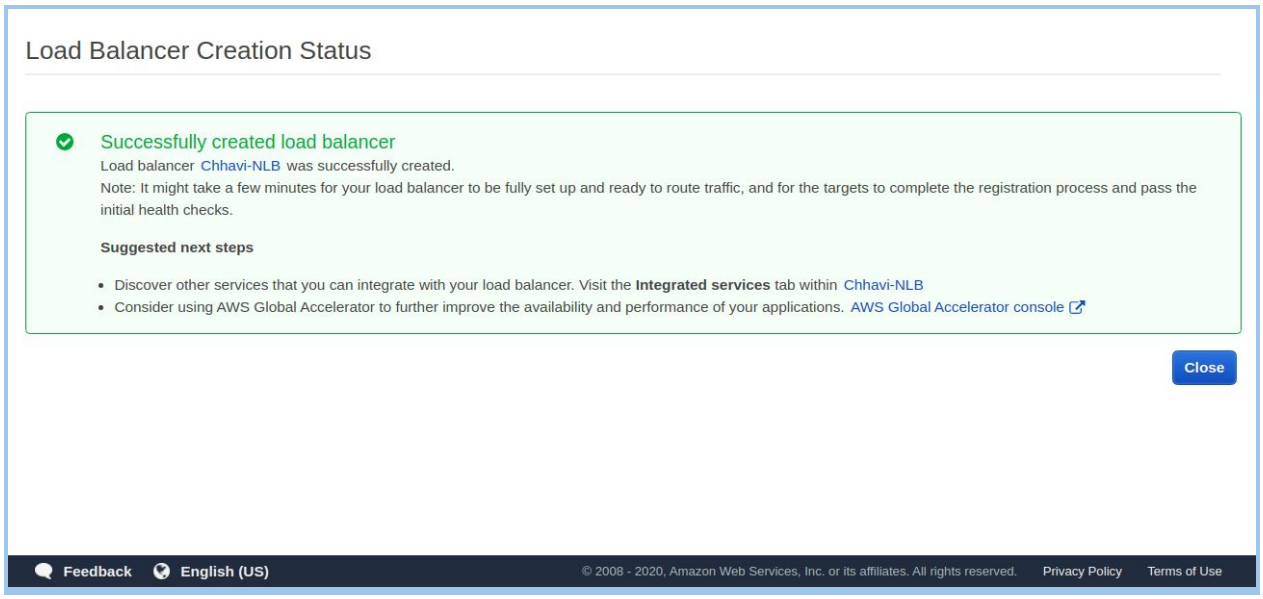
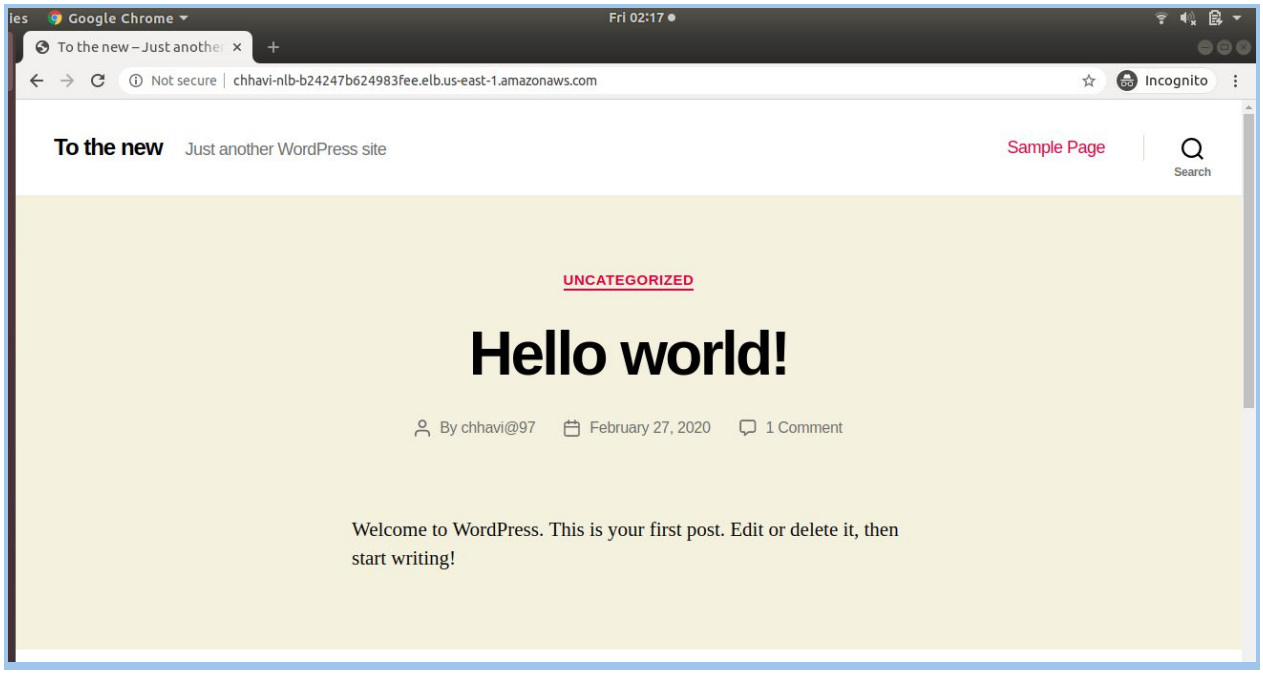
