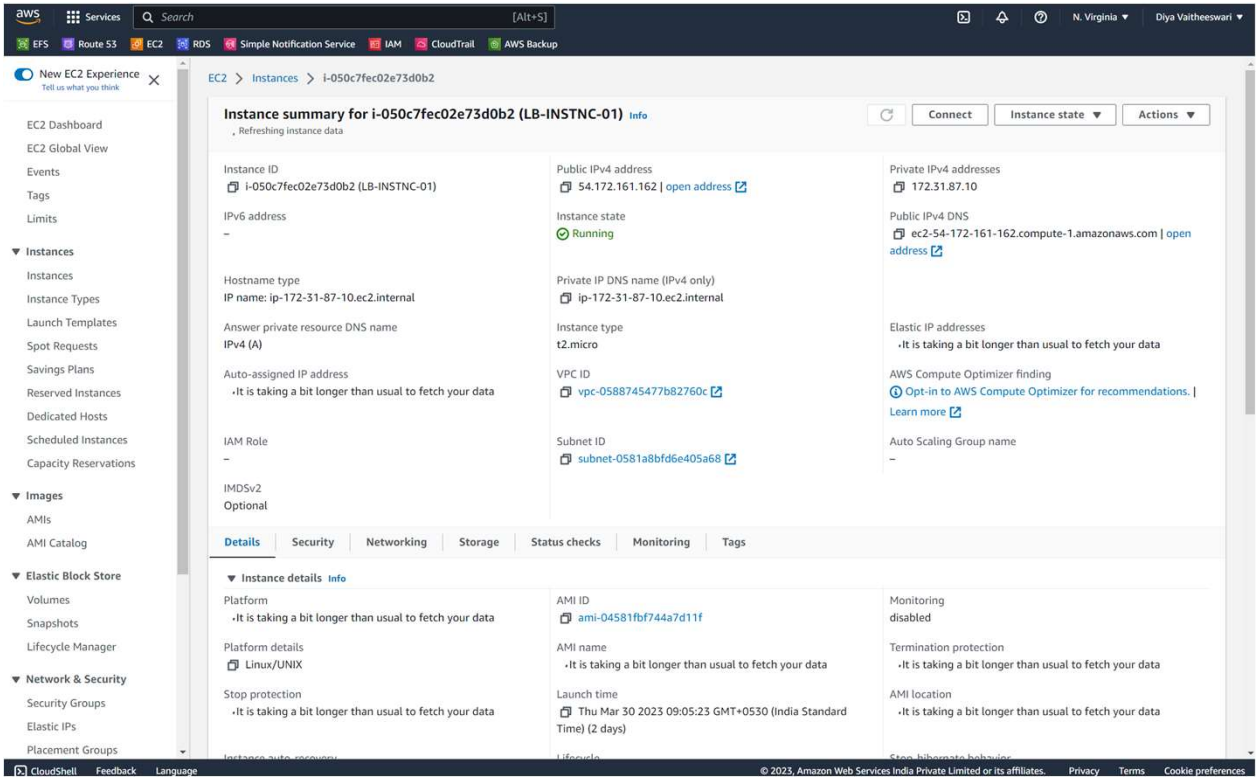
ELB Assignment - 1

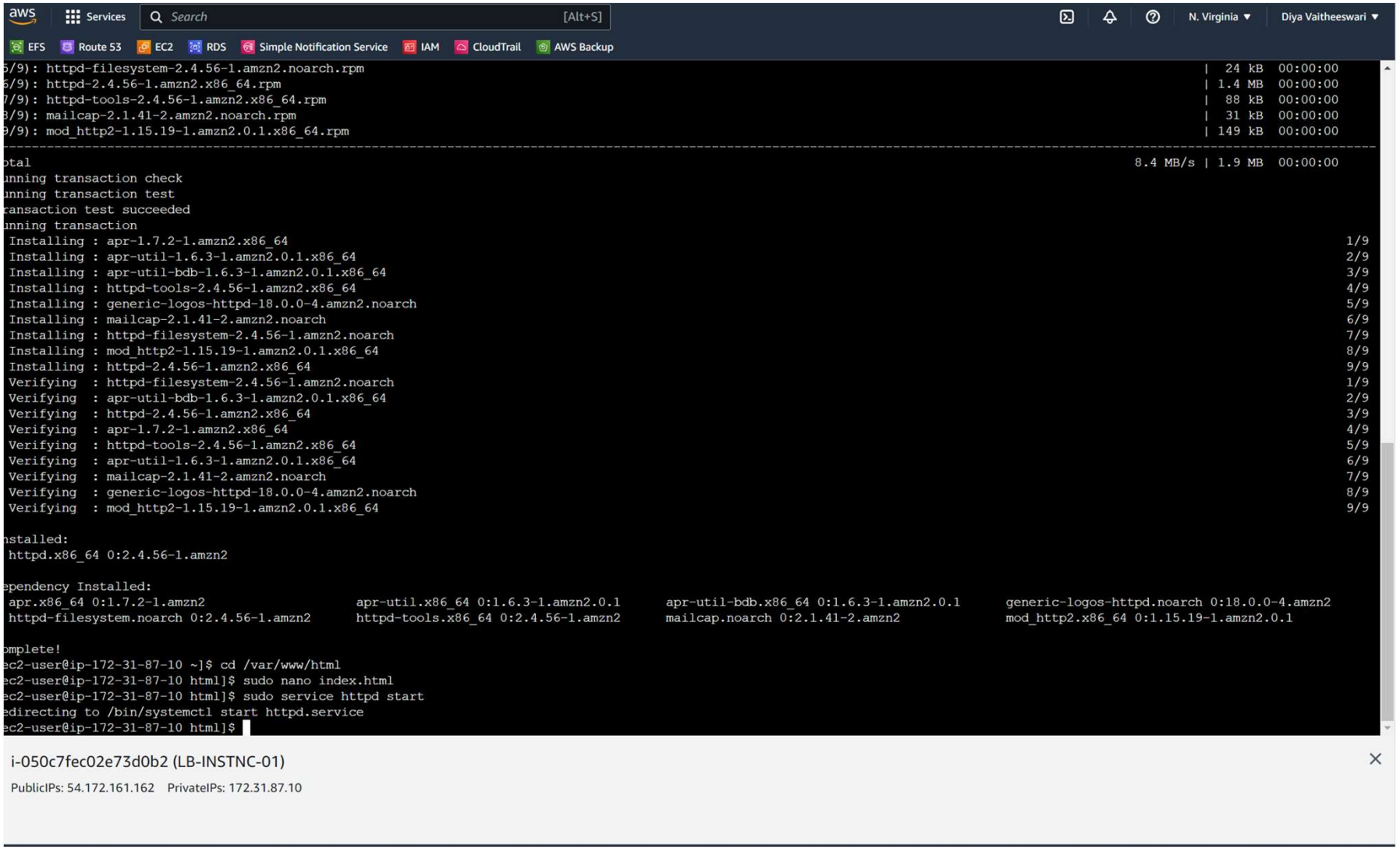
1. Create a Application Load Balancer and register 3 Create a Application Load Balancer and register 3 EC2 instances with different web pages running in them.

