

CLOUD COMPUTING



SUBMITTED TO
SIR WAQAS SALEEM

SUBMITTED BY
HAMNA MAHMOOD

2023-BSE-025

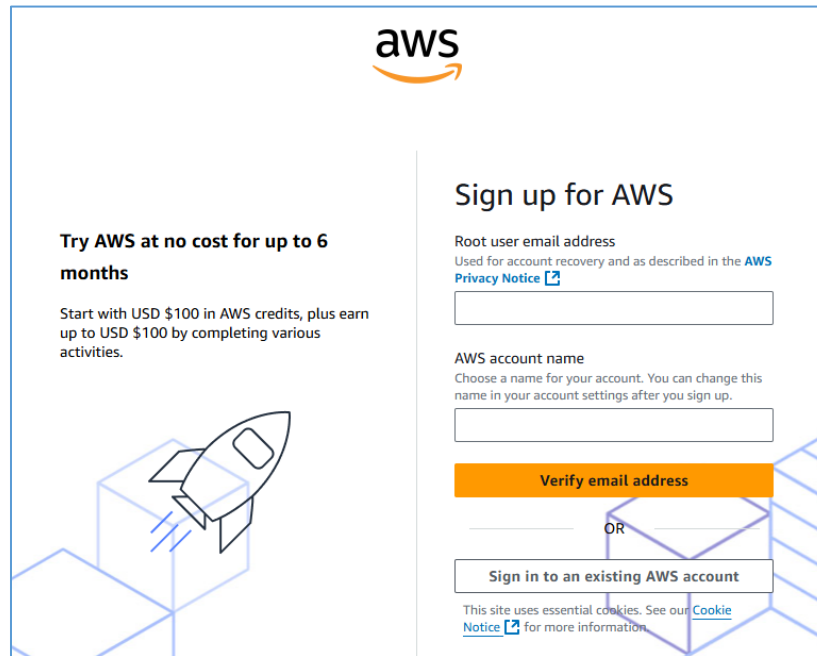
BSE V-A

Lab 08

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

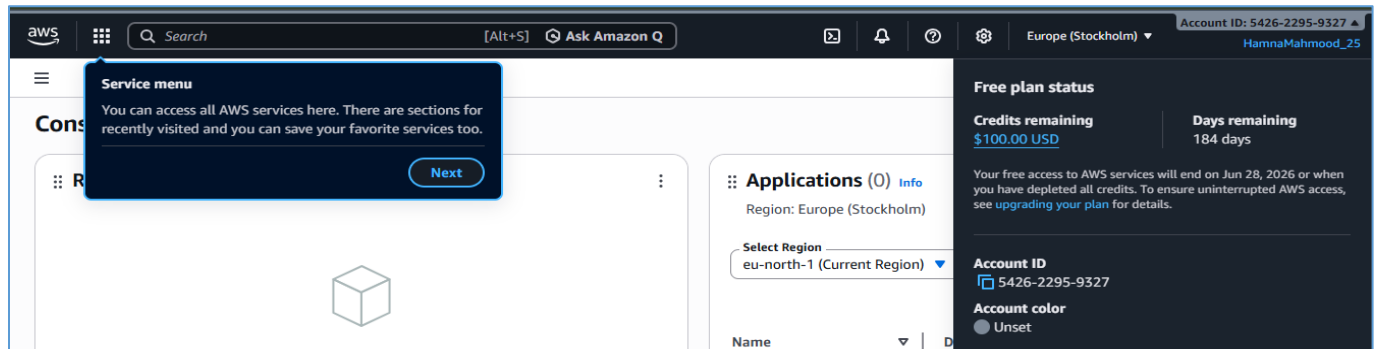
Task 1 — Create an AWS account and enable UAE (me-central-1)

