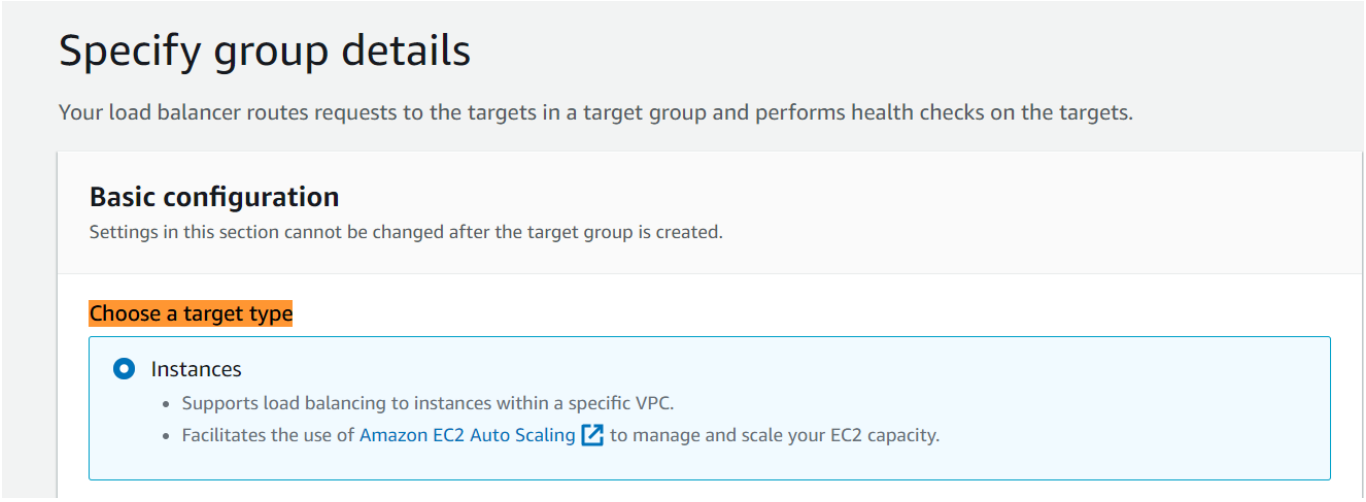
CITS5503 Lab5

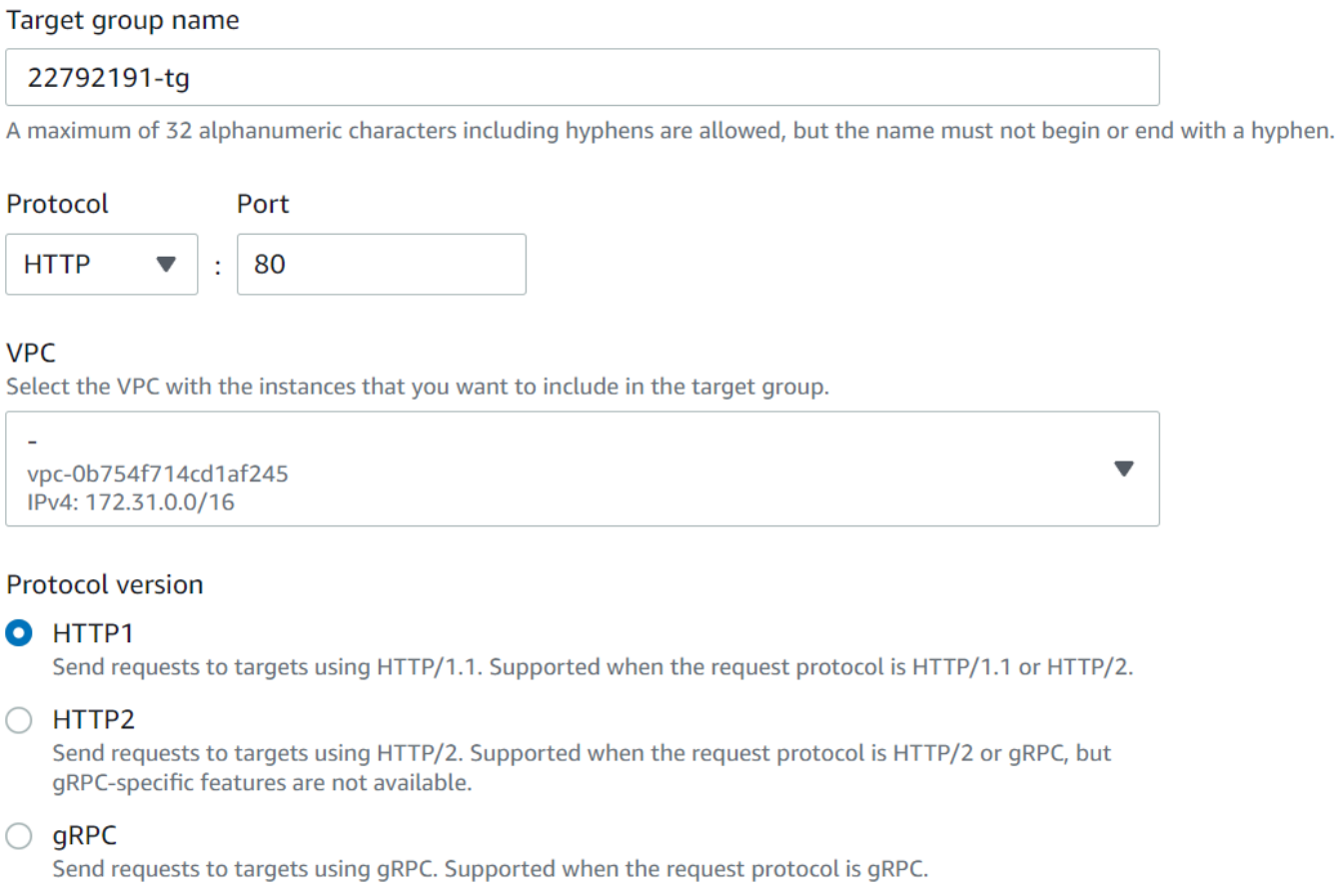
Wenxiao Zhang 22792191

Step 1: Configure a target group

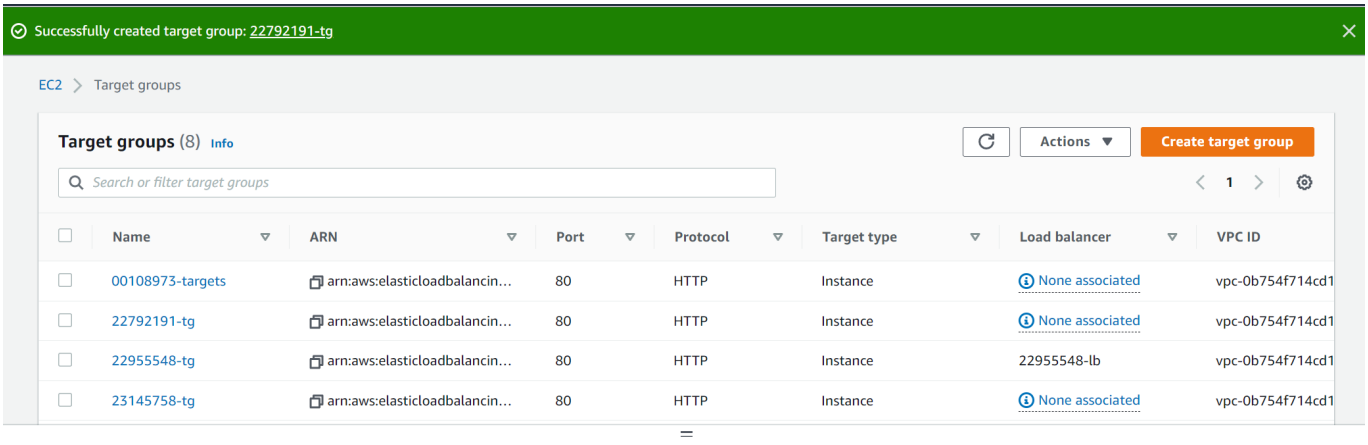
For Choose a target type, select Instance to specify targets by instance ID



For Target group name, enter a name for the target group.



