FATIMA JINNAH WOMEN UNIVERSITY

Department of Software Engineering

LAB #08

SUBJECT: CLOUD COMPUTING

SUBMITTED TO: SIR MUHAMMAD SHOAIB

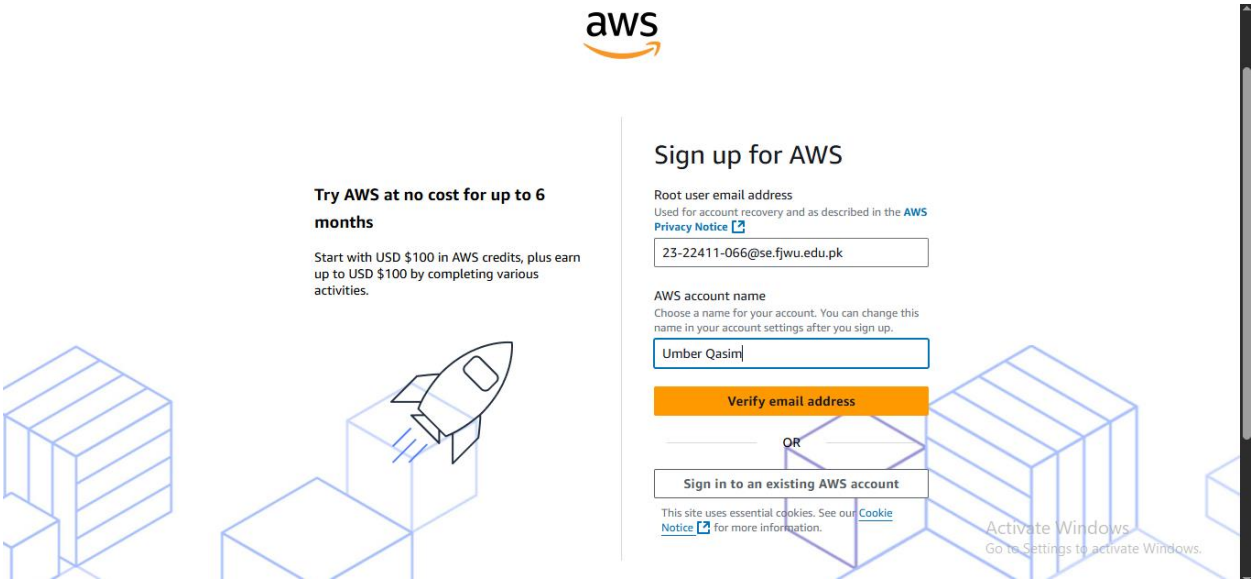
SUBMITTED BY: UMBER QASIM

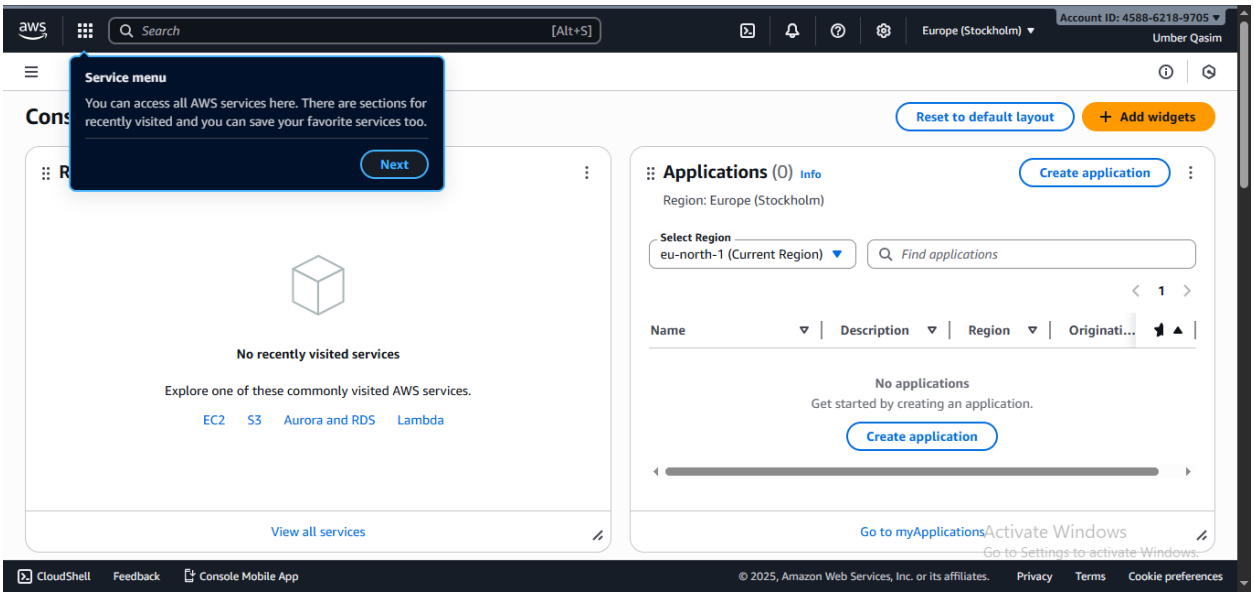
REGISTRATION NO: 2023-BSE-066

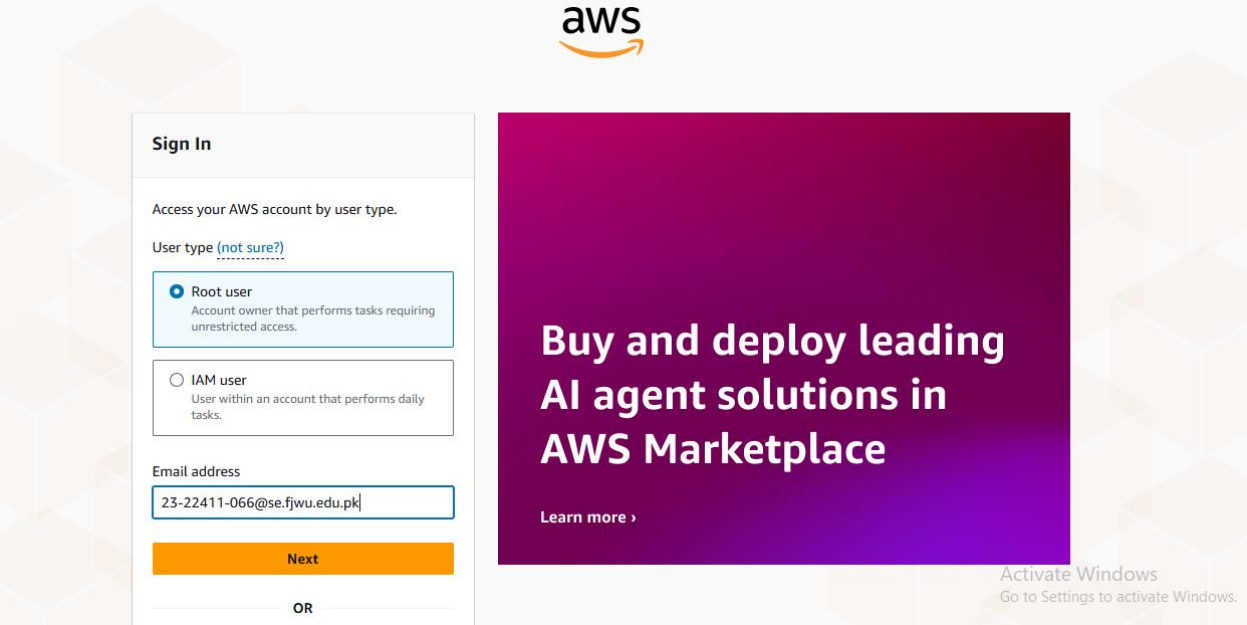
CLASS: BSSE V-B

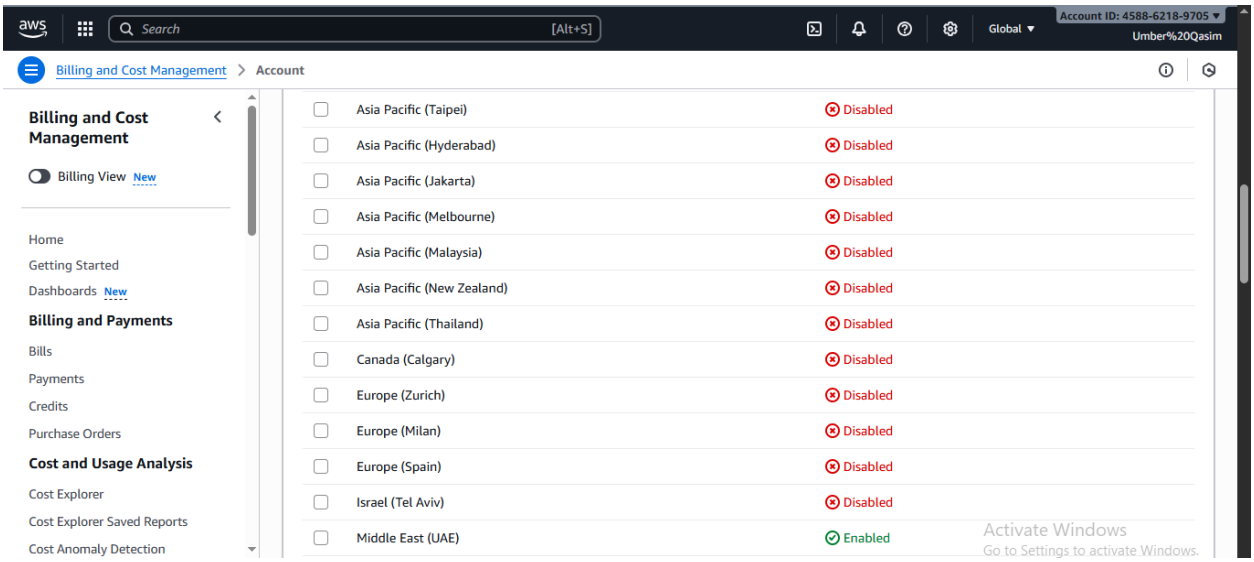
AWS: Account Setup, IAM, VPC Inventory, EC2, Docker & Gitea

Task#01: Create an AWS account and enable UAE (me-central-1)

