



## **CLOUD COMPUTING LAB** **BSE ( V-B )**

Submitted By:

Urwa zahra

Roll No:

2023-BSE-068

Submitted To:

Sir Muhammad Shoaib

## **LAB 08**

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

## Task 1

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

- AWS signup page:

The image shows the AWS Sign Up form. At the top, there's a logo consisting of three orange curved lines above the text "Sign up for AWS". Below the logo, there are two input fields: "Root user email address" and "AWS account name". Under "Root user email address", it says "Used for account recovery and as described in the [AWS Privacy Notice](#)". The "AWS account name" field has placeholder text "Choose a name for your account. You can change this name in your account settings after you sign up." Below these fields is a yellow "Verify email address" button. In the center, there's a horizontal line with "OR" written above it, flanked by blue and purple branching arrows pointing towards the "Sign in to an existing AWS account" button. This button is enclosed in a box. Below it, a small note reads: "This site uses essential cookies. See our [Cookie Notice](#) for more information."

- Root user signed in:

The image shows the AWS Sign In form. At the top, it says "Sign In" and "Access your AWS account by user type.". There are two radio button options: "Root user" (selected) and "IAM user". The "Root user" option is described as "Account owner that performs tasks requiring unrestricted access.". The "IAM user" option is described as "User within an account that performs daily tasks.". Below this, there's an "Email address" field containing "23-22411-068@se.fjwu.edu.pk", which is highlighted with a blue border. A large yellow "Next" button is below the email field. In the center, there's a horizontal line with "OR" written above it, flanked by blue and purple branching arrows pointing towards the "New to AWS? Sign up" button. This button is enclosed in a box. At the bottom, a note states: "By continuing, you agree to [AWS Customer Agreement](#) or other agreement for AWS services, and the [Privacy Notice](#). This site uses essential cookies. See our [Cookie Notice](#) for more information."

- Enable region me-central-1:

<input type="checkbox"/> Europe (Zurich)	Disabled
<input type="checkbox"/> Europe (Milan)	Disabled
<input type="checkbox"/> Israel (Tel Aviv)	Disabled
<input checked="" type="checkbox"/> Middle East (UAE)	Enabled
<input type="checkbox"/> Middle East (Bahrain)	Disabled
<input type="checkbox"/> Africa (Cape Town)	Disabling

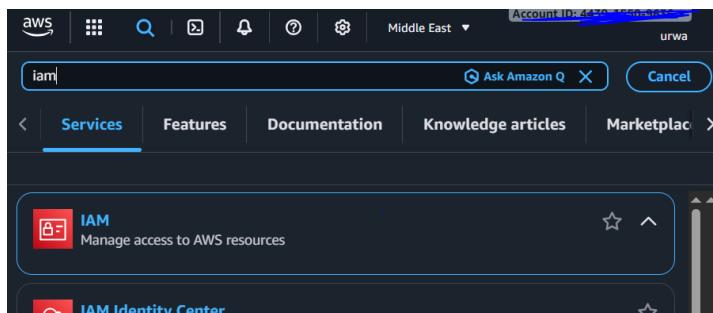
- task1 summary:



## Task 2

### Create IAM Admin and Lab8User with console access

- open iam console:



- 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.

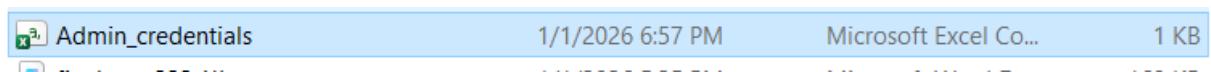
[View user](#)

**Users (5) Info**

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

User name	Path	Group	Last activity	MFA	Password age	Console last
Admin	/	0	-	-	4 minutes	-

- admin csv and signin url:



- admin console after login:

The screenshot shows the AWS Management Console with the IAM service selected. The top navigation bar includes the AWS logo, a search bar, and account information (Account ID: 4439-1550-9636, Canada (Central), Admin). Below the navigation is the 'Console Home' section with a 'Reset to default layout' button and an 'Add widgets' button. The main content area displays a success message: 'User created successfully' with a link to 'View user'. It also shows the current step: 'Step 3 Review and create' and the next step: 'Step 4 Retrieve password'. On the right, there's a 'Console sign-in details' section with a 'Email sign-in instructions' button, a 'Console sign-in URL' (https://383704034224.signin.aws.amazon.com/console), and a 'User name' (Lab8User).

- **create lab8user and csv:**

This screenshot shows a modal window titled 'User created successfully' from the IAM 'Create user' process. It contains a message: 'You can view and download the user's password and email instructions for signing in to the AWS Management Console.' Below this is a 'View user' button. To the left, a vertical navigation bar shows 'Step 3 Review and create' and 'Step 4 Retrieve password'. To the right, under 'Console sign-in details', it shows the 'Console sign-in URL' (https://383704034224.signin.aws.amazon.com/console) and the 'User name' (Lab8User). There is also a 'Email sign-in instructions' button.

