ASSESSMENT - 11

Auto Scaling and LoadBalancer

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

Feature	ALB	NLB	ELB
Protocols	HTTP, HTTPS	TCP, TLS	TCP, SSL/TLS, HTTP, HTTPS
Platforms	VPC	VPC	EC2-Classic, VPC
Sticky sessions	YES	NO	YES
Static IP Support	NO	YES	NO
Native HTTP/2	YES	NO	NO

2.Differences between step scaling and target scaling.

In target tracking aws will either scale-in or scale-out to match the given target.

In step scaling we define how much to scale-in and scale-out for every step.

3.Differences between Launch configuration and launch template.

ANS : Launch template is similar to launch configuration which usually Auto Scaling group uses to launch EC2 instances. However, defining a launch template instead of a launch configuration allows you to have multiple versions of a template.

AWS recommends that we should use launch templates instead of launch configurations to ensure that we can leverage the latest features of Amazon EC2, such as T2 Unlimited instances.

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

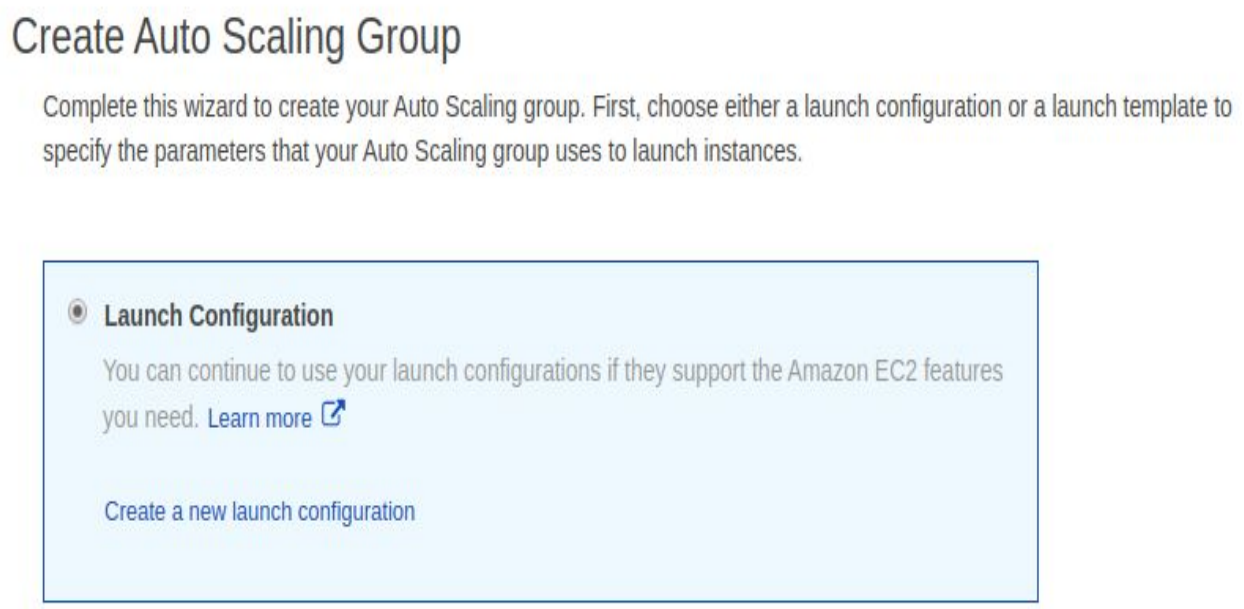
ANS :

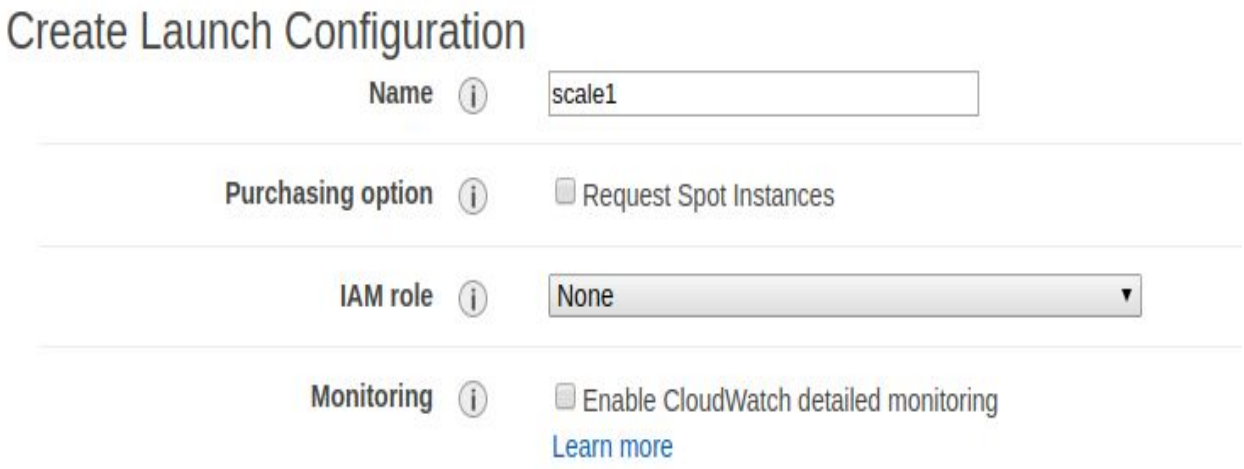
EC2 health check watches for instance availability from hypervisor and networking point of view. For example, in case of a hardware problem, the check will fail. Also, if an instance was misconfigured and doesn't respond to network requests, it will be marked as faulty.

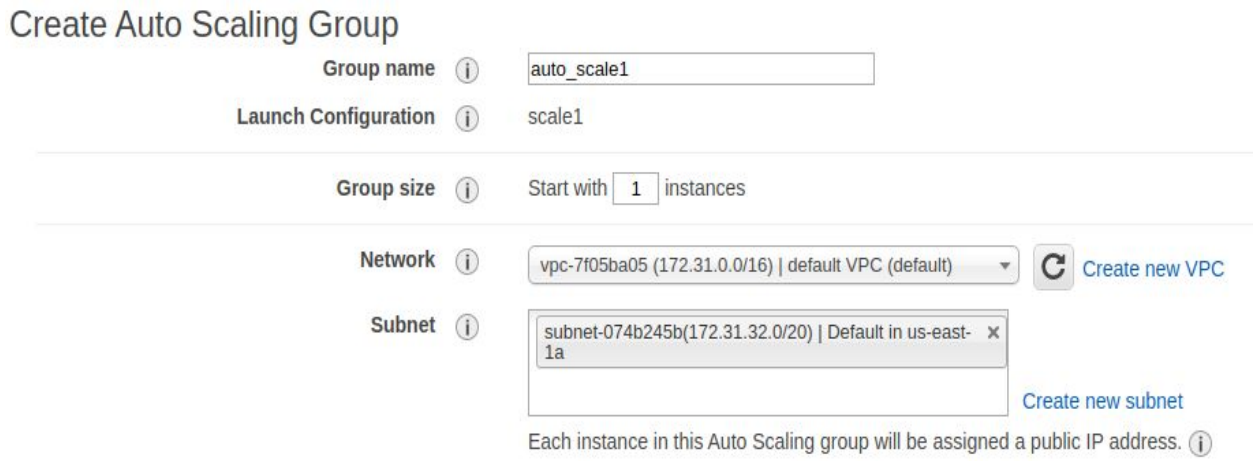
ELB health check verifies that a specified TCP port on an instance is accepting connections OR a specified web page returns 2xx code. Thus ELB health checks are a little bit smarter and verify that actual app works instead of verifying that just an instance works.