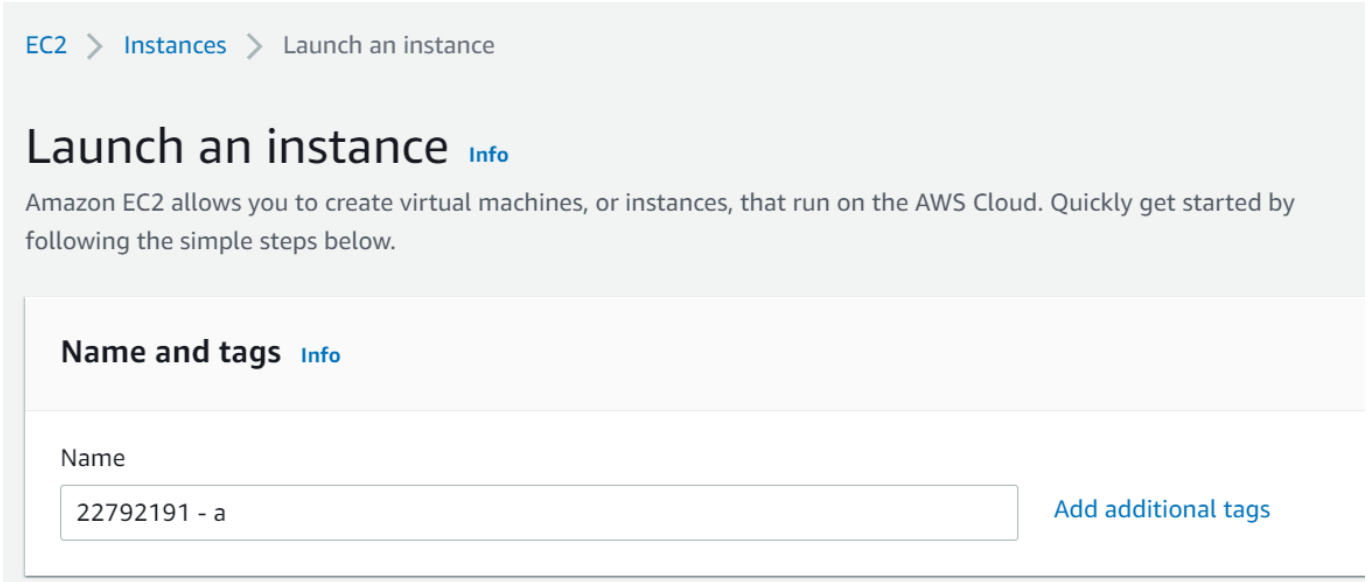
the rest settings are set as default.