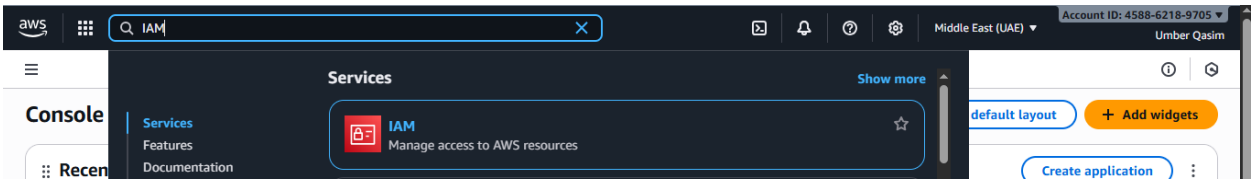


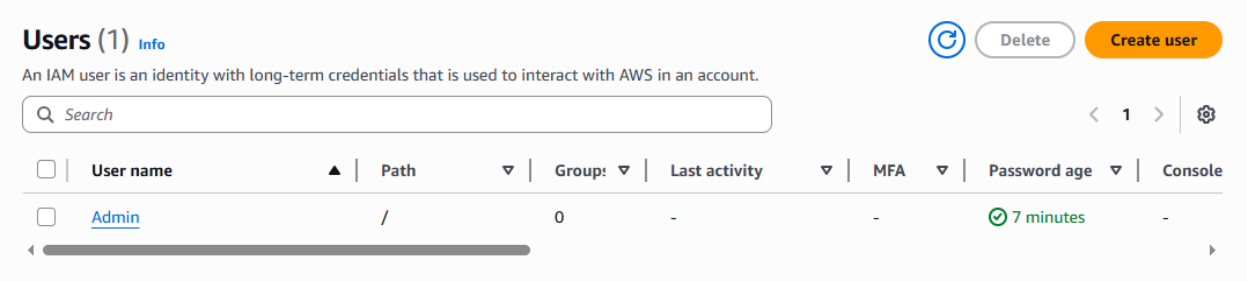


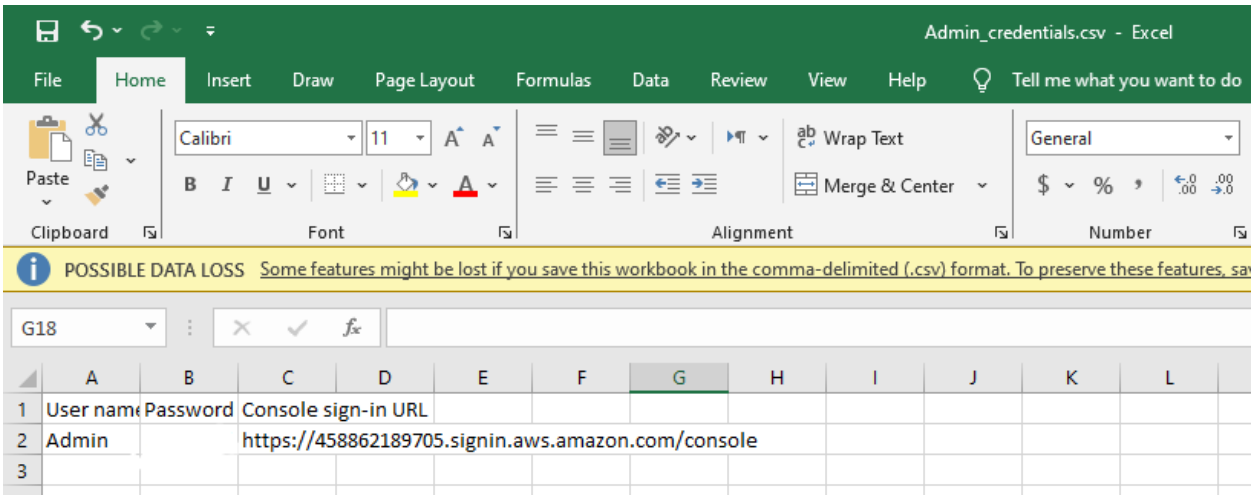


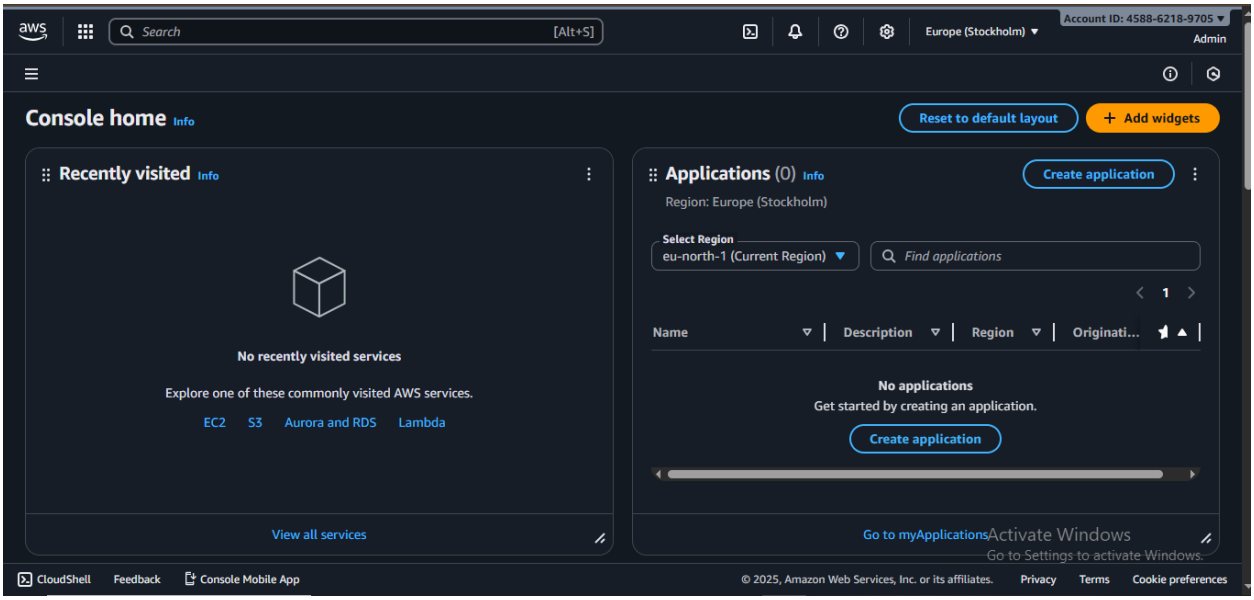


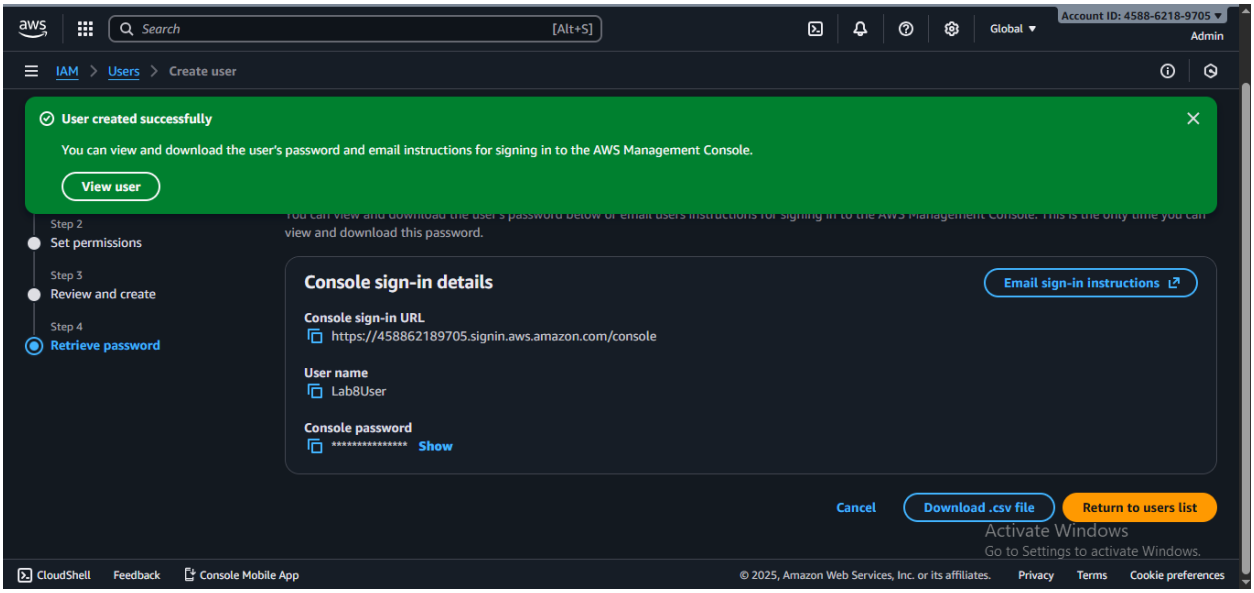
Task#02: Create IAM Admin and Lab8User with console access

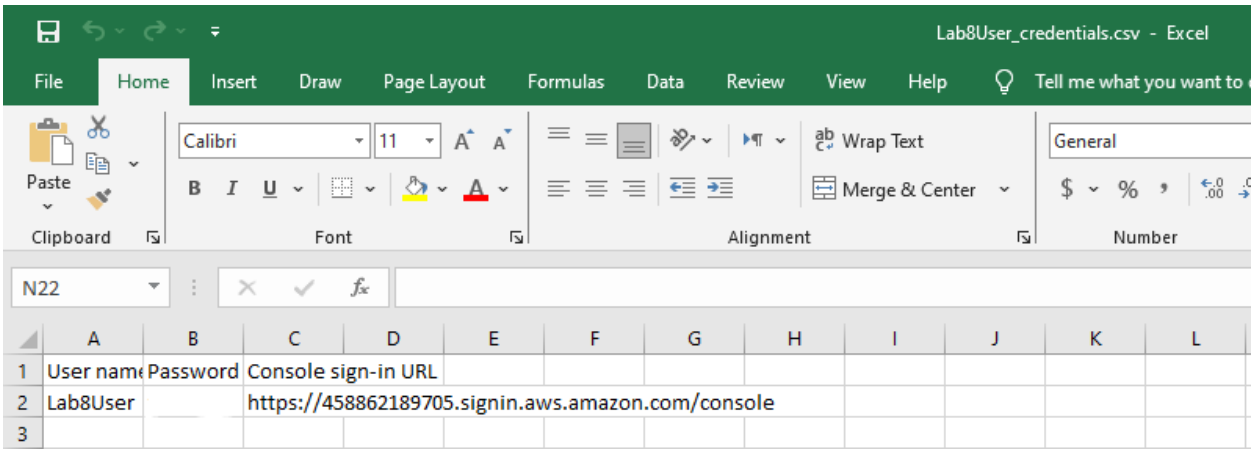


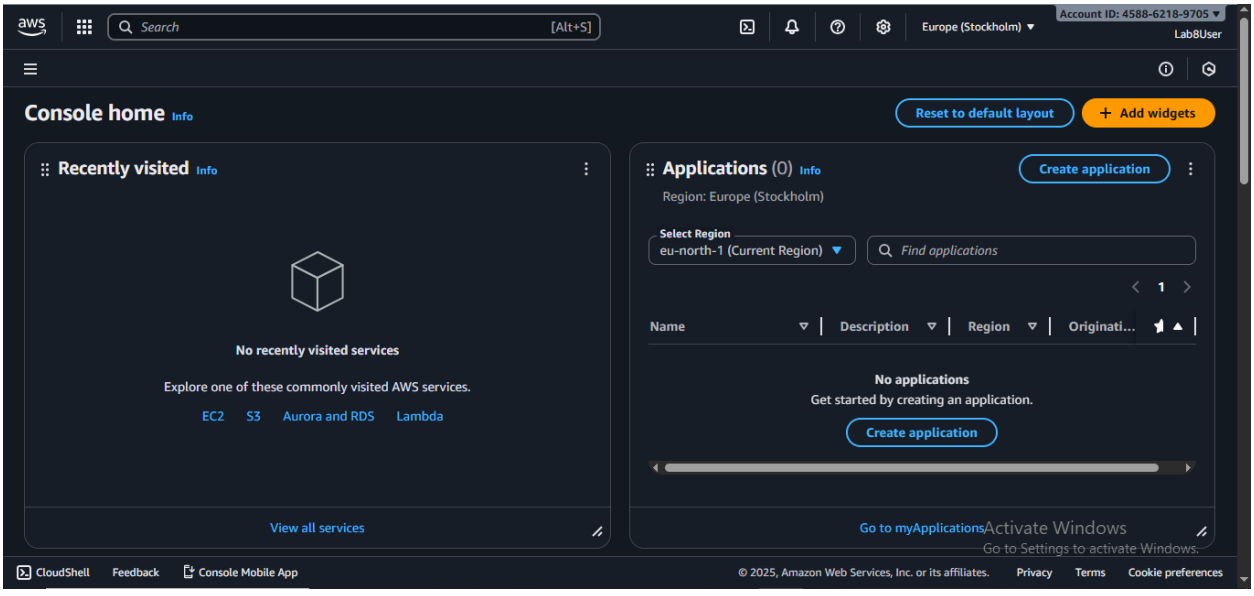

Users (1) Info
An IAM user is an identity with long-term credentials that is used to interact with AWS in an account.
Delete
Create user
Search
1
User name
Path
Group:
Last activity
MFA
Password age
Console
Admin
/
0
-
-
7 minutes
-