task1_open_signup_page



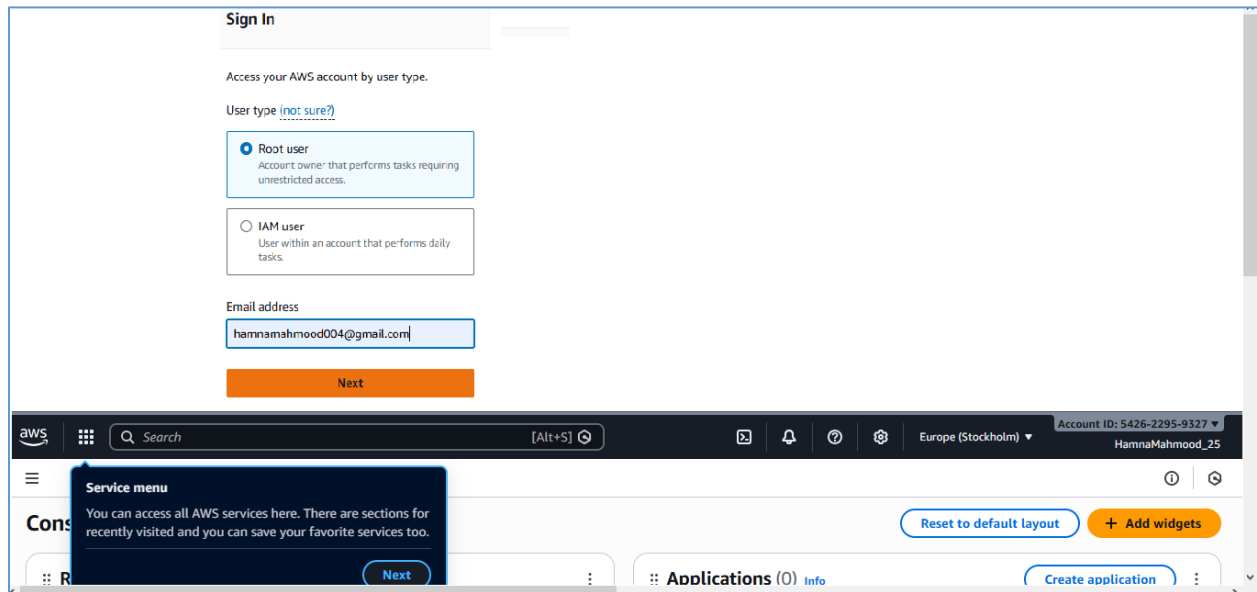
The image shows the AWS sign-up page. At the top is the AWS logo. On the left, there's a promotional message: "Try AWS at no cost for up to 6 months" and "Start with USD \$100 in AWS credits, plus earn up to USD \$100 by completing various activities." Below this is an illustration of a rocket launching from a cube. On the right, the heading "Sign up for AWS" is followed by two input fields: "Root user email address" and "AWS account name". Below these is an orange "Verify email address" button. There's also a link for "Sign in to an existing AWS account". At the bottom, there's a note about cookies.

task1_signed_up_confirmation



The image is a screenshot of the AWS Management Console. The top navigation bar shows the AWS logo, a search bar, and the account ID "5426-2295-9327". A "Service menu" tooltip is visible on the left. The main content area shows the "Applications" section with a "Next" button. On the right, the "Free plan status" panel displays "Credits remaining: \$100.00 USD" and "Days remaining: 184 days".

task1_root_signed_in



task1_enable_region_me-central-1

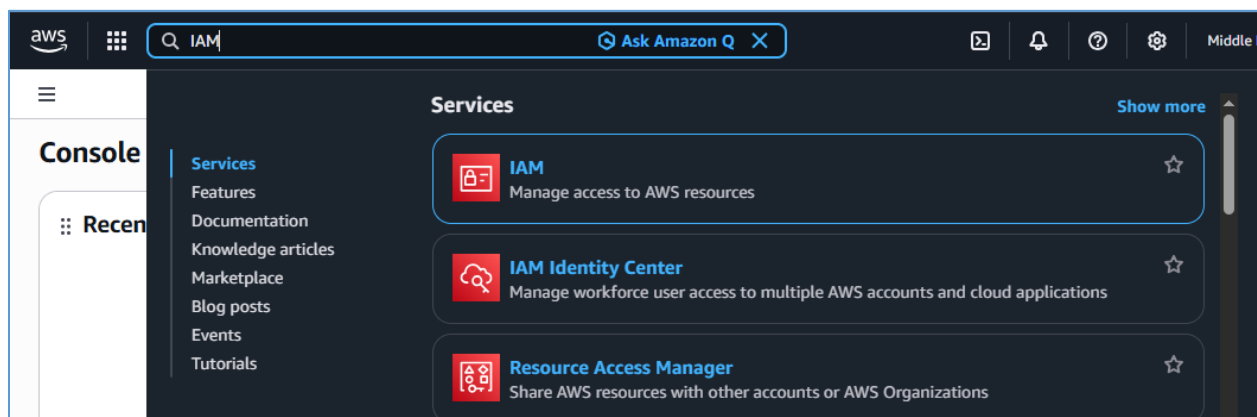
<input type="checkbox"/>	Israel (Tel Aviv)	⛔ Disabled
<input type="checkbox"/>	Middle East (UAE)	✅ Enabled

task1_summary



Task 2 — Create IAM Admin and Lab8User with console access

task2_open_IAM_console



task2_admin_create_confirmation

✔ 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](#)

Users (1) [Info](#)

An IAM user is an identity with long-term credentials that is used to interact with AWS in an account.