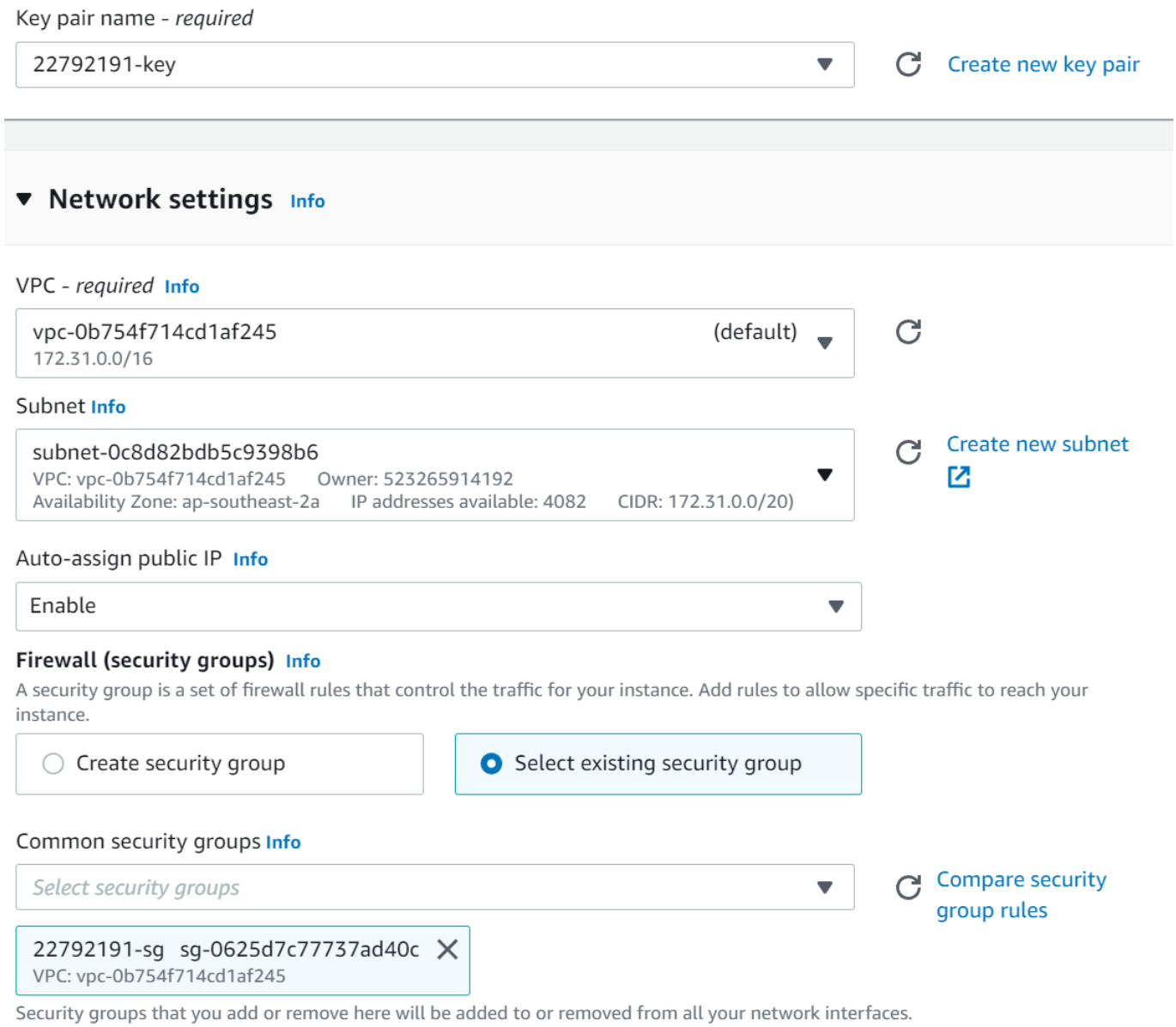


Step 2: Register targets

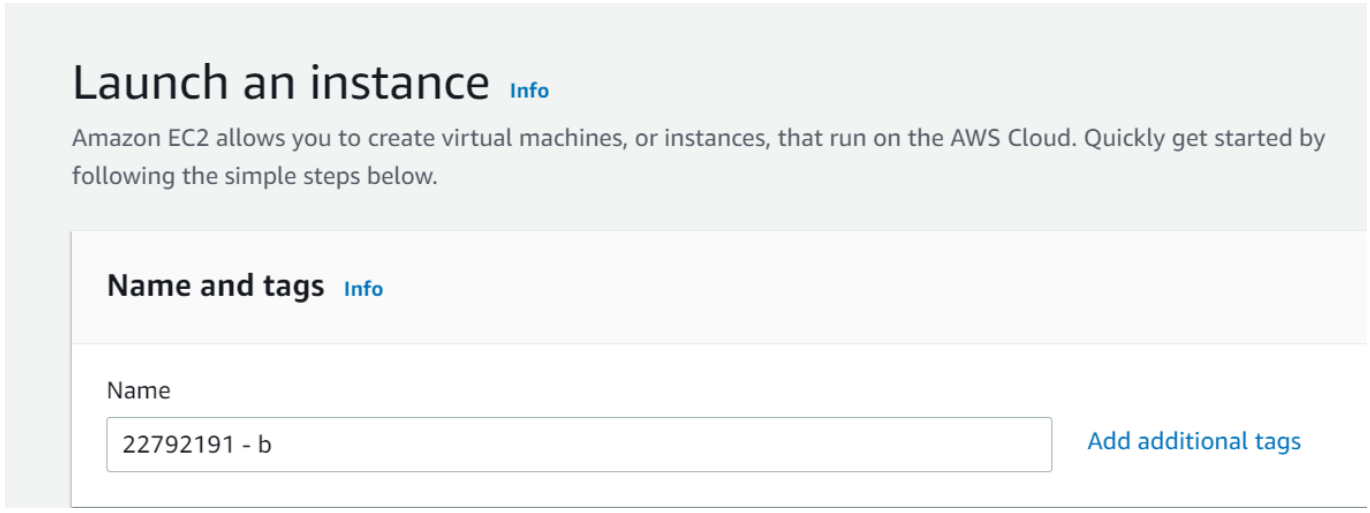
Create 2 ec2 instances using aws console:

The first one named `22792191 - a`, availability zone is `ap-southest-2a` key pair `22792191-key`, port 80, security group `22792191-sg`





The second one named `22792191 - b`, availability zone is `ap-southest-2b` key pair `22792191-key`, port 80, security group `22792191-sg`



Key pair (login) Info

You can use a key pair to securely connect to your instance. Ensure that you have access to the selected key pair before you launch the instance.

Key pair name - *required*

22792191-key

Create new key pair

Network settings Info

VPC - *required* Info

vpc-0b754f714cd1af245 (default)
172.31.0.0/16

Subnet Info

subnet-0b15987d0f01c421f
VPC: vpc-0b754f714cd1af245 Owner: 523265914192
Availability Zone: ap-southeast-2b IP addresses available: 4062
CIDR: 172.31.32.0/20)

Create new subnet

Auto-assign public IP Info

Enable

Firewall (security groups) Info

A security group is a set of firewall rules that control the traffic for your instance. Add rules to allow specific traffic to reach your instance.

Create security group

Select existing security group

Common security groups Info

Select security groups

Compare security group rules

22792191-sg sg-0625d7c77737ad40c
VPC: vpc-0b754f714cd1af245

Register targets using the created 2 instances

EC2 > Target groups > 22792191-tg > Register targets

Register targets

Select instances, specify ports, and add the instances to the list of pending targets. Repeat to add additional combinations of instances and ports to the list of pending targets. Once you are satisfied with your selections, click Register pending targets.

Available instances (2/21)

Filter resources by property or value — 2 matches — 1

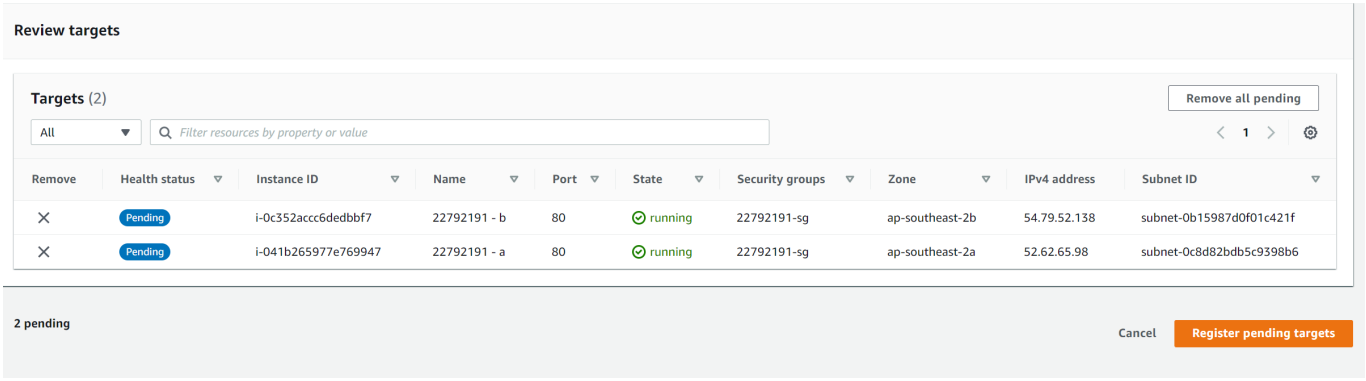
"22792191" — Clear filters

Instance ID	Name	State	Security groups	Zone	IPv4 address	Subnet ID
i-041b265977e769947	22792191 - a	running	22792191-sg	ap-southeast-2a	52.62.65.98	subnet-0c8d82bdb5c9398b6
i-0c352accc6dedbbf7	22792191 - b	running	22792191-sg	ap-southeast-2b	54.79.52.138	subnet-0b15987d0f01c421f

2 selected

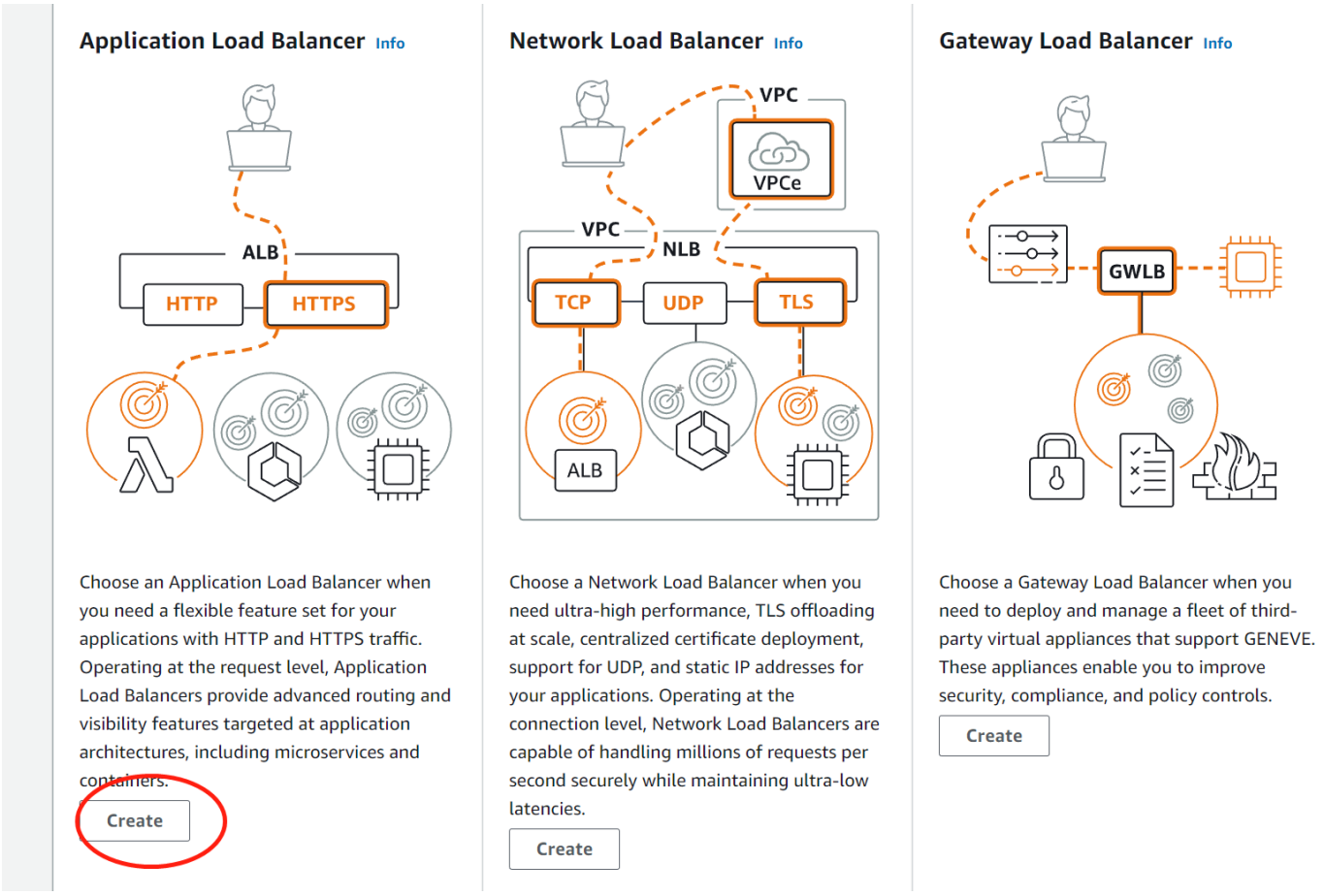
Ports for the selected instances
Ports for routing traffic to the selected instances.
80
1-65535 (separate multiple ports with commas)