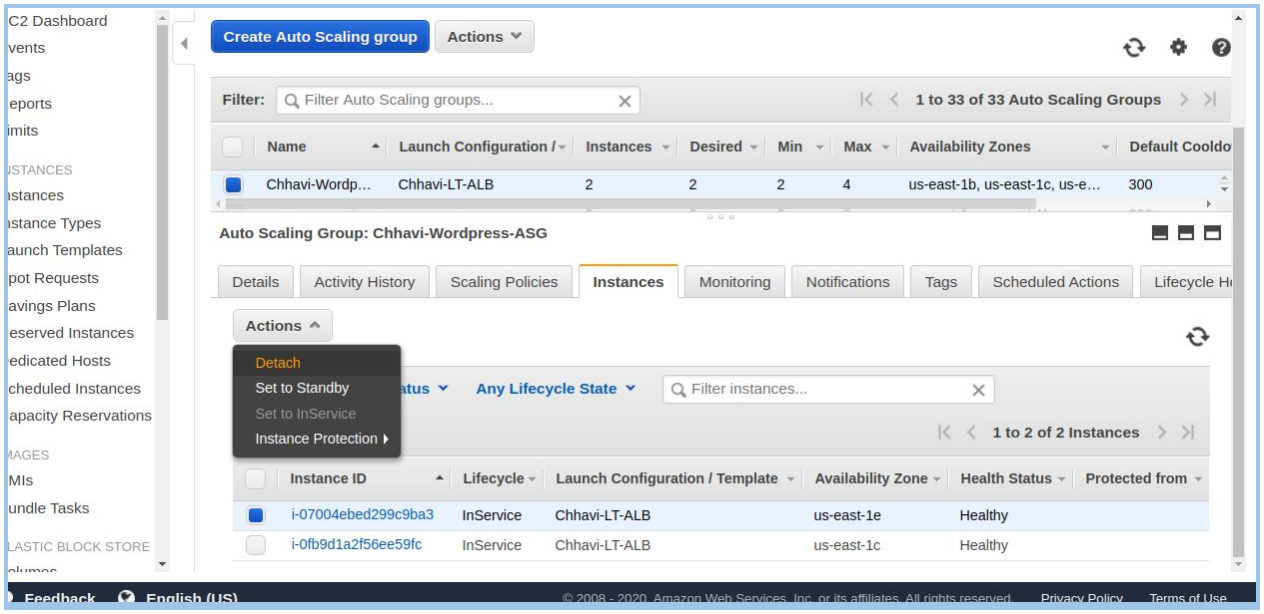