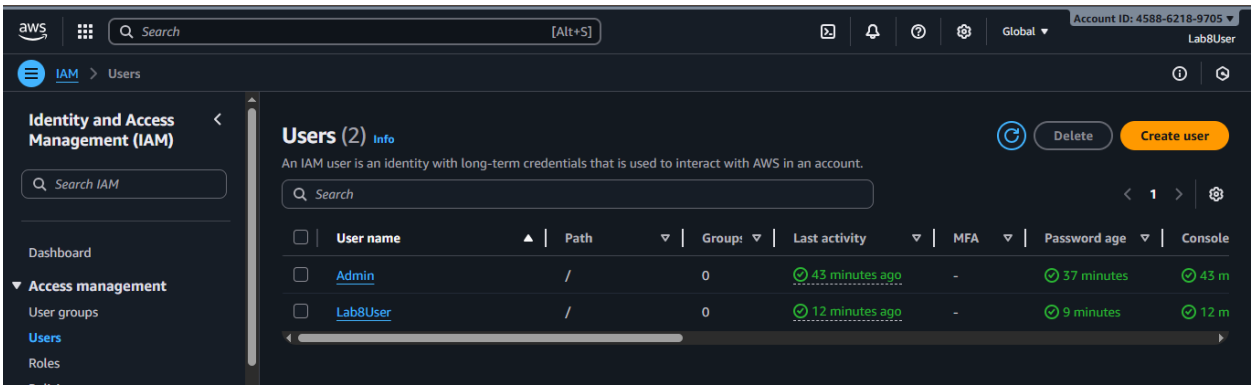

Admin_credentials.csv - Excel
File
Home
Insert
Draw
Page Layout
Formulas
Data
Review
View
Help
Tell me what you want to do
Paste
Clipboard
Calibri
11
Font
Wrap Text
Merge & Center
Alignment
General
Number
POSSIBLE DATA LOSS
Some features might be lost if you save this workbook in the comma-delimited (.csv) format. To preserve these features, sa
G18
A
B
C
D
E
F
G
H
I
J
K
L
1
User name
Password
Console sign-in URL
2
Admin
https://458862189705.signin.aws.amazon.com/console
3


Search
[Alt+S]
Europe (Stockholm)
Account ID: 4588-6218-9705
Admin
Console home Info
Reset to default layout
+ Add widgets
Recently visited Info
No recently visited services
Explore one of these commonly visited AWS services.
EC2
S3
Aurora and RDS
Lambda
View all services
Applications (0) Info
Create application
Region: Europe (Stockholm)
Select Region
eu-north-1 (Current Region)
Find applications
Name
Description
Region
Originati...
No applications
Get started by creating an application.
Create application
Go to myApplications
Activate Windows
Go to Settings to activate Windows.
CloudShell
Feedback
Console Mobile App
© 2025, Amazon Web Services, Inc. or its affiliates.
Privacy
Terms
Cookie preferences

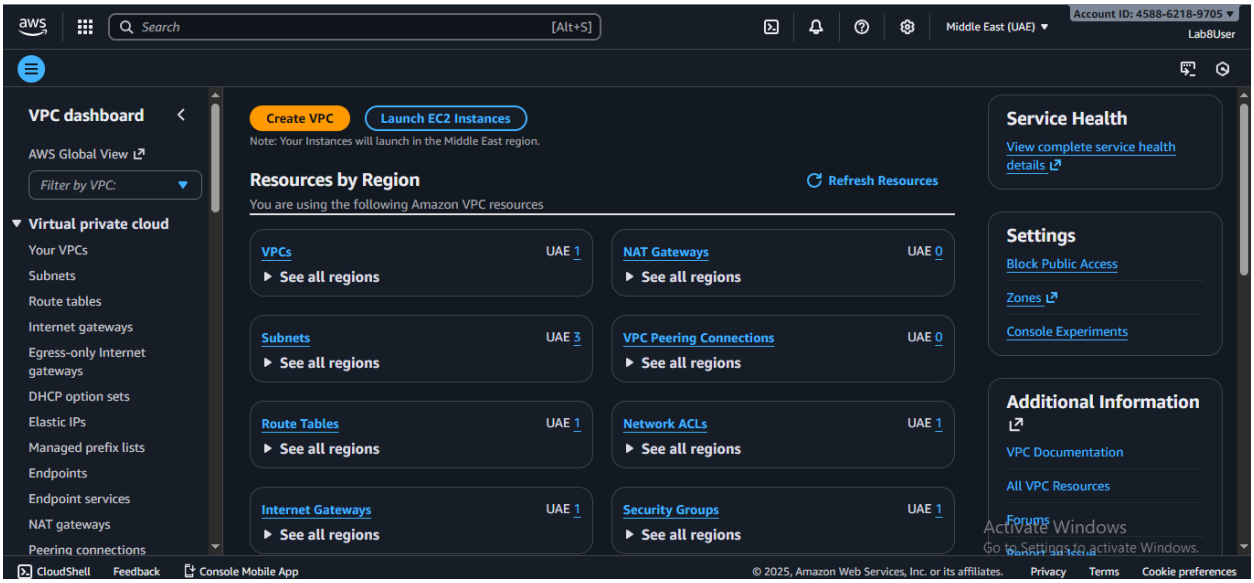

Search [Alt+S]
Global
Account ID: 4588-6218-9705
Admin
IAM > Users > Create user
User created successfully
You can view and download the user's password and email instructions for signing in to the AWS Management Console.
View user
Step 2
Set permissions
Step 3
Review and create
Step 4
Retrieve password
view and download this password.
Console sign-in details
Email sign-in instructions
Console sign-in URL
https://458862189705.signin.aws.amazon.com/console
User name
Lab8User
Console password
********** Show
Cancel
Download .csv file
Return to users list
Activate Windows
Go to Settings to activate Windows.
CloudShell
Feedback
Console Mobile App
© 2025, Amazon Web Services, Inc. or its affiliates.
Privacy
Terms
Cookie preferences

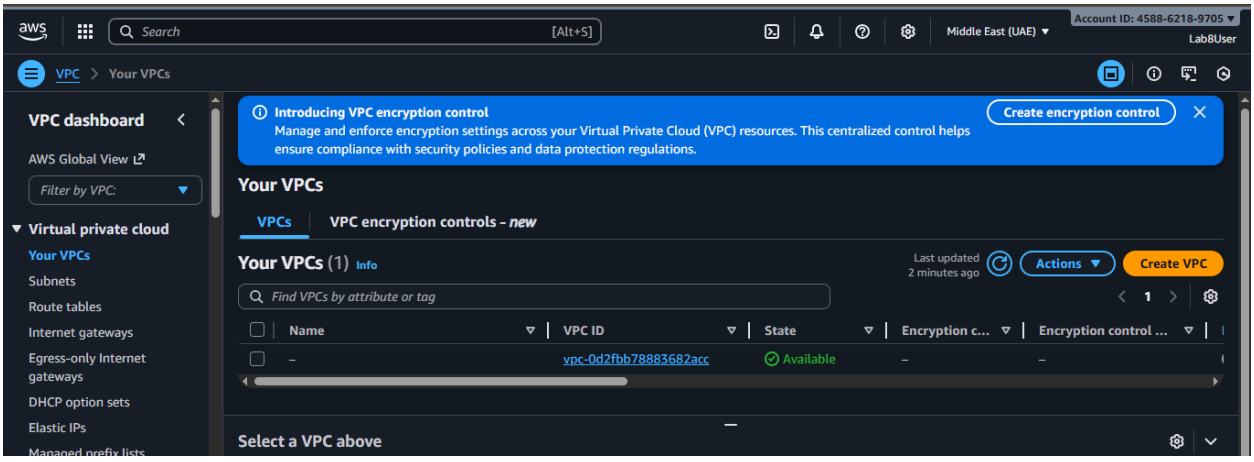

Lab8User_credentials.csv - Excel
File
Home
Insert
Draw
Page Layout
Formulas
Data
Review
View
Help
Tell me what you want to
Paste
Clipboard
Calibri
11
Font
Wrap Text
Merge & Center
Alignment
General
Number
N22
A B C D E F G H I J K L
1 User name Password Console sign-in URL
2 Lab8User https://458862189705.signin.aws.amazon.com/console
3

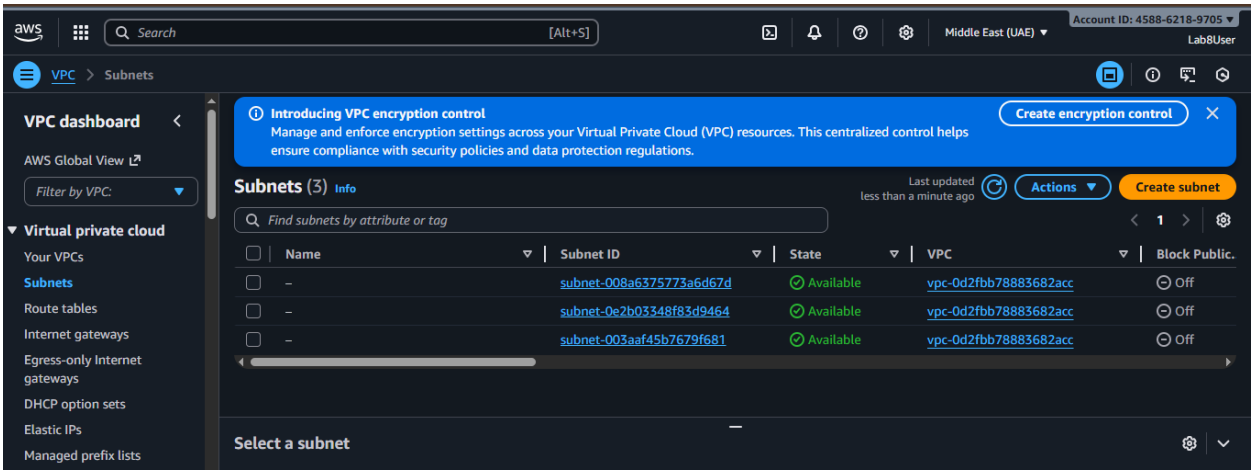

Search [Alt+S]
Europe (Stockholm)
Account ID: 4588-6218-9705
Lab8User
Console home Info
Reset to default layout
+ Add widgets
Recently visited Info
No recently visited services
Explore one of these commonly visited AWS services.
EC2
S3
Aurora and RDS
Lambda
View all services
Applications (0) Info
Create application
Region: Europe (Stockholm)
Select Region
eu-north-1 (Current Region)
Find applications
Name
Description
Region
Originati...
No applications
Get started by creating an application.
Create application
Go to myApplications
Activate Windows
Go to Settings to activate Windows.
CloudShell
Feedback
Console Mobile App
© 2025, Amazon Web Services, Inc. or its affiliates.
Privacy
Terms
Cookie preferences

