S_AWS_04 Load Balancer And Bastion Server

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JUNE 2023

AWS – DEVOPS

Sabreen Salama

Lab3

1- Launch a jump host

Take a screen while you are ssh to the jumphost

Also When you ssh from bastion to the private machine

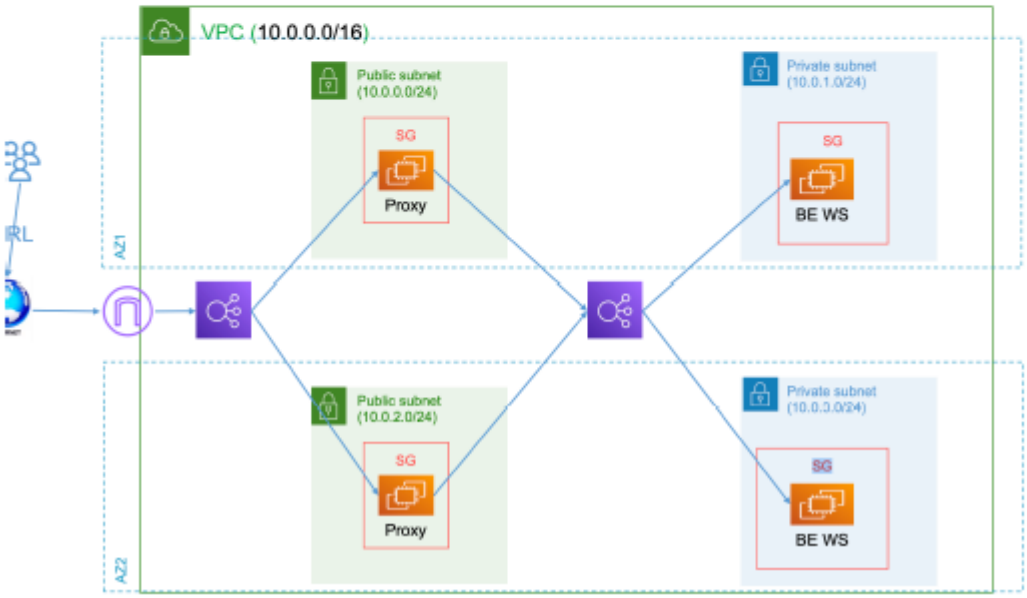
Screenshot from the console showing the instances Ips

2-

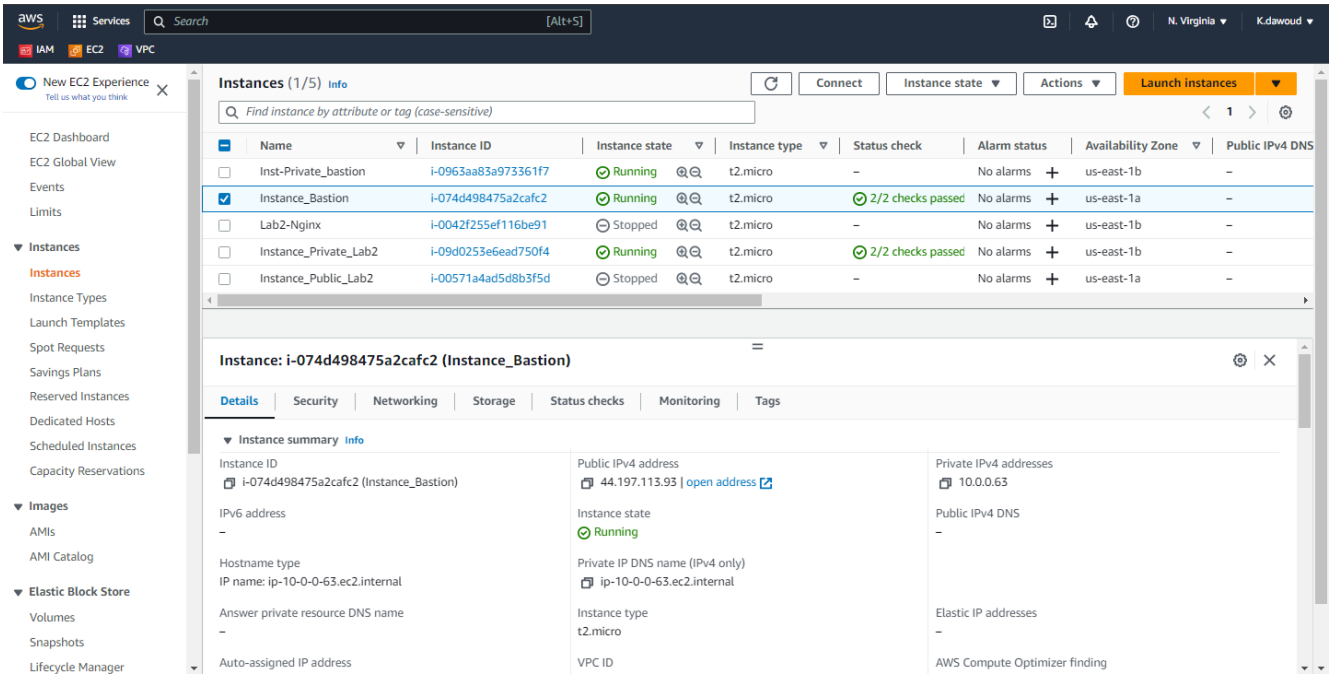
Implement the below diagram then take a screenshot while you put dns of the load balancer into the browser and it returns a response from the 2 apache instatnces

