

CLOUD COMPUTING
LAB 08



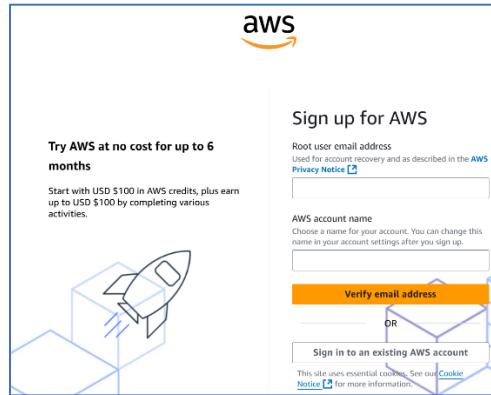
Submitted To:
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Submitted By:
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BSE V-A
2023-BSE-031

Task 1 — Create an AWS account and enable UAE

Steps

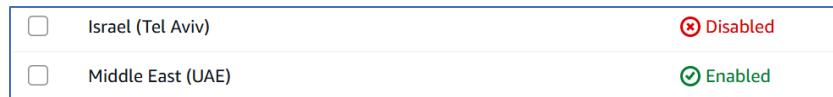
1. Open your browser and go to: [AWS Signup](#)



2. Complete registration (Account type: Personal, Plan: AWS Paid Plan), fill contact, billing (credit card) and phone details, complete verification

3. Sign in as the root user (root email).

- From the Console, open the region selector and enable UAE (me-central-1), then switch to me-central-1.



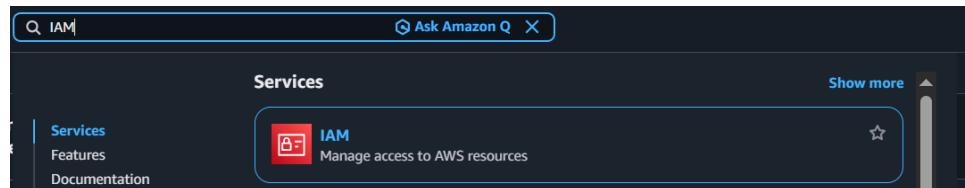
- Task 1 summary screenshot:



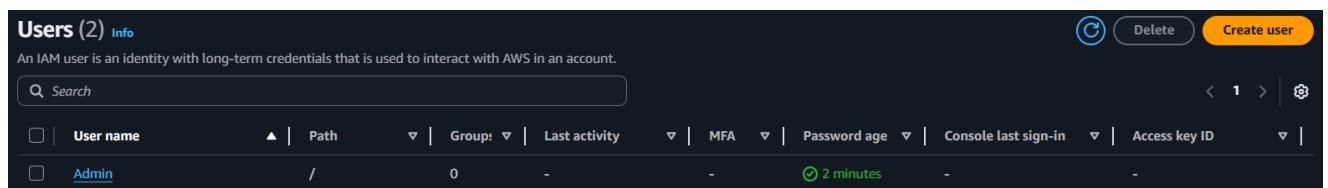
Task 2 — Create IAM Admin and Lab8User with console access

Steps

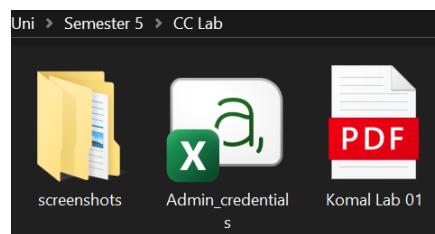
- Open IAM via Console search (Alt+S → "IAM").



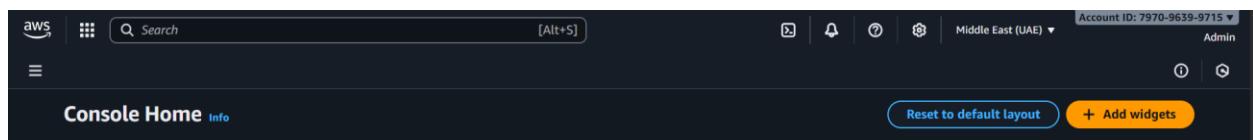
- Create the Admin user: IAM → Users → Create user.