5.Create 2 auto-scaling groups with

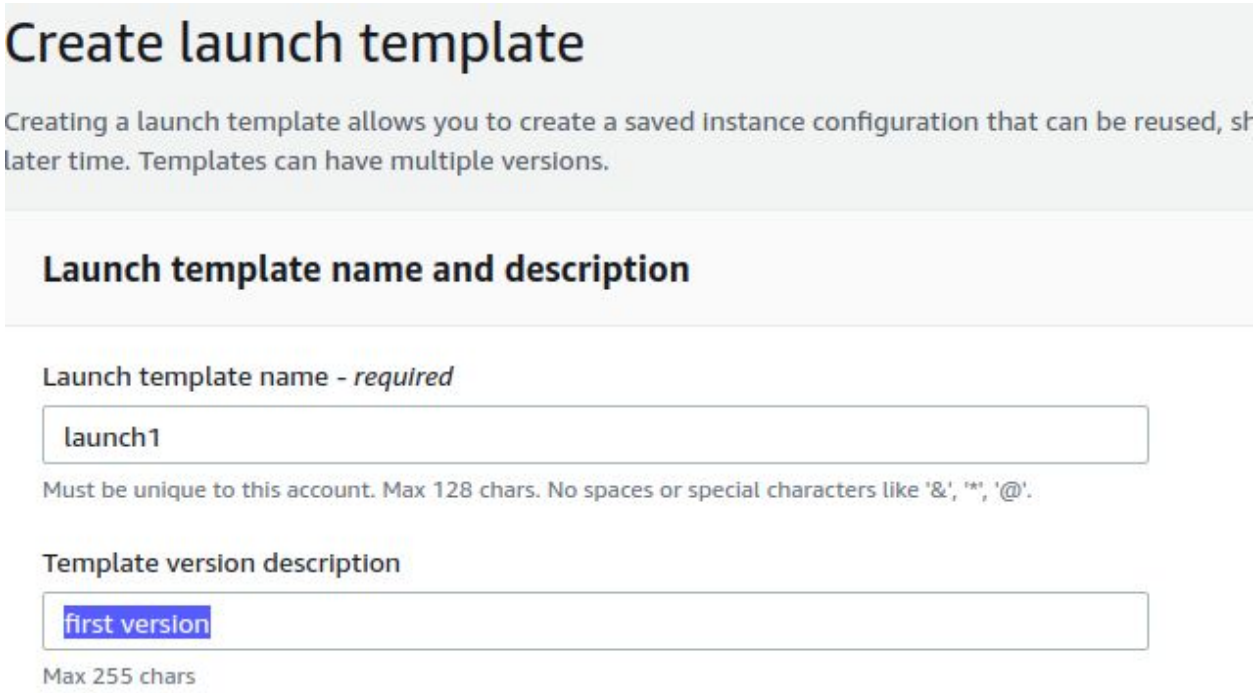
- **launch configuration and**







- **launch template**



Launch Template New

Launch templates give you the option of launching one type of instance, or a combination of instance types and purchase options. Launch templates include the latest Amazon EC2 features and can be updated and versioned. Learn more

Create new launch template

Filter launch templates...

1 to

Name	Launch Template Id	Default Version	Latest Version	Create Time
launch1	lt-023e90b7b909a5097	1	1	Wed Feb 26 13:09:41 GMT

Create Auto Scaling Group

Group name auto_launch1

Launch Template lt-023e90b7b909a5097

Launch Template Version 1 (Default) Create new launch t

Launch Template Description first version

Fleet Composition

- Adhere to the launch template

The launch template determines the instance type and purchase option (On-Demand or Spot).

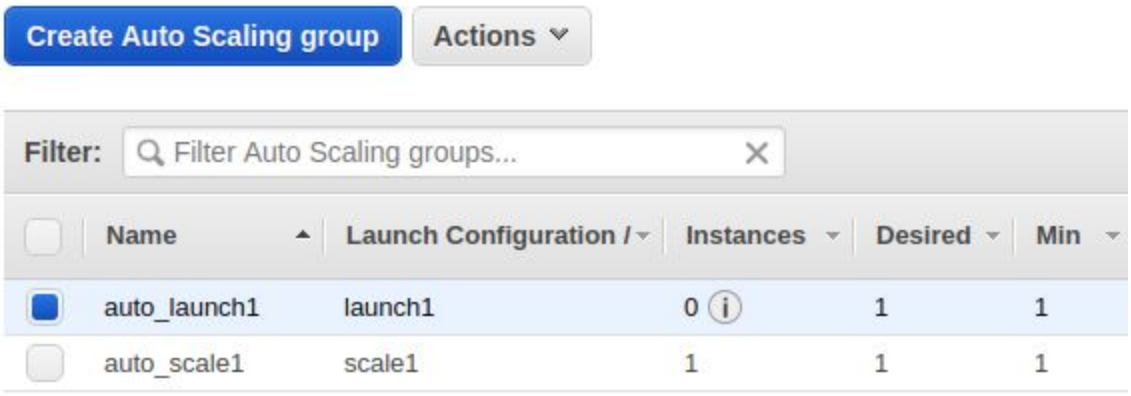
- Combine purchase options and instances

Choose a mix of On-Demand Instances and Spot Instances and multiple instance types. Spot Instar launched at the lowest price available.

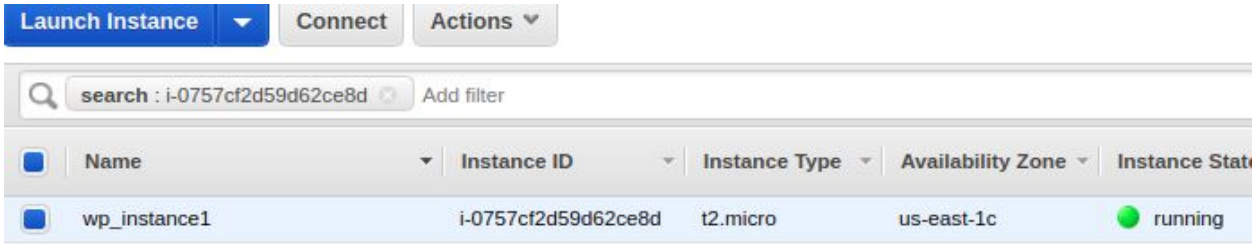
Group size Start with 1 instances

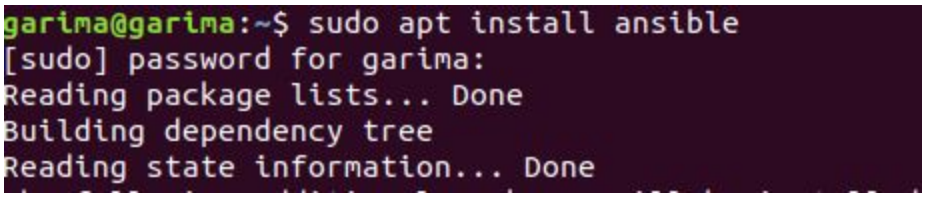
Network vpc-7f05ba05 (172.31.0.0/16) | default VPC (default) Create new VPC