- **lab8user csv saved:**

This screenshot shows a file explorer interface with a sidebar filter for 'Today (16)'. It lists two files: 'Lab8User\_credentials.csv' and 'Admin\_credentials.csv'. Both files were modified on 1/1/2026 at 8:40 PM. The file 'Lab8User\_credentials.csv' is 1 KB and associated with Microsoft Excel. The file 'Admin\_credentials.csv' is 1 KB and also associated with Microsoft Excel.

- **lab8user logged in:**

This screenshot shows the IAM 'Users' page with 3 users listed. The users are 'Admin' and 'Lab8User'. The 'Lab8User' row shows the last activity was 23 minutes ago and the password age is 18 minutes. The 'Create user' button is visible in the top right corner.

- **task2 summary:**

This screenshot shows the IAM 'Users' page with 3 users listed. The users are 'Admin' and 'Lab8User'. The 'Lab8User' row shows the last activity was 7 minutes ago and the password age is 3 minutes. The 'Create user' button is visible in the top right corner.

## Task 3

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

- **open\_vpc\_console:**

The screenshot shows the AWS VPC console interface. At the top, there are buttons for 'Create VPC' and 'Launch EC2 Instances'. A note says 'Your Instances will launch in the Middle East (UAE) region.' On the left, under 'Resources by Region', there are sections for VPCs, Subnets, Route Tables, and Internet Gateways, each with a count and a 'See all regions' link. To the right, there's a 'Service Health' section with a link to 'View complete service health details', a 'Settings' section with links to 'Block Public Access', 'Zones', and 'Console Experiments', and an 'Additional Information' section with links to 'VPC Documentation', 'All VPC Resources', 'Forums', and 'Report an Issue'. A 'Site-to-Site VPC Connections' link is also present.

- **vpcs\_list:**

The screenshot shows the 'Your VPCs' list. It has a header with a search bar, sorting options (Name, VPC ID, State, Encryption controls, Encryption control type, Block Public Access, IPv4 CIDR), and an 'Actions' button. There is one item listed: 'vpc-0b7740d2d5f400590' which is 'Available'. The last update was 2 minutes ago.

Name	VPC ID	State	Encryption controls	Encryption control type	Block Public Access	IPv4 CIDR
-	vpc-0b7740d2d5f400590	Available	-	-	Off	172.31.0.0/16

- **subnets\_list:**

The screenshot shows the 'Network ACLs' list. It has a header with a search bar, sorting options (Name, Network ACL ID, Associated with, Default, VPC ID), and an 'Actions' button. There is one item listed: 'acl-01df7ed8d9a6dbaf8' which is associated with '3 Subnets' and marked as 'Default'. The VPC ID is 'vpc-0b7740d2d5f4005'. The last update was less than a minute ago.

Name	Network ACL ID	Associated with	Default	VPC ID
-	acl-01df7ed8d9a6dbaf8	3 Subnets	Yes	vpc-0b7740d2d5f4005

- **route\_tables\_list:**

The screenshot shows the 'Route tables' list. It has a header with a search bar, sorting options (Name, Route table ID, Explicit subnet associations, Edge associations, Main, VPC), and an 'Actions' button. There is one item listed: 'rtb-0fe7eb609d5f5f080' which is associated with '3 Subnets' and marked as 'Main'. The VPC ID is 'vpc-05943c1f'. The last update was less than a minute ago.

Name	Route table ID	Explicit subnet associations	Edge associations	Main	VPC
-	rtb-0fe7eb609d5f5f080	-	-	Yes	vpc-05943c1f

- **network\_acls\_list:**

The screenshot shows the 'Network ACLs' list. It has a header with a search bar, sorting options (Name, Network ACL ID, Associated with, Default, VPC ID), and an 'Actions' button. There is one item listed: 'acl-000ff5d8a55f611d1' which is associated with '3 Subnets' and marked as 'Default'. The VPC ID is 'vpc-05943c1fc6ca6f3e7'. The last update was 2 minutes ago.

Name	Network ACL ID	Associated with	Default	VPC ID
-	acl-000ff5d8a55f611d1	3 Subnets	Yes	vpc-05943c1fc6ca6f3e7

- **summary:**

The image contains four separate screenshots of the AWS VPC console:

- Network ACLs:** Shows one Network ACL named "acl-07a5032049984e4f7" associated with 3 Subnets.
- Subnets:** Shows three subnets: "subnet-0fcf420e09b0ac86a", "subnet-0c55e8a5e3f285c3", and "subnet-02410ae646f6bbaae", all in an "Available" state.
- Route Tables:** Shows one route table named "rtb-0b83af2c02d11e053" with no explicit subnet associations.
- Your VPCs:** Shows one VPC named "vpc-0692a0a9ca59e3193" in an "Available" state.