◀ 1 ▶
⚙️

<input type="checkbox"/>	User name	Path	Group: ▼	Last activity	MFA	Password age	Console last sign-in	Access key ID
<input type="checkbox"/>	Admin	/	0	-	-	✔ Now	-	-

task2_admin_csv_and_signin_url

File Name	Date	File Type	Size
Admin_credentials.csv	12/28/2025 5:27 PM	Microsoft Excel C...	1 KB

task2_admin_console_after_login

[illegible]

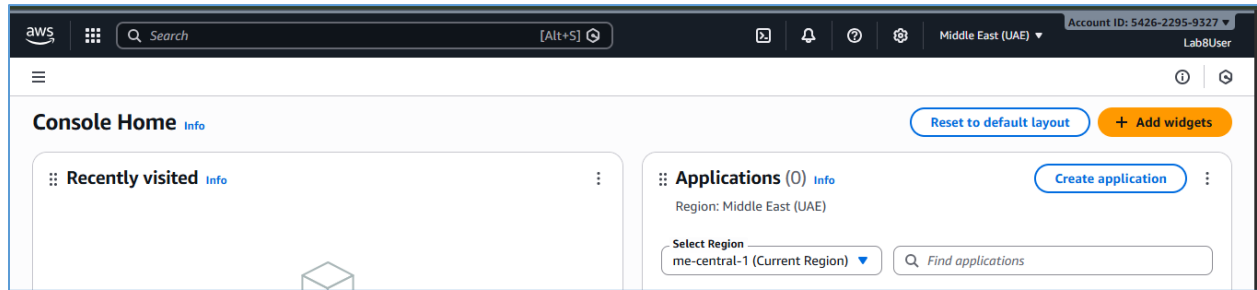
task2_create_lab8user_and_csv

The screenshot shows the AWS IAM console's 'Create user' page. At the top, a green banner confirms 'User created successfully' with a 'View user' button. The left-hand navigation pane lists five steps: 'Specify user details', 'Set permissions', 'Review and create', and 'Retrieve password', with the last step being the active selection. The main content area is titled 'Retrieve password' and explains that the user's password can be viewed or downloaded via email. It provides a 'Console sign-in details' section with a URL and the username 'Lab8User'. A button for 'Email sign-in instructions' is also visible.

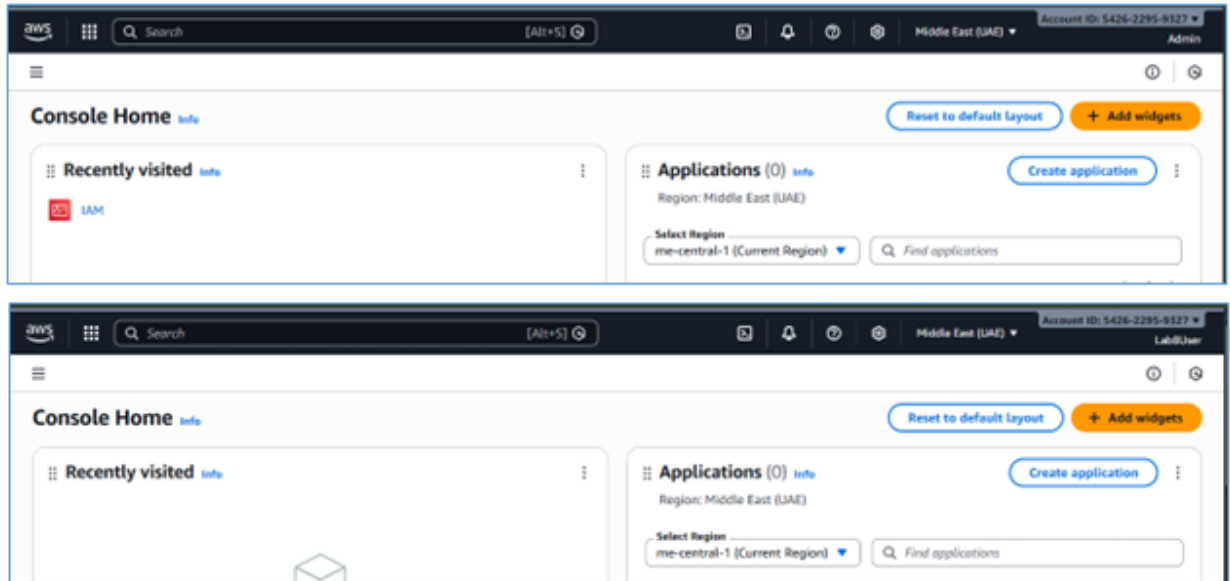
task2_lab8user_csv_saved

File Name	Date	File Type	Size
Admin_credentials.csv	12/28/2025 5:27 PM	Microsoft Excel C...	1 KB

task2_lab8user_logged_in



task2_summary



Task 3 — Inspect VPC resources (in UAE me-central-1)

task3_open_vpc_console

The screenshot shows the AWS Management Console interface for the Middle East (UAE) region. The top navigation bar includes the 'Ask Amazon Q' search bar, notification icons, and the region 'Middle East (UAE)'. The main content area is titled 'Resources by Region' and displays a grid of resource categories with their counts in the UAE region. On the right, there are side panels for 'Service Health', 'Settings', and 'Additional Information'.

