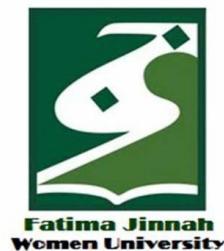


CLOUD COMPUTING



SUBMITTED TO
SIR WAQAS SALEEM

SUBMITTED BY
HAMNA MAHMOOD

2023-BSE-025

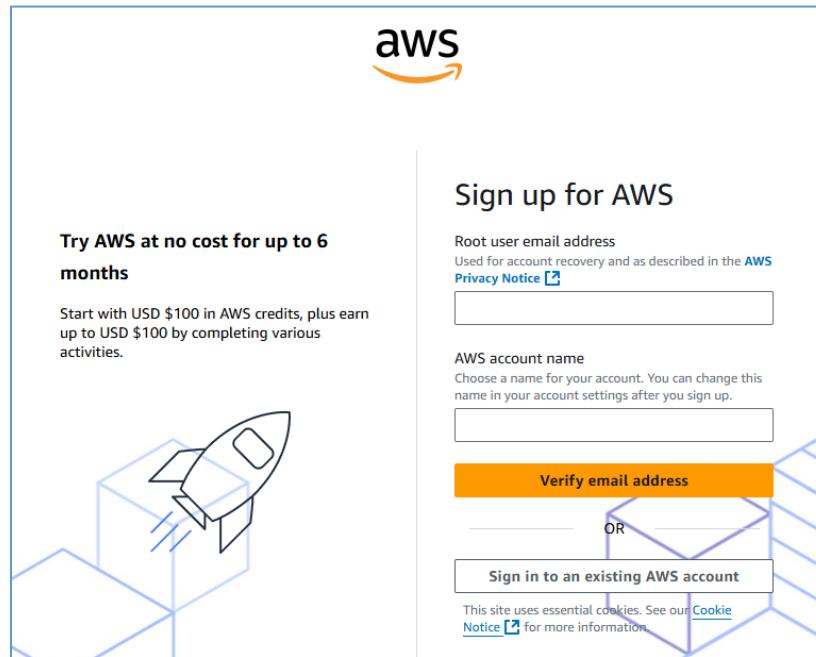
BSE V-A

Lab 08

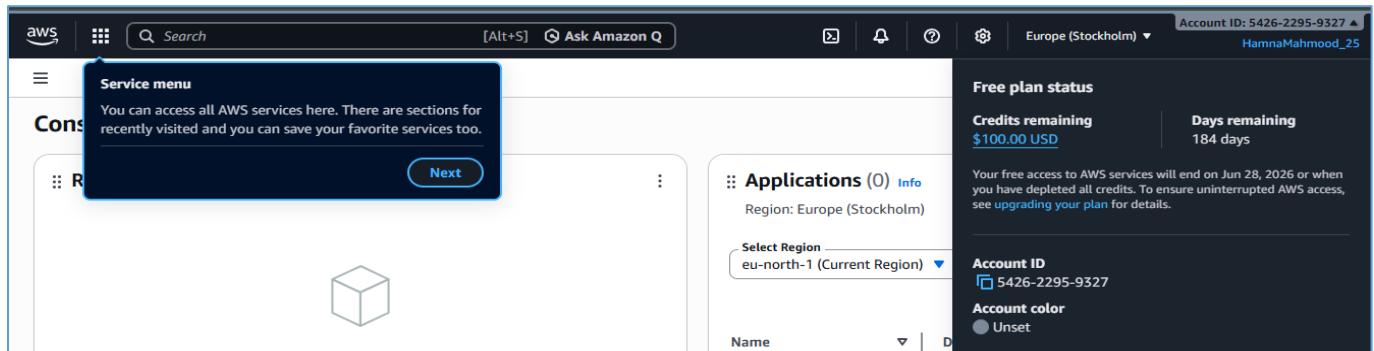
AWS: Account Setup, IAM, VPC Inventory, EC2, Docker & Gitea