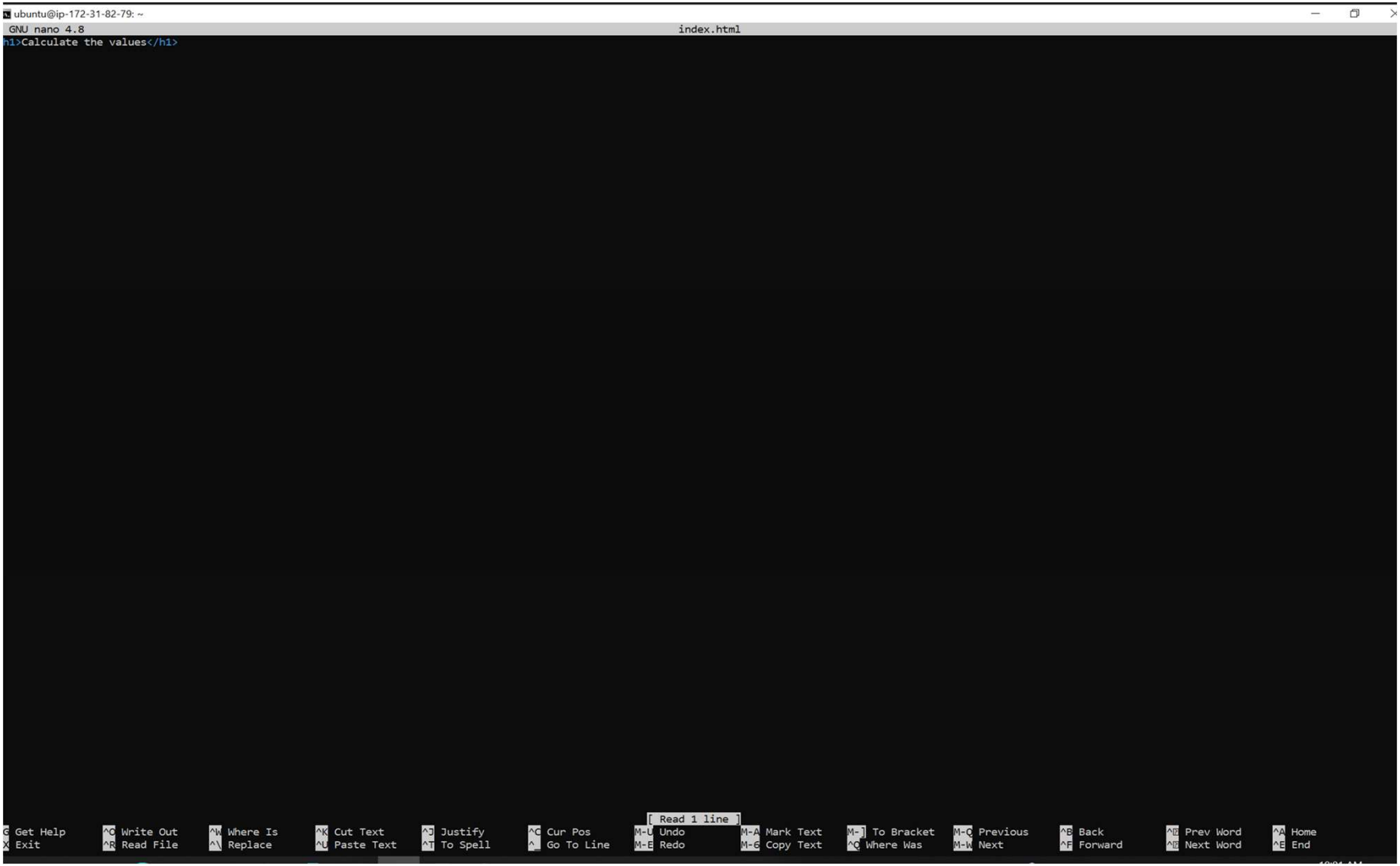
Solution:

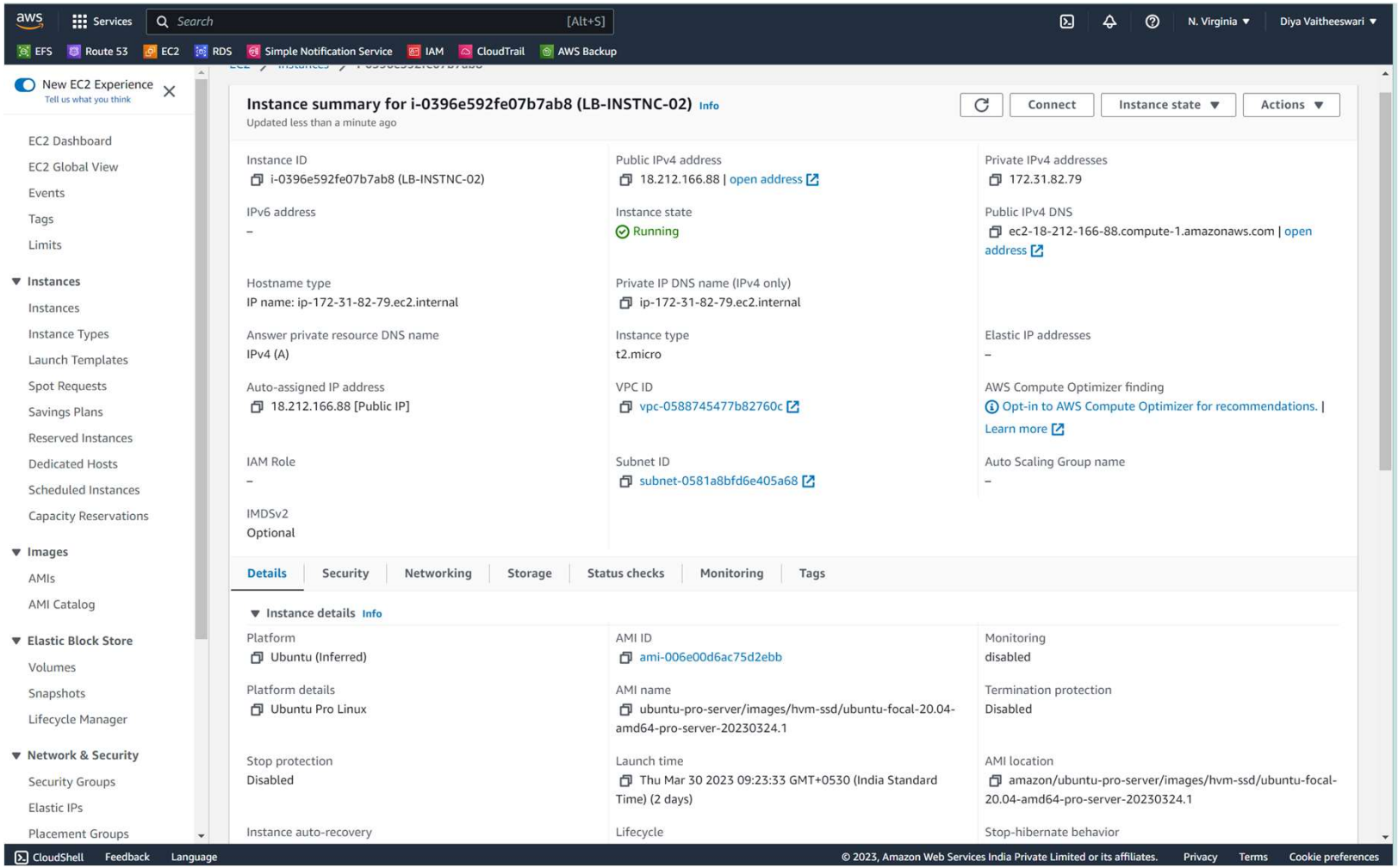
Step-1 :