- Download the Admin .csv and show its presence on your Windows host (do not display the password text)



- Sign out of root, then sign in using the Admin account (use the signin URL from the .csv). Capture after successful Admin login:



5. While logged in as Admin, create Lab8User:

The screenshot shows the 'Retrieve password' page in the AWS Management Console. It displays the following information:

- Console sign-in details**
- Console sign-in URL:** https://797096399715.signin.aws.amazon.com/console
- User name:** Lab8User
- Console password:** A masked password with a 'Show' link.
- Email sign-in instructions:** A button to email sign-in instructions.
- Buttons at the bottom:** Cancel, Download .csv file, and Return to users list.

6. Download/save the Lab8User CSV on your Windows host (do not show password).

User name	Console sign-in URL
Lab8User	https://797096399715.signin.aws.amazon.com/console

7. Logout Admin and login as Lab8User (use the Lab8User signin URL and credentials).

The screenshot shows the AWS Management Console homepage. The top navigation bar indicates the user is now 'Lab8User'. The main content area shows the 'Console Home' page with various navigation links and a search bar.

8. Task 2 summary

The screenshot shows the 'Users' page in the AWS IAM service. It lists three IAM users:

User name	Path	Group	Last activity	MFA	Password age	Console last sign-in	Access key ID
Admin	/	0	4 minutes ago	-	4 minutes	4 minutes ago	-
Assignment-2	/	0	6 days ago	-	7 days	-	Active - AKIA3TFVF2N...
Lab8User	/	0	7 minutes ago	-	6 minutes	7 minutes ago	-

Task 3 — Inspect VPC resources

Steps

1. Open VPC console (Alt+S → "VPC") while region is me-central-1.

The screenshot shows the AWS VPC dashboard with the following details:

- VPCs:** UAE 1
- Subnets:** UAE 3
- Route Tables:** UAE 1
- Internet Gateways:** UAE 1
- Egress-only Internet Gateways:** UAE 0
- DHCP option sets:** UAE 1
- Endpoint Services:** UAE 0
- NAT Gateways:** UAE 0
- VPC Peering Connections:** UAE 0
- Network ACLs:** UAE 1
- Security Groups:** UAE 1
- Customer Gateways:** UAE 0

Other sections include Service Health, Settings, Additional Information, and Site-to-Site VPN Connections.

2. View VPCs list.

The screenshot shows the 'Your VPCs' list page with the following details:

Name	VPC ID	State	Encryption c...	Encryption control ...	Block Public...	IPv4 CIDR
-	vpc-06d4de56607216514	Available	-	-	Off	172.31.0.0/16

3. View Subnets list.

The screenshot shows the 'Subnets' list page with the following details:

Name	Subnet ID	State	VPC	Block Public...	IPv4 CIDR
-	subnet-00c346b93c5111575	Available	vpc-06d4de56607216514	Off	172.31.32.0/20
-	subnet-08fc7b2879e6404b6	Available	vpc-06d4de56607216514	Off	172.31.16.0/20
-	subnet-0867812ea5c257ca7	Available	vpc-06d4de56607216514	Off	172.31.0.0/20

4. View Route Tables list.

The screenshot shows the 'Route tables' list page with the following details:

Name	Route table ID	Explicit subnet associ...	Edge associations	Main	VPC	Own
-	rtb-02e4cd21bd7ee30e	-	-	Yes	vpc-06d4de56607216514	797

5. View Network ACLs list.

The screenshot shows the AWS Network ACLs list page. It displays a single network ACL entry:

Name	Network ACL ID	Associated with	Default	VPC ID	Inbound rules count
-	acl-0e04a45935409e9a5	3 Subnets	Yes	vpc-06d4de56607216514	2 Inbound rules

6. Task 3 summary

The screenshot shows the AWS Console Home page. It includes sections for "Recently visited" services (VPC) and "Applications" (0). The "Applications" section indicates "No applications" and provides a link to "Create application".