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

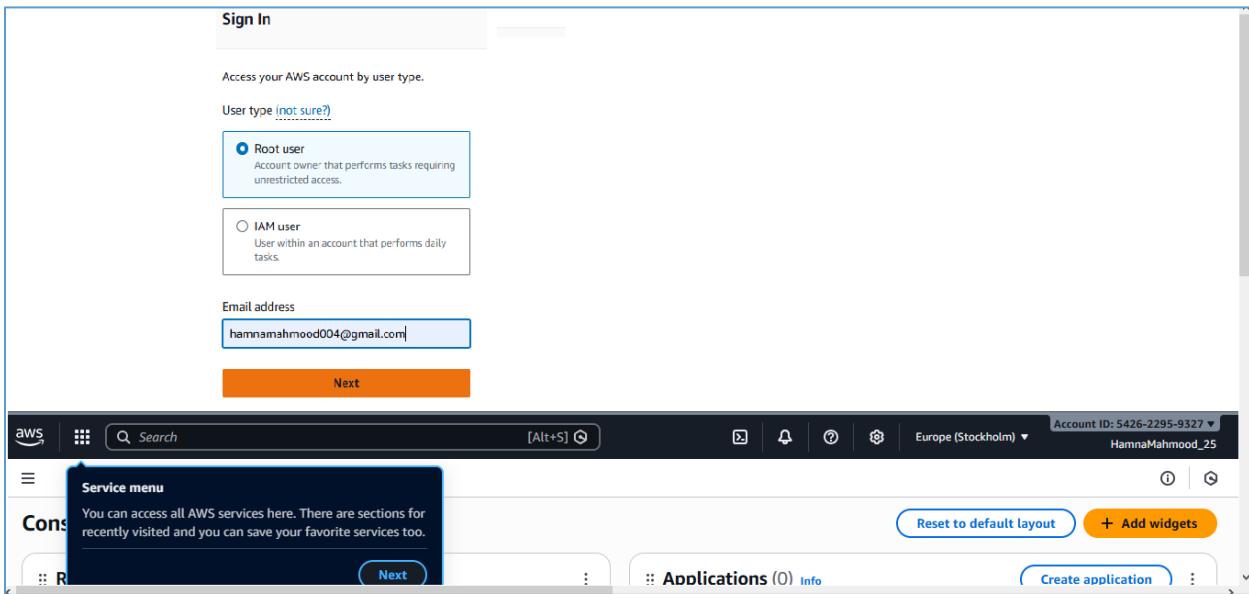
task1_open_signup_page



task1_signed_up_confirmation



task1_root_signed_in



task1_enable_region_me-central-1

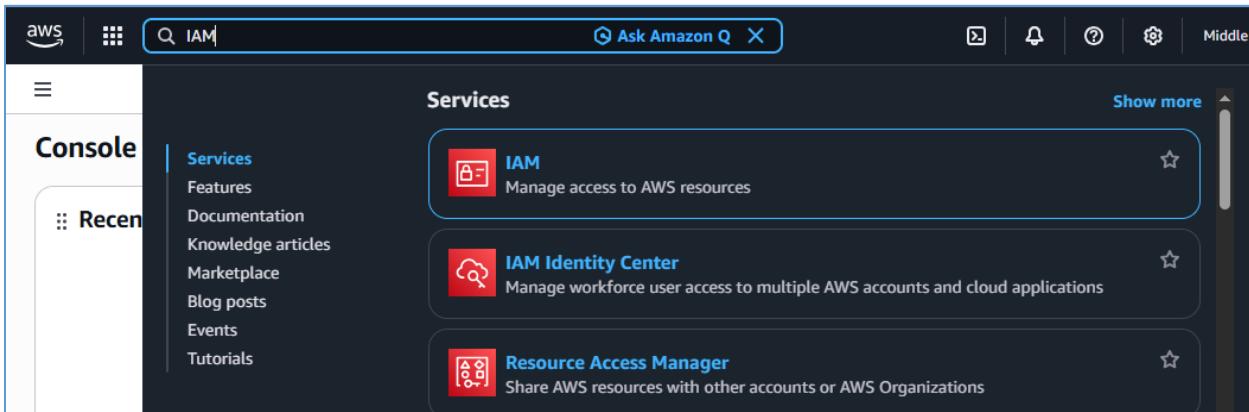
<input type="checkbox"/> Israel (Tel Aviv)	<input checked="" type="checkbox"/> Disabled
<input type="checkbox"/> Middle East (UAE)	<input checked="" type="checkbox"/> Enabled

task1_summary



Task 2 — Create IAM Admin and Lab8User with console access

task2_open_IAM_console



task2_admin_create_confirmation

A screenshot of the AWS IAM Users page. A green success message at the top states "User created successfully" and provides instructions to view the user. Below the message, the "Users (1)" section shows one IAM user named "Admin". The user details table includes columns for User name, Path, Group, Last activity, MFA, Password age, Console last sign-in, and Access key ID. The "Last activity" column shows "Now".