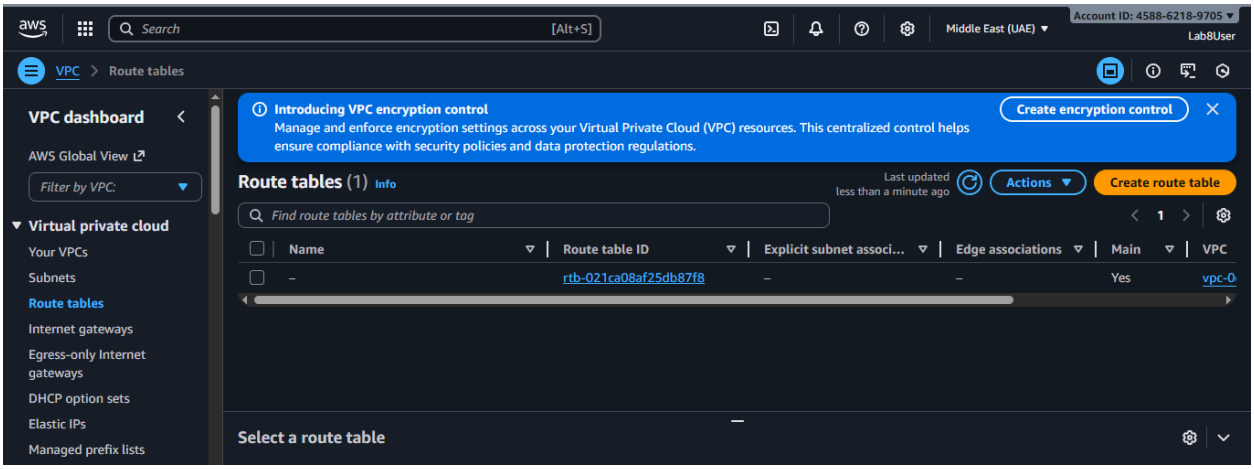


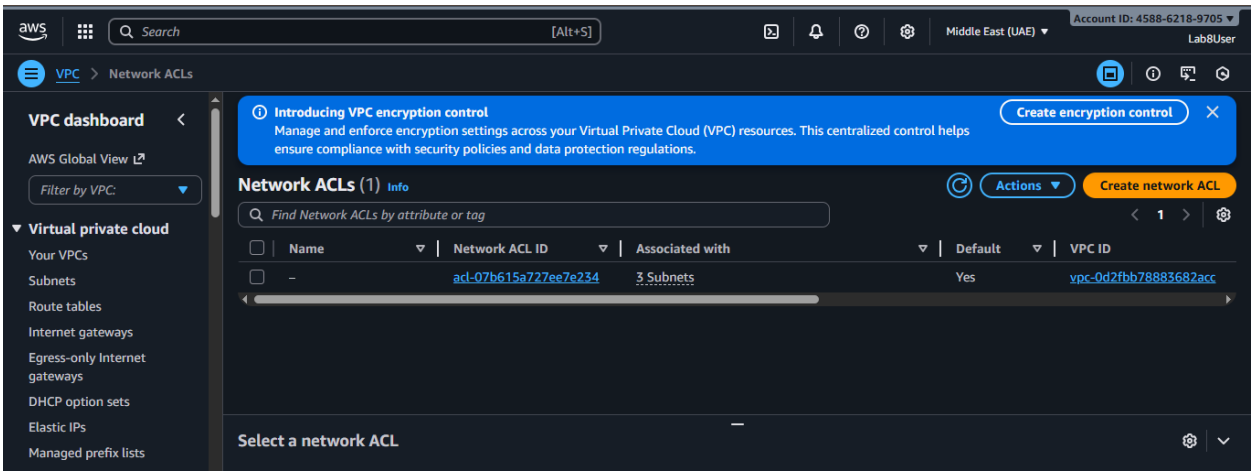
Task#03: Inspect VPC resources (in UAE me-central-1)

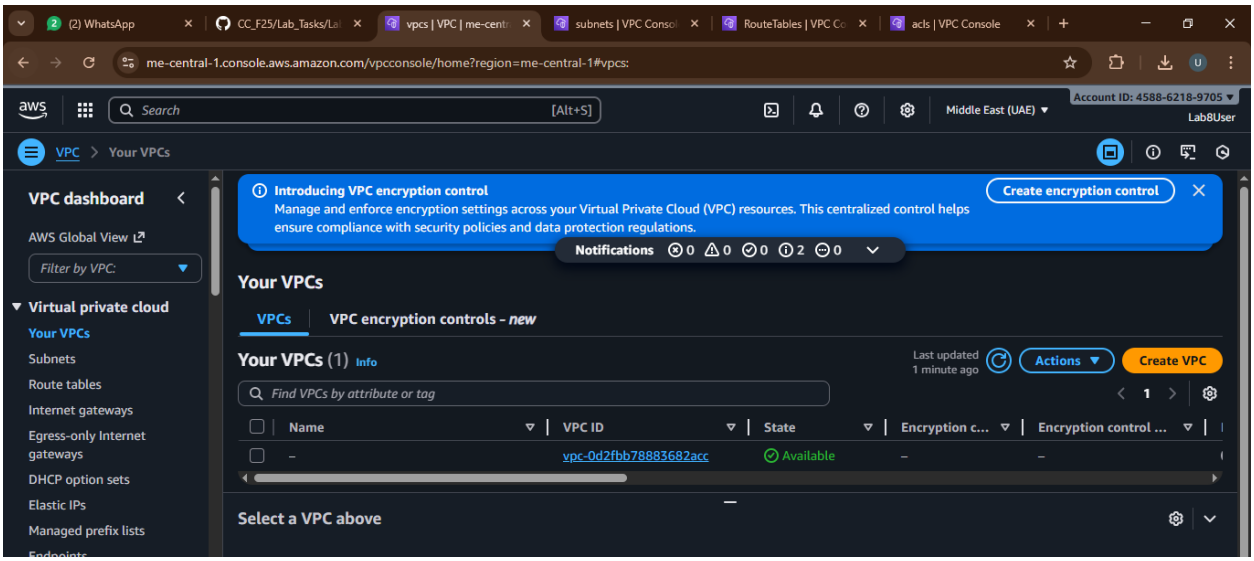




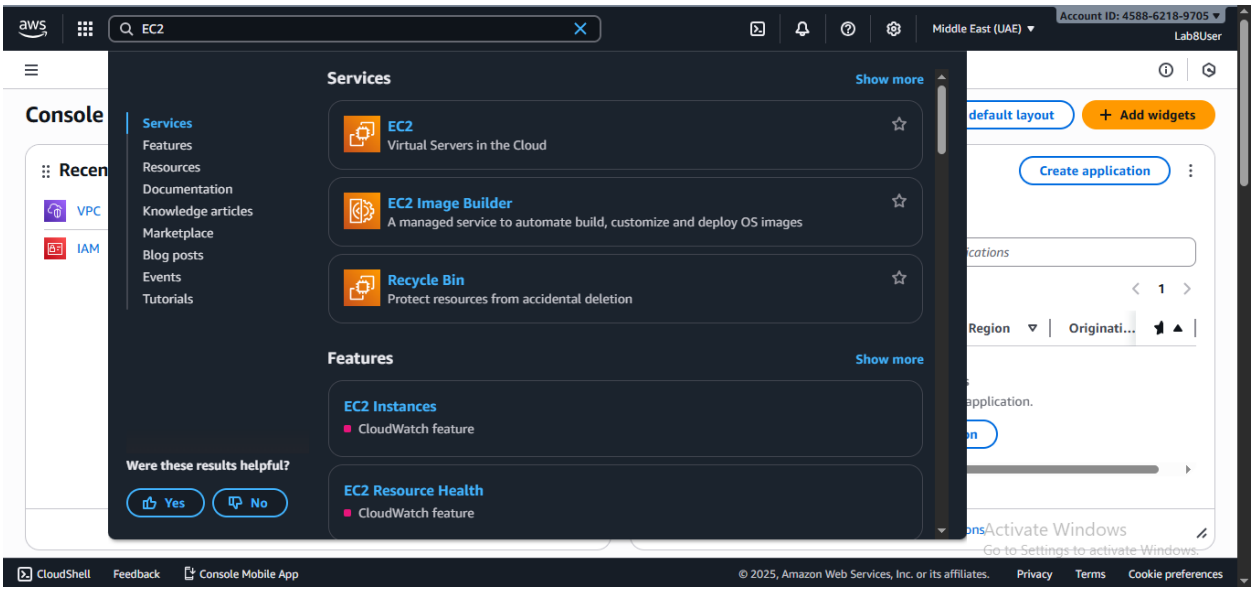

Search [Alt+S]
Middle East (UAE)
Account ID: 4588-6218-9705
Lab8User
VPC > Subnets
VPC dashboard
AWS Global View
Filter by VPC:
Virtual private cloud
Your VPCs
Subnets
Route tables
Internet gateways
Egress-only Internet gateways
DHCP option sets
Elastic IPs
Managed prefix lists
Introducing VPC encryption control
Manage and enforce encryption settings across your Virtual Private Cloud (VPC) resources. This centralized control helps ensure compliance with security policies and data protection regulations.
Create encryption control
Subnets (3) Info
Last updated less than a minute ago
Actions
Create subnet
Find subnets by attribute or tag
Name
Subnet ID
State
VPC
Block Public...
subnet-008a6375773a6d67d
subnet-0e2b03348f83d9464
subnet-003aaf45b7679f681
Available
vpc-0d2fbb78883682acc
Off
Select a subnet