Include as pending below



Step 3: Configure a load balancer and a listener

Under Application Load Balancer, choose Create



Basic configuration

Naming the load balancer: 22792191-lb

scheme: internet-facing

IP address type: IPv4

Basic configuration

Load balancer name

Name must be unique within your AWS account and cannot be changed after the load balancer is created.

22792191-lb

A maximum of 32 alphanumeric characters including hyphens are allowed, but the name must not begin or end with a hyphen.

Scheme Info

Scheme cannot be changed after the load balancer is created.

- (•) Internet-facing
  An internet-facing load balancer routes requests from clients over the internet to targets. Requires a public subnet. Learn more
- ( ) Internal
  An internal load balancer routes requests from clients to targets using private IP addresses.

IP address type Info

Select the type of IP addresses that your subnets use.

- (•) IPv4
  Recommended for internal load balancers.
- ( ) Dualstack
  Includes IPv4 and IPv6 addresses.

Network mapping

select 2 Availability Zones and corresponding subnets: 'ap-southeast-2a' and 'ap-southeast-2b'

Network mapping Info

The load balancer routes traffic to targets in the selected subnets, and in accordance with your IP address settings.

VPC Info

Select the virtual private cloud (VPC) for your targets. Only VPCs with an internet gateway are enabled for selection. The selected VPC cannot be changed after the load balancer is created. To confirm the VPC for your targets, view your target groups.

-
vpc-0b754f714cd1af245
IPv4: 172.31.0.0/16

Mappings Info

Select at least two Availability Zones and one subnet per zone. The load balancer routes traffic to targets in these Availability Zones only. Availability Zones that are not supported by the load balancer or the VPC are not available for selection.

☑ **ap-southeast-2a**

Subnet

subnet-0c8d82bdb5c9398b6

IPv4 settings

Assigned by AWS

☑ **ap-southeast-2b**

Subnet

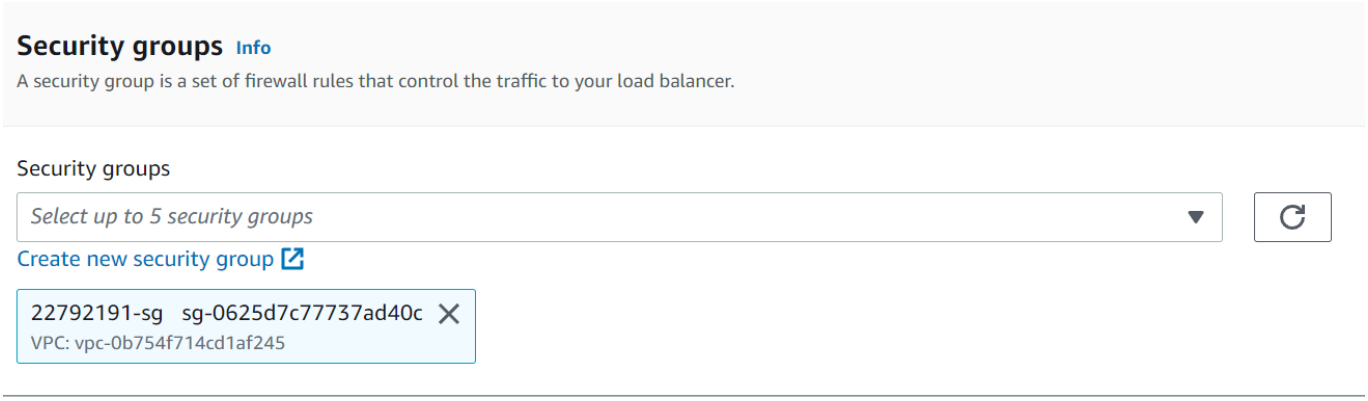
subnet-0b15987d0f01c421f

IPv4 settings

Assigned by AWS

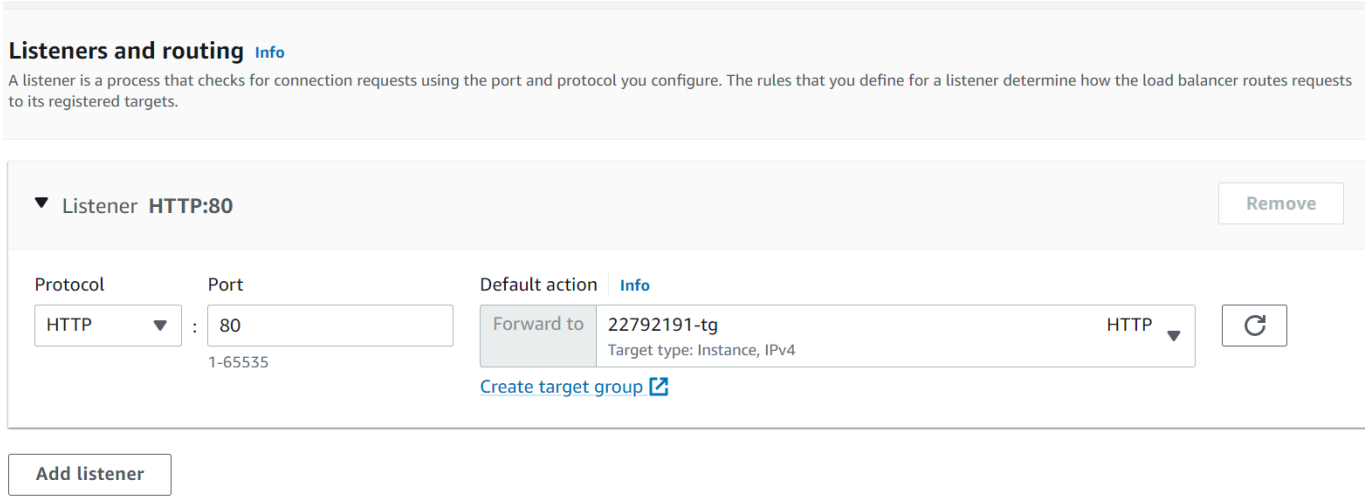
Security Group

select an existing security group '22792191-sg'