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

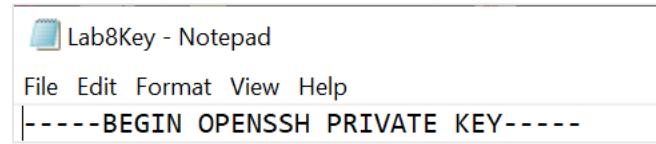
Steps

1. Open EC2 Console (Alt+S → "EC2") (me-central-1).

The screenshot shows the AWS EC2 console. The left sidebar lists navigation options like Dashboard, Instances, Images, and Elastic Block Store. The main area displays "Resources" (0 instances running), "Launch instance" (button), "Service health" (status: "This service is operating normally"), and "Account attributes" (Default VPC: vpc-06d4de56607216514).

2. Instance Launch configuration (during review before launching).

The screenshot shows the 'Launch an instance' wizard. In the 'Name and tags' step, the instance name is set to 'Lab8Machine'. In the 'Application and OS Images (Amazon Machine Image)' step, the 'Quick Start' tab is selected, showing recent AMIs like Amazon Linux, Ubuntu, Windows, Red Hat, SUSE Linux, and Debian. A search bar at the top right of this section allows for finding specific AMIs. To the right, the 'Summary' pane shows the configuration: 1 instance, Software Image (AMI) as Amazon Linux 2023.9.2..., Virtual server type (instance type) as t3.micro, Firewall (security group) as New security group, and Storage (volumes) as 1 volume(s) - 8 GiB. At the bottom right of the summary pane are 'Cancel', 'Launch instance', and 'Preview code' buttons.



3. After launch, EC2 Instances list showing Lab8Machine in "running" state and public IPv4 visible.

The screenshot shows the EC2 Instances list with 1 instance. The instance 'Lab8Machine' (ID: i-079d288d637ce6591) is listed with the following details: Instance state: Running, Instance type: t3.micro, Status check: 3/3 checks passed, Availability Zone: me-central-1c, Public IPv4 DNS: ec2-3-28-188-116.mi. The instance is selected, highlighted with a blue border. Below the list, the instance details for 'i-079d288d637ce6591 (Lab8Machine)' are shown. Under 'Details', the instance ID is i-079d288d637ce6591, and the public IPv4 address is 3.28.188.116. Under 'Instance summary', the instance state is Running. Under 'Networking', the private IP DNS name (IPv4 only) is ip-172-31-9-213.me-central-1.compute.internal, and the public DNS is ec2-3-28-188-116.me-central-1.compute.amazonaws.com.

4. On Windows host, run SSH using the downloaded .pem (PowerShell/Git Bash/Windows Terminal):

```
dell@DESKTOP-OPCO1NF MINGW64 ~/d/Uni/Semester 5/CC Lab/CC-KomalKashif-031 (main)
$ ssh -i "D:/Uni/Semester 5/CC Lab/Lab8Key.pem" ec2-user@3.29.91.65
The authenticity of host '3.29.91.65 (3.29.91.65)' can't be established.
ED25519 key fingerprint is SHA256:gdw/ZTBnH9Dmb8m1VOLBosER3GGCwp610vPXOIAomqc.
This key is not known by any other names.
Are you sure you want to continue connecting (yes/no/[fingerprint])? yes
Warning: Permanently added '3.29.91.65' (ED25519) to the list of known hosts.

          #
         _##_
        Amazon Linux 2023
     _\##_\
    \##|
   \##|
  /#_ __  https://aws.amazon.com/linux/amazon-linux-2023
 V`-'-->
  ~~
  ~~-.
  _/`/`/
 [ec2-user@ip-172-31-9-213 ~]$ |
```