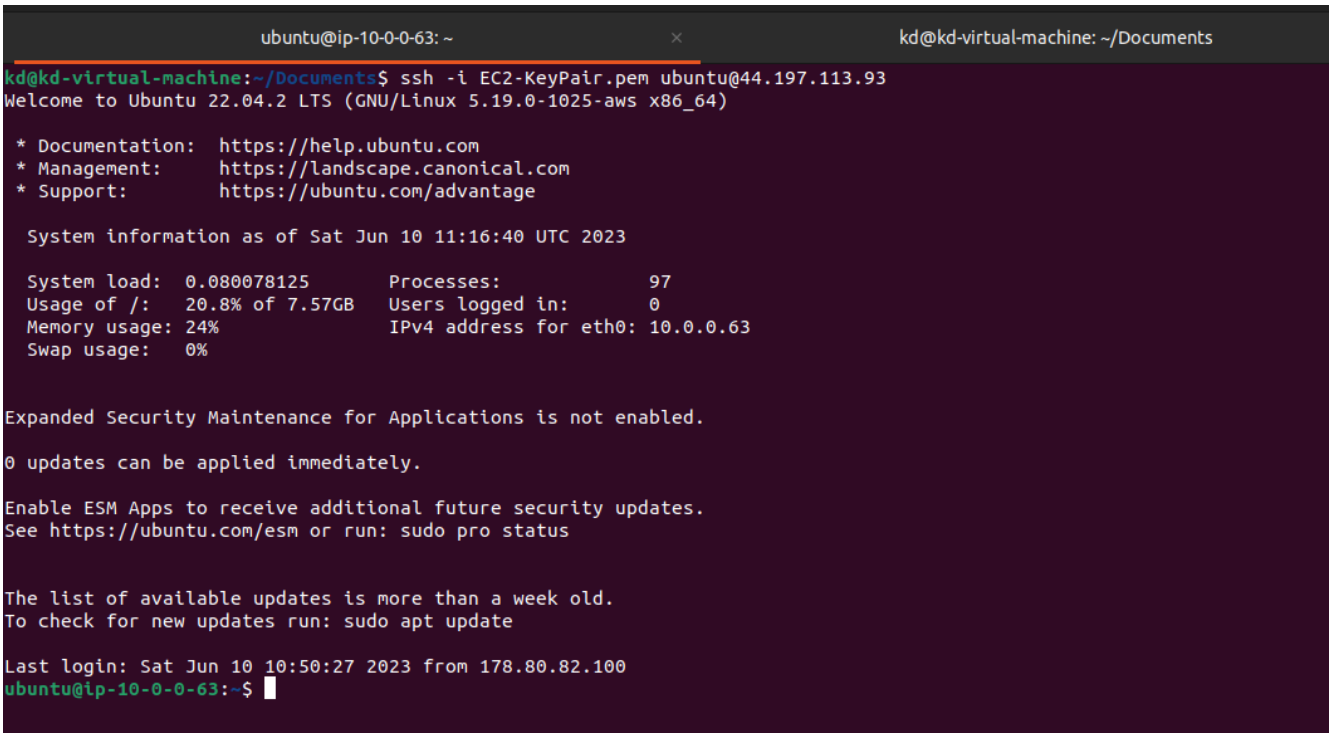
Also Screenshot from the console showing the machines BE WS have private Ips

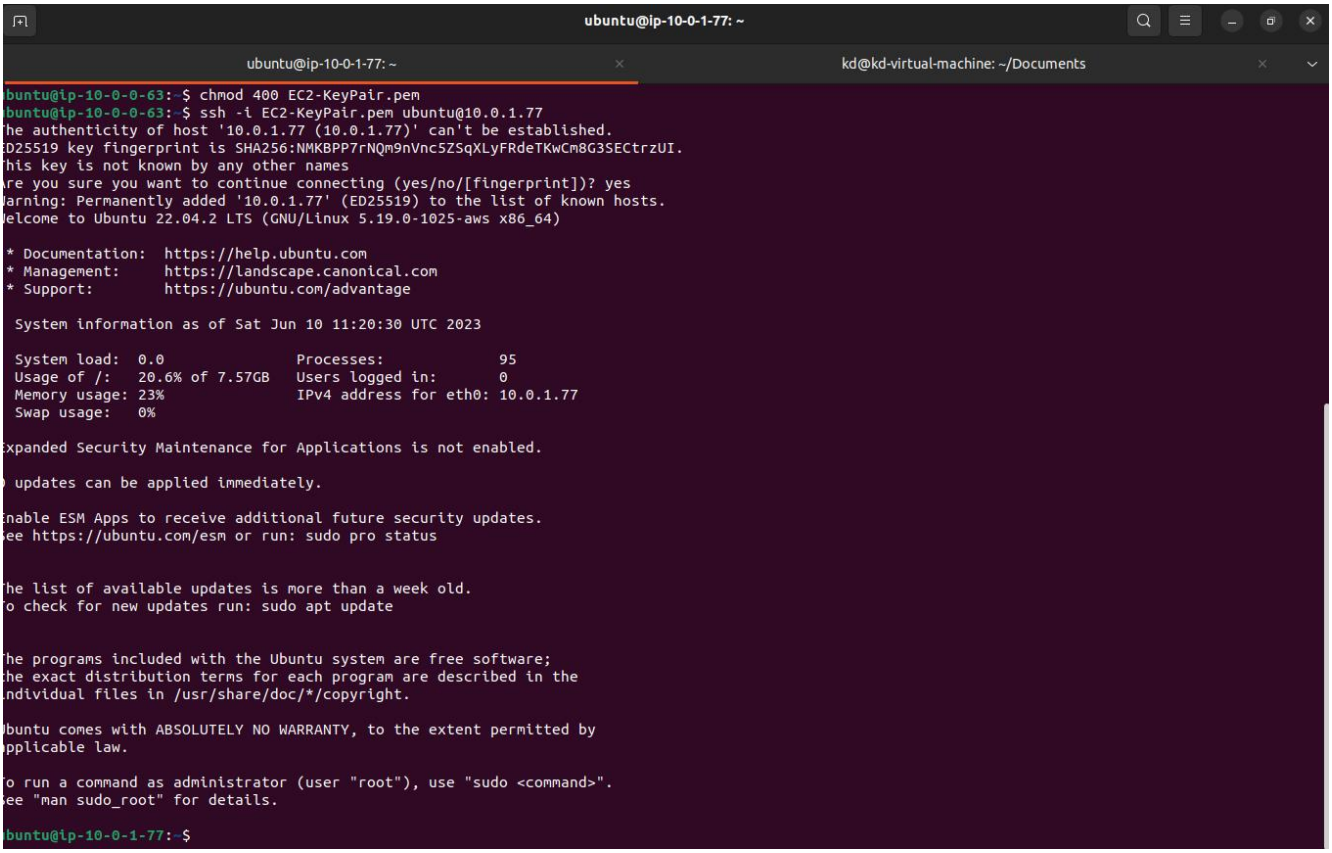
And finally a screenshot showing the targets of the 2 loadbalancers target groups are healthy