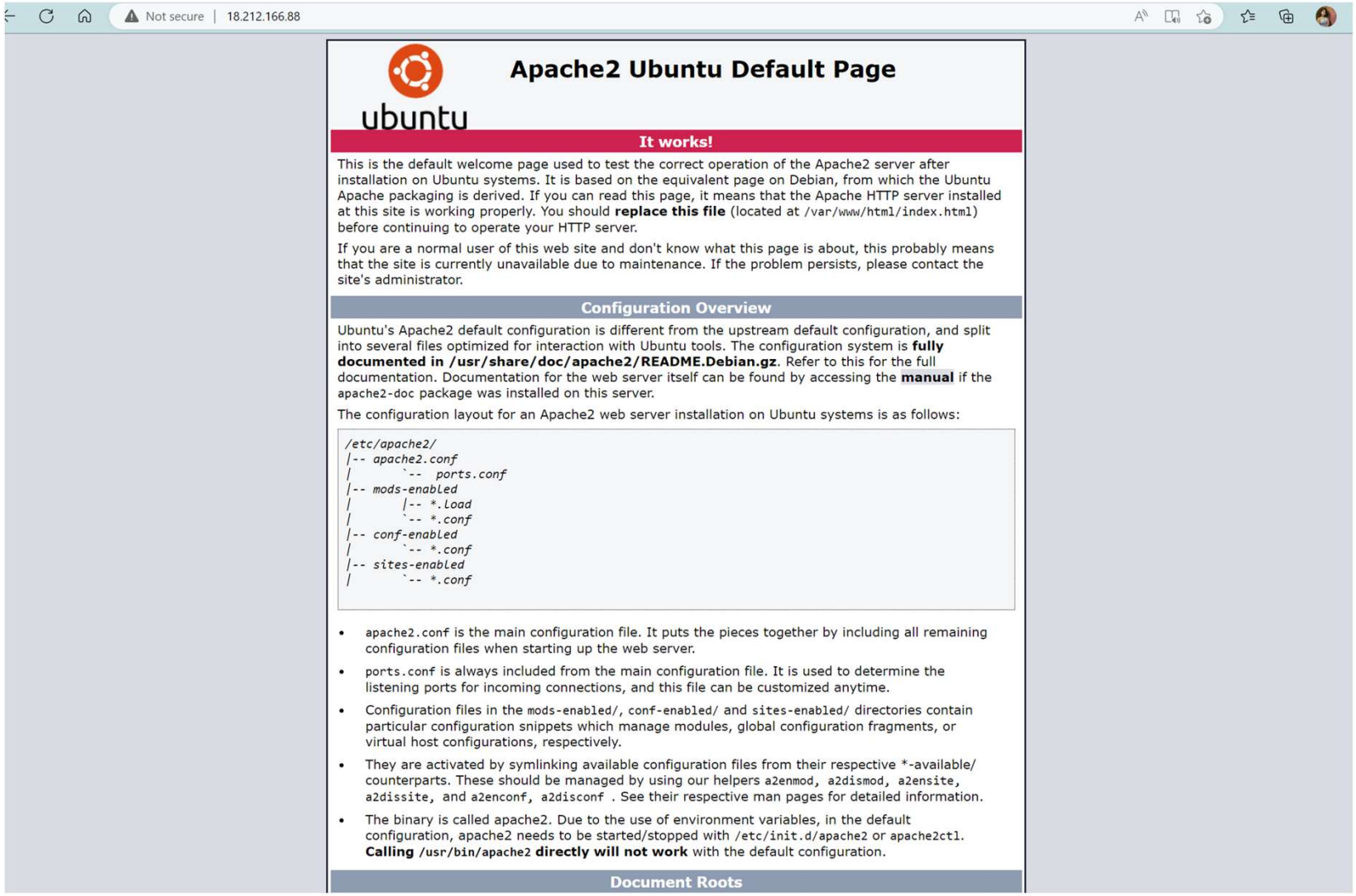
1. First create three different instance and connect the instances.