5. Run the docker install commands on the EC2 shell:

```
sudo yum update -y  
sudo 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/local/lib/docker/cli-plugins/docker-compose  
sudo chmod +x /usr/local/lib/docker/cli-plugins/docker-compose  
sudo systemctl start docker
```

```
Complete!
Last metadata expiration check: 0:00:02 ago on Sat Jan 17 14:10:33 2026.
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   401 k
iptables-nft     x86_64  1.8.8-3.amzn2023.0.2   amazonlinux   183 k
libcgroup         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
libnfnetworklink x86_64  1.0.0-19.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.no 1.5 MB/s | 58 kB    00:00
(2/11): iptables-libs-1.8.8-3.amzn2023.0.2.x86_10 MB/s | 401 kB   00:00
(3/11): iptables-nft-1.8.8-3.amzn2023.0.2.x86_6 6.7 MB/s | 183 kB   00:00
(4/11): libcgroup-3.0-1.amzn2023.0.1.x86_64.rpm 2.2 MB/s | 75 kB    00:00
(5/11): libnetfilter_conntrack-1.0.8-2.amzn2023 1.9 MB/s | 58 kB    00:00
(6/11): libnfnetworklink-1.0.0-19.amzn2023.0.2.x86_1.0 MB/s | 30 kB   00:00
(7/11): libnftnl-1.2.2-2.amzn2023.0.2.x86_64.rpm 2.4 MB/s | 84 kB    00:00
(8/11): containerd-2.1.5-1.amzn2023.0.1.x86_64_65 MB/s | 23 MB    00:00
(9/11): pigz-2.5-1.amzn2023.0.3.x86_64.rpm 680 kB/s | 83 kB   00:00
(10/11): runc-1.3.3-2.amzn2023.0.1.x86_64.rpm 51 MB/s | 3.9 MB   00:00
(11/11): docker-25.0.13-1.amzn2023.0.2.x86_64.r 68 MB/s | 46 MB   00:00
```

6. Create/edit compose.yaml on the EC2 instance (`sudo vim compose.yaml`) and paste content from the repo: [Gitea](#). While pasting, capture the editor content:

```
ec2-user@ip-172-31-9-213:~$ cat gitea.yaml
# Docker Compose file for Gitea
version: "3"

services:
  gitea:
    image: gitea/gitea:latest
    container_name: gitea
    environment:
      - USER_UID=1000
      - USER_GID=1000
    restart: always
    ports:
      - "3000:3000"
      - "222:22"
    volumes:
      - gitea-data:/data

volumes:
  gitea-data:
```

- ## 7. Save and verify file exists:

```
[ec2-user@ip-172-31-9-213 ~]$ sudo vim compose.yaml
[ec2-user@ip-172-31-9-213 ~]$ ls -l
total 4
-rw-r--r--. 1 root root 281 Jan 17 14:15 compose.yaml
```

8. Add ec2-user to docker group, show groups before re-login, exit and reconnect, show groups after reconnect:

```
[ec2-user@ip-172-31-9-213 ~]$ groups
ec2-user adm wheel systemd-journal
[ec2-user@ip-172-31-9-213 ~]$ sudo usermod -aG docker $USER
[ec2-user@ip-172-31-9-213 ~]$ groups
ec2-user adm wheel systemd-journal
DeLL@DESKTOP-OPC01NF MINGW64 /d/Uni/Semester 5/CC Lab/CC-KomalKashif-031 (main)
$ ssh -i "D:\Uni\Semester 5\CC Lab\Lab8Key.pem" ec2-user@3.29.91.65
,
      #
  ~\_\_ #####_          Amazon Linux 2023
  ~~\_\_ #####\_
  ~~ \###|_
  ~~   #/`--> https://aws.amazon.com/linux/amazon-linux-2023
  ~~
  ~~-.-
  ~~ /`-
  _/m/
Last login: Sat Jan 17 14:09:03 2026 from 103.229.252.81
[ec2-user@ip-172-31-9-213 ~]$ groups
ec2-user adm wheel systemd-journal docker
```