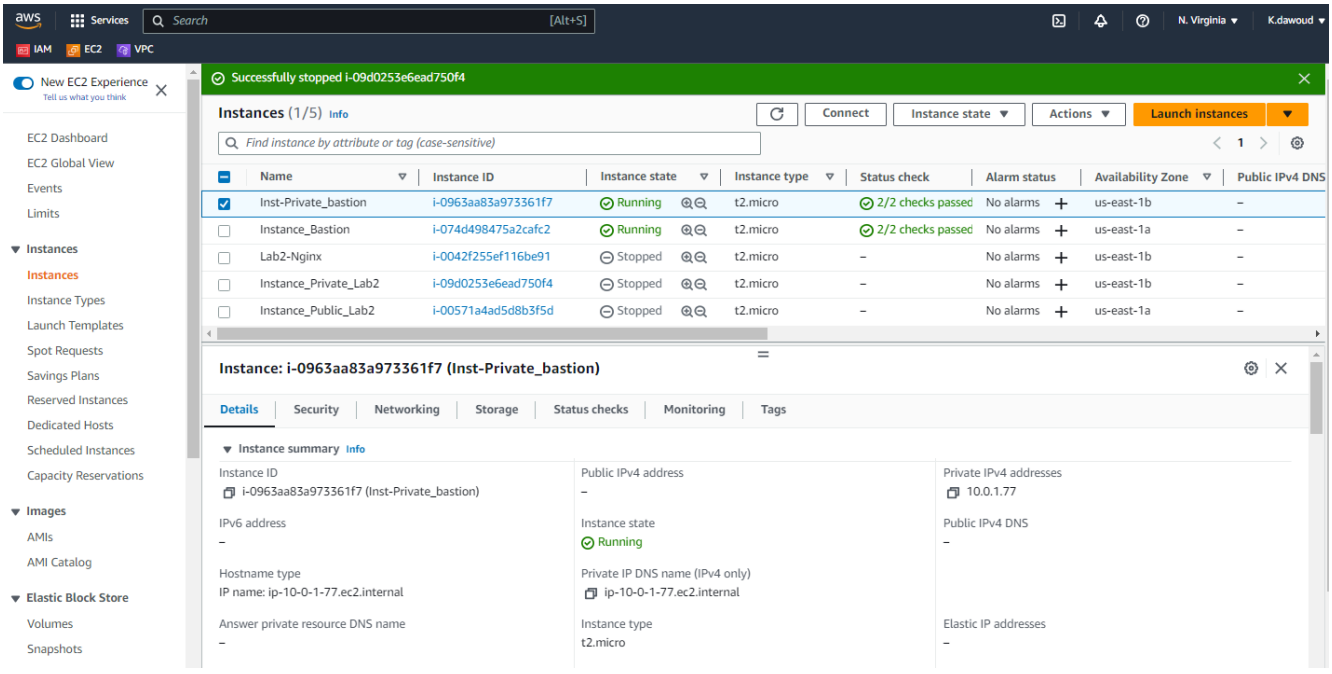


3- Autoscaling for the private servers.


aws
Services
Search
[Alt+S]
IAM
EC2
VPC
N. Virginia
K.dawoud
New EC2 Experience
Tell us what you think
EC2 Dashboard
EC2 Global View
Events
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
Instances (1/5) Info
Connect
Instance state
Actions
Launch instances
Find instance by attribute or tag (case-sensitive)
Name
Instance ID
Instance state
Instance type
Status check
Alarm status
Availability Zone
Public IPv4 DNS
Inst-Private_bastion
i-0963aa83a973361f7
Running
t2.micro
–
No alarms
us-east-1b
Instance_Bastion
i-074d498475a2cafc2
Running
t2.micro
2/2 checks passed
No alarms
us-east-1a
Lab2-Nginx
i-0042f255ef116be91
Stopped
t2.micro
–
No alarms
us-east-1b
Instance_Private_Lab2
i-09d0253e6ead750f4
Running
t2.micro
2/2 checks passed
No alarms
us-east-1b
Instance_Public_Lab2
i-00571a4ad5d8b3f5d
Stopped
t2.micro
–
No alarms
us-east-1a
Instance: i-074d498475a2cafc2 (Instance_Bastion)
Details
Security
Networking
Storage
Status checks
Monitoring
Tags
Instance summary Info
Instance ID
i-074d498475a2cafc2 (Instance_Bastion)
Public IPv4 address
44.197.113.93 | open address
Private IPv4 addresses
10.0.0.63
IPv6 address
–
Instance state
Running
Public IPv4 DNS
–
Hostname type
IP name: ip-10-0-0-63.ec2.internal
Private IP DNS name (IPv4 only)
ip-10-0-0-63.ec2.internal
Answer private resource DNS name
–
Instance type
t2.micro
Elastic IP addresses
–
Auto-assigned IP address
VPC ID
AWS Compute Optimizer finding