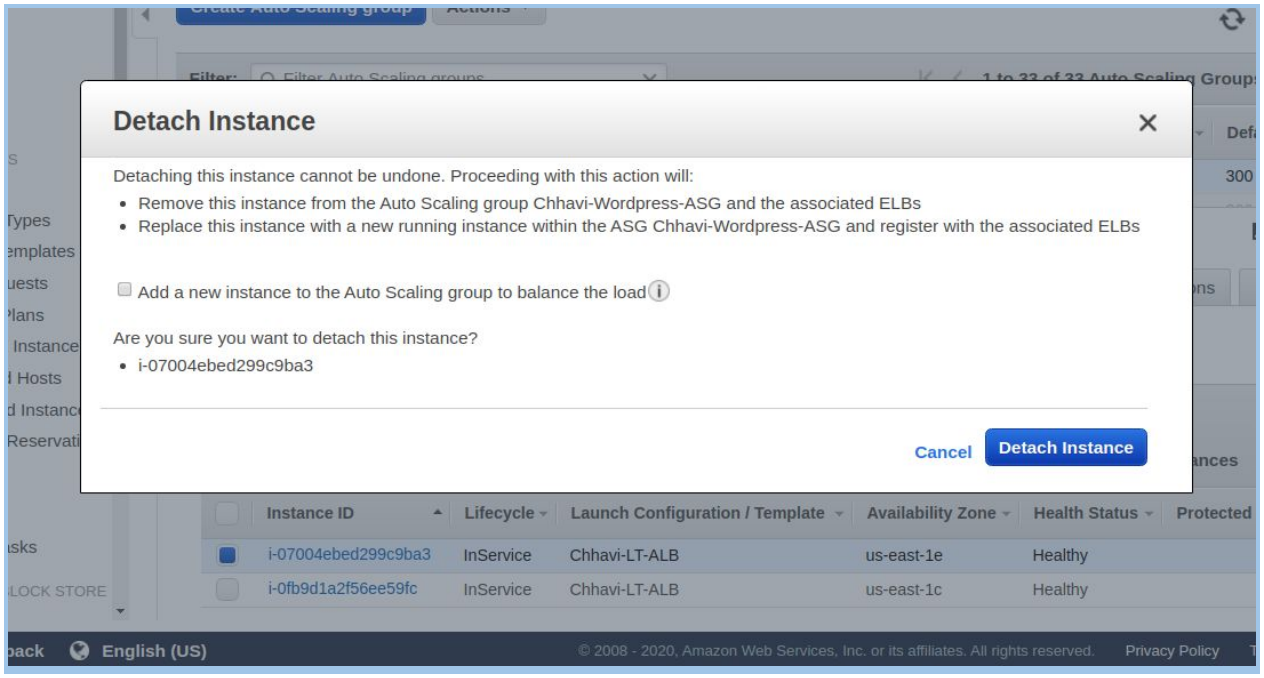

Paste the load balancer dns in the URL.