Subnet subnet-074b245b(172.31.32.0/20) | Default in us-east-1a



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





```
garima@garima:~$ git clone https://github.com/abhi0798/Ansible-Wordpress.git
Cloning into 'Ansible-Wordpress'...
remote: Enumerating objects: 25, done.
remote: Counting objects: 100% (25/25), done.
remote: Compressing objects: 100% (12/12), done.
remote: Total 25 (delta 0), reused 22 (delta 0), pack-reused 0
Unpacking objects: 100% (25/25), done.
garima@garima:~$ cd /etc/
garima@garima:/etc$ sudo vim hosts
garima@garima:/etc$ cd
garima@garima:~$ cd Ansible-Wordpress/
garima@garima:~/Ansible-Wordpress$ ls
hosts  lamp.yml  README.md  roles
garima@garima:~/Ansible-Wordpress$ sudo vim hosts
```

```
ubuntu@ip-172-31-91-136:~/Ansible-Wordpress$ cat hosts
[lamp]
ubuntu@54.173.12.102
ubuntu@ip-172-31-91-136:~/Ansible-Wordpress$
```

```
garima@garima:~/Ansible-Wordpress$ cd roles/python/tasks/
garima@garima:~/Ansible-Wordpress/roles/python/tasks$ ls
main.yml
garima@garima:~/Ansible-Wordpress/roles/python/tasks$ sudo vim main.yml
```

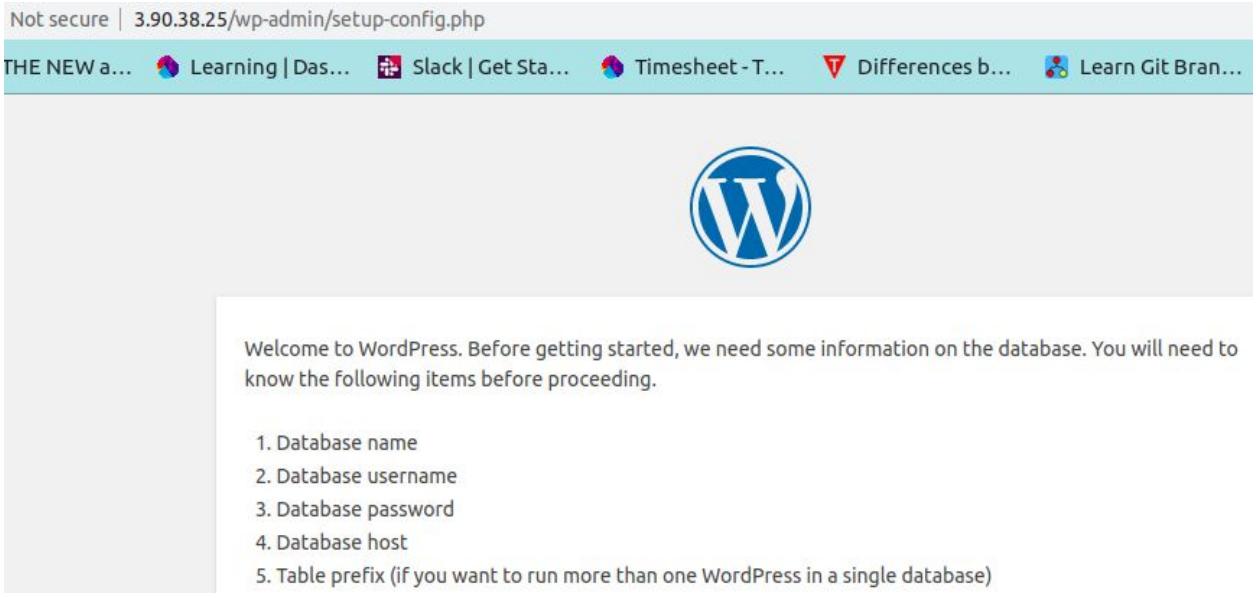
```
garima@garima:~/Ansible-Wordpress/roles/python/tasks$ cat main.yml
- name: updating repo
  raw: sudo apt update -y
- name: installing python
  raw: sudo apt install python -y
```

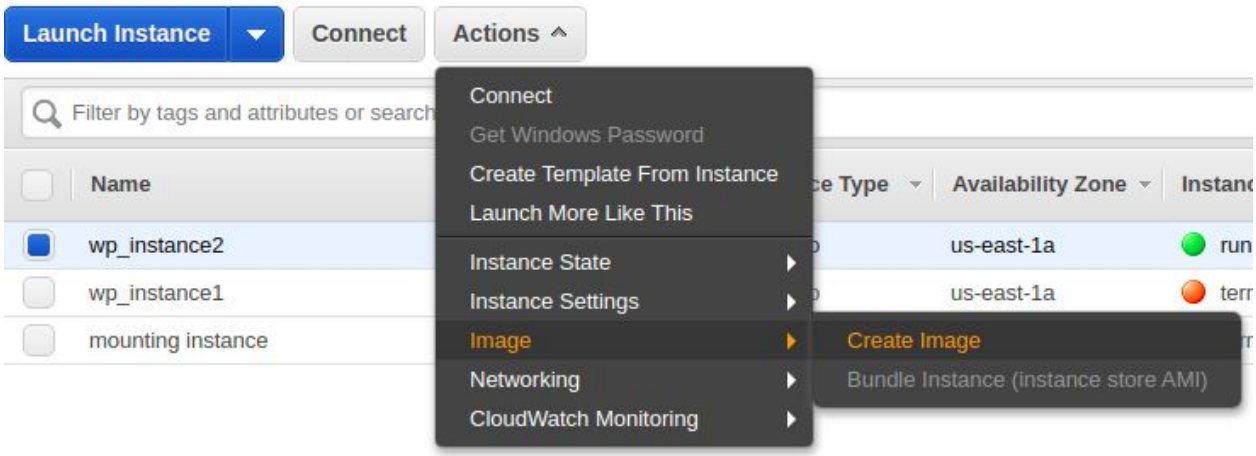
```
garima@garima:~/Ansible-Wordpress$ cat lamp.yml
- hosts: lamp
  become: yes
  gather_facts: no
  roles:
  - python
  - nginx
  - mysql
  - php
  - wordpress
```

```
garima@garima:~/Ansible-Wordpress$ ansible-playbook -i hosts lamp.yml --key-file /home/garima/Downloads/newawskeypair.pem

PLAY [lamp] ********************************************************************

TASK [python : updating repo] **************************************************
The authenticity of host '3.90.38.25 (3.90.38.25)' can't be established.
ECDSA key fingerprint is SHA256:HCZgORlQlObL1oI5CSAokyawnoRhheXUWTyRvbRVNqA.
Are you sure you want to continue connecting (yes/no)? yea
Please type 'yes' or 'no': yes
```





Create Image

Instance ID	i-099f662852fed3574
Image name	new-image
Image description	
No reboot	☐

Instance Volumes

Volume Type	Device	Snapshot	Size (GiB)	Volume Type	IOPS	Throughput (MB/s)
Root	/dev/sda1	snap-0e078112eedeec9db	8	General Purpose SSD (gp2)	100 / 3000	N/A

Launch template name and description

Launch template name - *required*

temp1

Must be unique to this account. Max 128 chars. No spaces or special characters like '&', '*', '@'.