ubuntu@ip-10-0-0-63: ~
kd@kd-virtual-machine: ~/Documents
kd@kd-virtual-machine:~/Documents$ ssh -i EC2-KeyPair.pem ubuntu@44.197.113.93
Welcome to Ubuntu 22.04.2 LTS (GNU/Linux 5.19.0-1025-aws x86_64)
* Documentation: https://help.ubuntu.com
* Management: https://landscape.canonical.com
* Support: https://ubuntu.com/advantage
System information as of Sat Jun 10 11:16:40 UTC 2023
System load: 0.080078125 Processes: 97
Usage of /: 20.8% of 7.57GB Users logged in: 0
Memory usage: 24% IPv4 address for eth0: 10.0.0.63
Swap usage: 0%
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: Sat Jun 10 10:50:27 2023 from 178.80.82.100
ubuntu@ip-10-0-0-63:~$


ubuntu@ip-10-0-1-77: ~
ubuntu@ip-10-0-1-77: ~
kd@kd-virtual-machine: ~/Documents
buntu@ip-10-0-0-63:~$ chmod 400 EC2-KeyPair.pem
buntu@ip-10-0-0-63:~$ ssh -i EC2-KeyPair.pem ubuntu@10.0.1.77
he authenticity of host '10.0.1.77 (10.0.1.77)' can't be established.
D25519 key fingerprint is SHA256:NMKBPP7rNQm9nVnc5ZSqXLyFRdeTKwCm8G3SECtrzUI.
his key is not known by any other names
re you sure you want to continue connecting (yes/no/[fingerprint])? yes
arning: Permanently added '10.0.1.77' (ED25519) to the list of known hosts.
elcome to Ubuntu 22.04.2 LTS (GNU/Linux 5.19.0-1025-aws x86_64)
* Documentation: https://help.ubuntu.com
* Management: https://landscape.canonical.com
* Support: https://ubuntu.com/advantage
System information as of Sat Jun 10 11:20:30 UTC 2023
System load: 0.0 Processes: 95
Usage of /: 20.6% of 7.57GB Users logged in: 0
Memory usage: 23% IPv4 address for eth0: 10.0.1.77
Swap usage: 0%
xpanded Security Maintenance for Applications is not enabled.
updates can be applied immediately.
nable ESM Apps to receive additional future security updates.
ee https://ubuntu.com/esm or run: sudo pro status
he list of available updates is more than a week old.
o check for new updates run: sudo apt update
he programs included with the Ubuntu system are free software;
he exact distribution terms for each program are described in the
ndividual files in /usr/share/doc/*/copyright.
buntu comes with ABSOLUTELY NO WARRANTY, to the extent permitted by
pplicable law.
o run a command as administrator (user "root"), use "sudo <command>".
ee "man sudo_root" for details.
buntu@ip-10-0-1-77:~$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Instance Types
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Spot Requests
Savings Plans
Reserved Instances
Dedicated Hosts
Scheduled Instances
Capacity Reservations
Images
AMIs
AMI Catalog
Elastic Block Store
Volumes
Snapshots
Successfully stopped i-09d0253e6ead750f4
Instances (1/5) Info
Connect
Instance state
Actions
Launch instances
Find instance by attribute or tag (case-sensitive)
Name
Instance ID
Instance state
Instance type
Status check
Alarm status
Availability Zone
Public IPv4 DNS
Inst-Private_bastion i-0963aa83a973361f7 Running t2.micro 2/2 checks passed No alarms us-east-1b
Instance_Bastion i-074d498475a2cafc2 Running t2.micro 2/2 checks passed No alarms us-east-1a
Lab2-Nginx i-0042f255ef116be91 Stopped t2.micro No alarms us-east-1b
Instance_Private_Lab2 i-09d0253e6ead750f4 Stopped t2.micro No alarms us-east-1b
Instance_Public_Lab2 i-00571a4ad5d8b3f5d Stopped t2.micro No alarms us-east-1a
Instance: i-0963aa83a973361f7 (Inst-Private_bastion)
Details
Security
Networking
Storage
Status checks
Monitoring
Tags
Instance summary Info
Instance ID
i-0963aa83a973361f7 (Inst-Private_bastion)
Public IPv4 address
Private IPv4 addresses
10.0.1.77
IPv6 address
Instance state
Running
Public IPv4 DNS
Hostname type
IP name: ip-10-0-1-77.ec2.internal
Private IP DNS name (IPv4 only)
ip-10-0-1-77.ec2.internal
Answer private resource DNS name
Instance type
t2.micro
Elastic IP addresses