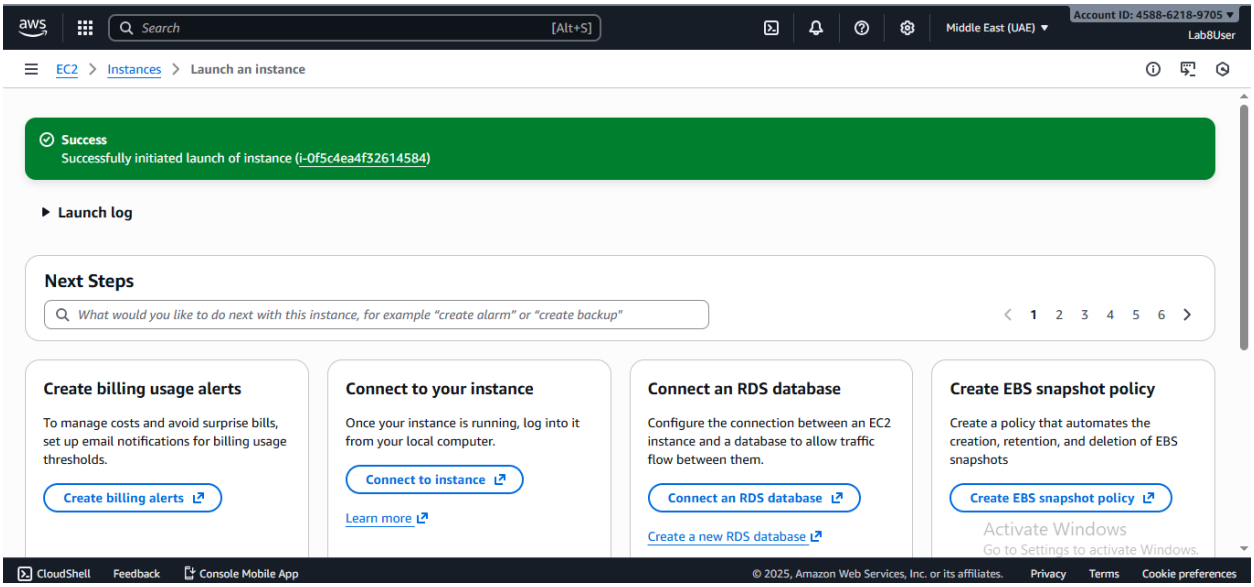

Search [Alt+S]
Middle East (UAE)
Account ID: 4588-6218-9705
Lab8User
VPC > Route tables
VPC dashboard
AWS Global View
Filter by VPC:
Virtual private cloud
Your VPCs
Subnets
Route tables
Internet gateways
Egress-only Internet gateways
DHCP option sets
Elastic IPs
Managed prefix lists
Introducing VPC encryption control
Manage and enforce encryption settings across your Virtual Private Cloud (VPC) resources. This centralized control helps ensure compliance with security policies and data protection regulations.
Create encryption control
Route tables (1) Info
Last updated less than a minute ago
Actions
Create route table
Find route tables by attribute or tag
Name
Route table ID
Explicit subnet associ...
Edge associations
Main
VPC
rtb-021ca08af25db87f8
Yes
Select a route table

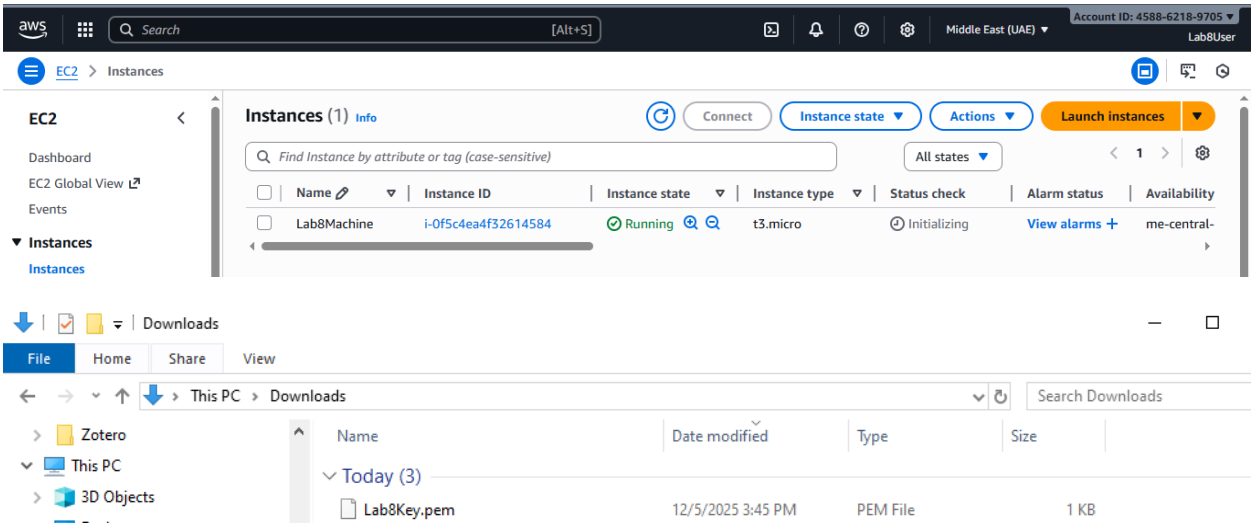

Search [Alt+S]
Middle East (UAE)
Account ID: 4588-6218-9705
Lab8User
VPC > Network ACLs
VPC dashboard
AWS Global View
Filter by VPC:
Virtual private cloud
Your VPCs
Subnets
Route tables
Internet gateways
Egress-only Internet gateways
DHCP option sets
Elastic IPs
Managed prefix lists
Introducing VPC encryption control
Manage and enforce encryption settings across your Virtual Private Cloud (VPC) resources. This centralized control helps ensure compliance with security policies and data protection regulations.
Create encryption control
Network ACLs (1) Info
Actions
Create network ACL
Find Network ACLs by attribute or tag
Name
Network ACL ID
Associated with
Default
VPC ID
acl-07b615a727ee7e234
3 Subnets
Yes
vpc-0d2fbb78883682acc
Select a network ACL

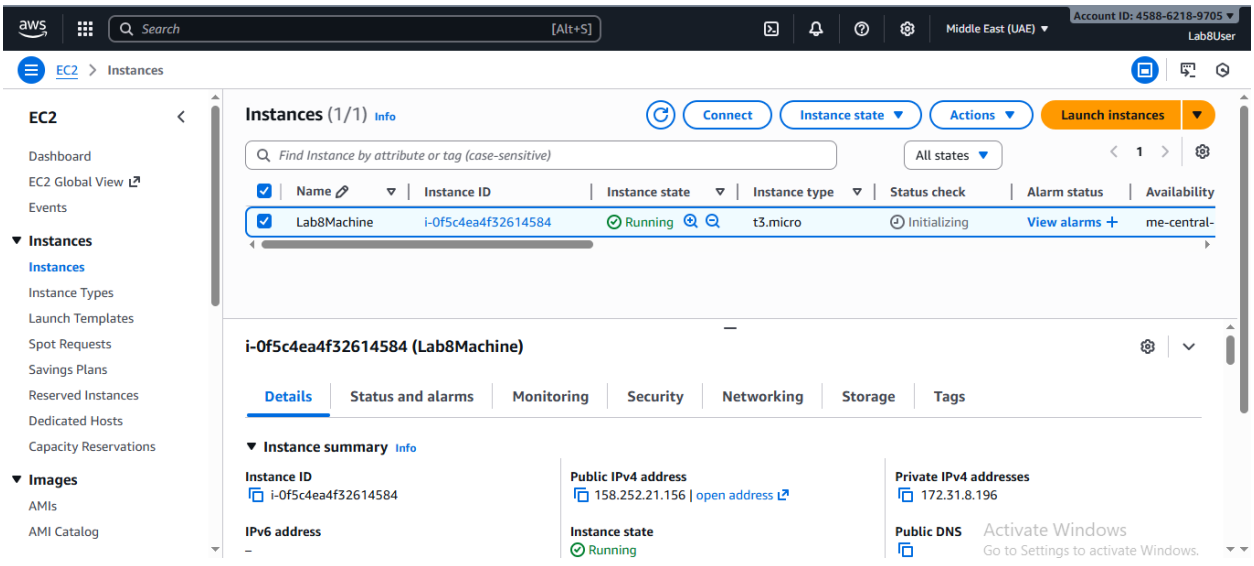


Task#04: Launch EC2, SSH, install Docker & Docker Compose, deploy Gitea




Search [Alt+S]
Middle East (UAE)
Account ID: 4588-6218-9705
Lab8User
EC2 > Instances > Launch an instance
Success
Successfully initiated launch of instance (i-0f5c4ea4f32614584)
Launch log
Next Steps
What would you like to do next with this instance, for example "create alarm" or "create backup"
Create billing usage alerts
To manage costs and avoid surprise bills, set up email notifications for billing usage thresholds.
Create billing alerts
Connect to your instance
Once your instance is running, log into it from your local computer.
Connect to instance
Learn more
Connect an RDS database
Configure the connection between an EC2 instance and a database to allow traffic flow between them.
Connect an RDS database
Create a new RDS database
Create EBS snapshot policy
Create a policy that automates the creation, retention, and deletion of EBS snapshots
Create EBS snapshot policy
Activate Windows
Go to Settings to activate Windows.
CloudShell
Feedback
Console Mobile App
© 2025, Amazon Web Services, Inc. or its affiliates.
Privacy
Terms
Cookie preferences


Search [Alt+S]
Middle East (UAE)
Account ID: 4588-6218-9705
Lab8User
EC2 > Instances
EC2
Dashboard
EC2 Global View
Events
Instances
Instances
Instances (1) Info
Connect
Instance state
Actions
Launch instances
Find Instance by attribute or tag (case-sensitive)
All states
Name
Instance ID
Instance state
Instance type
Status check
Alarm status
Availability
Lab8Machine
i-0f5c4ea4f32614584
Running
t3.micro
Initializing
View alarms
me-central-
Downloads
File
Home
Share
View
This PC > Downloads
Search Downloads
Zotero
This PC
3D Objects
Name
Date modified
Type
Size
Today (3)
Lab8Key.pem
12/5/2025 3:45 PM
PEM File
1 KB


Search [Alt+S]
Middle East (UAE)
Account ID: 4588-6218-9705
Lab8User
EC2 > Instances
EC2
Dashboard
EC2 Global View
Events
Instances
Instances
Instance Types
Launch Templates
Spot Requests
Savings Plans
Reserved Instances
Dedicated Hosts
Capacity Reservations
Images
AMIs
AMI Catalog
Instances (1/1) Info
Connect
Instance state
Actions
Launch instances
Find Instance by attribute or tag (case-sensitive)
All states
Name
Instance ID
Instance state
Instance type
Status check
Alarm status
Availability
Lab8Machine
i-0f5c4ea4f32614584
Running
t3.micro
Initializing
View alarms
me-central-
i-0f5c4ea4f32614584 (Lab8Machine)
Details
Status and alarms
Monitoring
Security
Networking
Storage
Tags
Instance summary Info
Instance ID
i-0f5c4ea4f32614584
Public IPv4 address
158.252.21.156 | open address
Private IPv4 addresses
172.31.8.196
IPv6 address
–
Instance state
Running
Public DNS
Activate Windows
Go to Settings to activate Windows.

```
HP@DESKTOP-BGNOK42 MINGW64 ~/Downloads
$ ssh -i Lab8Key.pem ec2-user@158.252.21.156
The authenticity of host '158.252.21.156 (158.252.21.156)' can't be established.
ED25519 key fingerprint is SHA256:kuTAa2WL73y67JOhpWj37PjNcILjDSzBQIkO3RG432U.
This key is not known by any other names.
Are you sure you want to continue connecting (yes/no/[fingerprint])? yes
Warning: Permanently added '158.252.21.156' (ED25519) to the list of known hosts
.
   ,     #_
   ~\_  ####_        Amazon Linux 2023
  ~~  \_#####\
  ~~     \###|
  ~~       \#/ ___   https://aws.amazon.com/linux/amazon-linux-2023
   ~~       V~' '->
    ~~~         /
      ~~._.   _/
         _/ _/
       _/m/'
[ec2-user@ip-172-31-8-196 ~]$
```