Template version description

first version

Max 255 chars

Amazon machine image (AMI) Info

AMI

new-image
ami-0f5e2c137835cf4d9
Catalog: My AMIs 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

Create Auto Scaling Group

Launch Template New

Launch templates give you the option of launching one type of instance, or a combination of instance types and purchase options. Launch templates include the latest Amazon EC2 features and can be updated and versioned. Learn more

Create new launch template

Filter launch templates...

Name	Launch Template Id	Default Version	Latest Versio
temp1	lt-0f4f4db57066a1026	1	1

Create Auto Scaling Group

Group name auto_scale1

Launch Template lt-0f4f4db57066a1026

Launch Template Version 1 (Default)

Launch Template Description first version

Fleet Composition

- (•) Adhere to the launch template
  The launch template determines the instance type and purchase opt
- ( ) Combine purchase options and instances
  Choose a mix of On-Demand Instances and Spot Instances and mul
  launched at the lowest price available.

Group size Start with 1 instances

Network vpc-7f05ba05 (172.31.0.0/16) | default VPC (default)

Subnet subnet-074b245b(172.31.32.0/20) | Default in us-east-1a ×

Desired Capacity 2

Min 1

Max 3

Availability Zone(s) us-east-1a ×

Subnet(s)

- subnet-074b245b(172.31.32.0/20) | Default in us-east-1a ×
- subnet-8a6406ed(172.31.0.0/20) | Default in us-east-1b ×

assic Load Balancers

Target Groups target1 ×

Health Check Type EC2

Step 4: Configure Routing

Target group

Target group (i) New target group

Name (i) target1

Target type
- (•) Instance
- ( ) IP
- ( ) Lambda function

Protocol (i) HTTP

Port (i) 80

Health checks

Protocol (i) HTTP

Path (i) /

Load Balancer Creation Status

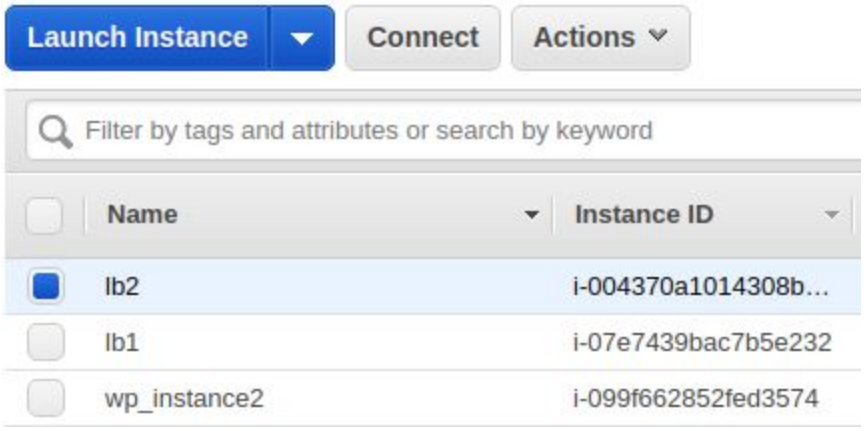
Successfully created load balancer

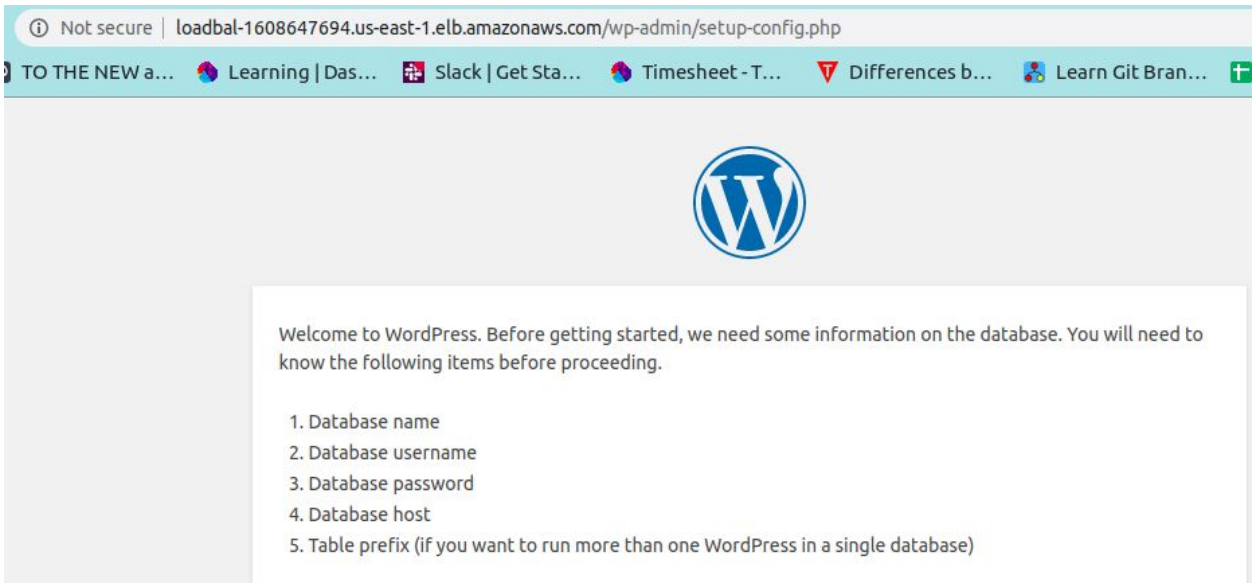
Load balancer loadbal was successfully created.