Apache2 Ubuntu Default Page: It
Not secure
loadbalancer-public-592920710.us-east-1.elb.amazonaws.com
Incognito
Update
Apache2 - Private Instance 1
Ubuntu
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 Ubuntu Default Page: It
Not secure
loadbalancer-public-592920710.us-east-1.elb.amazonaws.com
Incognito
Update
Apache2 - Private Instance 2
Ubuntu
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.
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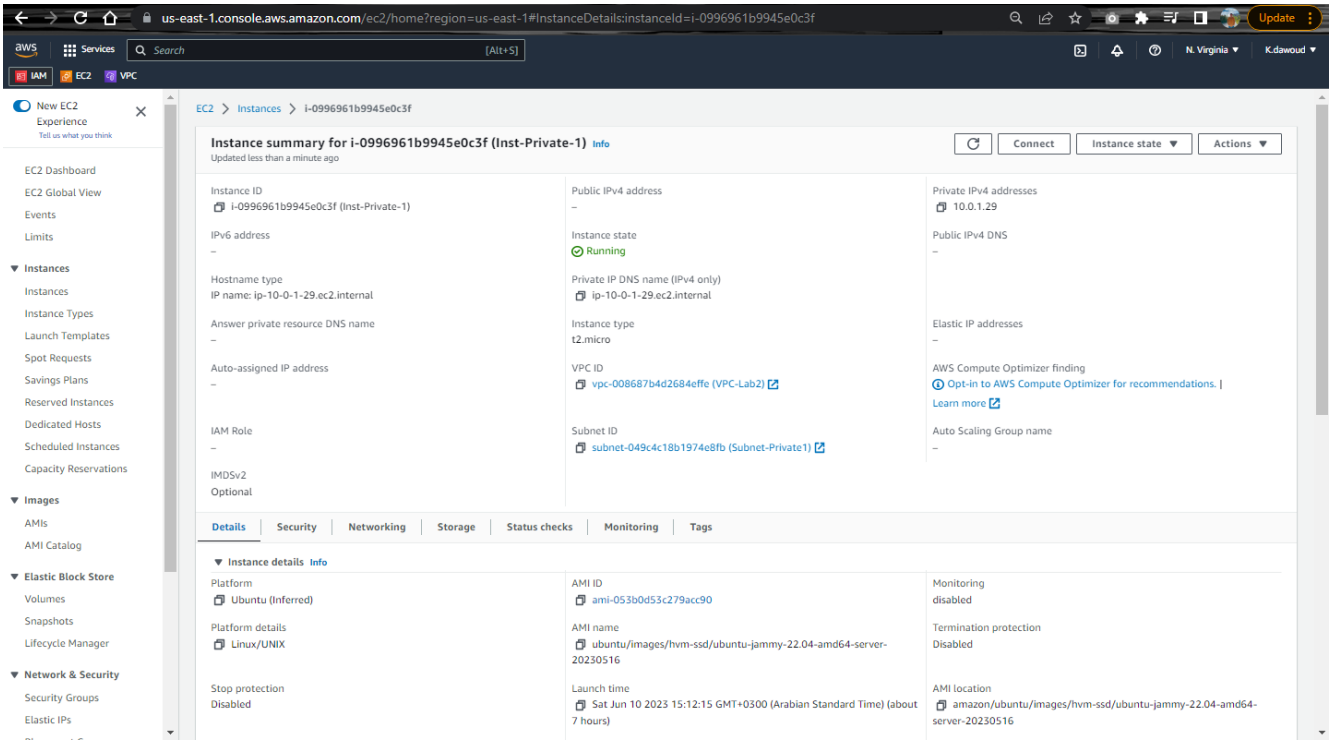
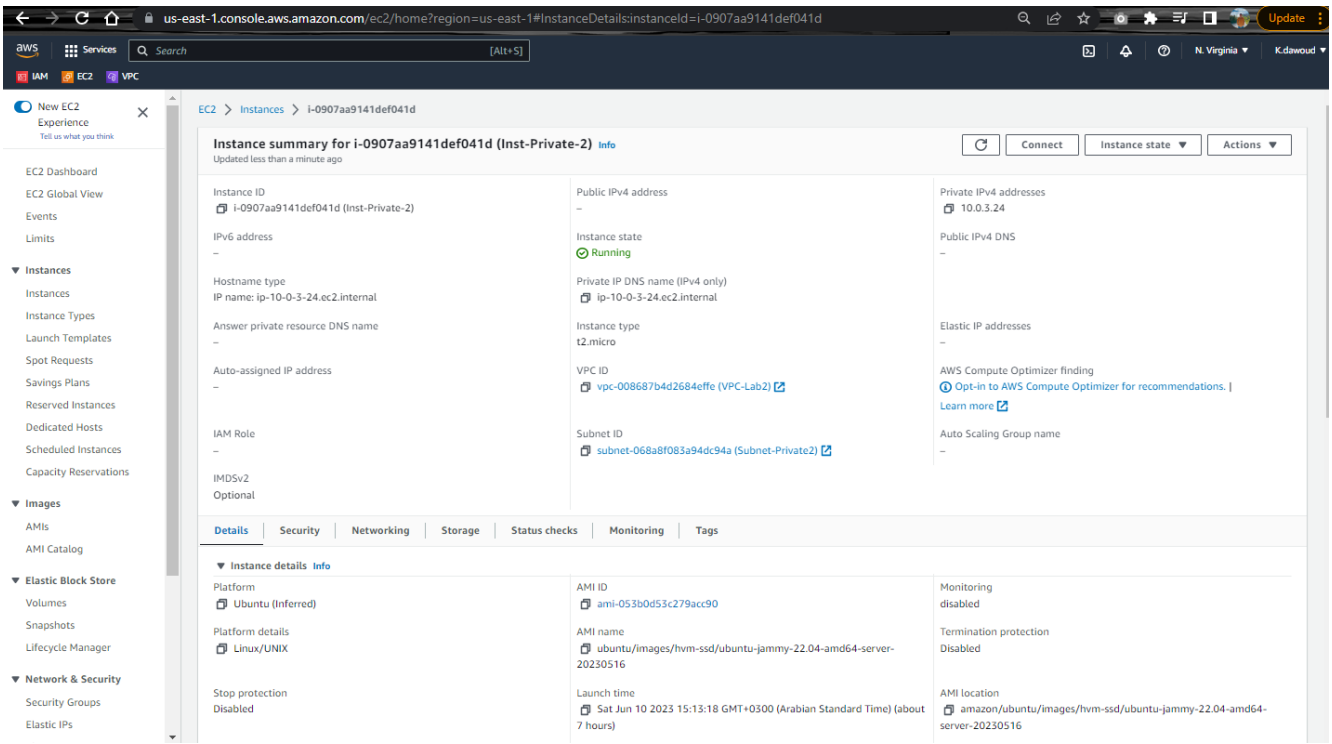
| `-- ports.conf
|-- mods-enabled
| |-- *.load
| `-- *.conf
|-- conf-enabled
| `-- *.conf
|-- sites-enabled
| `-- *.conf