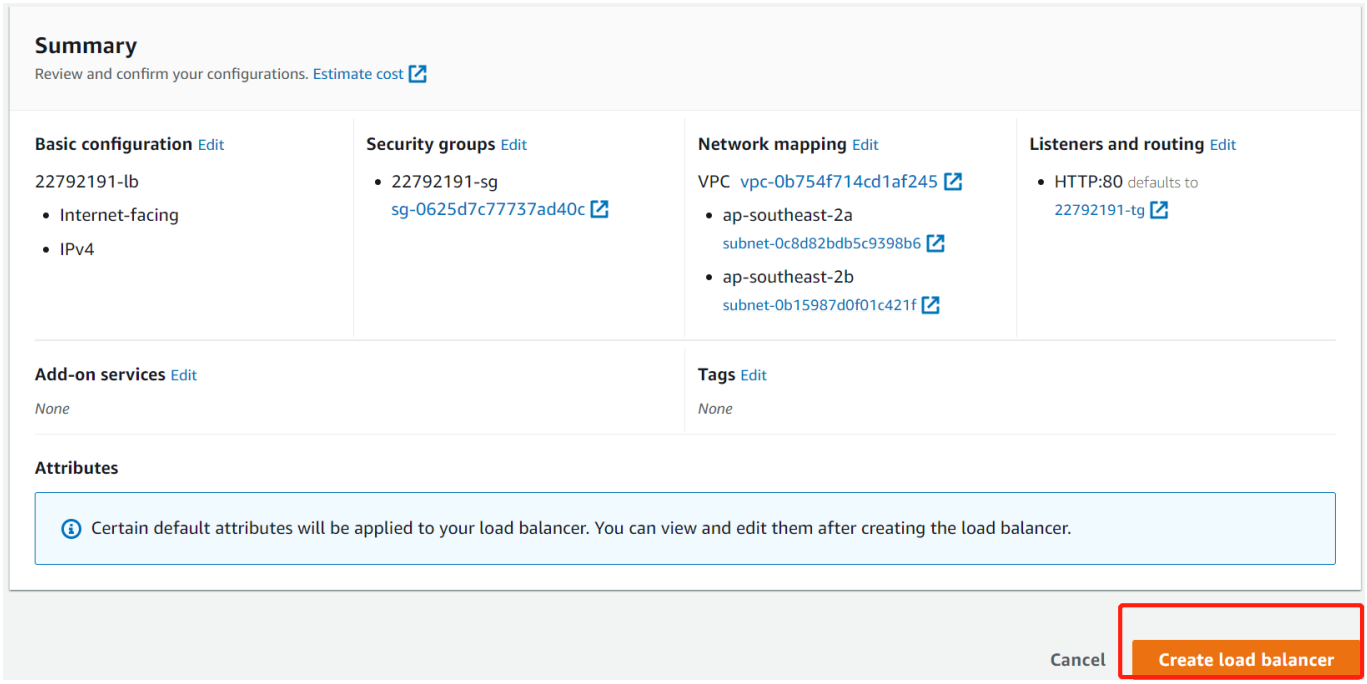


Listeners and routing

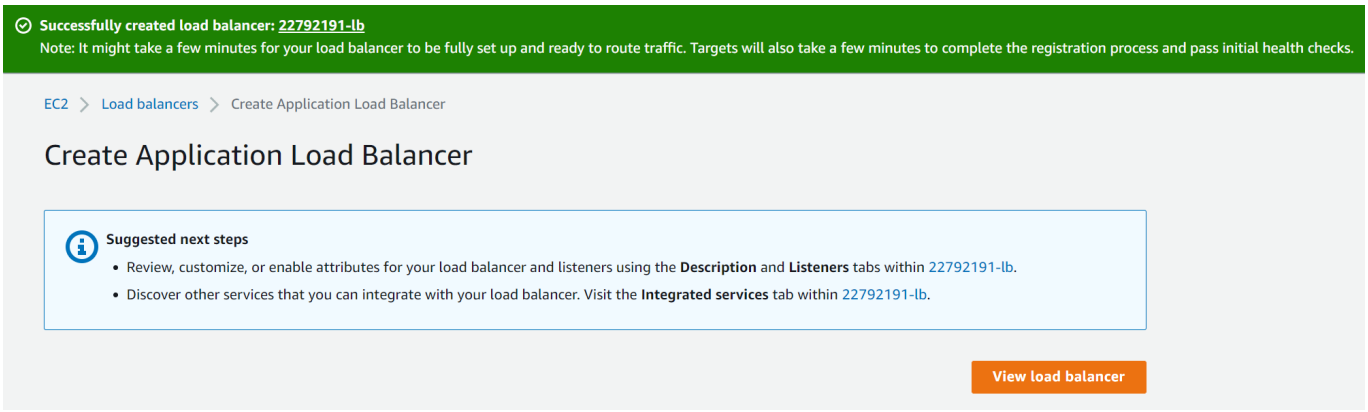
use default settings



Summary and Create



successful page:



Install `apache2` to instance `22792191 - a`:

```
moebuta@Lenovo-MoeBuTa:~/2022s2/cits5503/labs/lab2$ aws ec2 describe-instances --instance-ids i-041b26597
7e769947 --query 'Reservations[0].Instances[0].PublicIpAddress'
"52.62.65.98"
moebuta@Lenovo-MoeBuTa:~/2022s2/cits5503/labs/lab2$ ssh -i 22792191-key.pem ubuntu@52.62.65.98
The authenticity of host '52.62.65.98 (52.62.65.98)' can't be established.
ECDSA key fingerprint is SHA256:GifKPvFHqOqg84crSW8g2D6HFI6qBJ1tMqZWCsD6amM.
Are you sure you want to continue connecting (yes/no/[fingerprint])? yes
Warning: Permanently added '52.62.65.98' (ECDSA) to the list of known hosts.
Welcome to Ubuntu 20.04.4 LTS (GNU/Linux 5.13.0-1029-aws x86_64)

 * Documentation:  https://help.ubuntu.com
 * Management:     https://landscape.canonical.com
 * Support:        https://ubuntu.com/advantage

  System information as of Mon Sep 12 16:03:23 UTC 2022

  System load:  0.09              Processes:             104
  Usage of /:   19.2% of 7.58GB   Users logged in:       0
  Memory usage: 21%               IPv4 address for eth0: 172.31.0.113
  Swap usage:   0%

1 update can be applied immediately.
To see these additional updates run: apt list --upgradable


The list of available updates is more than a week old.
To check for new updates run: sudo apt update


The programs included with the Ubuntu system are free software;
the exact distribution terms for each program are described in the
individual files in /usr/share/doc/*/copyright.

Ubuntu comes with ABSOLUTELY NO WARRANTY, to the extent permitted by
applicable law.

To run a command as administrator (user "root"), use "sudo <command>".
See "man sudo_root" for details.
```

```
ubuntu@ip-172-31-0-113:~$ sudo apt-get update
Hit:1 http://ap-southeast-2.ec2.archive.ubuntu.com/ubuntu focal InRelease
Get:2 http://ap-southeast-2.ec2.archive.ubuntu.com/ubuntu focal-updates In
```

```
ubuntu@ip-172-31-0-113:~$ sudo apt-get install apache2
Reading package lists... Done
Building dependency tree
Reading state information... Done
The following additional packages will be installed:
```