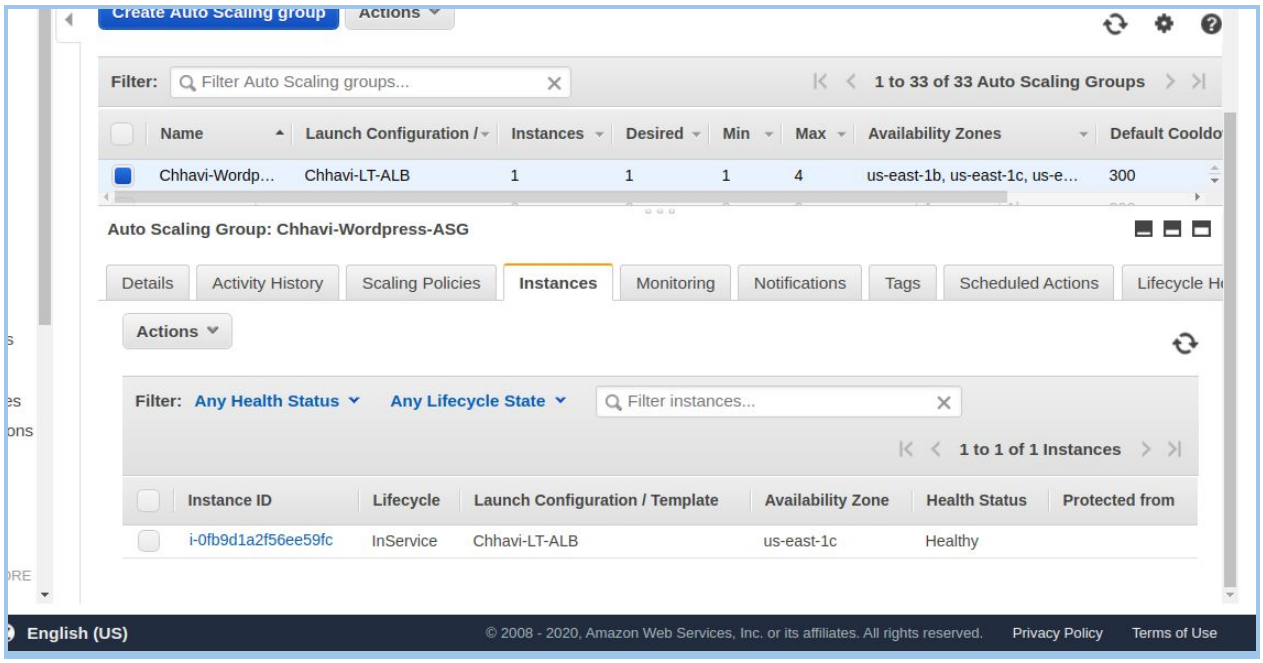


9.Take an instance out of the ASG.

Ans.