us-east-1.console.aws.amazon.com/ec2/home?region=us-east-1#InstanceDetails:instanceId=i-0996961b9945e0c3f
Update
Services
Search
[Alt+S]
IAM
EC2
VPC
N. Virginia
K.dawoud
New EC2 Experience
Tell us what you think
EC2 Dashboard
EC2 Global View
Events
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
EC2 > Instances > i-0996961b9945e0c3f
Instance summary for i-0996961b9945e0c3f (Inst-Private-1) Info
Updated less than a minute ago
Connect
Instance state
Actions
Instance ID
i-0996961b9945e0c3f (Inst-Private-1)
IPv6 address
–
Hostname type
IP name: ip-10-0-1-29.ec2.internal
Answer private resource DNS name
–
Auto-assigned IP address
–
IAM Role
–
IMDSv2
Optional
Public IPv4 address
–
Instance state
Running
Private IP DNS name (IPv4 only)
ip-10-0-1-29.ec2.internal
Instance type
t2.micro
VPC ID
vpc-008687b4d2684effe (VPC-Lab2)
Subnet ID
subnet-049c4c18b1974e8fb (Subnet-Private1)
Private IPv4 addresses
10.0.1.29
Public IPv4 DNS
–
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
Linux/UNIX
Stop protection
Disabled
AMI ID
ami-053b0d53c279acc90
AMI name
ubuntu/images/hvm-ssd/ubuntu-jammy-22.04-amd64-server-20230516
Launch time
Sat Jun 10 2023 15:12:15 GMT+0300 (Arabian Standard Time) (about 7 hours)
Monitoring
disabled
Termination protection
Disabled
AMI location
amazon/ubuntu/images/hvm-ssd/ubuntu-jammy-22.04-amd64-server-20230516


us-east-1.console.aws.amazon.com/ec2/home?region=us-east-1#InstanceDetails:instanceId=i-0907aa9141def041d
Update
Services
Search
[Alt+S]
IAM
EC2
VPC
N. Virginia
K.dawoud
New EC2 Experience
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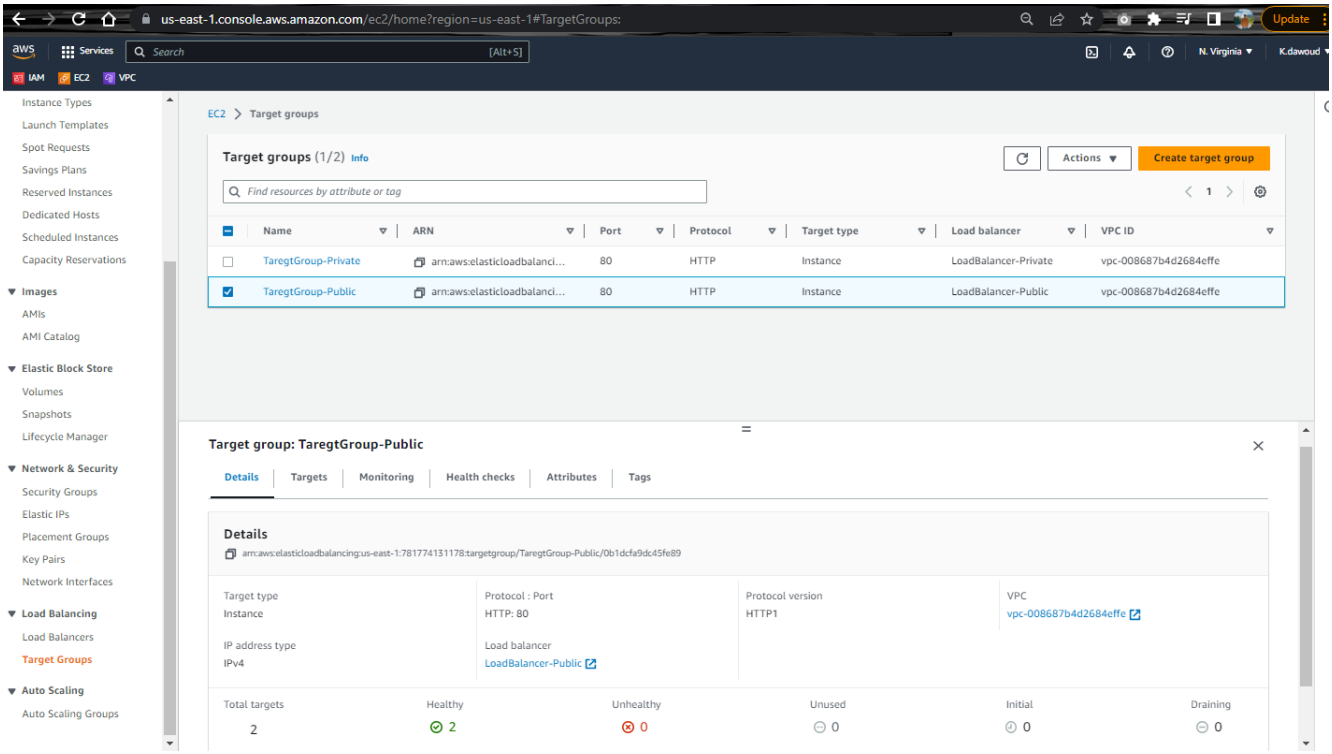
Scheduled Instances
Capacity Reservations
Images
AMIs
AMI Catalog
Elastic Block Store
Volumes
Snapshots
Lifecycle Manager
Network & Security
Security Groups
Elastic IPs
EC2 > Instances > i-0907aa9141def041d
Instance summary for i-0907aa9141def041d (Inst-Private-2) Info
Updated less than a minute ago
Connect
Instance state
Actions
Instance ID
i-0907aa9141def041d (Inst-Private-2)
IPv6 address
–
Hostname type
IP name: ip-10-0-3-24.ec2.internal
Answer private resource DNS name
–
Auto-assigned IP address
–
IAM Role
–
IMDSv2
Optional
Public IPv4 address
–
Instance state
Running
Private IP DNS name (IPv4 only)
ip-10-0-3-24.ec2.internal
Instance type
t2.micro
VPC ID
vpc-008687b4d2684effe (VPC-Lab2)
Subnet ID
subnet-068a8f083a94dc94a (Subnet-Private2)
Private IPv4 addresses
10.0.3.24
Public IPv4 DNS
–
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
Linux/UNIX
Stop protection
Disabled
AMI ID
ami-053b0d53c279acc90
AMI name
ubuntu/images/hvm-ssd/ubuntu-jammy-22.04-amd64-server-20230516
Launch time
Sat Jun 10 2023 15:13:18 GMT+0300 (Arabian Standard Time) (about 7 hours)
Monitoring
disabled
Termination protection
Disabled
AMI location
amazon/ubuntu/images/hvm-ssd/ubuntu-jammy-22.04-amd64-server-20230516