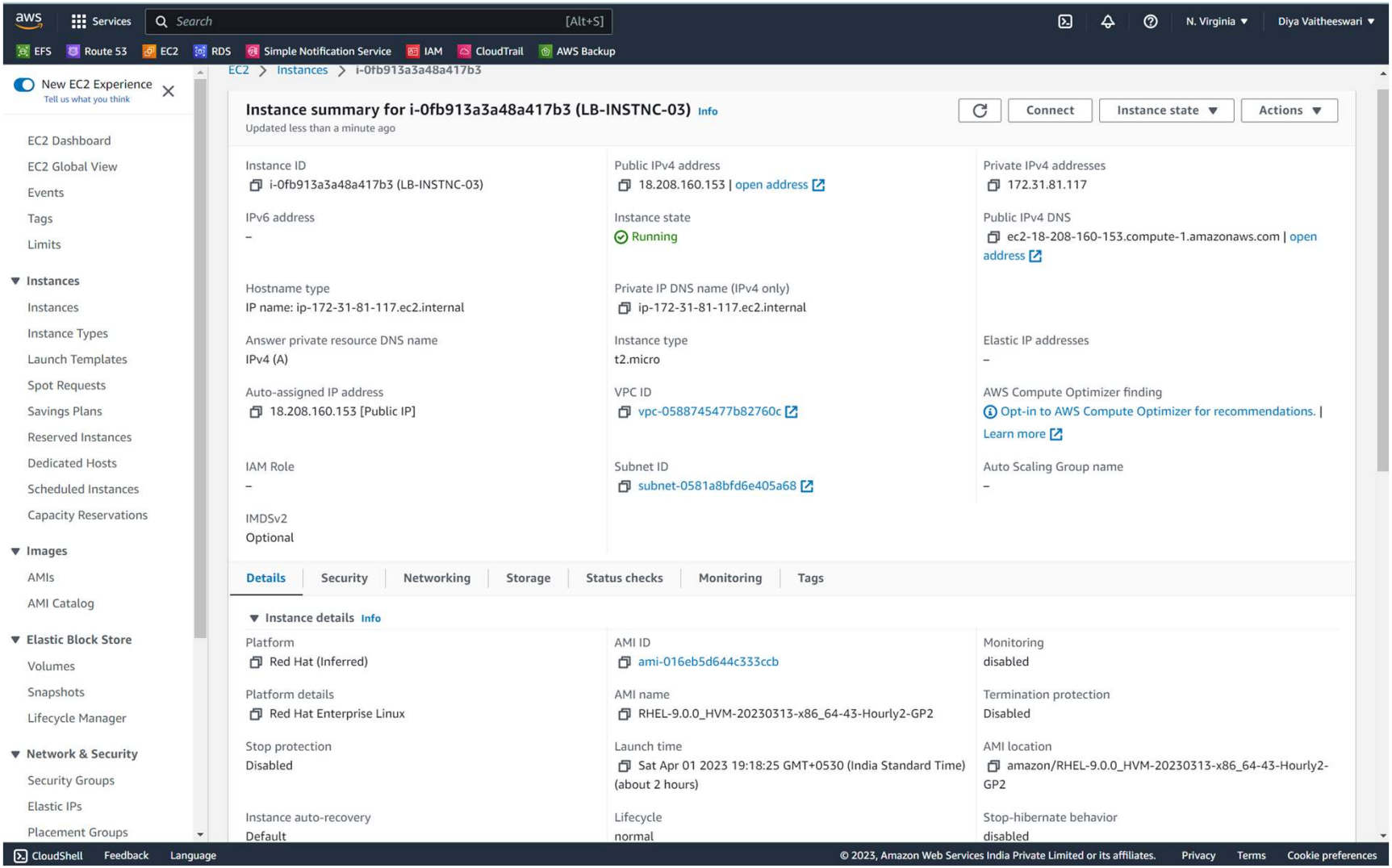



aws
Services
Search
[Alt+S]
N. Virginia
Diya Vaitheeswari
EFS
Route 53
EC2
RDS
Simple Notification Service
IAM
CloudTrail
AWS Backup
5/9): httpd-filesystem-2.4.56-1.amzn2.noarch.rpm | 24 kB 00:00:00
6/9): httpd-2.4.56-1.amzn2.x86_64.rpm | 1.4 MB 00:00:00
7/9): httpd-tools-2.4.56-1.amzn2.x86_64.rpm | 88 kB 00:00:00
8/9): mailcap-2.1.41-2.amzn2.noarch.rpm | 31 kB 00:00:00
9/9): mod_http2-1.15.19-1.amzn2.0.1.x86_64.rpm | 149 kB 00:00:00
otal 8.4 MB/s | 1.9 MB 00:00:00
unning transaction check
unning transaction test
ransaction test succeeded
unning transaction
Installing : apr-1.7.2-1.amzn2.x86_64 1/9
Installing : apr-util-1.6.3-1.amzn2.0.1.x86_64 2/9
Installing : apr-util-bdb-1.6.3-1.amzn2.0.1.x86_64 3/9
Installing : httpd-tools-2.4.56-1.amzn2.x86_64 4/9
Installing : generic-logos-httpd-18.0.0-4.amzn2.noarch 5/9
Installing : mailcap-2.1.41-2.amzn2.noarch 6/9
Installing : httpd-filesystem-2.4.56-1.amzn2.noarch 7/9
Installing : mod_http2-1.15.19-1.amzn2.0.1.x86_64 8/9
Installing : httpd-2.4.56-1.amzn2.x86_64 9/9
Verifying : httpd-filesystem-2.4.56-1.amzn2.noarch 1/9
Verifying : apr-util-bdb-1.6.3-1.amzn2.0.1.x86_64 2/9
Verifying : httpd-2.4.56-1.amzn2.x86_64 3/9
Verifying : apr-1.7.2-1.amzn2.x86_64 4/9
Verifying : httpd-tools-2.4.56-1.amzn2.x86_64 5/9
Verifying : apr-util-1.6.3-1.amzn2.0.1.x86_64 6/9
Verifying : mailcap-2.1.41-2.amzn2.noarch 7/9
Verifying : generic-logos-httpd-18.0.0-4.amzn2.noarch 8/9
Verifying : mod_http2-1.15.19-1.amzn2.0.1.x86_64 9/9
nstalled:
httpd.x86_64 0:2.4.56-1.amzn2
ependency Installed:
apr.x86_64 0:1.7.2-1.amzn2 apr-util.x86_64 0:1.6.3-1.amzn2.0.1 apr-util-bdb.x86_64 0:1.6.3-1.amzn2.0.1 generic-logos-httpd.noarch 0:18.0.0-4.amzn2
httpd-filesystem.noarch 0:2.4.56-1.amzn2 httpd-tools.x86_64 0:2.4.56-1.amzn2 mailcap.noarch 0:2.1.41-2.amzn2 mod_http2.x86_64 0:1.15.19-1.amzn2.0.1
omplete!
ec2-user@ip-172-31-87-10 ~]$ cd /var/www/html
ec2-user@ip-172-31-87-10 html]$ sudo nano index.html
ec2-user@ip-172-31-87-10 html]$ sudo service httpd start
edirecting to /bin/systemctl start httpd.service
ec2-user@ip-172-31-87-10 html]$
i-050c7fec02e73d0b2 (LB-INSTNC-01)
PublicIPs: 54.172.161.162 PrivateIPs: 172.31.87.10


ubuntu@ip-172-31-82-79: ~
GNU nano 4.8
index.html
h1>Calculate the values</h1>
[Read 1 line]
^G Get Help
^X Exit
^O Write Out
^R Read File
^W Where Is
^\ Replace
^K Cut Text
^U Paste Text
^J Justify
^T To Spell
^C Cur Pos
^_ Go To Line
M-U Undo
M-E Redo
M-A Mark Text
M-6 Copy Text
M-] To Bracket
^Q Where Was
M-Q Previous
M-W Next
^B Back
^F Forward
^P Prev Word
^N Next Word
^A Home
^E End