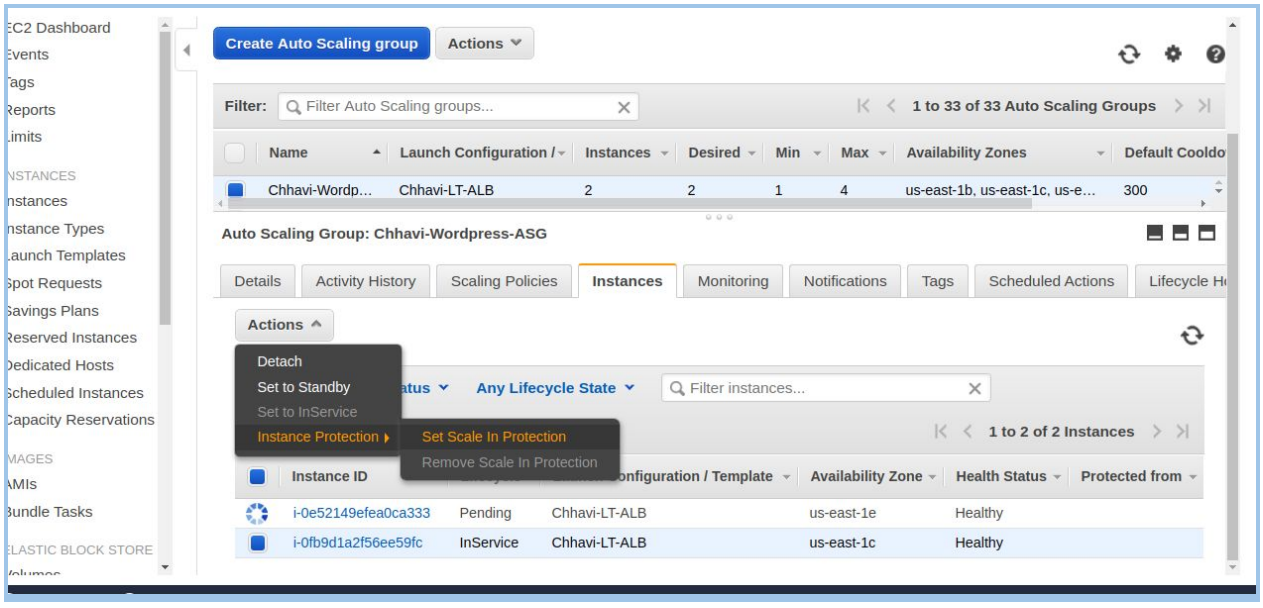


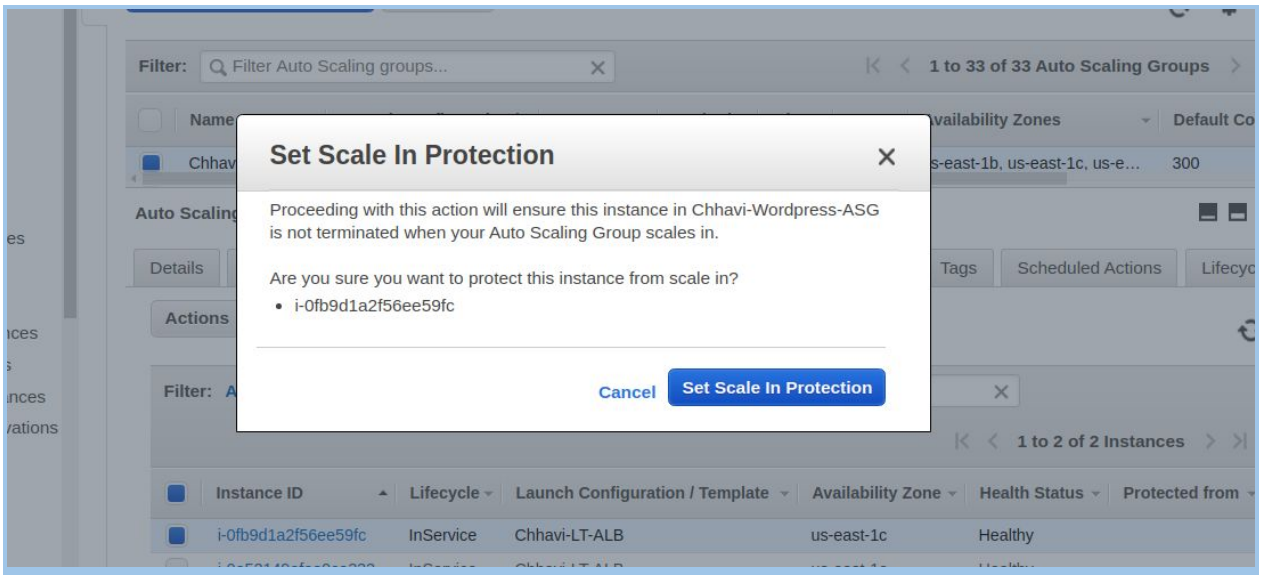



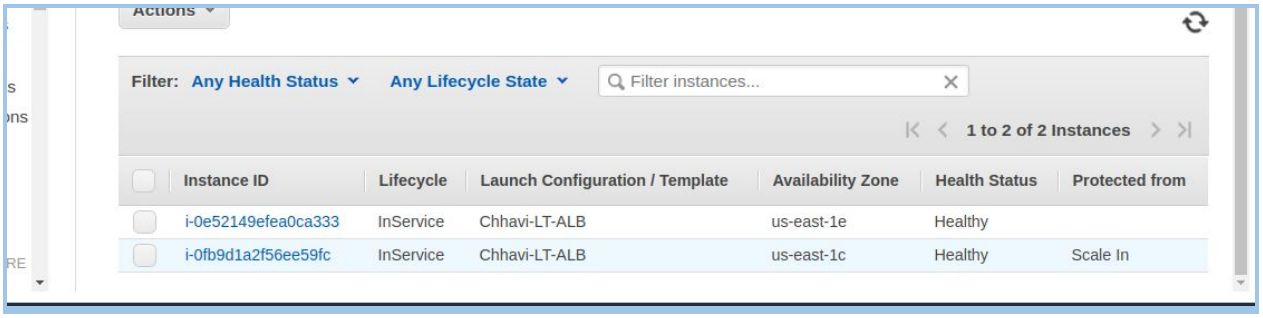



10.Put scale-in protection on an instance in the ASG.

Ans.