Resource Type	Count
VPCs	UAE 1
Endpoint Services	UAE 0
Subnets	UAE 3
NAT Gateways	UAE 0
Route Tables	UAE 1
VPC Peering Connections	UAE 0
Internet Gateways	UAE 1
Network ACLs	UAE 1

task3_vpc_list

The screenshot shows the 'Your VPCs' page in the AWS Management Console. It includes a search bar, a table listing VPCs, and a 'Create VPC' button. The table shows one VPC with ID 'vpc-0b412746b28b797e7' in an 'Available' state.

Name	VPC ID	State	Encryption c...	Encryption control ...
-	vpc-0b412746b28b797e7	Available	-	-

task3_subnet_list

[Alt+S] Ask Amazon Q

Middle East (UAE)

Account ID: 5426-2295-9327

Lab8User

Subnets (3) Info

Last updated 7 minutes ago

Actions

Create subnet

Find subnets by attribute or tag

<input type="checkbox"/>	Name	Subnet ID	State	VPC	Block Public.
<input type="checkbox"/>	-	subnet-078f1b79825a5fee0	Available	vpc-0b412746b28b797e7	Off
<input type="checkbox"/>	-	subnet-03aece612a1e2607f	Available	vpc-0b412746b28b797e7	Off
<input type="checkbox"/>	-	subnet-0f3fcff0e6b1889fc	Available	vpc-0b412746b28b797e7	Off

Select a subnet

task3_route_tables_list

[Alt+S] Ask Amazon Q

Middle East (UAE)

Account ID: 5426-2295-9327

Lab8User

Route tables (1) Info

Last updated 8 minutes ago

Actions

Create route table

Find route tables by attribute or tag

<input type="checkbox"/>	Name	Route table ID	Explicit subnet associ...	Edge associations	Main	VPC
<input type="checkbox"/>	-	rtb-000461310bb92433a	-	-	Yes	vpc-0

Select a route table

task3_network_acls_list

[Alt+S] Ask Amazon Q

Middle East (UAE)

Account ID: 5426-2295-9327

Lab8User

Network ACLs (1) Info

Actions

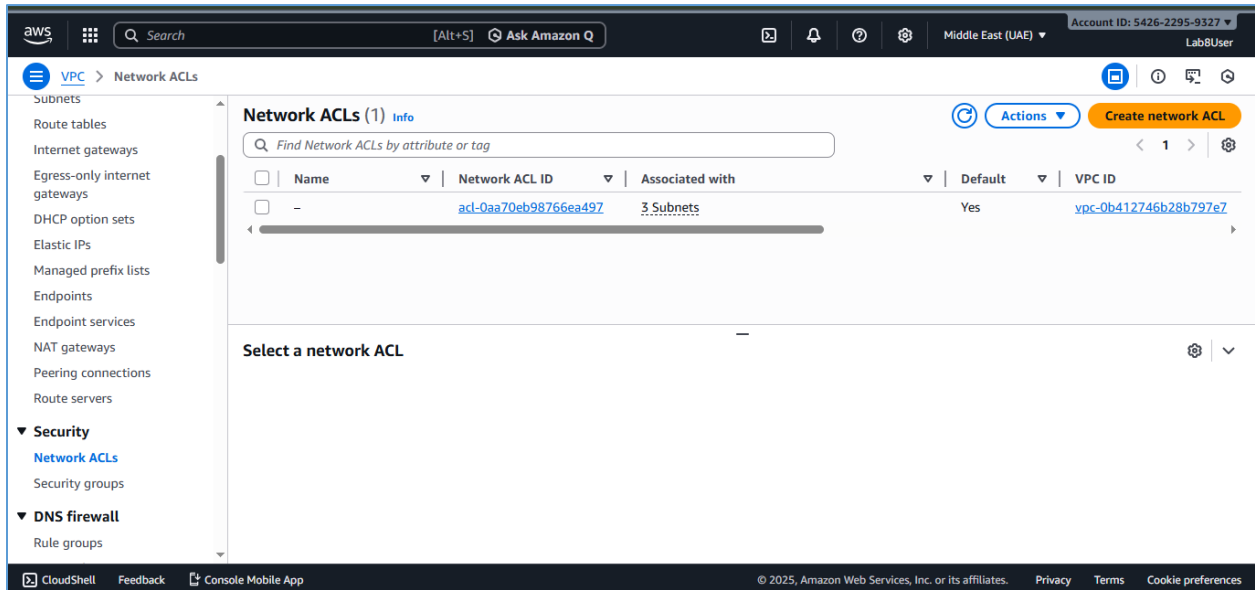
Create network ACL

Find Network ACLs by attribute or tag

<input type="checkbox"/>	Name	Network ACL ID	Associated with	Default	VPC ID
<input type="checkbox"/>	-	acl-Qaa70eb98766ea497	3 Subnets	Yes	vpc-0b412746b28b797e7