ec2-user@ip-172-31-8-196:~

```
  Running scriptlet: container-selinux-4:2.242.0-1.amzn2023.noarch              10/11
  Installing       : container-selinux-4:2.242.0-1.amzn2023.noarch              10/11
  Running scriptlet: container-selinux-4:2.242.0-1.amzn2023.noarch              10/11
  Running scriptlet: docker-25.0.13-1.amzn2023.0.2.x86_64                       11/11
  Installing       : docker-25.0.13-1.amzn2023.0.2.x86_64                       11/11
  Running scriptlet: docker-25.0.13-1.amzn2023.0.2.x86_64                       11/11
Created symlink /etc/systemd/system/sockets.target.wants/docker.socket → /usr/lib/syst
emd/system/docker.socket.

  Running scriptlet: container-selinux-4:2.242.0-1.amzn2023.noarch              11/11
  Running scriptlet: docker-25.0.13-1.amzn2023.0.2.x86_64                       11/11
  Verifying        : container-selinux-4:2.242.0-1.amzn2023.noarch               1/11
  Verifying        : containerd-2.1.4-1.amzn2023.0.2.x86_64                      2/11
  Verifying        : docker-25.0.13-1.amzn2023.0.2.x86_64                        3/11
  Verifying        : iptables-libs-1.8.8-3.amzn2023.0.2.x86_64                   4/11
  Verifying        : iptables-nft-1.8.8-3.amzn2023.0.2.x86_64                    5/11
  Verifying        : libcgroup-3.0-1.amzn2023.0.1.x86_64                         6/11
  Verifying        : libnetfilter_conntrack-1.0.8-2.amzn2023.0.2.x86_64          7/11
  Verifying        : libnfnetlink-1.0.1-19.amzn2023.0.2.x86_64                   8/11
  Verifying        : libnftnl-1.2.2-2.amzn2023.0.2.x86_64                        9/11
  Verifying        : pigz-2.5-1.amzn2023.0.3.x86_64                             10/11
  Verifying        : runc-1.3.3-2.amzn2023.0.1.x86_64                           11/11

Installed:
  container-selinux-4:2.242.0-1.amzn2023.noarch
  containerd-2.1.4-1.amzn2023.0.2.x86_64
  docker-25.0.13-1.amzn2023.0.2.x86_64
  iptables-libs-1.8.8-3.amzn2023.0.2.x86_64
  iptables-nft-1.8.8-3.amzn2023.0.2.x86_64
  libcgroup-3.0-1.amzn2023.0.1.x86_64
  libnetfilter_conntrack-1.0.8-2.amzn2023.0.2.x86_64
  libnfnetlink-1.0.1-19.amzn2023.0.2.x86_64
  libnftnl-1.2.2-2.amzn2023.0.2.x86_64
  pigz-2.5-1.amzn2023.0.3.x86_64
  runc-1.3.3-2.amzn2023.0.1.x86_64

Complete!
[ec2-user@ip-172-31-8-196 ~]$ sudo mkdir -p /usr/local/lib/docker/cli-plugins
[ec2-user@ip-172-31-8-196 ~]$ sudo curl -SL https://github.com/docker/compose/releases
/latest/download/docker-compose-linux-x86_64 -o /usr/local/lib/docker/cli-plugins/dock
er-compose
  % Total    % Received % Xferd  Average Speed   Time    Time     Time  Current
                                 Dload  Upload   Total   Spent    Left  Speed
  0     0    0     0    0     0      0      0 --:--:-- --:--:-- --:--:--     0
  0     0    0     0    0     0      0      0 --:--:-- --:--:-- --:--:--     0
100 29.8M  100 29.8M    0     0  38.7M      0 --:--:-- --:--:-- --:--:-- 38.7M
[ec2-user@ip-172-31-8-196 ~]$ sudo chmod +x /usr/local/lib/docker/cli-plugins/docker-c
ompose
[ec2-user@ip-172-31-8-196 ~]$ sudo systemctl start docker
```

ec2-user@ip-172-31-8-196:~

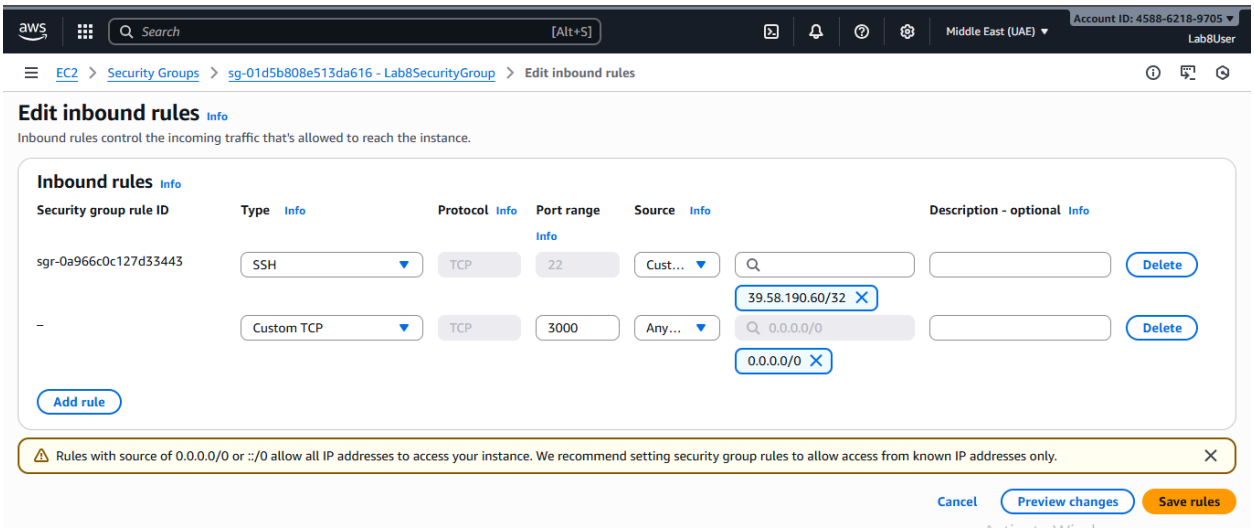
```
services:
  gitea:
    image: gitea/gitea:latest
    container_name: gitea
    environment:
      - DB_TYPE=postgres
      - DB_HOST=db:5432
      - DB_NAME=gitea
      - DB_USER=gitea
      - DB_PASSWD=gitea
    restart: always
    volumes:
      - gitea:/data
    ports:
      - 3000:3000
    extra_hosts:
      - "www.jenkins.com:host-gateway"
    networks:
      - webnet
  db:
    image: postgres:alpine
    container_name: gitea_db
    environment:
      - POSTGRES_USER=gitea
      - POSTGRES_PASSWORD=gitea
      - POSTGRES_DB=gitea
    restart: always
    volumes:
      - gitea_postgres:/var/lib/postgresql/data
    expose:
      - 5432
    networks:
      - webnet

volumes:
  gitea_postgres:
    name: gitea_postgres
  gitea:
    name: gitea

networks:
  webnet:
    name: webnet
#    external: true


# Gitea is not allowed to webhook to Jenkins folow these steps
# 1) Go to Gitea Container
# 2) cat /data/gitea/conf/app.ini
-- INSERT --
```

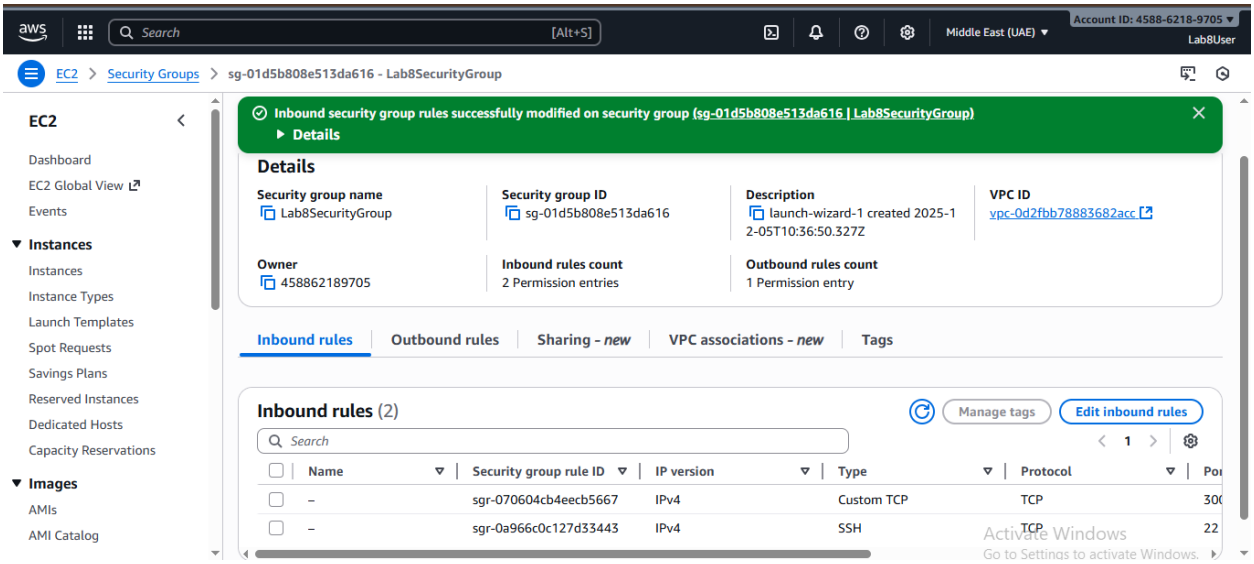
```
[ec2-user@ip-172-31-8-196 ~]$ sudo vim compose.yaml
[ec2-user@ip-172-31-8-196 ~]$ ls -l
total 4
-rw-r--r--. 1 root root 1126 Dec  5 11:25 compose.yaml
[ec2-user@ip-172-31-8-196 ~]$
```