task2_admin_csv_and_signin_url

A screenshot of a file download dialog titled "Today (2)". It shows a file named "Admin_credentials.csv" with a size of 1 KB, downloaded from Microsoft Excel C... on 12/28/2025 at 5:27 PM.

task2_admin_console_after_login

A screenshot of the AWS Console Home page. The top navigation bar shows "Account ID: 5426-2295-9327" and "Admin". The main area features sections for "Recently visited" (with "IAM" selected) and "Applications (0)". A "Create application" button is available. The "Select Region" dropdown is set to "me-central-1 (Current Region)".

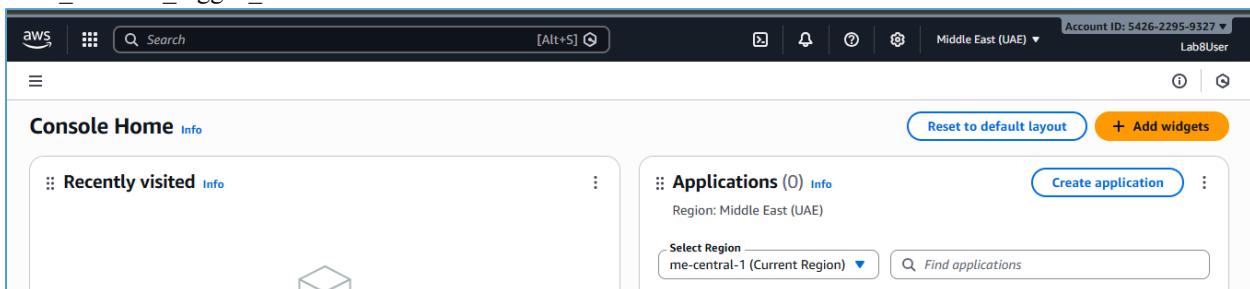
task2_create_lab8user_and_csv

A screenshot of the "Create user" wizard, Step 4: "Retrieve password". A green success message at the top states "User created successfully". The "Console sign-in details" section displays the "Console sign-in URL" as "https://542622959327.signin.aws.amazon.com/console" and the "User name" as "Lab8User". An "Email sign-in instructions" link is also present.

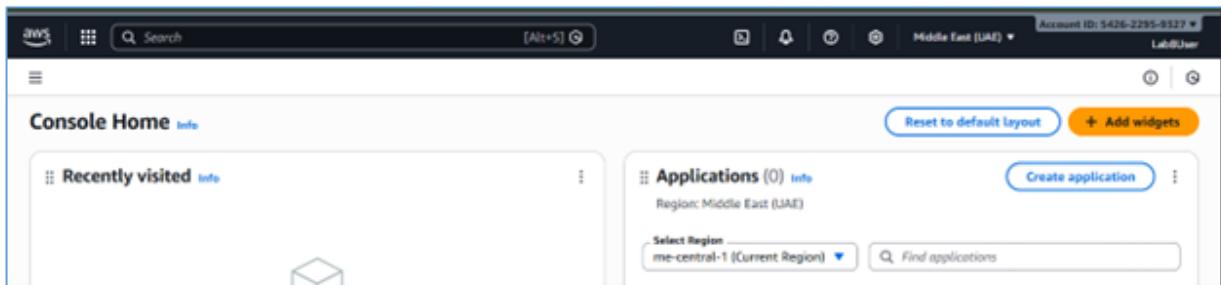
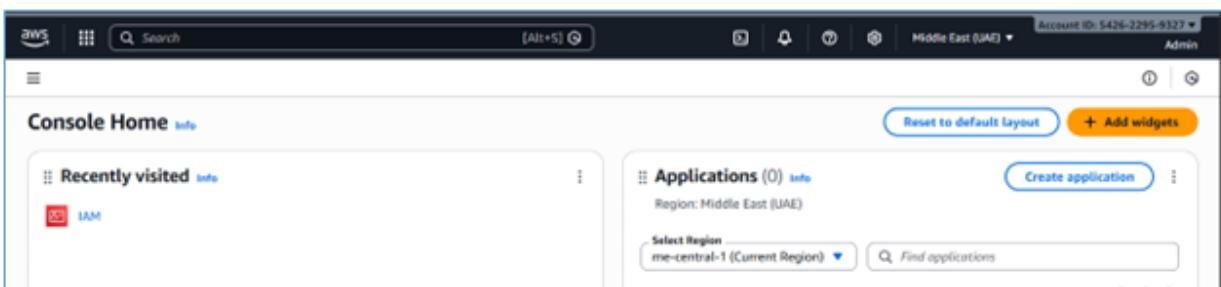
task2_lab8user_csv_saved