us-east-1.console.aws.amazon.com/ec2/home?region=us-east-1#TargetGroups:
Update
Services
Search
[Alt+S]
N. Virginia
K.dawoud
IAM
EC2
VPC
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Launch Templates
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Savings Plans
Reserved Instances
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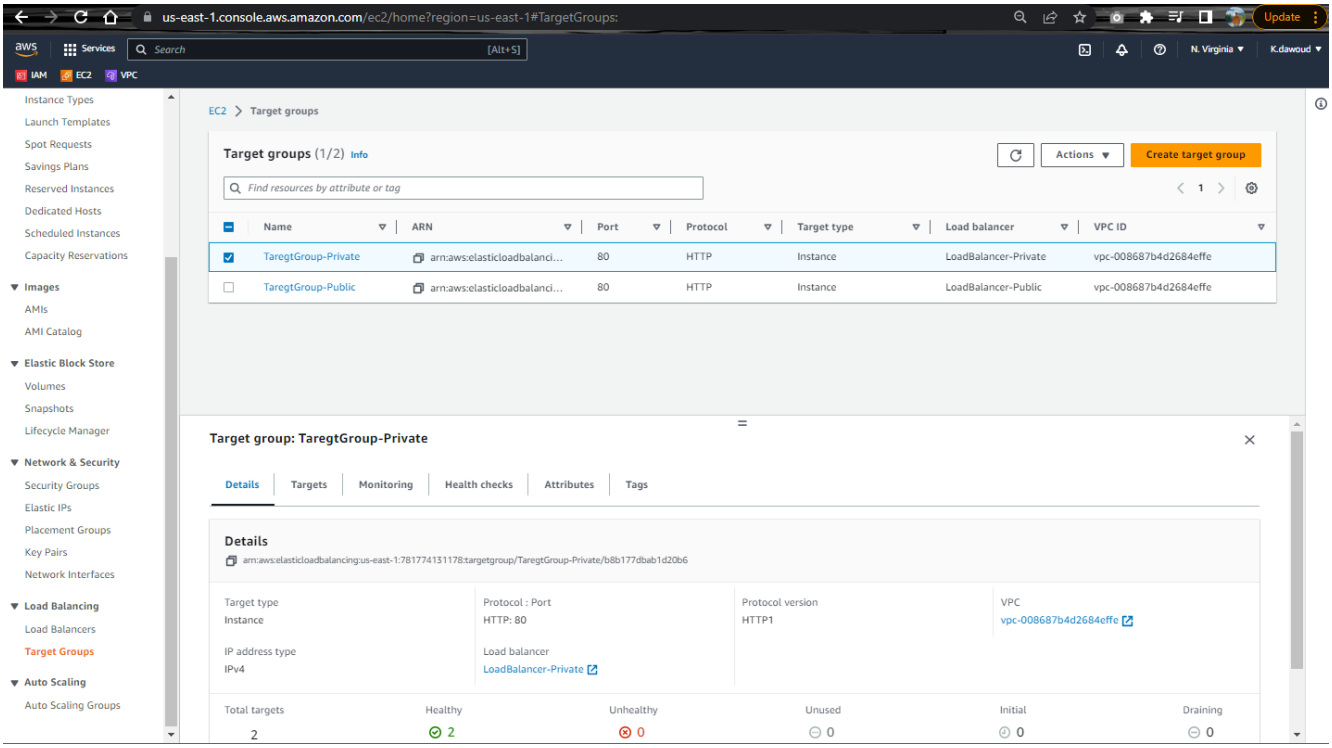
Snapshots
Lifecycle Manager
Network & Security
Security Groups
Elastic IPs
Placement Groups
Key Pairs
Network Interfaces
Load Balancing
Load Balancers
Target Groups
Auto Scaling
Auto Scaling Groups
EC2 > Target groups
Target groups (1/2) Info
Actions
Create target group
Find resources by attribute or tag
Name
ARN
Port
Protocol
Target type
Load balancer
VPC ID
TaregtGroup-Private
arn:aws:elasticloadbalanci...
80
HTTP
Instance
LoadBalancer-Private
vpc-008687b4d2684effe
TaregtGroup-Public
arn:aws:elasticloadbalanci...
80
HTTP
Instance
LoadBalancer-Public
vpc-008687b4d2684effe
Target group: TaregtGroup-Public
Details
Targets
Monitoring
Health checks
Attributes
Tags
Details
arn:aws:elasticloadbalancing:us-east-1:781774131178:targetgroup/TaregtGroup-Public/0b1dcfa9dc45fe89
Target type
Instance
Protocol : Port
HTTP: 80
Protocol version
HTTP1
VPC
vpc-008687b4d2684effe
IP address type
IPv4
Load balancer
LoadBalancer-Public
Total targets
2
Healthy
2
Unhealthy
0
Unused
0
Initial
0
Draining
0