9. Run docker compose up -d from the directory with compose.yaml:

```
[ec2-user@ip-172-31-9-213 ~]$ docker compose up -d
WARN[0000] /home/ec2-user/compose.yaml: the attribute `version` is obsolete, it will be ignored, please remove it to avoid potential confusion
[+] up 5/7
[+] up 10/10ea/gitea:latest [██████] 73.11MB / 75.48MB Pulling
  ✓ Image gitea/gitea:latest Pulled
    ✓ 2d35ebdb57d9 Pull complete 12.1s
    ✓ 9f4e672c1f34 Pull complete 12.2s
    ✓ 4da94b3cc809 Pull complete 3.1s
    ✓ 8e016ece0bd3 Pull complete 3.2s
    ✓ 3466493cb6cb Pull complete 3.2s
    ✓ 95215379f1d1 Pull complete 8.8s
  ✓ Network ec2-user_default Created 0.1s
  ✓ Volume ec2-user_gitea-data Created 0.0s
  ✓ Container gitea Created 0.2s
[ec2-user@ip-172-31-9-213 ~]$
```

10. Edit the security group Lab8SecurityGroup inbound rules in the EC2 console: add Custom TCP rule port 3000 source 0.0.0.0/0 and save. Capture the inbound rules after saving:

Security group rule ID	IP version	Type	Protocol	Port range	Source
sgr-02cf86b53a3371ff6	IPv4	Custom TCP	TCP	3000	0.0.0.0/0
sgr-09ff5d31fe71896c0	IPv4	SSH	TCP	22	0.0.0.0/0

11. From your Windows browser navigate to: <http://Public-IP:3000> — capture the Gitea setup/install page:

12. Complete initial Gitea setup (create admin user, create a repo) and capture Gitea showing the created repository:

```

touch README.md
git init
git checkout -b main
git add README.md
git commit -m "First commit"
git remote add origin http://3.29.91.65:3000/Komal-31/CC-Lab8.git
git push -u origin main

```

13. Task 4 summary

The screenshot shows the AWS EC2 Instances page. On the left, there's a navigation sidebar with options like Dashboard, AWS Global View, Events, Instances (selected), Instance Types, Launch Templates, Spot Requests, Savings Plans, Reserved Instances, Dedicated Hosts, Capacity Reservations, Images, AMIs, AMI Catalog, and Elastic Block Store. The main area displays a table titled 'Instances (1/1) Info' with one row for 'Lab8Machine'. The instance details include its ID (i-079d288d637ce6591), state (Running), type (t3.micro), and various network and security details. A 'Details' tab is selected, showing the instance summary.

Cleanup — Remove resources to avoid charges

1. Terminate the EC2 instance Lab8Machine.

The screenshot shows the AWS EC2 Instances page after terminating the instance. A green success message at the top states 'Successfully initiated termination (deletion) of i-079d288d637ce6591'. The instance table now shows the status as 'Shutting-d...' for the selected instance.

2. Delete associated EBS volumes and snapshots

The screenshot shows the AWS Volumes page. It displays a table with columns for Name, Volume ID, Type, Size, IOPS, Throughput, Snapshot ID, Source volume ID, and Created. A message at the bottom states 'You currently have no volumes in this region'.

3. Delete security group Lab8SecurityGroup and key pair Lab8Key from the EC2 console

The screenshot shows the AWS Security Groups page. It displays a table with columns for Name, Security group ID, Security group name, VPC ID, and Description. The single entry is 'default' with ID 'sg-044eb8ae94a5b56f9' and description 'default VPC security group'.

4. Delete IAM users Lab8User and any access keys.

Users (3) 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 sign-in	Access key ID		
<input type="checkbox"/>	Admin	/	0	10 days ago	-	10 days	10 days ago	-		
<input type="checkbox"/>	Assignment-2	/	0	17 days ago	-	18 days	-	Active - AKIA3TFVF2N...		
<input type="checkbox"/>	Lab15	/	0	3 hours ago	-	4 hours	-	Active - AKIA3TFVF2N...		

5. Final cleanup summary

Console Home [Info](#)

Reset to default layout [+ Add widgets](#)

Recently visited [Info](#)

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- [AWS Billing Conductor](#)
- [IAM](#)
- [EC2](#)
- [VPC](#)
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[View all services](#)

Applications (0) [Info](#)

Create application

Region: Middle East (UAE)

Select Region me-central-1 (Current Region) [Find applications](#)

No applications
Get started by creating an application.

[Create application](#)

[Go to myApplications](#)