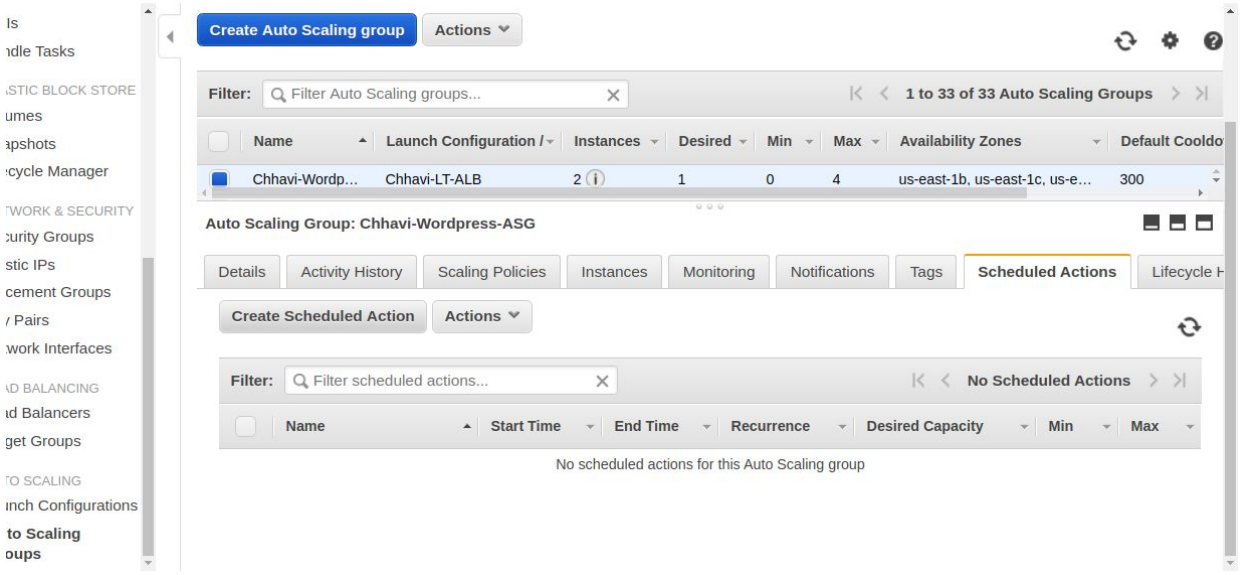




11.Put Schedules in ASG to:

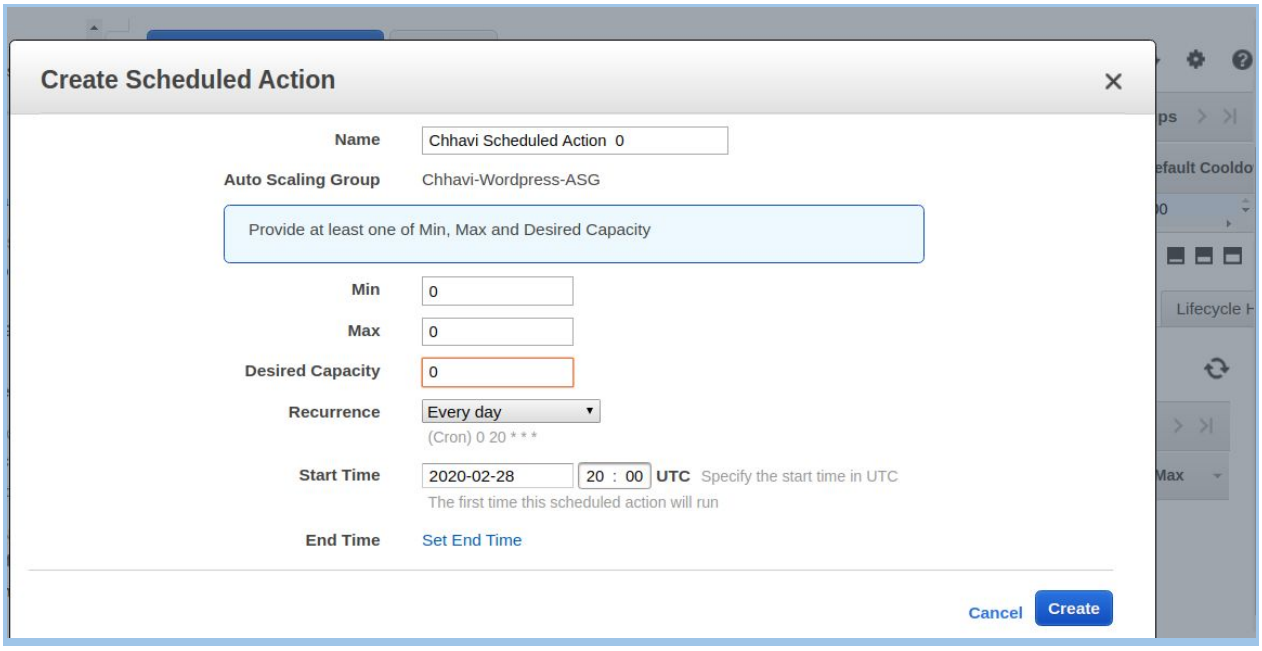
- Remove all instances of the ASG at 8 PM