us-east-1.console.aws.amazon.com/ec2/home?region=us-east-1#TargetGroups:
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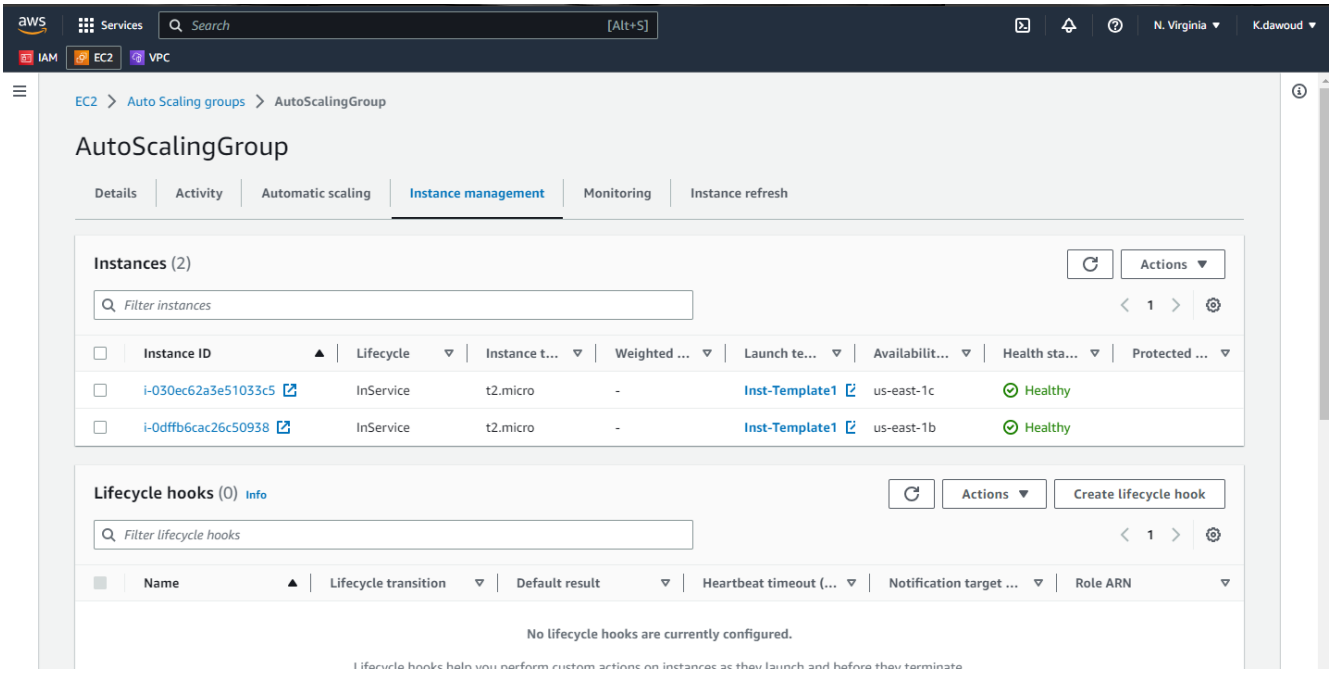
Target Groups
Auto Scaling
Auto Scaling Groups
EC2 > Target groups
Target groups (1/2) Info
Actions
Create target group
Find resources by attribute or tag
Name
ARN
Port
Protocol
Target type
Load balancer
VPC ID
TaregtGroup-Private
arn:aws:elasticloadbalanci...
80
HTTP
Instance
LoadBalancer-Private
vpc-008687b4d2684effe
TaregtGroup-Public
arn:aws:elasticloadbalanci...
80
HTTP
Instance
LoadBalancer-Public
vpc-008687b4d2684effe
Target group: TaregtGroup-Private
Details
Targets
Monitoring
Health checks
Attributes
Tags
Details
arn:aws:elasticloadbalancing:us-east-1:781774131178:targetgroup/TaregtGroup-Private/b8b177dbab1d20b6
Target type
Instance
Protocol : Port
HTTP: 80
Protocol version
HTTP1
VPC
vpc-008687b4d2684effe
IP address type
IPv4
Load balancer
LoadBalancer-Private
Total targets
2
Healthy
2
Unhealthy
0
Unused
0
Initial
0
Draining
0


aws
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Search
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N. Virginia
K.dawoud
IAM
EC2
VPC
EC2 > Auto Scaling groups > AutoScalingGroup
AutoScalingGroup
Details
Activity
Automatic scaling
Instance management
Monitoring
Instance refresh
Instances (2)
Actions
Filter instances
Instance ID
Lifecycle
Instance t...
Weighted ...
Launch te...
Availabilit...
Health sta...
Protected ...
i-030ec62a3e51033c5
InService
t2.micro
-
Inst-Template1
us-east-1c
Healthy
i-0dffb6cac26c50938
InService
t2.micro
-
Inst-Template1
us-east-1b
Healthy
Lifecycle hooks (0) Info
Actions
Create lifecycle hook
Filter lifecycle hooks
Name
Lifecycle transition
Default result
Heartbeat timeout (...
Notification target ...
Role ARN
No lifecycle hooks are currently configured.