A screenshot of a file download dialog titled "Today (3)". It shows a file named "Admin_credentials.csv" with a size of 1 KB, downloaded from Microsoft Excel C... on 12/28/2025 at 5:27 PM.

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 VPC console homepage. At the top, there are buttons for 'Create VPC' and 'Launch EC2 Instances'. A note says 'Note: Your Instances will launch in the Middle East region.' Below this, the 'Resources by Region' section displays the following counts:

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

On the right side, there are three sections: 'Service Health' (with a link to 'View complete service health details'), 'Settings' (with links to 'Block Public Access', 'Zones', and 'Console Experiments'), and 'Additional Information' (with links to 'VPC Documentation', 'All VPC Resources', and 'Forums').

task3_vpc_list

The screenshot shows the 'Your VPCs' list page. It displays one VPC entry:

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

Below the table, there is a message: 'Select a VPC above'.

task3_subnet_list

Subnets (3) Info					
<input type="text"/> 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

task3_route_tables_list

Route tables (1) Info					
<input type="text"/> Find route tables by attribute or tag					
<input type="checkbox"/>	Name	Route table ID	Explicit subnet associ...	Edge associations	Main
<input type="checkbox"/>	-	rtb-000461310bb92433a	-	-	Yes

task3_network_acls_list

Network ACLs (1) Info					
<input type="text"/> Find Network ACLs by attribute or tag					
<input type="checkbox"/>	Name	Network ACL ID	Associated with	Default	VPC ID
<input type="checkbox"/>	-	acl-0aa70eb98766ea497	3 Subnets	Yes	vpc-0b412746b28b797e7

task3_summary

The screenshot shows the AWS VPC Network ACLs console. On the left, there's a navigation sidebar with options like Subnets, Route tables, Internet gateways, Egress-only internet gateways, DHCP option sets, Elastic IPs, Managed prefix lists, Endpoints, Endpoint services, NAT gateways, Peering connections, and Route servers. Under the Security section, Network ACLs is selected. In the main area, the title 'Network ACLs (1) Info' is displayed above a table. The table has columns for Name, Network ACL ID, Associated with, Default, and VPC ID. One row is listed: 'Name' is empty, 'Network ACL ID' is 'acl-Oaa70eb98766ea497', 'Associated with' shows '3 Subnets', 'Default' is 'Yes', and 'VPC ID' is 'vpc-0b412746b28b797e7'. Below the table, a section titled 'Select a network ACL' is shown.

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

task4_open_ec2_console

The screenshot shows the AWS EC2 console. The left sidebar includes options for Dashboard, Instances (with sub-options like Instances, Instance Types, Launch Templates, Spot Requests, Savings Plans, Reserved Instances, Dedicated Hosts, Capacity Reservations), and Images (with sub-options like AMIs, AMI Catalog). The main area features a 'Resources' summary table and several cards: 'Launch instance' (button to 'Launch instance'), 'Service health' (button to 'AWS Health Dashboard'), 'EC2 cost' (with a 'Date range: Past 6 months' summary and a note about credits), and 'Account attributes' (with a 'Default VPC' link).

task4_keypair_download

A file download dialog is shown. It displays the file name 'Lab8Key.pem', the download date and time '12/28/2025 6:14 PM', the file type 'PEM File', and the file size '1 KB'.