aws
Services
Search
[Alt+S]
N. Virginia
Diya Vaitheeswari
EFS
Route 53
EC2
RDS
Simple Notification Service
IAM
CloudTrail
AWS Backup
New EC2 Experience
Tell us what you think
EC2 Dashboard
EC2 Global View
Events
Tags
Limits
Instances
Instances
Instance Types
Launch Templates
Spot Requests
Savings Plans
Reserved Instances
Dedicated Hosts
Scheduled Instances
Capacity Reservations
Images
AMIs
AMI Catalog
Elastic Block Store
Volumes
Snapshots
Lifecycle Manager
Network & Security
Security Groups
Elastic IPs
Placement Groups
Instance summary for i-0396e592fe07b7ab8 (LB-INSTNC-02) Info
Updated less than a minute ago
Connect
Instance state
Actions
Instance ID
i-0396e592fe07b7ab8 (LB-INSTNC-02)
IPv6 address
–
Hostname type
IP name: ip-172-31-82-79.ec2.internal
Answer private resource DNS name
IPv4 (A)
Auto-assigned IP address
18.212.166.88 [Public IP]
IAM Role
–
IMDSv2
Optional
Public IPv4 address
18.212.166.88 | open address
Instance state
Running
Private IP DNS name (IPv4 only)
ip-172-31-82-79.ec2.internal
Instance type
t2.micro
VPC ID
vpc-0588745477b82760c
Subnet ID
subnet-0581a8bfd6e405a68
Private IPv4 addresses
172.31.82.79
Public IPv4 DNS
ec2-18-212-166-88.compute-1.amazonaws.com | open address
Elastic IP addresses
–
AWS Compute Optimizer finding
Opt-in to AWS Compute Optimizer for recommendations. | Learn more
Auto Scaling Group name
–
Details
Security
Networking
Storage
Status checks
Monitoring
Tags
Instance details Info
Platform
Ubuntu (Inferred)
Platform details
Ubuntu Pro Linux
Stop protection
Disabled
Instance auto-recovery
AMI ID
ami-006e00d6ac75d2ebb
AMI name
ubuntu-pro-server/images/hvm-ssd/ubuntu-focal-20.04-amd64-pro-server-20230324.1
Launch time
Thu Mar 30 2023 09:23:33 GMT+0530 (India Standard Time) (2 days)
Lifecycle
Monitoring
disabled
Termination protection
Disabled
AMI location
amazon/ubuntu-pro-server/images/hvm-ssd/ubuntu-focal-20.04-amd64-pro-server-20230324.1
Stop-hibernate behavior
CloudShell
Feedback
Language
© 2023, Amazon Web Services India Private Limited or its affiliates.
Privacy
Terms
Cookie preferences


Not secure | 18.212.166.88
ubuntu
Apache2 Ubuntu 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
|-- sites-enabled
| `-- *.conf
apache2.conf is the main configuration file. It puts the pieces together by including all remaining configuration files when starting up the web server.
ports.conf is always included from the main configuration file. It is used to determine the listening ports for incoming connections, and this file can be customized anytime.
Configuration files in the mods-enabled/, conf-enabled/ and sites-enabled/ directories contain particular configuration snippets which manage modules, global configuration fragments, or virtual host configurations, respectively.
They are activated by symlinking available configuration files from their respective *-available/ counterparts. These should be managed by using our helpers a2enmod, a2dismod, a2ensite, a2dissite, and a2enconf, a2disconf . See their respective man pages for detailed information.
The binary is called apache2. Due to the use of environment variables, in the default configuration, apache2 needs to be started/stopped with /etc/init.d/apache2 or apache2ctl. Calling /usr/bin/apache2 directly will not work with the default configuration.
Document Roots


aws
Services
Search
[Alt+S]
N. Virginia
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EC2
RDS
Simple Notification Service
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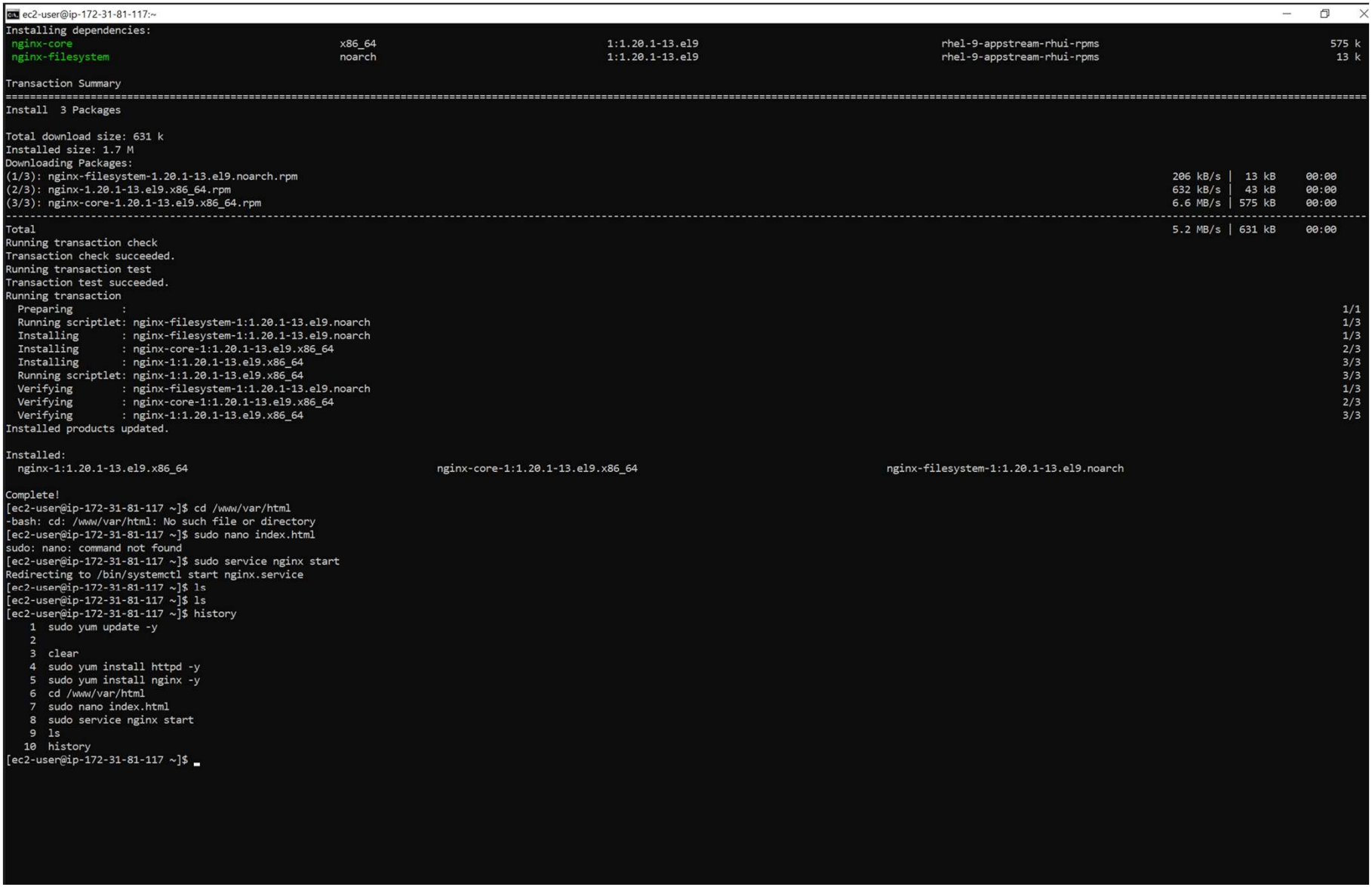
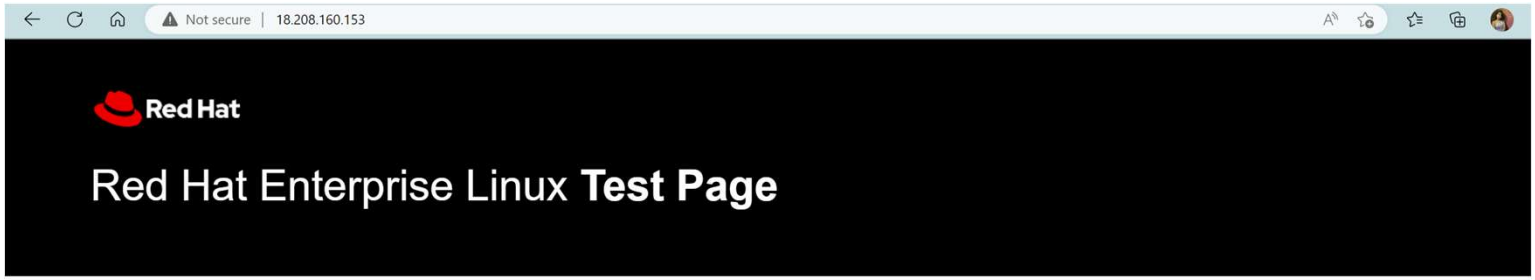
CloudTrail
AWS Backup
New EC2 Experience
Tell us what you think
EC2 Dashboard
EC2 Global View
Events
Tags
Limits
Instances
Instances
Instance Types
Launch Templates
Spot Requests
Savings Plans
Reserved Instances
Dedicated Hosts
Scheduled Instances
Capacity Reservations
Images
AMIs
AMI Catalog
Elastic Block Store
Volumes
Snapshots
Lifecycle Manager
Network & Security
Security Groups
Elastic IPs
Placement Groups
EC2 > Instances > i-0fb913a3a48a417b3
Instance summary for i-0fb913a3a48a417b3 (LB-INSTNC-03) Info
Updated less than a minute ago
Connect
Instance state
Actions
Instance ID
i-0fb913a3a48a417b3 (LB-INSTNC-03)
Public IPv4 address
18.208.160.153 | open address
Private IPv4 addresses
172.31.81.117
IPv6 address
–
Instance state
Running
Public IPv4 DNS
ec2-18-208-160-153.compute-1.amazonaws.com | open address
Hostname type
IP name: ip-172-31-81-117.ec2.internal
Private IP DNS name (IPv4 only)
ip-172-31-81-117.ec2.internal
Answer private resource DNS name
IPv4 (A)
Instance type
t2.micro
Elastic IP addresses
–
Auto-assigned IP address
18.208.160.153 [Public IP]
VPC ID
vpc-0588745477b82760c
AWS Compute Optimizer finding
Opt-in to AWS Compute Optimizer for recommendations. | Learn more
IAM Role
–
Subnet ID
subnet-0581a8bfd6e405a68
Auto Scaling Group name
–
IMDSv2
Optional
Details
Security
Networking
Storage
Status checks
Monitoring
Tags
Instance details Info
Platform
Red Hat (Inferred)
AMI ID
ami-016eb5d644c333ccb
Monitoring
disabled
Platform details
Red Hat Enterprise Linux
AMI name
RHEL-9.0.0_HVM-20230313-x86_64-43-Hourly2-GP2
Termination protection
Disabled
Stop protection
Disabled
Launch time
Sat Apr 01 2023 19:18:25 GMT+0530 (India Standard Time) (about 2 hours)
AMI location
amazon/RHEL-9.0.0_HVM-20230313-x86_64-43-Hourly2-GP2
Instance auto-recovery
Default
Lifecycle
normal
Stop-hibernate behavior
disabled
CloudShell
Feedback
Language
© 2023, Amazon Web Services India Private Limited or its affiliates.
Privacy
Terms
Cookie preferences