Note: It might take a few minutes for your load balancer to b

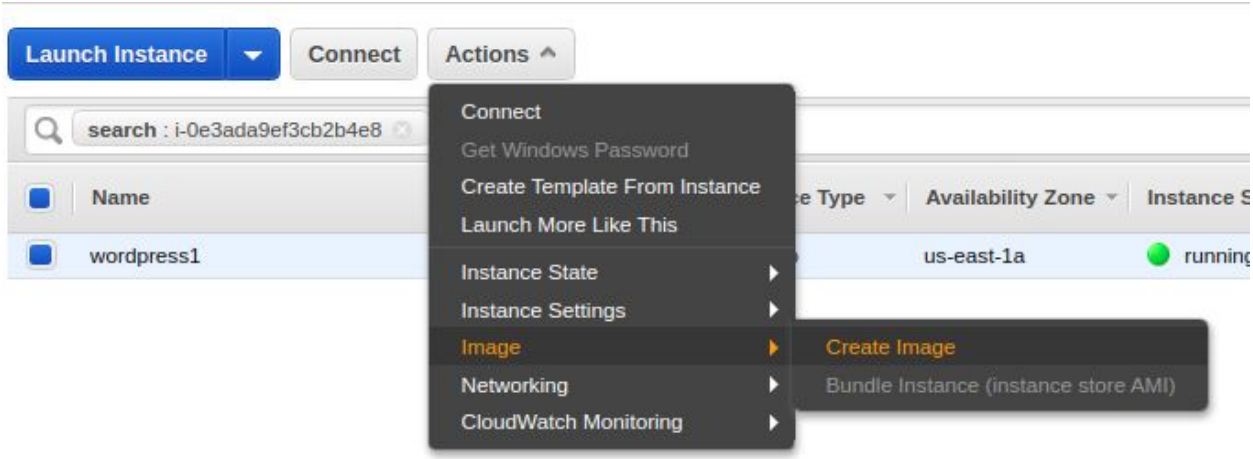
Suggested next steps

- Discover other services that you can integrate with your lo
- Consider using AWS Global Accelerator to further improve


Launch Instance
Connect
Actions
Filter by tags and attributes or search by keyword
Name
Instance ID
lb2
i-004370a1014308b...
lb1
i-07e7439bac7b5e232
wp_instance2
i-099f662852fed3574


Not secure
loadbal-1608647694.us-east-1.elb.amazonaws.com/wp-admin/setup-config.php
TO THE NEW a...
Learning | Das...
Slack | Get Sta...
Timesheet - T...
Differences b...
Learn Git Bran...
Welcome to WordPress. Before getting started, we need some information on the database. You will need to know the following items before proceeding.
1. Database name
2. Database username
3. Database password
4. Database host
5. Table prefix (if you want to run more than one WordPress in a single database)

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



Create launch template

Creating a launch template allows you to create a saved instance configuration that can be reusec
later time. Templates can have multiple versions.

Launch template name and description

Launch template name - *required*

temp2

Must be unique to this account. Max 128 chars. No spaces or special characters like '&', '*', '@'.

Template version description

Amazon machine image (AMI) Info

AMI

wordpress-image
ami-07017ca6e6be68460
Catalog: My AMIs 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

Key pair name

newawskeypair

Network settings

Networking platform Info

Virtual Private Cloud (VPC)
Launch into a virtual network in your own logically isolated area within the AWS cloud

Create Auto Scaling Group

Complete this wizard to create your Auto Scaling group. First, choose either a launch configuration or a launch template to specify the parameters that your Auto Scaling group uses to launch instances.

Launch Configuration
You can continue to use your launch configurations if they support the Amazon EC2 features you need. Learn more

Create a new launch configuration

Launch Template New
Launch templates give you the op
instance types and purchase optic
features and can be updated and

Create new launch template

Filter launch templates...

Name	Launch Template Id	Default Version	Latest Version	Create Time
temp1	lt-0f4f4db57066a1026	1	1	Thu Feb 27 15:48:41 GM
temp2	lt-0a25fe00c1dcac282	1	1	Mon Mar 16 17:46:18 G

Create Auto Scaling Group

Group name wp_auto

Launch Template lt-0a25fe00c1dcac282

Launch Template Version 1 (Default) — Create new launch template

Launch Template Description -

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 auto launched at the lowest price available.

Group size Start with 1 instances

Network vpc-7f05ba05 (172.31.0.0/16) | default VPC (default) — Create new VPC

Subnet

- subnet-8a6406ed(172.31.0.0/20) | Default in us-east-1b
- subnet-074b245b(172.31.32.0/20) | Default in us-east-1a

Create new subnet

Auto Scaling group creation status

Successfully created Auto Scaling group

View creation log

Create target group

Your load balancer routes requests to the targets in a target group using the target group se
settings that you specify.

Target group name target1

Target type
- (•) Instance
- ( ) IP
- ( ) Lambda function

Protocol HTTP

Port 80

VPC vpc-7f05ba05 (172.31.0.0/16) | default VPC (

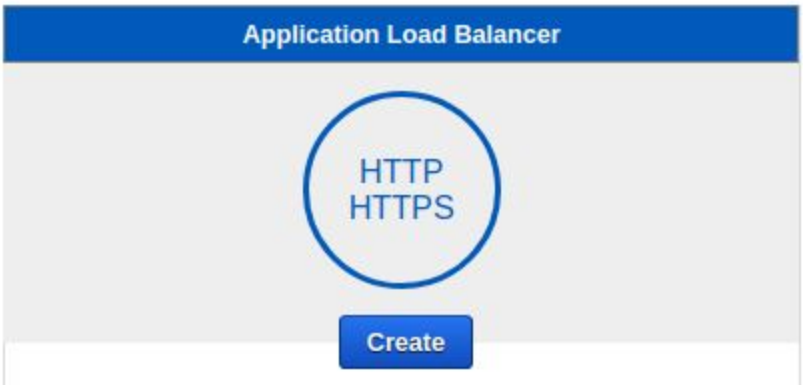
Health check settings

Protocol HTTP

Path /

Select load balancer type

Elastic Load Balancing supports three types of load balancers: Application Lo
which load balancer is right for you



Step 1: Configure Load Balancer

Basic Configuration

To configure your load balancer, provide a name, select a scheme, specify one or more listeners, and select a netw
receives HTTP traffic on port 80.

Name lb-1

Scheme (•) internet-facing ( ) internal

IP address type ipv4

Listeners

A listener is a process that checks for connection requests, using the protocol and port that you configured.

Load Balancer Protocol	Load Balancer Port
HTTP	80

Add listener

Availability Zones

Specify the Availability Zones to enable for your load balancer. The load balancer routes traffic to the targets in these Availability
at least two Availability Zones to increase the availability of your load balancer.

VPC vpc-7f05ba05 (172.31.0.0/16) | default VPC (default)

Availability Zones

☑ **us-east-1a** subnet-074b245b

IPv4 address Assigned by AWS

☑ **us-east-1b** subnet-8a6406ed

IPv4 address Assigned by AWS

Step 4: Configure Routing

Your load balancer routes requests to the targets in this target group using the protocol and port t
associated with only one load balancer.

Target group

Target group	Existing target group
Name	target1
Target type	Instance IP Lambda function
Protocol	HTTP
Port	80

Health checks

Protocol	HTTP
Path	/

Load Balancer Creation Status

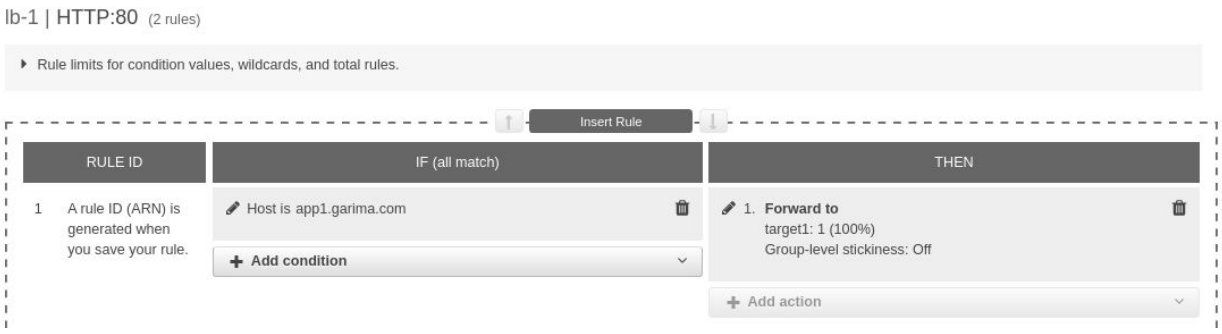
Successfully created load balancer

Load balancer lb-1 was successfully created.