task4_launch_instance_config

The screenshot shows the 'Launch an instance' configuration page. In the 'Name and tags' section, the name 'Lab8Machine' is entered. Under 'Key pair (login)', 'Lab8Key' is selected. In the 'Security group' section, 'Lab8SecurityGroup' is chosen. On the right side, the 'Summary' panel shows the selected software image (Amazon Linux 2 with SQL Server), virtual server type (t3.micro), storage (1 volume(s) - 8 GB), and a 'Launch instance' button.

task4_instance_running_console

The screenshot shows the 'Instance summary for i-0ace2dfeffee27044 (Lab8Machine)' page. Key details include:

- Public IP4 address:** 3.29.238.193
- 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-03aece612a1e2607f
- Instance ARN:** arn:aws:ec2:me-central-1:542622959327:instance/i-0ace2dfeffee27044

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           237 kB/s | 29 kB     00:00
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      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   408 k
  ip_tables-nft   x86_64    1.8.8-3.amzn2023.0.2    amazonlinux   193 k
  libcgroup       x86_64    3.0-1.amzn2023.0.1    amazonlinux   75 k
  libnftnl        x86_64    1.0.8-2.amzn2023.0.2    amazonlinux   58 k
  libnftnlfilter  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): libcgroup-3.0-1.amzn2023.0.1.x86_64.rpm       3.4 MB/s | 75 kB     00:00
(5/11): libnftnlfilter-nft-1.0.8-2.amzn2023.0.2.x86_64.rpm 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 | 38 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 kB     00:00
(11/11): docker-25.0.13-1.amzn2023.0.2.x86_64.rpm     64 MB/s | 46 kB     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_PASSWORD=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 = 192.168.65.2" >> ./data/gitea/conf/app.ini
# Gitea Tutorials : https://www.youtube.com/watch?v=dLxcgjHtUA
```

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 23/23tgres:alpine [██████████] 112MB / 112MB Pulling
  ✓ Image postgres:alpine Pulled
  ✓ Image gitea/gitea:latest Pulled
  ✓ Network webnet Created
  ✓ Volume gitea Created
  ✓ Volume gitea_postgres Created
  ✓ Container gitea Created
  ✓ Container gitea_db Created
```

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

task4_security_group_allow_3000

The screenshot shows the AWS Management Console interface for managing security group inbound rules. The URL in the address bar is `EC2 > Security Groups > sg-04c0f46aae833faa - Lab8SecurityGroup > Edit inbound rules`. The page title is "Edit inbound rules".
The table displays the following rules:

Security group rule ID	Type	Protocol	Port range	Source	Description - optional
sgr-0434c863de6a2ce9a	SSH	TCP	22	My IP	103.113.101.69/32
sgr-050bfe69f112f362d	SSH	TCP	22	My IP	103.113.101.69/32
-	Custom TCP	TCP	3000	Anywhere	0.0.0.0/0

A new rule is being added at the bottom of the list:

Add rule

A note at the bottom of the page 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."

At the bottom right are buttons for "Cancel", "Preview changes", and "Save rules".

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*	PostgreSQL
Host	db5432
Username*	gitea
Password*	*****
Database Name*	gitea
SSL*	Disable
Schema	Leave blank for database default ("public").

General Settings

Site Title*	Gitea: Git with a cup of tea
Repository Root Path*	/data/git/repositories
Git LFS Root Path	/data/git-lfs

File tracking by Git LFS will be enabled in this directory. Large assets are available.

task4_gitea_create_repo

Account was successfully created. Welcome!

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](#)

Repository Organization

Repositories +

There are no repositories yet.

task4_summary

i-0ace2dfeeffe27044 (Lab8Machine)

Details Status and alarms Monitoring Security Networking Storage Tags

Instance ID: i-0ace2dfeeffe27044

IPv6 address: -

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

Inbound rules:

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

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

Private IPv4 addresses: 172.31.1.214

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

Issues Pull Requests Milestones Explore

Account was successfully created. Welcome!