Install `apache2` to instance `22792191 - b`:

```
moebuta@Lenovo-MoeBuTa:~/2022s2/cits5503/labs/lab2$ aws ec2 describe-instances --instance-ids i-0c352accc
6dedbbf7 --query 'Reservations[0].Instances[0].PublicIpAddress'
"54.79.52.138"
moebuta@Lenovo-MoeBuTa:~/2022s2/cits5503/labs/lab2$ ssh -i 22792191-key.pem ubuntu@54.79.52.138
The authenticity of host '54.79.52.138 (54.79.52.138)' can't be established.
ECDSA key fingerprint is SHA256:ktG8deYyZDimFE7m5HtP8TJ9r4aDSbQcFN/m/eTkIYs.
Are you sure you want to continue connecting (yes/no/[fingerprint])? yes
Warning: Permanently added '54.79.52.138' (ECDSA) to the list of known hosts.
Welcome to Ubuntu 20.04.4 LTS (GNU/Linux 5.13.0-1029-aws x86_64)

 * Documentation:  https://help.ubuntu.com
 * Management:     https://landscape.canonical.com
 * Support:        https://ubuntu.com/advantage

  System information as of Mon Sep 12 16:09:33 UTC 2022

  System load:  0.0               Processes:             102
  Usage of /:   19.5% of 7.58GB   Users logged in:       0
  Memory usage: 21%               IPv4 address for eth0: 172.31.43.221
  Swap usage:   0%

1 update can be applied immediately.
To see these additional updates run: apt list --upgradable


The list of available updates is more than a week old.
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applicable law.

To run a command as administrator (user "root"), use "sudo <command>".
See "man sudo_root" for details.

ubuntu@ip-172-31-43-221:~$ sudo apt-get update
```
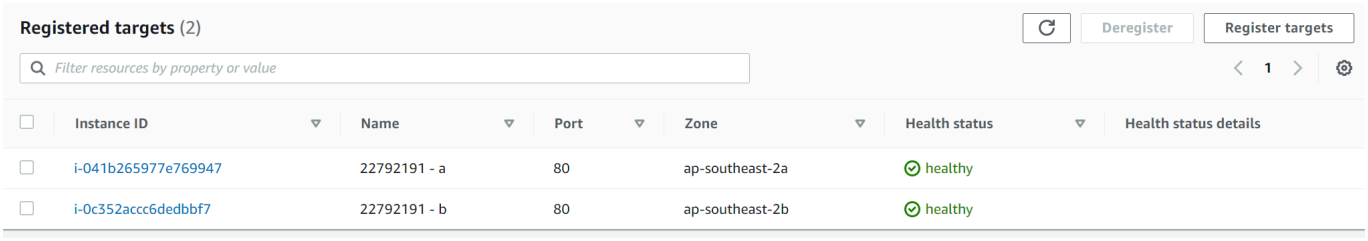

```
ubuntu@ip-172-31-43-221:~$ sudo apt-get update
Hit:1 http://ap-southeast-2.ec2.archive.ubuntu.com/ubuntu focal InRelease
Get:2 http://ap-southeast-2.ec2.archive.ubuntu.com/ubuntu focal-updates InR
Get:3 http://ap-southeast-2.ec2.archive.ubuntu.com/ubuntu focal-backports I
```

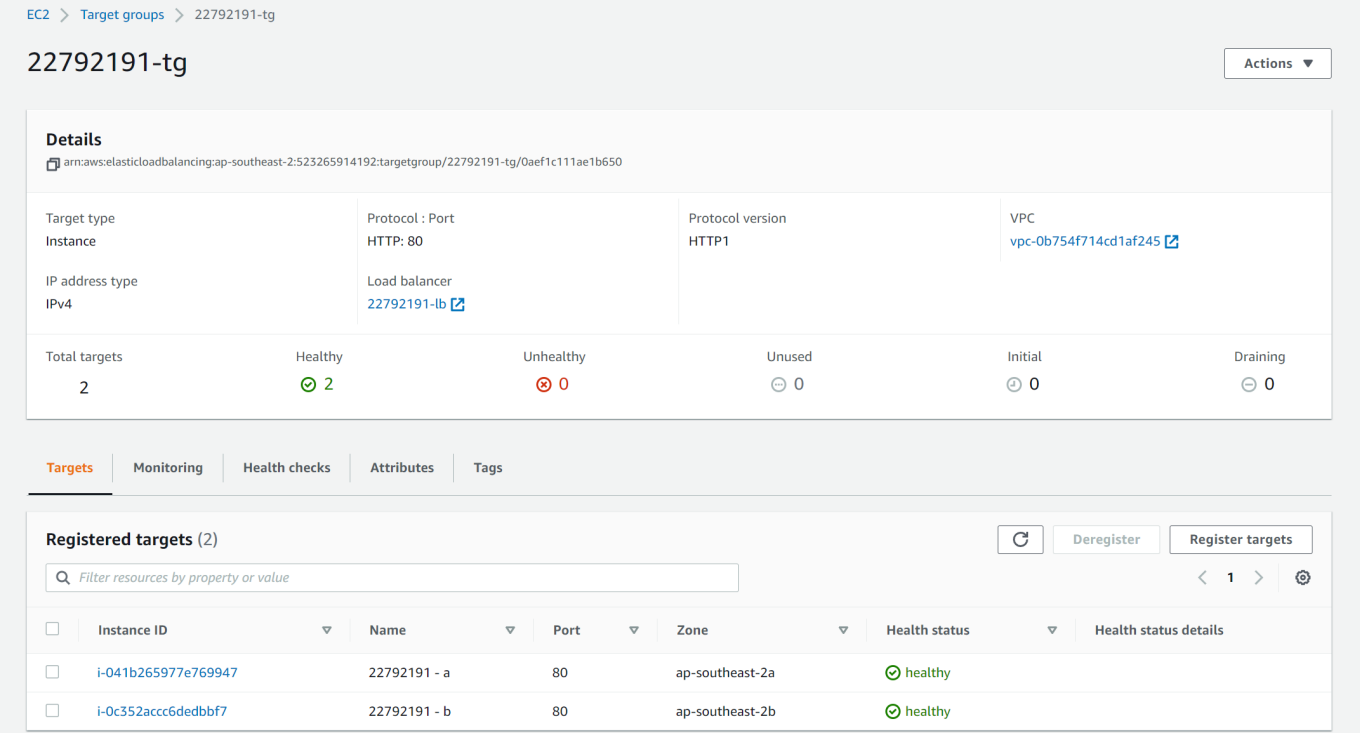
```
ubuntu@ip-172-31-43-221:~$ sudo apt-get install apache2
Reading package lists... Done
Building dependency tree
Reading state information... Done
The following additional packages will be installed:
```