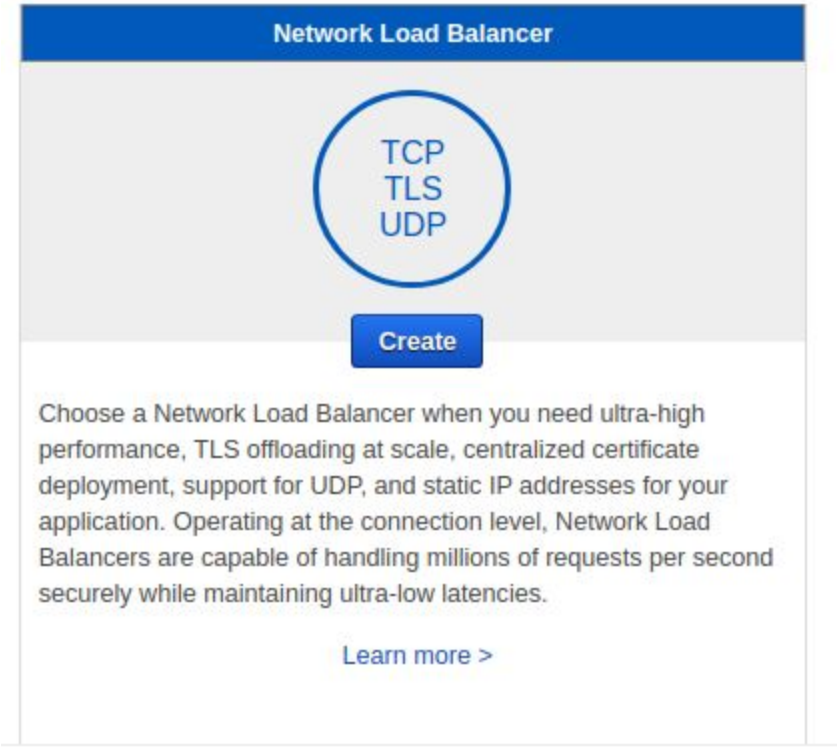
Note: It might take a few minutes for your load balancer to be fully se

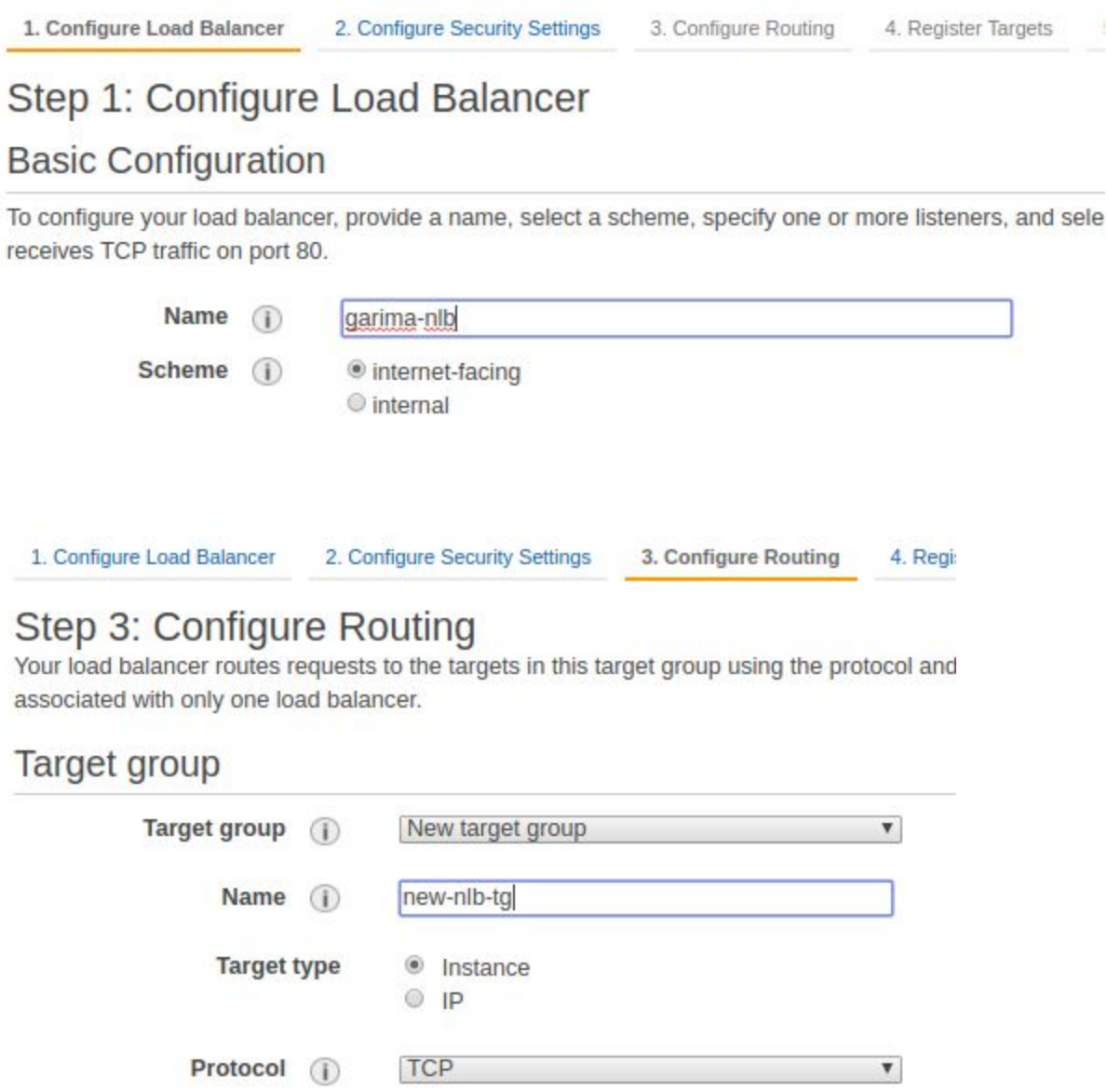

Create Hosted Zone
A hosted zone is a container that holds information about how you want to route traffic for a domain, such as example.com, and its subdomains.
Domain Name:
garima.com
Comment:
Type:
Public Hosted Zone
A public hosted zone determines how traffic is routed on the Internet.