ec2-user@ip-172-31-81-117:~
Installing dependencies:
nginx-core x86_64 1:1.20.1-13.el9 rhel-9-appstream-rhui-rpms 575 k
nginx-filesystem noarch 1:1.20.1-13.el9 rhel-9-appstream-rhui-rpms 13 k
Transaction Summary
Install 3 Packages
Total download size: 631 k
Installed size: 1.7 M
Downloading Packages:
(1/3): nginx-filesystem-1.20.1-13.el9.noarch.rpm 206 kB/s | 13 kB 00:00
(2/3): nginx-1.20.1-13.el9.x86_64.rpm 632 kB/s | 43 kB 00:00
(3/3): nginx-core-1.20.1-13.el9.x86_64.rpm 6.6 MB/s | 575 kB 00:00
Total 5.2 MB/s | 631 kB 00:00
Running transaction check
Transaction check succeeded.
Running transaction test
Transaction test succeeded.
Running transaction
Preparing : 1/1
Running scriptlet: nginx-filesystem-1:1.20.1-13.el9.noarch 1/3
Installing : nginx-filesystem-1:1.20.1-13.el9.noarch 1/3
Installing : nginx-core-1:1.20.1-13.el9.x86_64 2/3
Installing : nginx-1:1.20.1-13.el9.x86_64 3/3
Running scriptlet: nginx-1:1.20.1-13.el9.x86_64 3/3
Verifying : nginx-filesystem-1:1.20.1-13.el9.noarch 1/3
Verifying : nginx-core-1:1.20.1-13.el9.x86_64 2/3
Verifying : nginx-1:1.20.1-13.el9.x86_64 3/3
Installed products updated.
Installed:
nginx-1:1.20.1-13.el9.x86_64 nginx-core-1:1.20.1-13.el9.x86_64 nginx-filesystem-1:1.20.1-13.el9.noarch
Complete!
[ec2-user@ip-172-31-81-117 ~]$ cd /www/var/html
-bash: cd: /www/var/html: No such file or directory
[ec2-user@ip-172-31-81-117 ~]$ sudo nano index.html
sudo: nano: command not found
[ec2-user@ip-172-31-81-117 ~]$ sudo service nginx start
Redirecting to /bin/systemctl start nginx.service
[ec2-user@ip-172-31-81-117 ~]$ ls
[ec2-user@ip-172-31-81-117 ~]$ ls
[ec2-user@ip-172-31-81-117 ~]$ history
1 sudo yum update -y
2
3 clear
4 sudo yum install httpd -y
5 sudo yum install nginx -y
6 cd /www/var/html
7 sudo nano index.html
8 sudo service nginx start
9 ls
10 history
[ec2-user@ip-172-31-81-117 ~]$



This page is used to test the proper operation of the HTTP server after it has been installed. If you can read this page, it means that the HTTP server installed at this site is working properly.

If you are a member of the general public:

The fact that you are seeing this page indicates that the website you just visited is either experiencing problems, or is undergoing routine maintenance.

If you would like to let the administrators of this website know that you've seen this page instead of the page you expected, you should send them e-mail. In general, mail sent to the name "webmaster" and directed to the website's domain should reach the appropriate person.

For example, if you experienced problems while visiting www.example.com, you should send e-mail to "webmaster@example.com".

For information on Red Hat Enterprise Linux, please visit the Red Hat, Inc. website. The documentation for Red Hat Enterprise Linux is available on the Red Hat, Inc. website.

If you are the website administrator:

You may now add content to the webroot directory. Note that until you do so, people visiting your website will see this page, and not your content.