Check registered targets

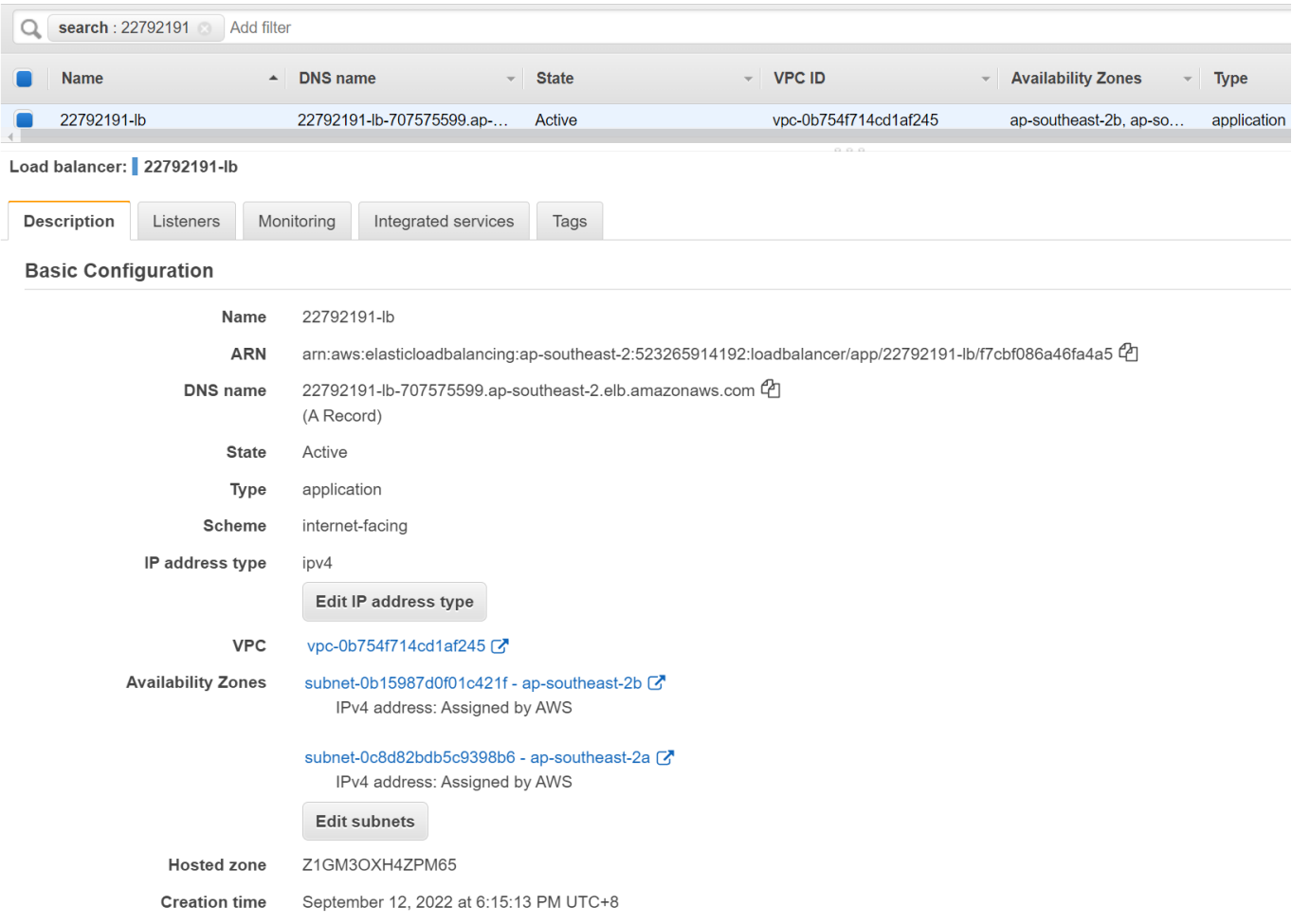


Step 4: Test the load balancer

Choose Targets and verify that the instances are ready.