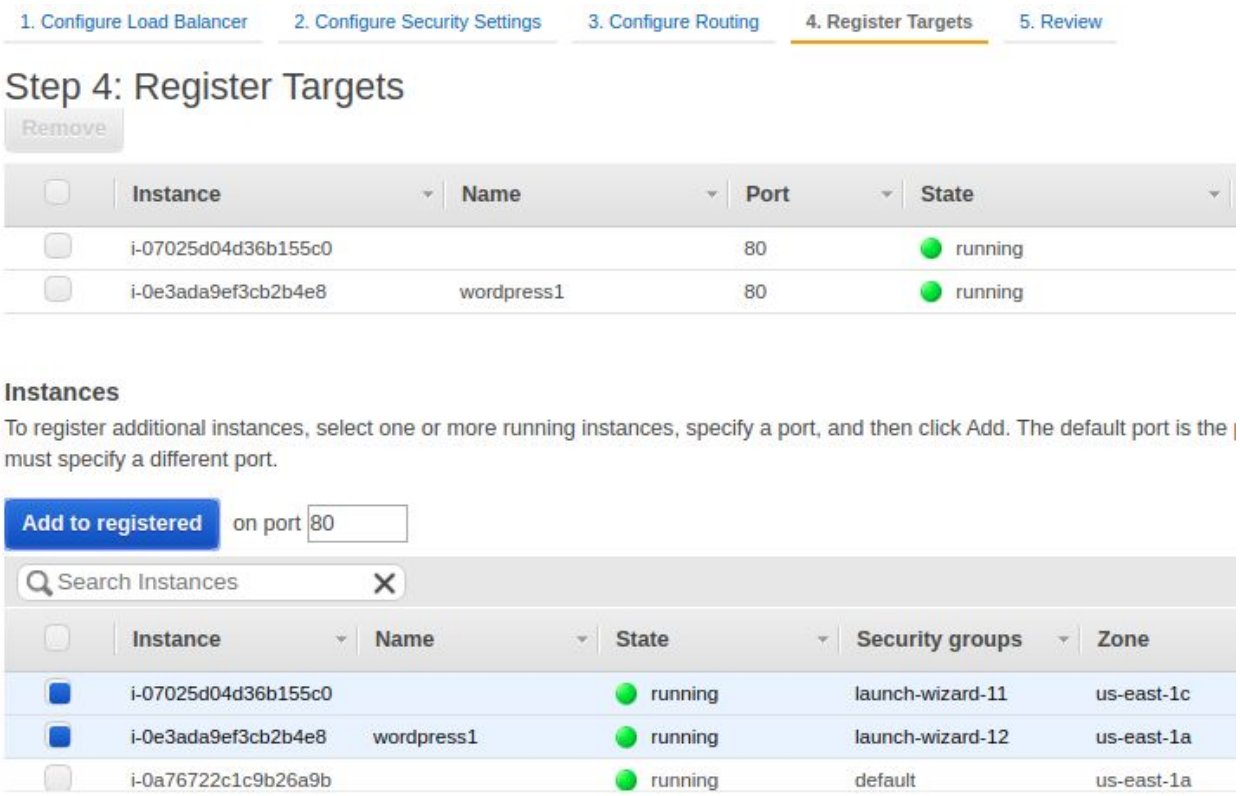

Create Record Set
Name:
app1
.garima.com.
Type:
CNAME – Canonical name
Alias:
Yes
No
TTL (Seconds):
300
1m
5m
1h
1d
Value:
lb-1-1201142343.us-east-1.elb.amazonaws.com
The domain name that you want to resolve to instead of the value in the Name field.



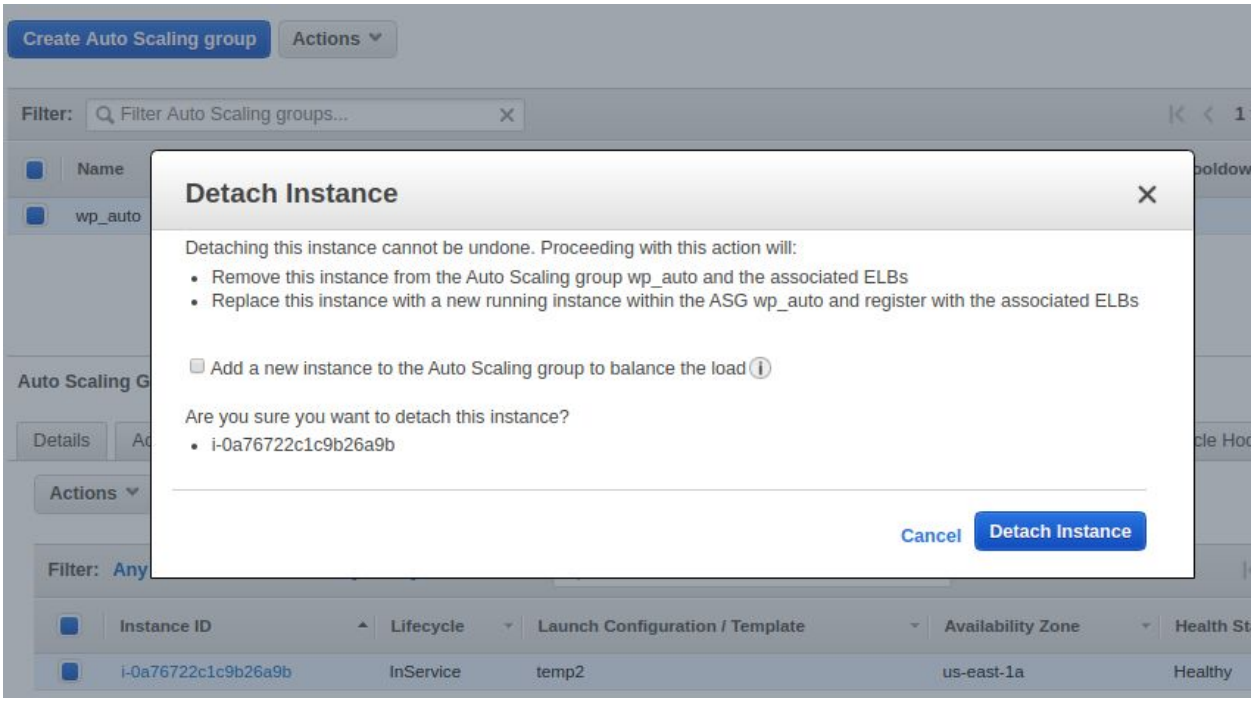
8.Use NLB that replaces the ALB in the above setup.