## Task 4

### Launch EC2, SSH, install Docker & Docker Compose, deploy Gitea

- Open EC2 Console

The screenshot shows the AWS EC2 console dashboard:

- Left sidebar:** EC2 navigation menu with options like Dashboard, Instances, Images, and Events.
- Main content area:**
  - Compute:** Section title.
  - Amazon Elastic Compute Cloud (EC2):** Main heading.
  - Create, manage, and monitor virtual servers in the cloud.** Subtitle.
  - Benefits and features:** Subtitle.
  - EC2 offers ultimate scalability and control:** Subtitle.
  - Fully resizable compute capacity to support virtually any workload. This service is best if you want:** Description.
  - Additional actions:** Buttons for "View running instances" and "Migrate a server".
  - Launch a virtual server:** Callout box with "Launch instance", "View dashboard", "Get started walkthroughs", and "Get started tutorial".

- Launch Instance Config

The screenshot shows the AWS EC2 Instances page:

- Instances (1/1) Info:** Shows one instance named "Lab8Machine" with ID "i-0c771ff2a7d60ae42".
- Status:** Instance is "Running" (green), Status check is "Initializing" (blue), and Alarm status is "View alarms".
- Actions:** Buttons for "Connect", "Instance state", "Actions", and "Launch instance".
- Filtering:** A search bar and dropdown for filtering by Name, Instance ID, Instance state, Instance type, Status check, Alarm status, Availability Zone, and Platform.

- Keypair Download

 Lab8Key.pem	1/1/2026 10:04 PM	PEM File	1 KB
 Lab8User credentials	1/1/2026 8:40 PM	Microsoft Excel Co...	1 KB

- Instance Running Console

### Instance summary for i-0c771ff2a7d60ae42 (Lab8Machine) [Info](#)



Updated less than a minute ago

Instance ID	 i-0c771ff2a7d60ae42	Public IPv4 address	 3.29.239.65   <a href="#">open address ↗</a>	Private IP
IPv6 address	-	Instance state	 Running	Public IP
Hostname type	IP name: ip-172-31-14-113.me-central-1.compute.internal	Private IP DNS name (IPv4 only)	 ip-172-31-14-113.me-central-1.compute.internal	ec2-3
Answer private resource DNS name	IPv4 (A)	Instance type	t3.micro	open
Auto-assigned IP address	 3.29.239.65 [Public IP]	VPC ID	 vpc-0b7740d2d5f400590 ↗	AWS VPC
IAM Role	-	Subnet ID	 subnet-084d8a124fc07aa5 ↗	Auto Assign
IMDSv2	-	Instance ARN	-	Managed by

- SSH From Windows To EC2

```
PS D:\> ssh -i "D:\Lab8Key.pem" ec2-user@3.29.239.65
,#
~\###_ Amazon Linux 2023
~~ \####\
~~ \###|
~~ \#/ ___ https://aws.amazon.com/linux/amazon-linux-2023
~~ \V~' '-->
~~ / \
~~ . / \
~~ / / \
~~ /m/
[ec2-user@ip-172-31-14-113 ~]$
```

- EC2 Install Docker Compose Started

```
[ec2-user@ip-172-31-14-113 ~]$ sudo yum update -y
/local/lib/docker/cli-plugins
sudo curl -SL https://github.com/docker/compose/releases/latest/download/docker-compose-linux-x86_64 -o /usr/
docker/cli-plugins/docker-compose
sudo chmod +x /usr/local/lib/docker/cli-plugins/docker-compose
sudo systemctl start dockersudo yum install -y docker
sudo mkdir -p /usr/local/lib/docker/cli-plugins
sudo curl -SL https://github.com/docker/compose/releases/latest/download/docker-compose-linux-x86_64 -o /usr/
docker/cli-plugins/docker-compose
sudo chmod +x /usr/local/lib/docker/cli-plugins/docker-compose
sudo systemctl start docker
Amazon Linux 2023 Kernel Livepatch repository
Dependencies resolved.
Nothing to do.
Complete!
[ec2-user@ip-172-31-14-113 ~]$
```

252 kB/s | 29 kB

- Vim Compose YAML Paste

```
ec2-user@ip-172-31-14-113:~$ vim compose.yaml
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=dw2Cqj8tua
-
```

- Compose YAML Saved LS

```
[ec2-user@ip-172-31-14-113 ~]$ ls -l
total 4
-rw-r--r--. 1 root root 1132 Jan  1 18:15 compose.yaml
```

