Q1) A screenshot from the autoscaling group after indicating the minimum ,maximum and desired instance
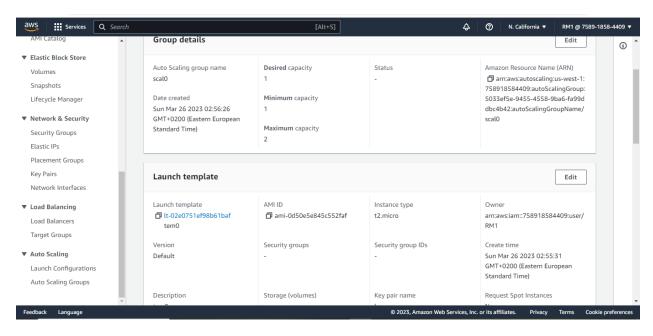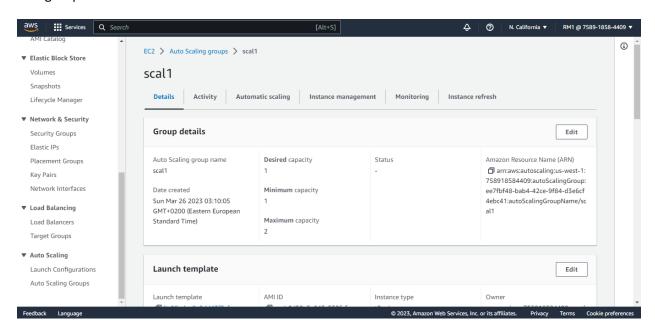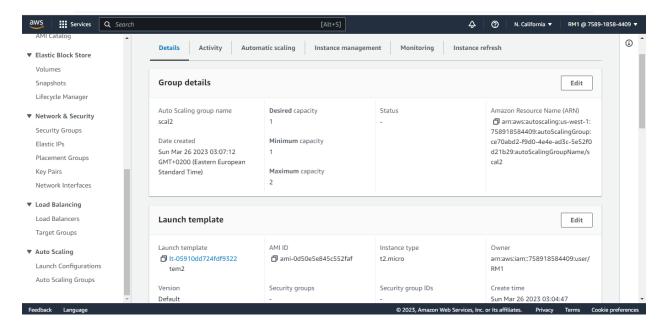
Scal0
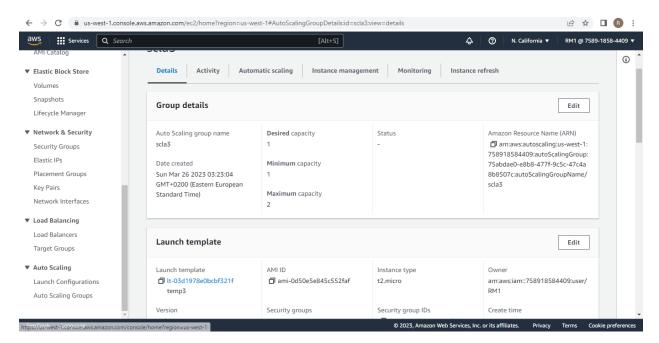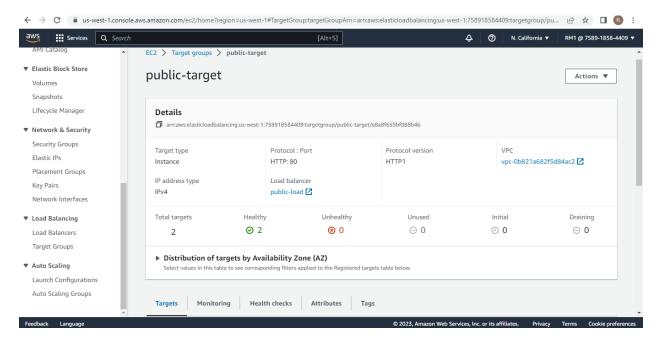

Scal-group-1

Scal-group-2

Scal-group-3

Screenshot from the 2 target groups indicating the machines are healthy

Public-target-information

Private-target-information

Screenshot indicate the the machines BE WS are private

BE1

BE2

Screenshot from the public load balancer when you hit a request from it from a browser with a response returned from the instances

Apache2 Default Page

It works!