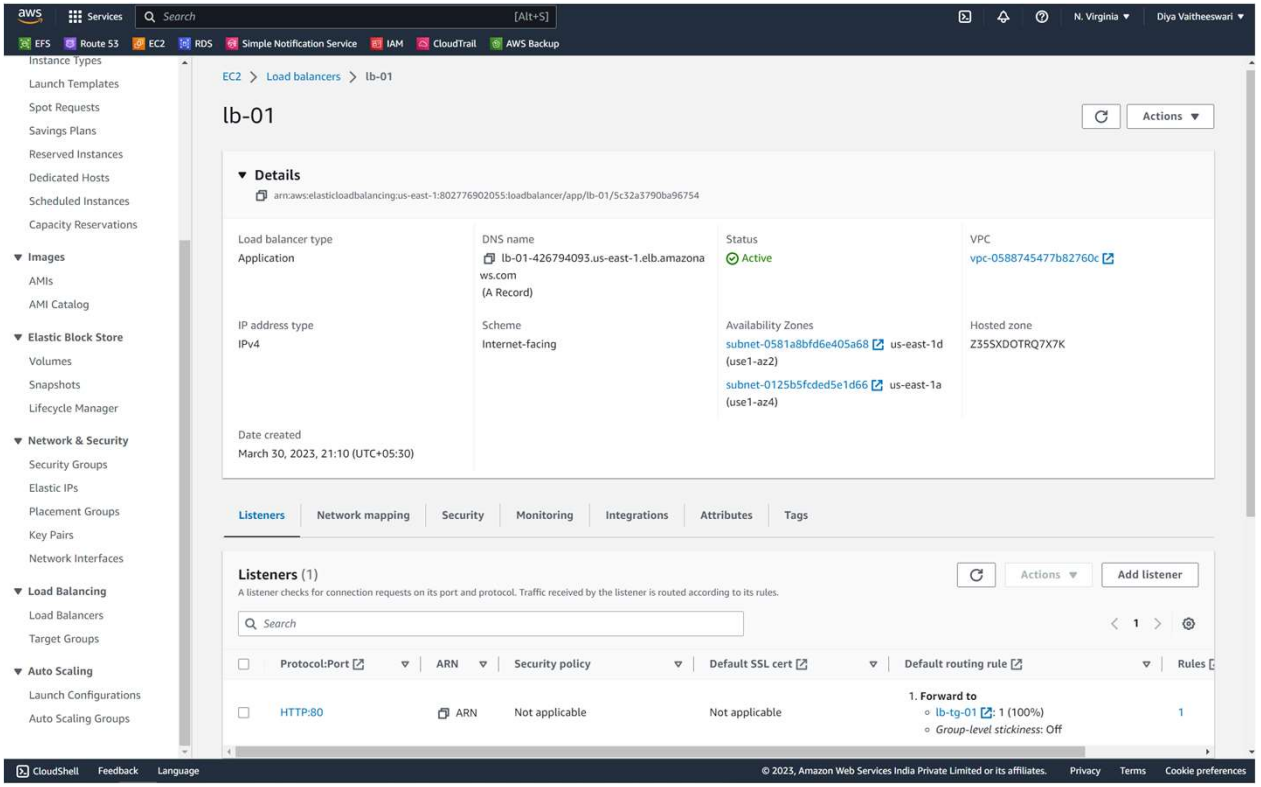
For systems using the Apache HTTP Server: You may now add content to the directory `/var/www/html/`. Note that until you do so, people visiting your website will see this page, and not your content. To prevent this page from ever being used, follow the instructions in the file `/etc/httpd/conf.d/welcome.conf`.

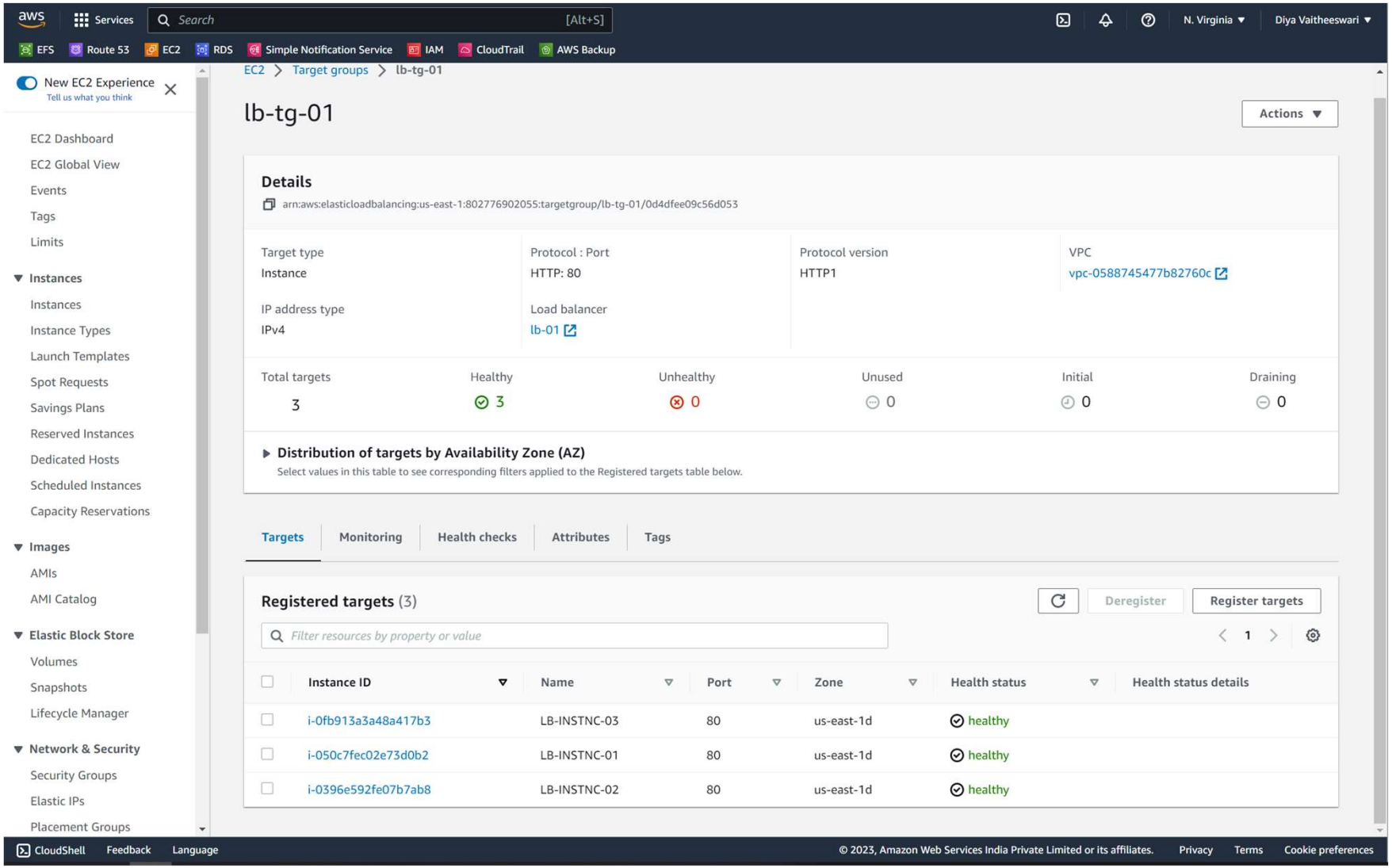
For systems using NGINX: You should now put your content in a location of your choice and edit the `root` configuration directive in the **nginx** configuration file `/etc/nginx/nginx.conf`.