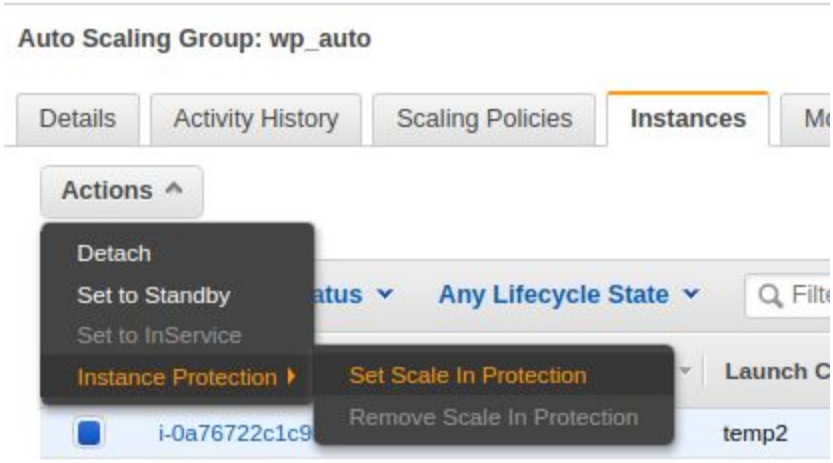

1. Configure Load Balancer
2. Configure Security Settings
3. Configure Routing
4. Register Targets
Step 1: Configure Load Balancer
Basic Configuration
To configure your load balancer, provide a name, select a scheme, specify one or more listeners, and sele
receives TCP traffic on port 80.
Name
garima-nlb
Scheme
internet-facing
internal
1. Configure Load Balancer
2. Configure Security Settings
3. Configure Routing
4. Regi
Step 3: Configure Routing
Your load balancer routes requests to the targets in this target group using the protocol and
associated with only one load balancer.
Target group
Target group
New target group
Name
new-nlb-tg
Target type
Instance
IP
Protocol
TCP

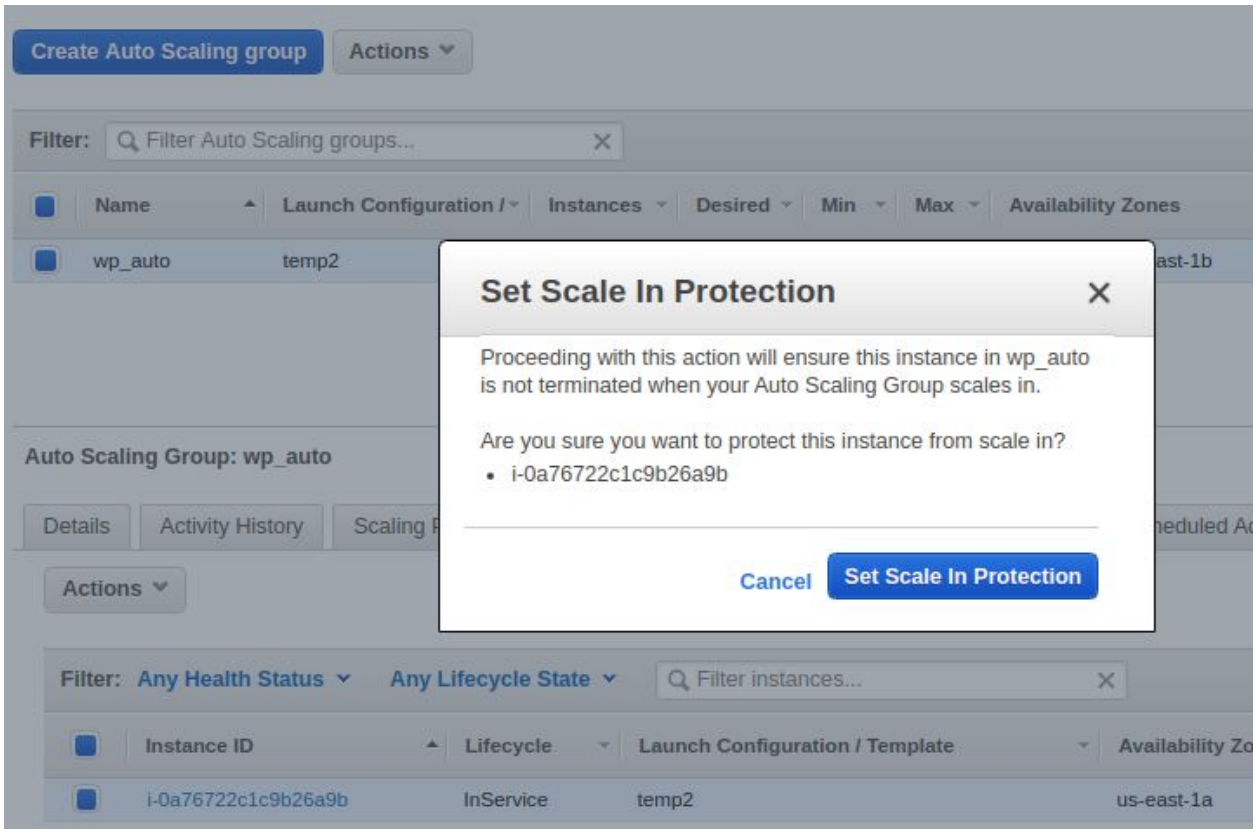


9.Take an instance out of the ASG.



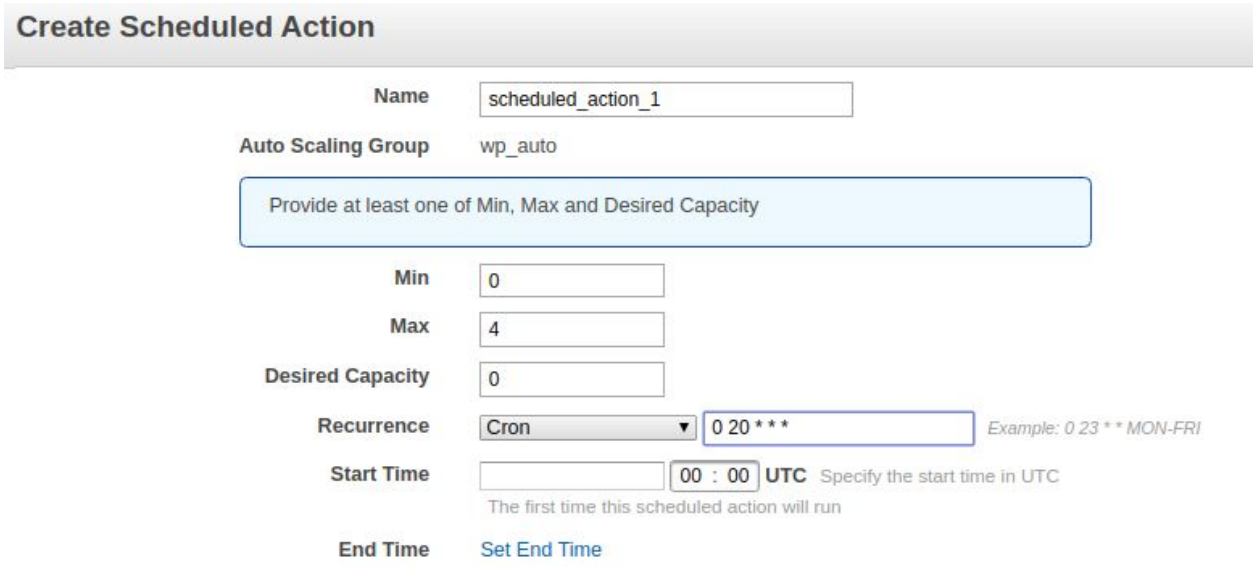
10.Put scale-in protection on an instance in the ASG.





11.Put Schedules in ASG to:

- **Remove all instances of the ASG at 8 PM**



- **Launch a minimum of 2 instances at 10 AM**