Ans.

Select auto scaling group and go to scheduled policies

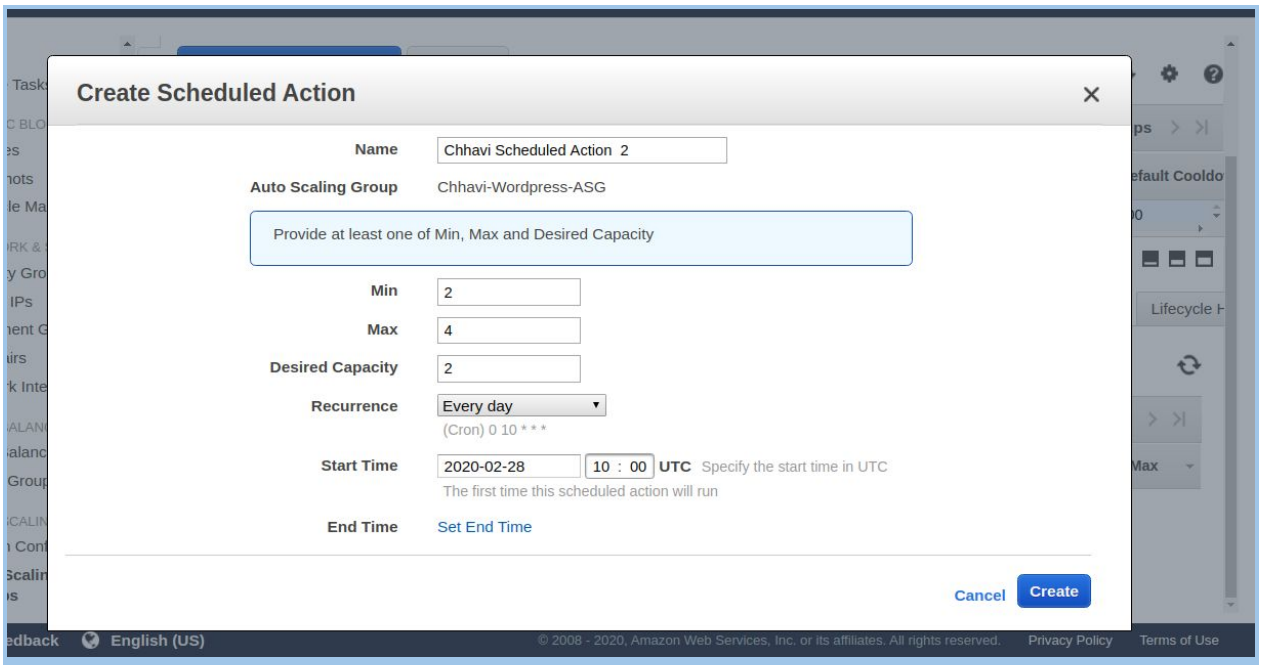



Schedule policy




- Launch a minimum of 2 instances at 10 AM

Ans.


Create Scheduled Action
Name
Chhavi Scheduled Action 2
Auto Scaling Group
Chhavi-Wordpress-ASG
Provide at least one of Min, Max and Desired Capacity
Min
2
Max
4
Desired Capacity
2
Recurrence
Every day
(Cron) 0 10 * * *
Start Time
2020-02-28
10 : 00
UTC
Specify the start time in UTC
The first time this scheduled action will run
End Time
Set End Time
Cancel
Create
English (US)
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