Red Hat Enterprise Linux | NGINX

Step-2:

Create a load balancer inide the load balancer we need to create the target group.




aws
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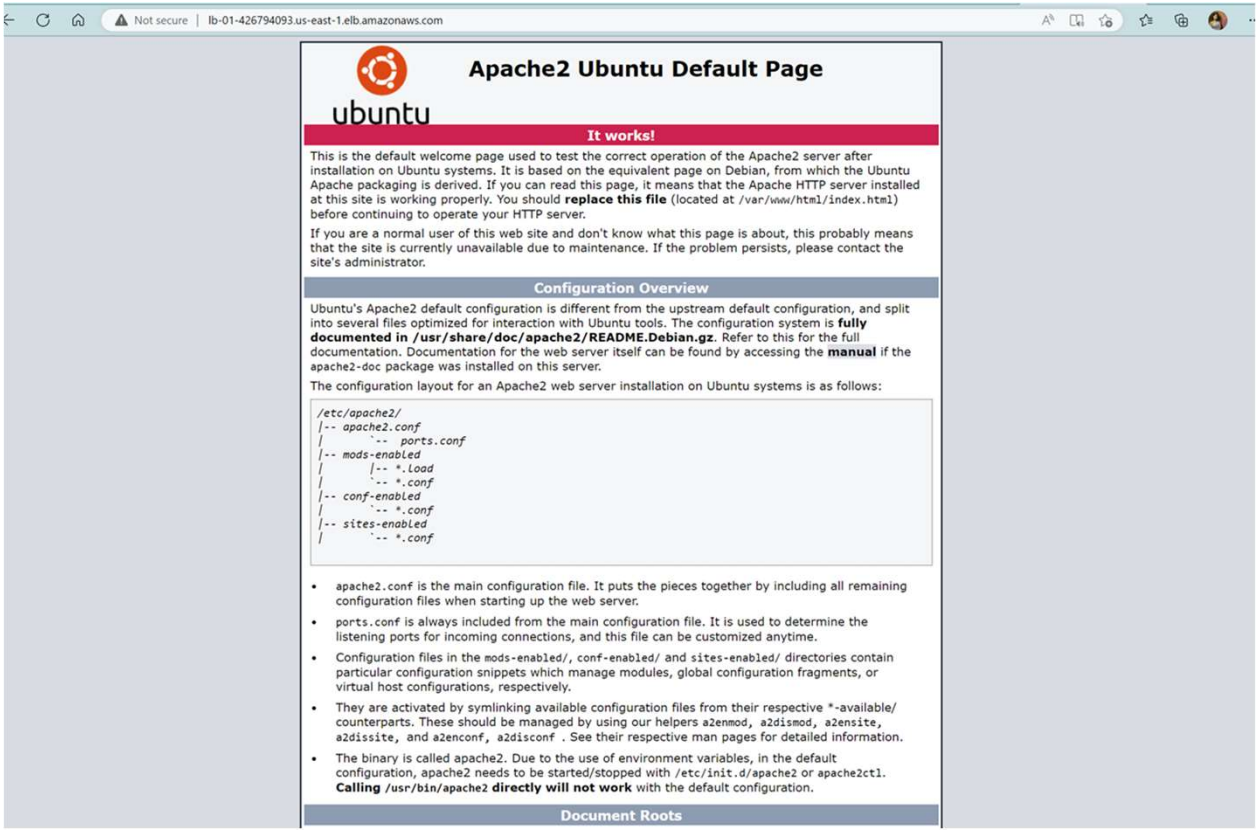
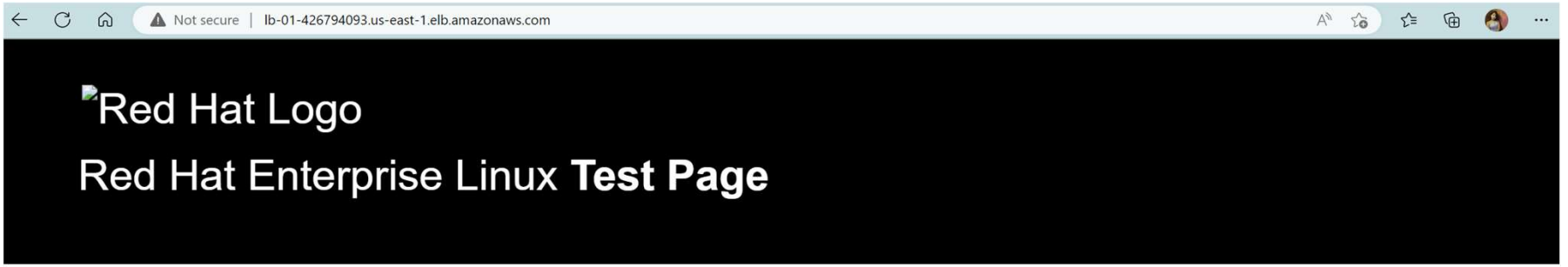
Instances
Instances
Instance Types
Launch Templates
Spot Requests
Savings Plans
Reserved Instances
Dedicated Hosts
Scheduled Instances
Capacity Reservations
Images
AMIs
AMI Catalog
Elastic Block Store
Volumes
Snapshots
Lifecycle Manager
Network & Security
Security Groups
Elastic IPs
Placement Groups
EC2 > Target groups > lb-tg-01
lb-tg-01
Actions
Details
arn:aws:elasticloadbalancing:us-east-1:802776902055:targetgroup/lb-tg-01/0d4dfee09c56d053
Target type
Instance
Protocol : Port
HTTP: 80
Protocol version
HTTP1
VPC
vpc-0588745477b82760c
IP address type
IPv4
Load balancer
lb-01
Total targets
3
Healthy
3
Unhealthy
0
Unused
0
Initial
0
Draining
0
Distribution of targets by Availability Zone (AZ)
Select values in this table to see corresponding filters applied to the Registered targets table below.
Targets
Monitoring
Health checks
Attributes
Tags
Registered targets (3)
Deregister
Register targets
Filter resources by property or value
1
Instance ID
Name
Port
Zone
Health status
Health status details
i-0fb913a3a48a417b3
LB-INSTNC-03
80
us-east-1d
healthy
i-050c7fec02e73d0b2
LB-INSTNC-01
80
us-east-1d
healthy
i-0396e592fe07b7ab8
LB-INSTNC-02
80
us-east-1d
healthy
CloudShell
Feedback
Language
© 2023, Amazon Web Services India Private Limited or its affiliates.
Privacy
Terms
Cookie preferences

Step -3 :

Copy the DNS link and paste the browser



CALCULATE THE VALUES



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