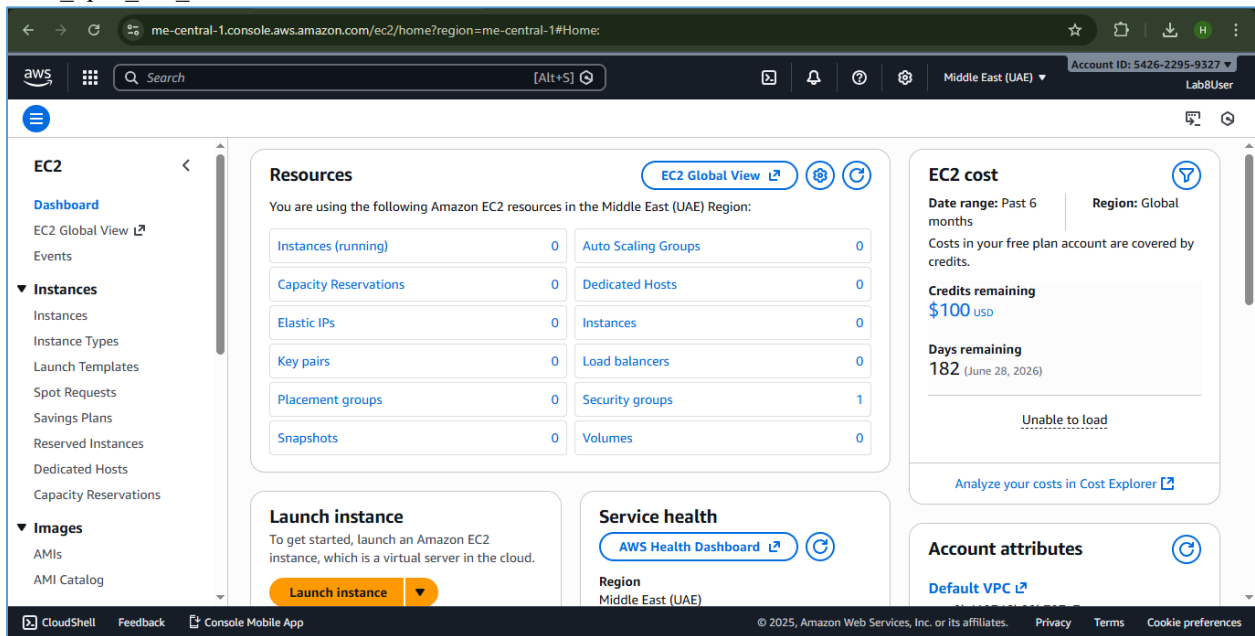
Select a network ACL

task3_summary

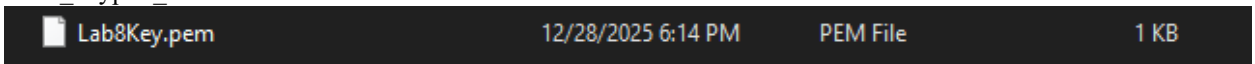


Task 4 — Launch EC2, SSH, install Docker & Docker Compose, deploy Gitea

task4_open_ec2_console



task4_keypair_download



task4_launch_instance_config

aws

Search [Alt+S]

Middle East (IAE)

Account ID: 5426-2225-9327

LabUse

EC2 > Instances > Launch an instance

Launch an instance info

Amazon EC2 allows you to create virtual machines, or instances, that run on the AWS Cloud. Quickly get started by following the simple steps below.

Name and tags info

Name

Lab8Machine

Add additional tags

▼ 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

Lab8Key

Create new key pair

Security group name - required

Lab8SecurityGroup

This security group will be added to all network interfaces. The name can't be edited after the security group is created. Max length is 255 characters. Valid characters: a-z, A-Z, 0-9, spaces, and _-/!@.#%^&*~`|'";:~`|'";:

Summary

Number of instances info

1

Software image (AMI)
Amazon Linux 2 with SQL Server...read more
ami-0af5615056548121c

Virtual server type (instance type)
t3.micro

Firewall (security group)
New security group

Storage (volumes)
1 volume(s) - 8 GiB

Cancel

Launch instance

Preview code

task4_instance_running_console

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
- ▼ Elastic Block Store
 - Volumes
 - Snapshots
 - Lifecycle Manager
- ▼ Network & Security
 - Security Groups
 - Elastic IPs
 - Elastic Transports

Instance summary for i-0ace2dfeeffe27044 (LabMachine) info

Updated less than a minute ago

Instance ID i-0ace2dfeeffe27044	Public IPv4 address 3.29.238.193 open address ↗
IPv6 address -	Private IPv4 addresses 172.31.1.214
Hostname type IP name: ip-172-31-1-214.me-central-1.compute.internal	Public DNS ec2-3-29-238-193.me-central-1.compute.amazonaws.com open address ↗
Answer private resource DNS name IPv4 (A)	Elastic IP addresses -
Auto-assigned IP address 3.29.238.193 [Public IP]	AWS Compute Optimizer finding Opt-in to AWS Compute Optimizer for recommendations. Learn more ↗
IAM Role -	Auto Scaling Group name -
IMDSv2 Required	Managed false
Operator -	