This is the default welcome page used to test the correct operation of the Apache2 server after installation on Ubuntu systems. It is based on the equivalent page on Debian, from which the Ubuntu Apache packaging is derived. If you can read this page, it means that the Apache HTTP server installed at this site is working properly. You should **replace this file** (located at /var/www/html/index.html) before continuing to operate your HTTP server.

If you are a normal user of this web site and don't know what this page is about, this probably means that the site is currently unavailable due to maintenance. If the problem persists, please contact the site's administrator.

Configuration Overview

Ubuntu's Apache2 default configuration is different from the upstream default configuration, and split into several files optimized for interaction with Ubuntu tools. The configuration system is **fully documented in /usr/share/doc/apache2/README.Debian.gz**. Refer to this for the full documentation. Documentation for the web server itself can be found by accessing the **manual** if the apache2-doc package was installed on this server.

The configuration layout for an Apache2 web server installation on Ubuntu systems is as follows:

```
/etc/apache2/
|-- apache2.conf
|       `--  ports.conf
|-- mods-enabled
|       |-- *.load
|       `-- *.conf
|-- conf-enabled
|       `-- *.conf
```

Q2) Screenshot from the userdata

Current user data
User data currently associated with this instance

```
#!/bin/bash
sudo apt-get update -y
sudo apt install apache2 -y
sudo apt install curl -y
sudo systemctl enable apache2
sudo systemctl start apache2
```

Copy user data

Current user data
User data currently associated with this instance

```
sudo apt install awscli -y
cd /var/www/html
sudo aws s3 ls
sudo aws s3 ls s3://reem-mybucket
sudo aws s3 cp s3://reem-mybucket/index.html .
curl http://localhost
```

Copy user data

Screenshot from the logs of the instance

System log

Review system log for instance i-0be911e3166137718 as of Mon Mar 27 2023 22:40:27 GMT+0200 (Eastern European Standard Time)