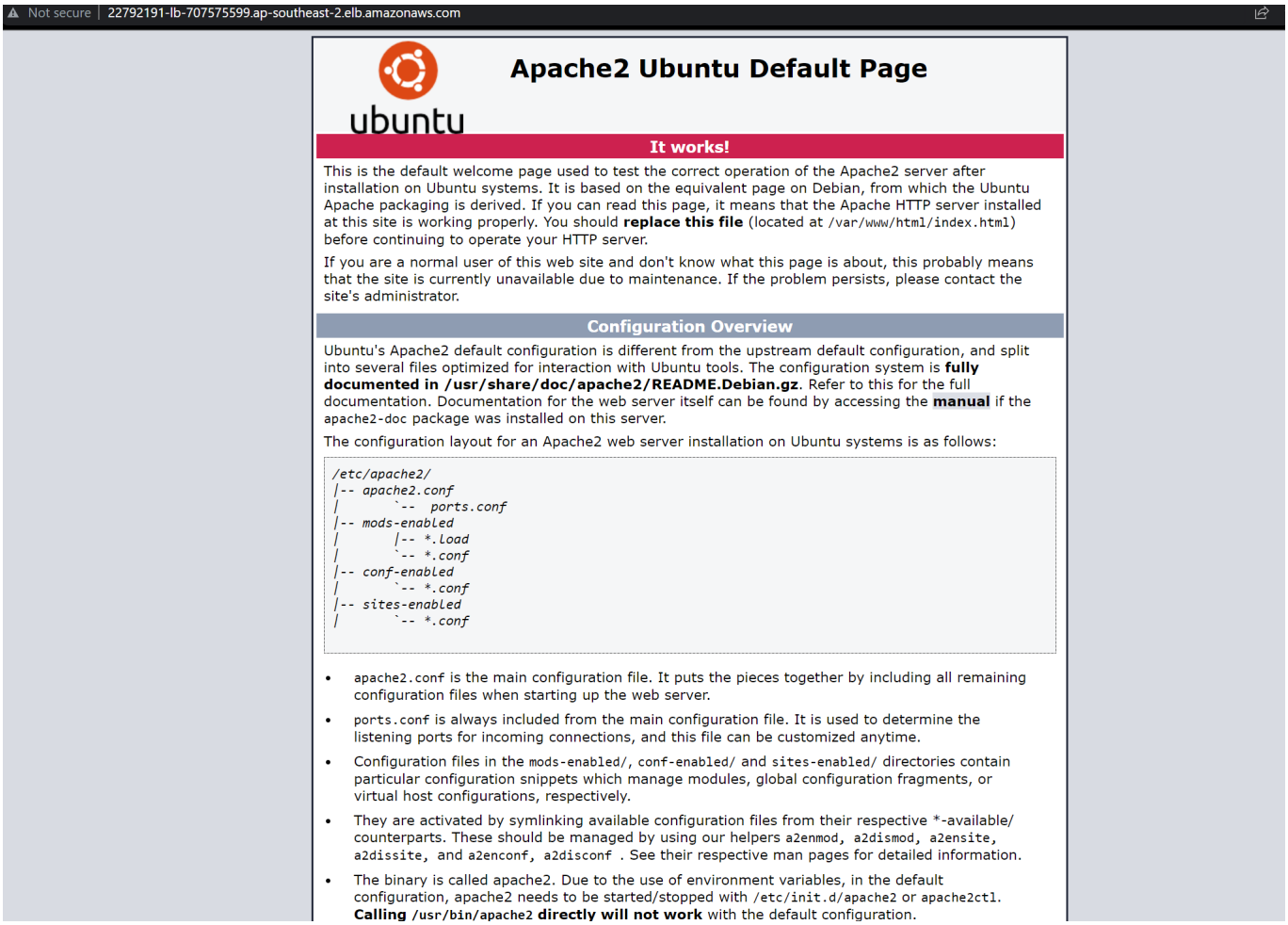


Select the new created load balancer

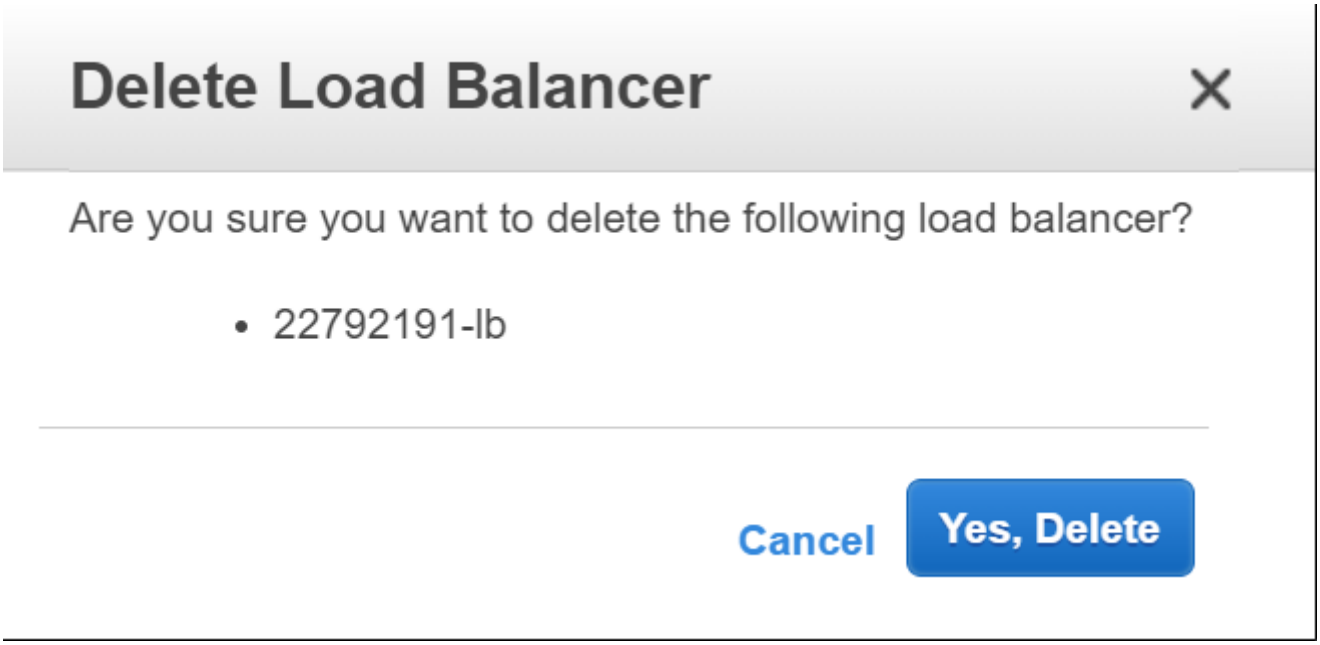


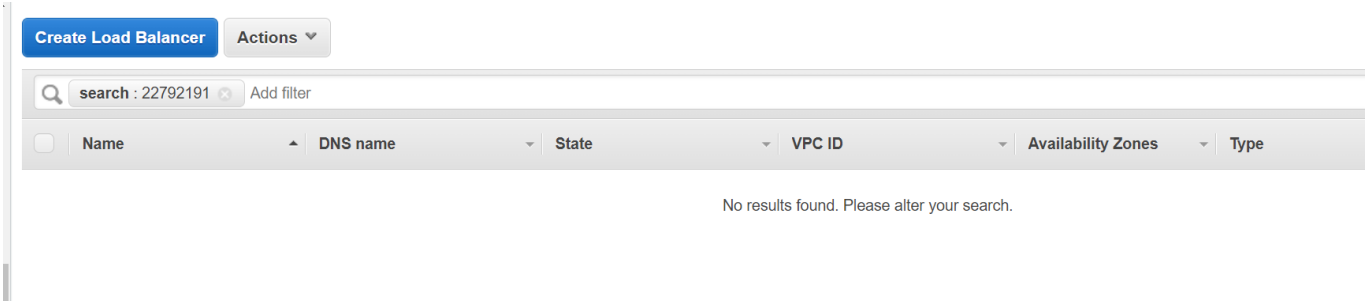
Choose Description and copy the DNS name of the load balancer

http://22792191-lb-707575599.ap-southeast-2.elb.amazonaws.com/

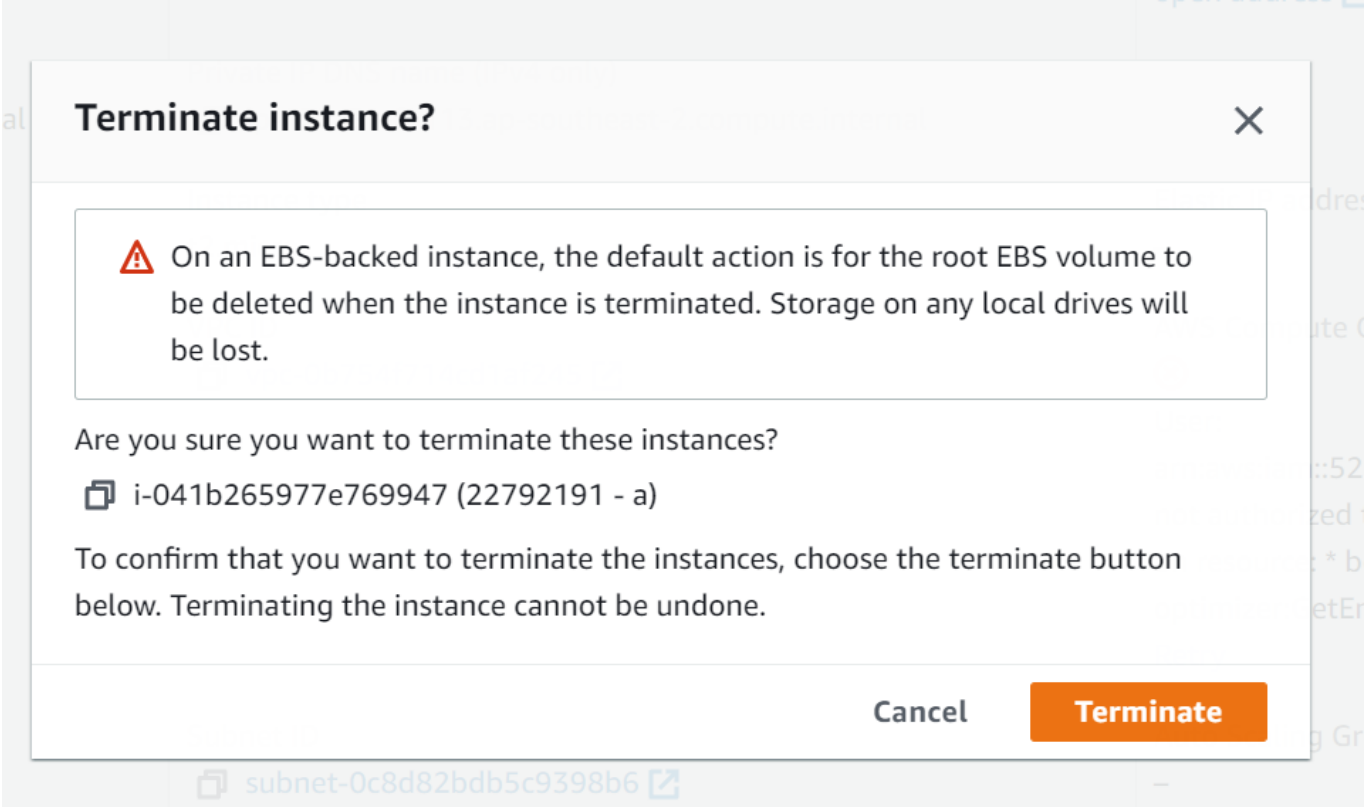


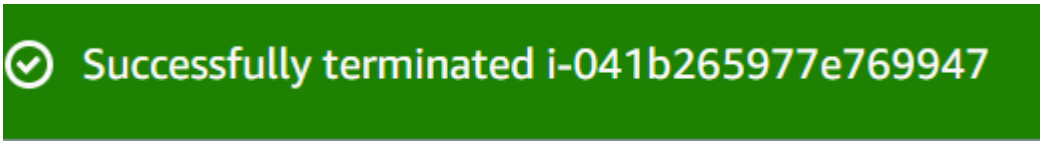
Delete load balancer and terminate ec2 instances





terminate `22792191 - a`





terminate 22792191 - b