Instance state
Running

Private IP DNS name (IPv4 only)
[ip-172-31-1-214.me-central-1.compute.internal](#)

Instance type
t3.small

VPC ID
[vpc-0b412746b28b797e7](#) ↗

Subnet ID
[subnet-03acce612a1e26071](#) ↗

Instance ARN
[arn:aws:ec2:me-central-1:542622959327:instance/i-0ace2dfeeffe27044](#)

Details Status and alarms Monitoring Security Networking Storage Tags

task4_ssh_from_windows_to_ec2

```
ABC@DESKTOP-7VVTN59 MINGW64 ~/Downloads
$ ssh -i Lab8Key.pem ec2-user@3.29.238.193
```

```
[ec2-user@ip-172-31-1-214 ~]$
```

task4_ec2_install_docker_compose_started

```

[ec2-user@ip-172-31-1-214 ~]$ sudo yum update -y
Amazon Linux 2023 Kernel Livepatch repository
Dependencies resolved.
Nothing to do.
Complete!
[ec2-user@ip-172-31-1-214 ~]$ sudo yum install -y docker
Last metadata expiration check: 0:00:12 ago on Sun Dec 28 13:48:02 2025.
Dependencies resolved.

Package      Arch      Version      Repository      Size
--
Installing:
docker       x86_64    25.0.13-1.amzn2023.0.2      amazonlinux     46 M
Installing dependencies:
container-selinux      noarch      4:2.242.0-1.amzn2023.0.1      amazonlinux     58 k
containerd              x86_64      2.1.5-1.amzn2023.0.1      amazonlinux     23 M
iptables-libs           x86_64      1.8.8-3.amzn2023.0.2      amazonlinux     401 k
iptables-nft            x86_64      1.8.8-3.amzn2023.0.2      amazonlinux     183 k
libbgroup               x86_64      3.0-1.amzn2023.0.1      amazonlinux      75 k
libnetfilter_conntrack x86_64      1.0.8-2.amzn2023.0.2      amazonlinux      58 k
libnftnl                 x86_64      1.0.1-19.amzn2023.0.2      amazonlinux      30 k
libnftnl                 x86_64      1.2-2.2.amzn2023.0.2      amazonlinux      84 k
pigz                     x86_64      2.5-1.amzn2023.0.3      amazonlinux      83 k
runc                     x86_64      1.3.3-2.amzn2023.0.1      amazonlinux      3.9 M

Transaction Summary
--
Install 11 Packages

Total download size: 74 M
Installed size: 280 M
Downloading Packages:
(1/11): container-selinux-2.242.0-1.amzn2023.noarch.rpm      1.9 MB/s | 58 kB  00:00
(2/11): iptables-libs-1.8.8-3.amzn2023.0.2.x86_64.rpm      13 MB/s | 401 kB  00:00
(3/11): iptables-nft-1.8.8-3.amzn2023.0.2.x86_64.rpm        7.2 MB/s | 183 kB  00:00
(4/11): libbgroup-3.0-1.amzn2023.0.1.x86_64.rpm             3.4 MB/s | 75 kB  00:00
(5/11): libnetfilter_conntrack-1.0.8-2.amzn2023.0.2.x86_64.r 2.8 MB/s | 58 kB  00:00
(6/11): libnftnl-1.0.1-19.amzn2023.0.2.x86_64.rpm           1.1 MB/s | 30 kB  00:00
(7/11): libnftnl-1.2-2.2.amzn2023.0.2.x86_64.rpm            3.4 MB/s | 84 kB  00:00
(8/11): pigz-2.5-1.amzn2023.0.3.x86_64.rpm                   3.5 MB/s | 83 kB  00:00
(9/11): runc-1.3.3-2.amzn2023.0.1.x86_64.rpm                 63 MB/s | 3.9 MB  00:00
(10/11): containerd-2.1.5-1.amzn2023.0.1.x86_64.rpm         63 MB/s | 23 MB  00:00
(11/11): docker-25.0.13-1.amzn2023.0.2.x86_64.rpm          64 MB/s | 46 MB  00:00

Complete!

```

task4_vim_compose_yaml_paste

```

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 follow these steps
# 1 Go to Gitea Container
# 2 cat /data/gitea/conf/app.ini
# 3 echo "[webhook]" >> /data/gitea/conf/app.ini
# 4 echo "ALLOWED_HOST_LIST = 192.168.46.2" >> /data/gitea/conf/app.ini
# Gitea Tutorials : https://www.youtube.com/watch?v=dw2Cxp8tUPA