Repository Organization

Repositories +

Cleanup — Remove resources to avoid charges

cleanup_terminate_instance

The screenshot shows the AWS EC2 Instances page. A green success message at the top reads "Successfully initiated termination (deletion) of i-0ace2dfeeffe27044". Below it, the "Instances (1/1) info" section displays a single row for "Lab8Machine" (Instance ID: i-0ace2dfeeffe27044). The instance state is "Shutting-down" (t3.small), and its status check is "3/3 checks passed". The "Actions" dropdown menu is open, showing options like "Stop", "Start", "Reboot", and "Delete".

cleanup_delete_volumes_snapshots

The screenshot shows two pages from the AWS Storage section. The top part is the "Volumes Info" page, which displays a message: "You currently have no volumes in this region". The bottom part is the "Snapshots Info" page, which also displays a message: "You currently have no snapshots in this Region". Both pages include filter and search tools.

cleanup_delete_security_group_and_keypair

The screenshot shows two pages from the AWS Identity and Access Management (IAM) section. The top part is the "Security Groups (1) Info" page, showing a single group named "default" (Security group ID: sg-09b8b587e97008371, VPC ID: vpc-0b412746b28b797e7). A green message box indicates "Successfully deleted 1 security group". The bottom part is the "Key pairs Info" page, which shows a message: "Successfully deleted 1 key pair". Both pages include filter and search tools.

cleanup_iam_users_deleted

Account ID: 5426-2295-9327 ▾ Global ▾ LabUser

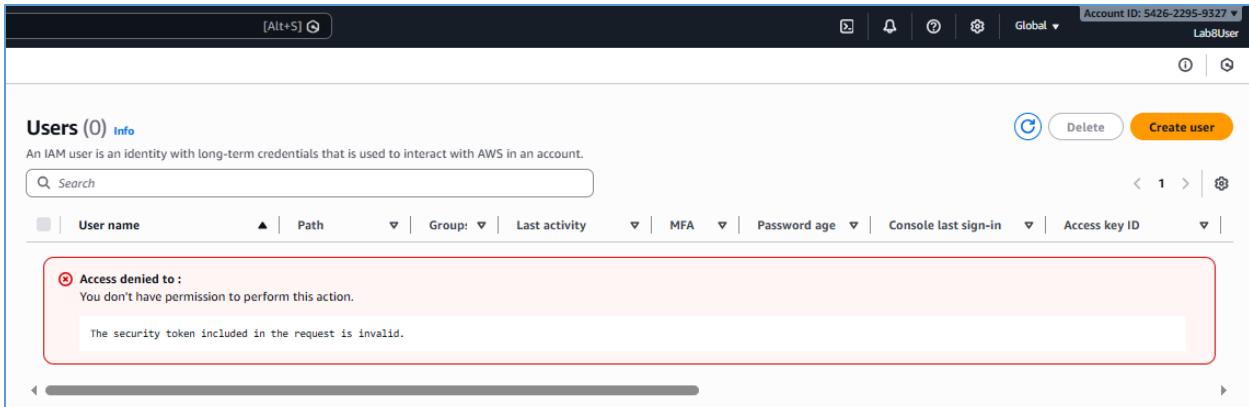
Users (0) Info

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

Search

User name Path Group: Last activity MFA Password age Console last sign-in Access key ID

Access denied to : You don't have permission to perform this action.
The security token included in the request is invalid.



cleanup_summary

Successfully initiated termination [deletion] of i-0eac2ffeffe27044

Instances (1/1) Info

Find instance by attribute or tag (case-sensitive)

Name: i-0eac2ffeffe27044 Instance state: running Status check: passed Alarm status: Public IPv4 DNS: ec2-3-29-238-193.me.c... Public IPv6 DNS: ec2-3-29-238-193.me.c... Availability Zone: us-east-1a Public IPv4 IP: 3.29.238.193 Public IPv6 IP: 2620:4e:200:1a::13:small Subnet ID: me-control-1c Network interface ID: eni-0f77777777777777 Launch time: 2024-01-15T10:20:44Z Last updated: 1 minute ago Actions: Connect Instance state: Actions: Launch instance

Volumes (0) Info

Snapshots (0) Info

Security group (sg-0cfc0d1a3331ba | LabSecurityGroup) successfully deleted

Security Groups (1) Info

Find security groups by attribute or tag

Name: sg-09bb05353b70081f1 Security group ID: sg-09bb05353b70081f1 Security group name: default VPC ID: vpc-0be17746b28b79372 Description: default VPC security group Owner: S4262959827 Actions: Export security groups to CSV Create security group

Key pairs (0) Info

Find Key Pair by attribute or tag

Name Fingerprint