- **Usermod And Groups Before After**

```
[ec2-user@ip-172-31-14-113 ~]$ groups
ec2-user adm wheel systemd-journal
[ec2-user@ip-172-31-14-113 ~]$ sudo usermod -aG docker $USER
[ec2-user@ip-172-31-14-113 ~]$ groups
ec2-user adm wheel systemd-journal
[ec2-user@ip-172-31-14-113 ~]$ exit
logout
connection to 3.29.239.65 closed.

TT@DELL MINGW64 /d
$ ssh -i "D:\Lab8Key.pem" ec2-user@3.29.239.65
** WARNING: connection is not using a post-quantum key exchange algorithm.
** This session may be vulnerable to "store now, decrypt later" attacks.
** The server may need to be upgraded. See https://openssh.com/pq.html
      _#
     /_###_
  _\_\_###\_          Amazon Linux 2023
  \###|_
   \#/  _--> https://aws.amazon.com/linux/amazon-linux-2023
    \~_/
     \_/_/_
      /m/'_
Last login: Thu Jan  1 18:11:51 2026 from 39.33.154.125
[ec2-user@ip-172-31-14-113 ~]$ groups
ec2-user adm wheel systemd-journal docker
```

- **Docker Compose Up**

```
[ec2-user@ip-172-31-14-113 ~]$ docker compose up -d
[+] Running 18/18
  ✓ gitea 6 layers [██████]  0B/0B    Pulled          6.2s
    ✓ 2d35ebdb57d9 Pull complete
    ✓ 9f4e672c1f34 Pull complete
    ✓ 4da94b3cc809 Pull complete
    ✓ 8e016ece0bd3 Pull complete
    ✓ 346e493cb6cb Pull complete
    ✓ 95215379fd1 Pull complete
  ✓ db 10 layers [██████████]  0B/0B    Pulled          10.7s
    ✓ 1074353eecc0d Pull complete
    ✓ 51a9324a2bdc Pull complete
    ✓ 1e827ac0fa1e Pull complete
    ✓ 0629ac8b8cc5 Pull complete
    ✓ 2e50a444bdff Pull complete
    ✓ 4465107e1675 Pull complete
    ✓ cc2ee20b6816 Pull complete
    ✓ 0dfd86289dd1 Pull complete
    ✓ 98ecc0da868 Pull complete
    ✓ b747867e61cb Pull complete
[+] Running 2/5
  ! Network webnet    Created          1.3s
  * Volume "gitea_postgres" Created          1.1s
  * Volume "gitea"      Created          1.1s
  ✓ Container gitea    started          1.1s
  ✓ Container gitea_db started          1.1s
[ec2-user@ip-172-31-14-113 ~]$ |
```

- **Security Group Allow 3000**

<input type="checkbox"/>	Name	Security group rule ID	IP version	Type	Protocol	Port range	Source	Description
<input type="checkbox"/>	- Ø	sgr-06becdc3ce6ff910e	IPv4	Custom TCP	TCP	3000	0.0.0.0/0	Gitea

- **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 *	db:5432
Username *	gitea
Password *	.....
Database Name *	gitea
Port *	

- **Gitea Create Repo**

The screenshot shows the Gitea web interface. At the top, there's a navigation bar with links for Issues, Pull Requests, Milestones, and Explore. Below the navigation, the repository name 'hello / Lab8Repo' is displayed. Underneath the repository name, there are tabs for Code, Issues, Packages, Projects, and Wiki. On the right side of the interface, there are buttons for Unwatch (1), Star (0), and Settings.

- **Summary**

The screenshot shows the AWS EC2 Security Groups console. A green success message at the top says 'Inbound security group rule successfully modified on security group sg-00d0cf7fde5ba57d3 - launch-wizard-1'. Below this, the 'Details' section shows the security group's ID, owner, and VPC ID. The 'Inbound rules' tab is selected, displaying one rule: 'sg-00d0cf7fde5ba57d3 - launch-wizard-1' allowing traffic from port 3000 to 0.0.0.0/0. The VPC ID is vpc-0b77140d2d5f400590.

## Cleanup — Remove resources to avoid charges

- **cleanup\_terminate\_instance**

The screenshot shows the AWS CloudWatch Metrics console. A green success message at the top says 'Successfully initiated termination (deletion) with skip OS shutdown of i-0c771ff2a7d60ae42'. Below this, an 'Instance summary for i-0c771ff2a7d60ae42 (Lab8Machine)' section provides details about the terminated instance, including its ID, IP address, state, and various identifiers.

- **cleanup\_delete\_volumes\_snapshots**



- `cleanup_delete_security_group_and_keypair`

✓ Successfully deleted 1 key pair

## Key pairs Info

🔍 Find Key Pair by attribute or tag

Name	Type
------	------

- `cleanup_iam_users_deleted`