```

```
task4 compose yaml saved ls
```

```
[ec2-user@ip-172-31-1-214 ~]$ ls -l
total 4
-rw-r--r--. 1 root root 1127 Dec 28 14:18 compose.yaml
```

task4_usermod_and_groups_before_after

```
[ec2-user@ip-172-31-1-214 ~]$ groups
ec2-user adm wheel systemd-journal
[ec2-user@ip-172-31-1-214 ~]$ sudo usermod -aG docker $USER
[ec2-user@ip-172-31-1-214 ~]$ groups
ec2-user adm wheel systemd-journal
[ec2-user@ip-172-31-1-214 ~]$ exit
logout
Connection to 3.29.238.193 closed.
```

```
Last login: Sun Dec 28 14:10:23 2025 from 103.113.101.69
[ec2-user@ip-172-31-1-214 ~]$ groups
ec2-user adm wheel systemd-journal docker
```

task4_docker_compose_up

```
[ec2-user@ip-172-31-1-214 ~]$ docker compose up -d
[+] up 16/18
[+] up 23/23gres:alpine [#####] 112MB / 112MB Pulling 16.5s
✓ Image postgres:alpine Pulled 16.5s
✓ Image gitea/gitea:latest Pulled 9.3s
✓ Network webnet Created 0.2s
✓ Volume gitea Created 0.0s
✓ Volume gitea_postgres Created 0.0s
✓ Container gitea Created 0.2s
✓ Container gitea_db Created 0.2s
```

```
[ec2-user@ip-172-31-1-214 ~]$ |
```

task4_security_group_allow_3000

The screenshot shows the AWS Management Console interface for editing inbound rules on a security group. The page title is 'Edit inbound rules' and it includes a sub-header 'Inbound rules control the incoming traffic that's allowed to reach the instance.' The main content area displays a table of inbound rules. The first two rules are for SSH (port 22) with source 'My IP'. The third rule is for Custom TCP (port 3000) with source 'Anywh...'. A yellow warning banner at the bottom states: '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.' The 'Add rule' button is visible at the bottom left of the rule list.

task4_gitea_install_page

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 *

Host *

Username *

Password *

Database Name *

SSL *

Schema

Leave blank for database default ("public").

General Settings

Site Title *

You can enter your company name here.

Repository Root Path *

Remote Git repositories will be saved to this directory.

Git LFS Root Path

Files tracked by Git LFS will be stored in this directory. Leave empty to default.

task4_gitea_create_repo

Issues Pull Requests Milestones Explore

Hamna

Account was successfully created. Welcome!

Repository Organization

No Activity

You are currently not following any repositories or users, so there is no content to display. You can explore repositories or users of interest from the links below.

[Explore repositories](#) · [Explore users](#)

Repositories +

There are no repositories yet.

task4_summary

Search [Alt+S]

Middle East (UAE) Account ID: 5426-2295-9327-1 Lab8User

i-0ace2dfeffee27044 (Lab8Machine)

Details Status and alarms Monitoring Security Networking Storage Tags

Instance summary Info

Instance ID [i-0ace2dfeffee27044](#)

IPv6 address -

Hostname type IP name: ip-172-31-1-214.me-central-1.compute.internal

Public IPv4 address [3.29.238.193](#) | [open address](#)

Instance state [Running](#)

Private IPv4 addresses [172.31.1.214](#)

Public DNS [ec2-3-29-238-193.me-central-1.compute.amazonaws.com](#) | [open address](#)

Private IP DNS name (IPv4 only) [ip-172-31-1-214.me-central-1.compute.internal](#)

Inbound rules Info

Security group rule ID	Type	Protocol	Port range	Source	Description - optional	
sgr-0434c863de6a2ce9a	SSH	TCP	22	My IP		Delete
sgr-0c90b6aba068900a8	Custom TCP	TCP	3000	Custom	103.113.101.69/32	Delete

Issues Pull Requests Milestones Explore

Hamna

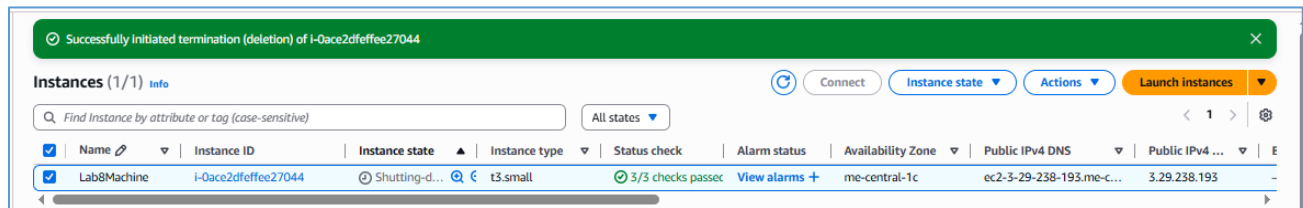
Account was successfully created. Welcome!