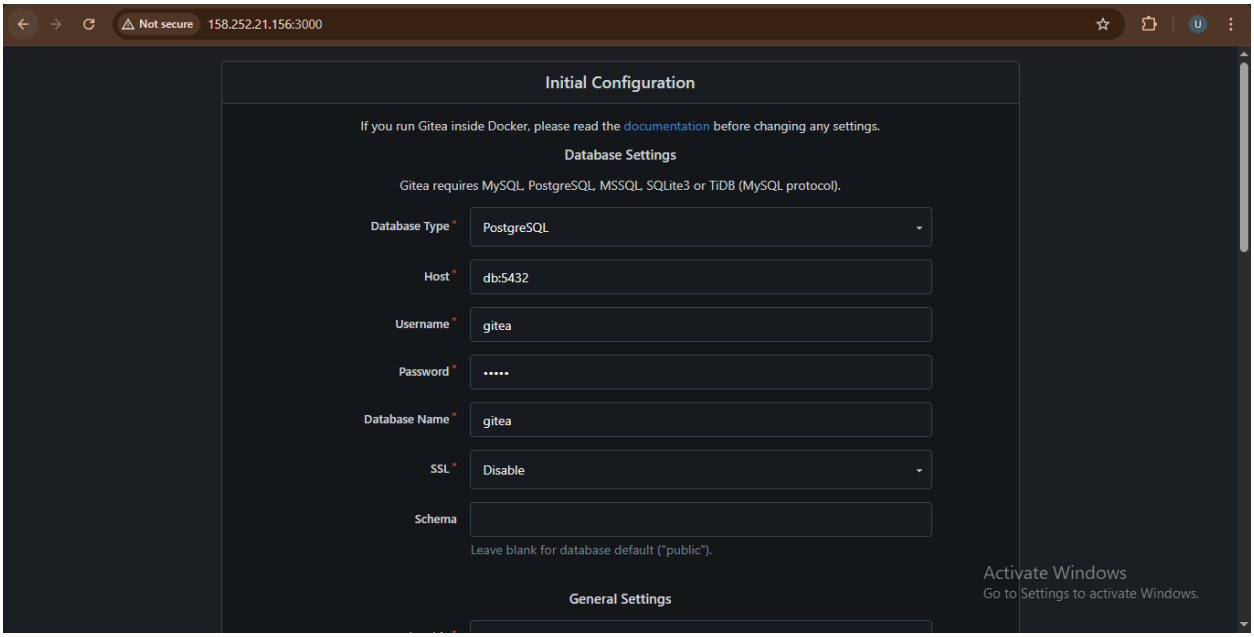
ec2-user@ip-172-31-8-196:~

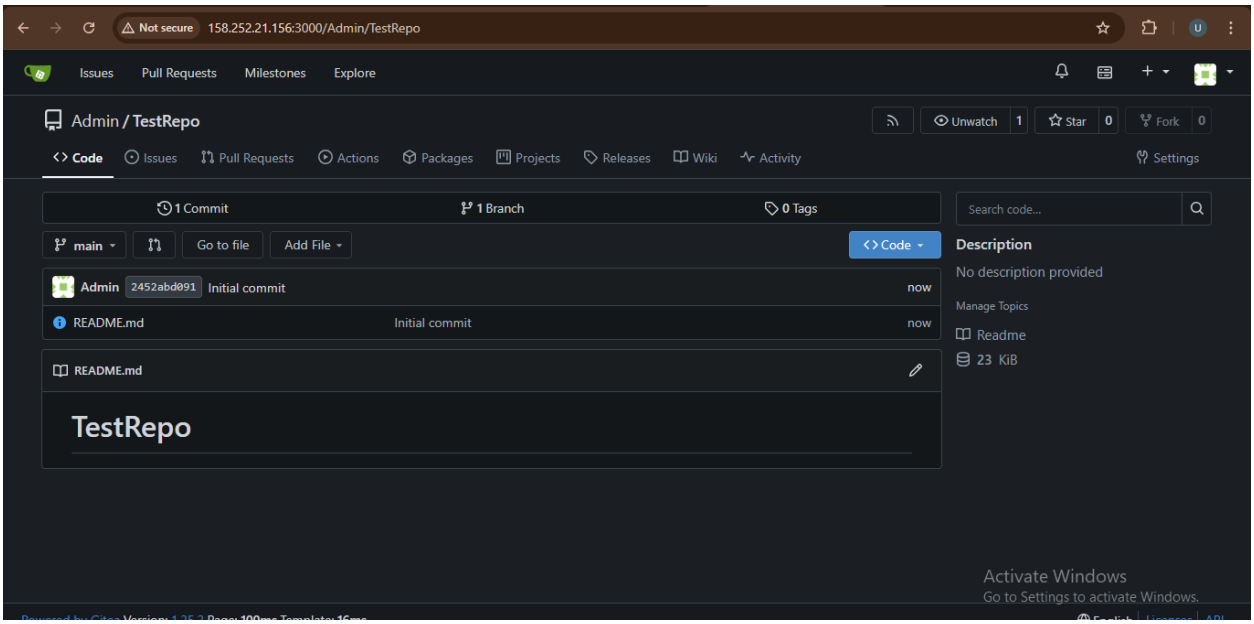
```
  iptables-nft-1.8.8-3.amzn2023.0.2.x86_64
  libcgroup-3.0-1.amzn2023.0.1.x86_64
  libnetfilter_conntrack-1.0.8-2.amzn2023.0.2.x86_64
  libnfnetlink-1.0.1-19.amzn2023.0.2.x86_64
  libnftnl-1.2.2-2.amzn2023.0.2.x86_64
  pigz-2.5-1.amzn2023.0.3.x86_64
  runc-1.3.3-2.amzn2023.0.1.x86_64

Complete!
[ec2-user@ip-172-31-8-196 ~]$ sudo mkdir -p /usr/local/lib/docker/cli-plugins
[ec2-user@ip-172-31-8-196 ~]$ sudo curl -SL https://github.com/docker/compose/releases
/latest/download/docker-compose-linux-x86_64 -o /usr/local/lib/docker/cli-plugins/dock
er-compose
  % Total    % Received % Xferd  Average Speed   Time    Time     Time  Current
                                 Dload  Upload   Total   Spent    Left  Speed
  0     0    0     0    0     0      0      0 --:--:-- --:--:-- --:--:--     0
  0     0    0     0    0     0      0      0 --:--:-- --:--:-- --:--:--     0
100 29.8M  100 29.8M    0     0  38.7M      0 --:--:-- --:--:-- --:--:-- 38.7M
[ec2-user@ip-172-31-8-196 ~]$ sudo chmod +x /usr/local/lib/docker/cli-plugins/docker-c
ompose
[ec2-user@ip-172-31-8-196 ~]$ sudo systemctl start docker
[ec2-user@ip-172-31-8-196 ~]$ sudo vim compose.yaml
[ec2-user@ip-172-31-8-196 ~]$ ls -l
total 4
-rw-r--r--. 1 root root 1126 Dec  5 11:25 compose.yaml
[ec2-user@ip-172-31-8-196 ~]$ groups
ec2-user adm wheel systemd-journal
[ec2-user@ip-172-31-8-196 ~]$ sudo usermod -aG docker $USER
[ec2-user@ip-172-31-8-196 ~]$ groups
ec2-user adm wheel systemd-journal
[ec2-user@ip-172-31-8-196 ~]$ exit
logout
Connection to 158.252.21.156 closed.

HP@DESKTOP-BGNOK42 MINGW64 ~/Downloads
$ ssh -i Lab8Key.pem ec2-user@158.252.21.156
   ,     #_
   ~\_  ####_        Amazon Linux 2023
  ~~  \_#####\
  ~~     \###|
  ~~       \#/ ___   https://aws.amazon.com/linux/amazon-linux-2023
   ~~       V~' '->
    ~~~         /
      ~~._.   _/
         _/ _/
       _/m/'
Last login: Fri Dec  5 11:08:45 2025 from 39.58.190.60
[ec2-user@ip-172-31-8-196 ~]$ groups
ec2-user adm wheel systemd-journal docker
[ec2-user@ip-172-31-8-196 ~]$
```

```
[ec2-user@ip-172-31-8-196 ~]$ groups
ec2-user adm wheel systemd-journal docker
[ec2-user@ip-172-31-8-196 ~]$ docker compose up -d
[ec2-user@ip-172-31-8-196 ~]$ docker ps
CONTAINER ID   IMAGE                COMMAND                  CREATED         STA
TUS         PORTS                                                 NAMES
bcd2f019379b   postgres:alpine      "docker-entrypoint.s…"   5 minutes ago   Up
5 minutes   5432/tcp                                              gitea_db
383a16d54f5b   gitea/gitea:latest   "/usr/bin/entrypoint…"   5 minutes ago   Up
5 minutes   22/tcp, 0.0.0.0:3000->3000/tcp, :::3000->3000/tcp   gitea
```

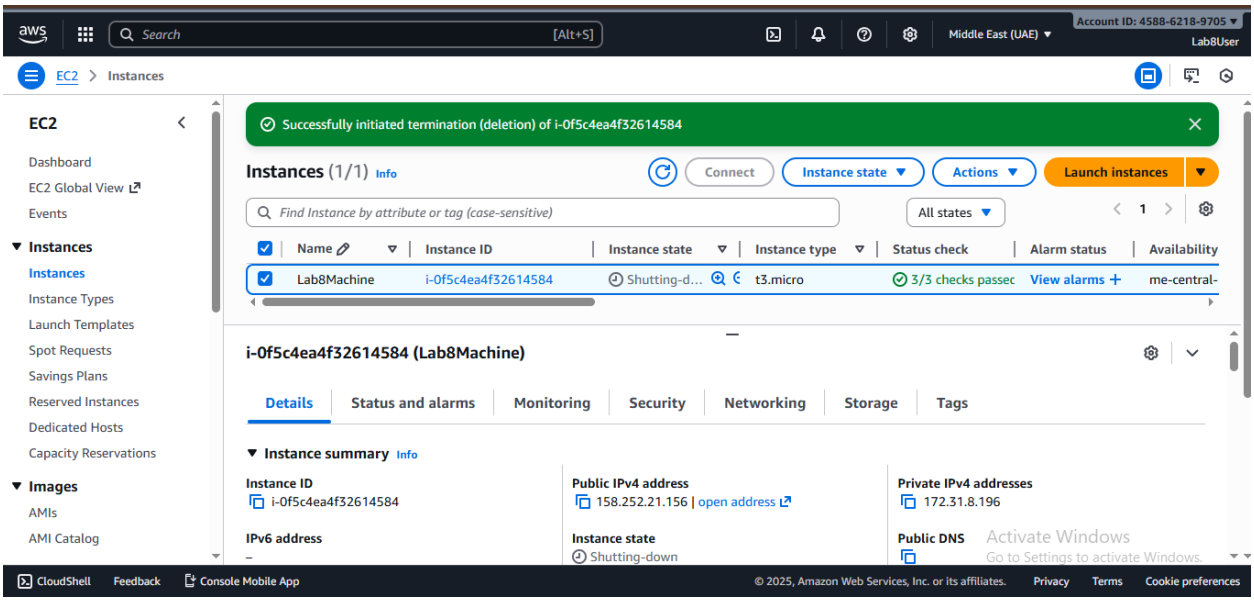

Search [Alt+S]
Middle East (UAE)
Account ID: 4588-6218-9705
Lab8User
EC2 > Security Groups > sg-01d5b808e513da616 - Lab8SecurityGroup > Edit inbound rules
Edit inbound rules Info
Inbound rules control the incoming traffic that's allowed to reach the instance.
Inbound rules Info
Security group rule ID
Type Info
Protocol Info
Port range Info
Source Info
Description - optional Info
sgr-0a966c0c127d33443
SSH
TCP
22
Cust...
39.58.190.60/32
Delete
–
Custom TCP
TCP
3000
Any...
0.0.0.0/0
Delete
Add rule
Rules with source of 0.0.0.0/0 or ::/0 allow all IP addresses to access your instance. We recommend setting security group rules to allow access from known IP addresses only.
Cancel
Preview changes
Save rules


Search [Alt+S]
Middle East (UAE)
Account ID: 4588-6218-9705
Lab8User
EC2 > Security Groups > sg-01d5b808e513da616 - Lab8SecurityGroup
EC2
Dashboard
EC2 Global View
Events
Instances
Instances
Instance Types
Launch Templates
Spot Requests
Savings Plans
Reserved Instances
Dedicated Hosts
Capacity Reservations
Images
AMIs
AMI Catalog
Inbound security group rules successfully modified on security group (sg-01d5b808e513da616 | Lab8SecurityGroup)
Details
Details
Security group name
Lab8SecurityGroup
Security group ID
sg-01d5b808e513da616
Description
launch-wizard-1 created 2025-12-05T10:36:50.327Z
VPC ID
vpc-0d2fbb78883682acc
Owner
458862189705
Inbound rules count
2 Permission entries
Outbound rules count
1 Permission entry
Inbound rules
Outbound rules
Sharing - new
VPC associations - new
Tags
Inbound rules (2)
Manage tags
Edit inbound rules
Search
Name
Security group rule ID
IP version
Type
Protocol
sgr-070604cb4eecb5667
IPv4
Custom TCP
TCP
sgr-0a966c0c127d33443
IPv4
SSH
TCP
22
Activate Windows
Go to Settings to activate Windows.