C | Copy log | Download

```
[   85.689552] cloud-init[1200]: Get:34 http://ca-central-1.ec2.archive.ubuntu.com/ubuntu jammy-updates/main amd64 libxpm4 amd64 1:3.5.12-1ubuntu0.22.04.1 [36.4 kB]
[   85.711716] cloud-init[1200]: Get:35 http://ca-central-1.ec2.archive.ubuntu.com/ubuntu jammy/main amd64 libxaw7 amd64 2:1.0.14-1 [191 kB]
[   85.727997] cloud-init[1200]: Get:36 http://ca-central-1.ec2.archive.ubuntu.com/ubuntu jammy/universe amd64 groff amd64 1.22.4-8build1 [4104 kB]
[   85.739681] cloud-init[1200]: Get:37 http://ca-central-1.ec2.archive.ubuntu.com/ubuntu jammy/main amd64 python3-dateutil all 2.8.1-6 [78.4 kB]
[   85.751636] cloud-init[1200]: Get:38 http://ca-central-1.ec2.archive.ubuntu.com/ubuntu jammy/main amd64 python3-jmespath all 0.10.0-1 [21.7 kB]
[   85.767643] cloud-init[1200]: Get:39 http://ca-central-1.ec2.archive.ubuntu.com/ubuntu jammy/universe amd64 python3-botocore all 1.23.34+repack-1 [4508 kB]
[   85.796597] cloud-init[1200]: Get:40 http://ca-central-1.ec2.archive.ubuntu.com/ubuntu jammy/main amd64 xml-core all 0.18+nmu1 [21.6 kB]
[   85.807465] cloud-init[1200]: Get:41 http://ca-central-1.ec2.archive.ubuntu.com/ubuntu jammy/main amd64 docutils-common all 0.17.1+dfsg-2 [117 kB]
[   85.820816] cloud-init[1200]: Get:42 http://ca-central-1.ec2.archive.ubuntu.com/ubuntu jammy/main amd64 python3-roman all 3.3-1 [10.6 kB]
[   85.831725] cloud-init[1200]: Get:43 http://ca-central-1.ec2.archive.ubuntu.com/ubuntu jammy/main amd64 python3-docutils all 0.17.1+dfsg-2 [387 kB]
[   85.843693] cloud-init[1200]: Get:44 http://ca-central-1.ec2.archive.ubuntu.com/ubuntu jammy/universe amd64 python3-rsa all 4.8-1 [28.4 kB]
[   85.859108] cloud-init[1200]: Get:45 http://ca-central-1.ec2.archive.ubuntu.com/ubuntu jammy/universe amd64 python3-s3transfer all 0.5.0-1 [51.5 kB]
[   85.875960] cloud-init[1200]: Get:46 http://ca-central-1.ec2.archive.ubuntu.com/ubuntu jammy/universe amd64 awscli all 1.22.34-1 [1172 kB]
[   85.889237] cloud-init[1200]: Get:47 http://ca-central-1.ec2.archive.ubuntu.com/ubuntu jammy/main amd64 fontconfig amd64 2.13.1-4.2ubuntu5 [177 kB]
[   85.906956] cloud-init[1200]: Get:48 http://ca-central-1.ec2.archive.ubuntu.com/ubuntu jammy/main amd64 fonts-noto-mono all 20201225-1build1 [397 kB]
[   85.920595] cloud-init[1200]: Get:49 http://ca-central-1.ec2.archive.ubuntu.com/ubuntu jammy-updates/main amd64 libgs9-common all 9.55.0-dfsg1-0ubuntu5.1 [751 kB]
[   85.943746] cloud-init[1200]: Get:50 http://ca-central-1.ec2.archive.ubuntu.com/ubuntu jammy/main amd64 libavahi-common-data amd64 0.8-5ubuntu5 [23.9 kB]
[   85.959534] cloud-init[1200]: Get:51 http://ca-central-1.ec2.archive.ubuntu.com/ubuntu jammy/main amd64 libavahi-common3 amd64 0.8-5ubuntu5 [23.7 kB]
[   85.976767] cloud-init[1200]: Get:52 http://ca-central-1.ec2.a
```

Screenshot indicate the machine is private.

Check if the private ec2 can reach s3 through jump-host

```
ubuntu@ip-10-0-1-224: ~                                                          —  □  ✕

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

Last login: Mon Mar 27 20:52:35 2023 from 156.219.179.37
ubuntu@ip-10-0-0-150:~$ vim inkey.pem
ubuntu@ip-10-0-0-150:~$ ssh -i "inkey.pem" ubuntu@10.0.1.224
Welcome to Ubuntu 22.04.1 LTS (GNU/Linux 5.15.0-1028-aws x86_64)

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

  System information as of Mon Mar 27 21:04:30 UTC 2023

  System load:  0.0               Processes:              101
  Usage of /:   25.8% of 7.57GB   Users logged in:        1
  Memory usage: 19%               IPv4 address for eth0:  10.0.1.224
  Swap usage:   0%


 * Introducing Expanded Security Maintenance for Applications.
   Receive updates to over 25,000 software packages with your
   Ubuntu Pro subscription. Free for personal use.

     https://ubuntu.com/aws/pro

Expanded Security Maintenance for Applications is not enabled.

0 updates can be applied immediately.

Enable ESM Apps to receive additional future security updates.
See https://ubuntu.com/esm or run: sudo pro status


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

Last login: Mon Mar 27 21:03:23 2023 from 10.0.0.150
ubuntu@ip-10-0-1-224:~$ curl http://localhost
<html>
 <head>
 </head>
 <body>
   <h1>Welcome from Reem  </h1>
 </body>
</html>
ubuntu@ip-10-0-1-224:~$
```