Repository Organization

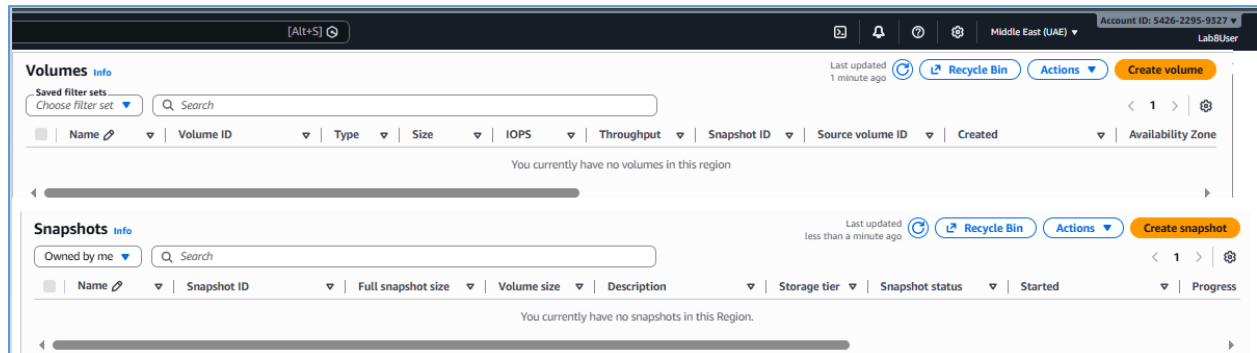
Repositories +

Cleanup — Remove resources to avoid charges

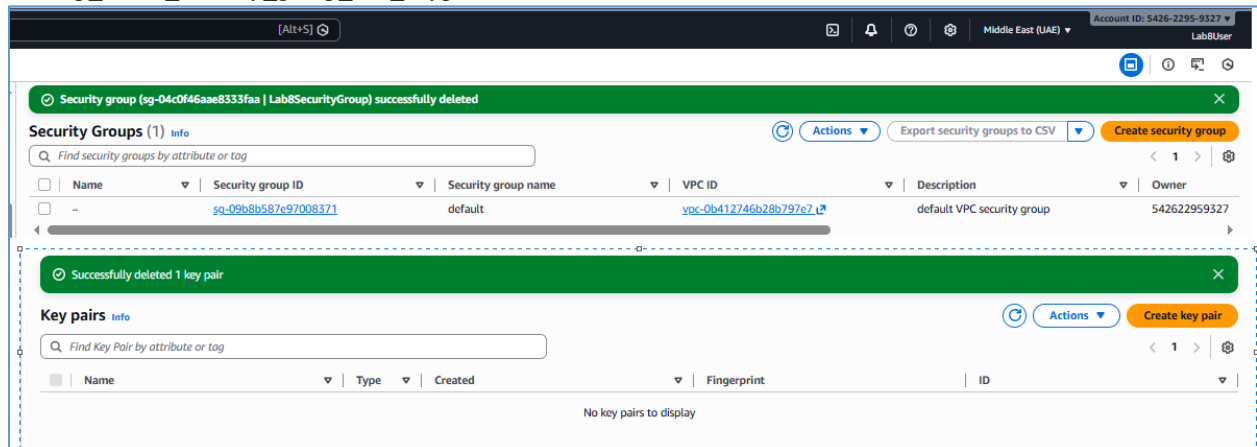
cleanup_terminate_instance



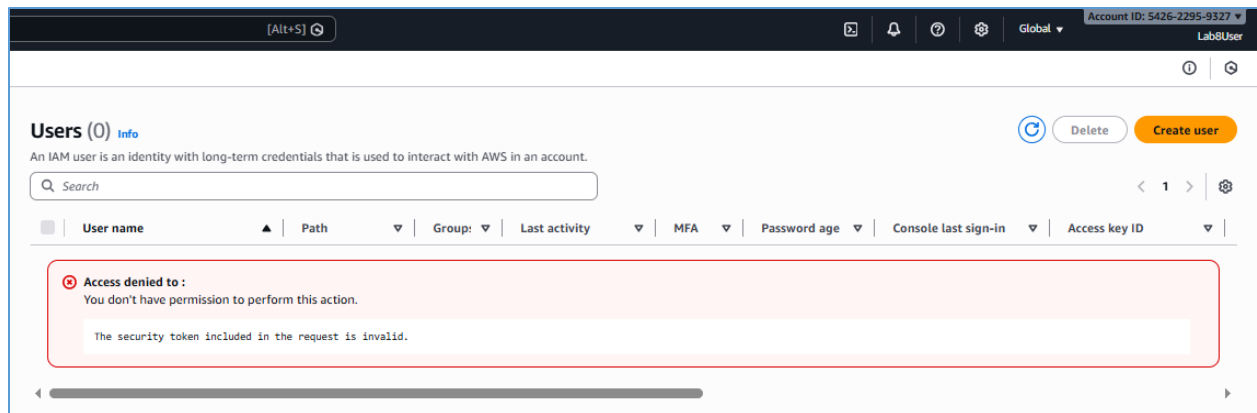
cleanup_delete_volumes_snapshots



cleanup_delete_security_group_and_keypair



cleanup_iam_users_deleted



cleanup_summary