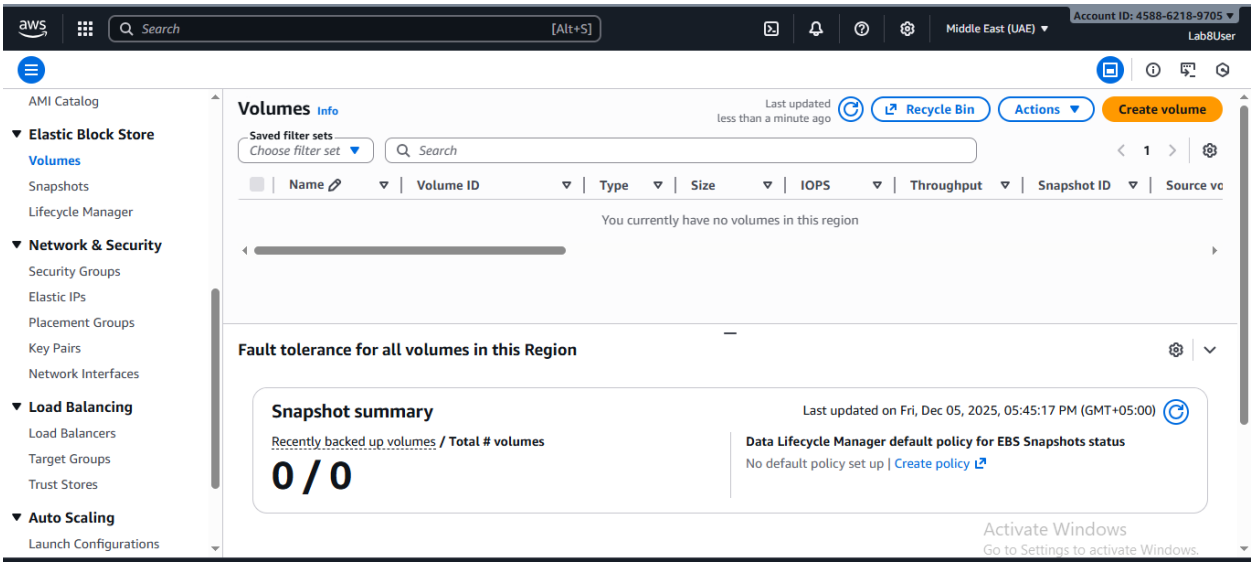

Not secure 158.252.21.156:3000
Initial Configuration
If you run Gitea inside Docker, please read the documentation before changing any settings.
Database Settings
Gitea requires MySQL, PostgreSQL, MSSQL, SQLite3 or TiDB (MySQL protocol).
Database Type * PostgreSQL
Host * db:5432
Username * gitea
Password * •••••
Database Name * gitea
SSL * Disable
Schema
Leave blank for database default ("public").
General Settings
Activate Windows
Go to Settings to activate Windows.


Not secure 158.252.21.156:3000/Admin/TestRepo
Issues Pull Requests Milestones Explore
Admin / TestRepo
Unwatch 1 Star 0 Fork 0
Code Issues Pull Requests Actions Packages Projects Releases Wiki Activity Settings
1 Commit 1 Branch 0 Tags
main Go to file Add File Code
Admin 2452abd091 Initial commit now
README.md Initial commit now
README.md
TestRepo
Search code...
Description
No description provided
Manage Topics
Readme
23 KiB
Activate Windows
Go to Settings to activate Windows.

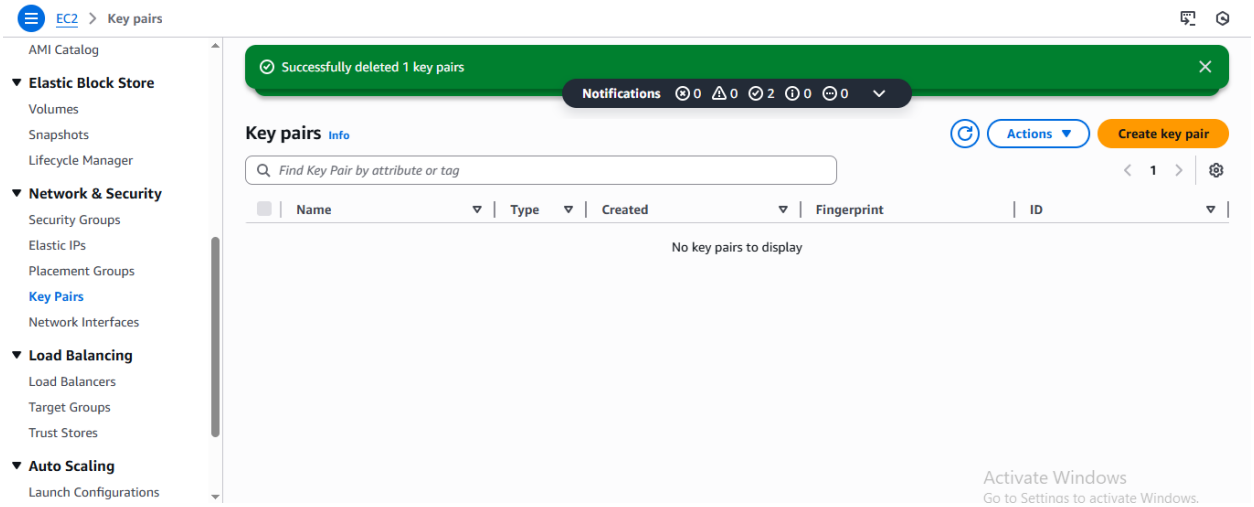
Terminate EC2 Instance



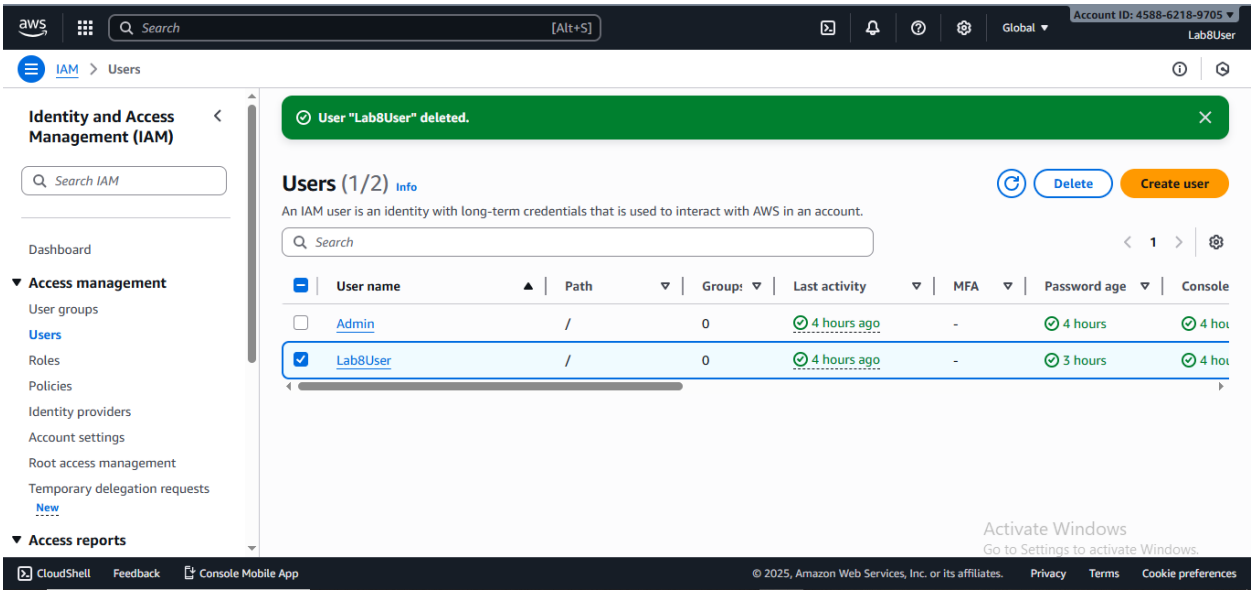
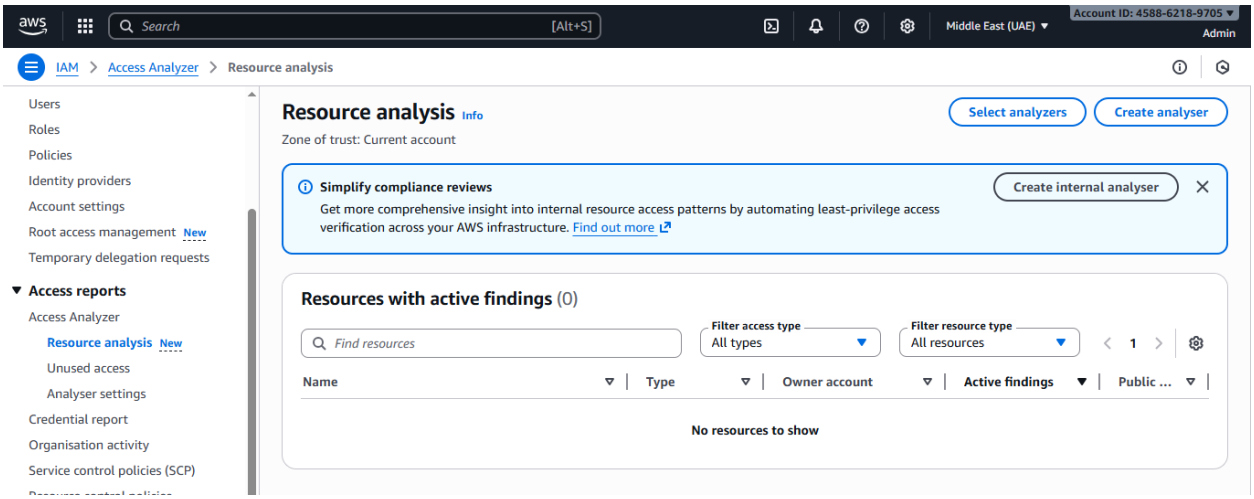
Delete Volumes & Snapshots



Delete Security Group & Key Pair



Delete IAM User & Access Keys



Final Billing/Resource Summary