AMAZON WEB SERVICE(AWS)

PROJECT ON EC2 AND S3

Part -1

EC2 INSTANCE CREATION:

- **Project overview:**

a. Setting up cloud infrastructure for “ABC” company.
b. Deploying department- Specific EC2 instances in EUROPE STOCKHOLM(eu-north-1b)
c. Ensuring “network-segmentation” ,”role-based-access”, “redundancy” ,”storage requirement”

Domain-wise EC2 instance setup:

- **DOMAIN NAMES :** 1.Management, 2.HR 3. Manager, 4.Sales , 5. Technical
- **EC2 INSTANCE CREATION:**
- Management(1Employee):Windows OS: Protocols: RDP, ICMP, HTTP, HTTPS
- HR: (1Employee): Windows OS: Protocols: RDP, HTTP, SMTP
- Manager(1 Employee) Windows OS: Protocols: RDP, HTTP, HTTPS
- Sales(1 Employee)Windows OS: Protocols: RDP, IMAP
- Technical(1 Employees): Linux OS: Protocols: SSH, ICMP, HTTP, HTTPS, POP, SMTP, IMAP

📌 **Notes**: The company is requesting 1 replica EC2 instance for the Technical device in eu-north-1c (for high availability).The company also requires 1 additional storage volume for the Management EC2 instance.

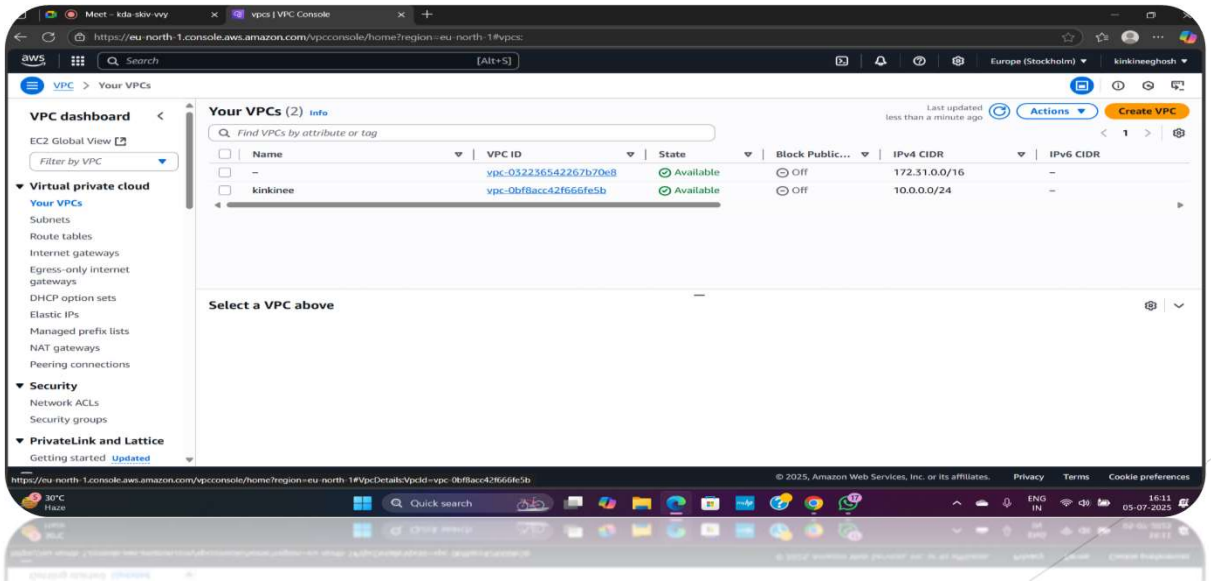
Process of this instance setup:

Out of the five department each have its own isolated environment. This helps implementing department wise security and access policies.

First, we need to create a **VPC** and then **security groups for each domain** and then need to create individual instances.

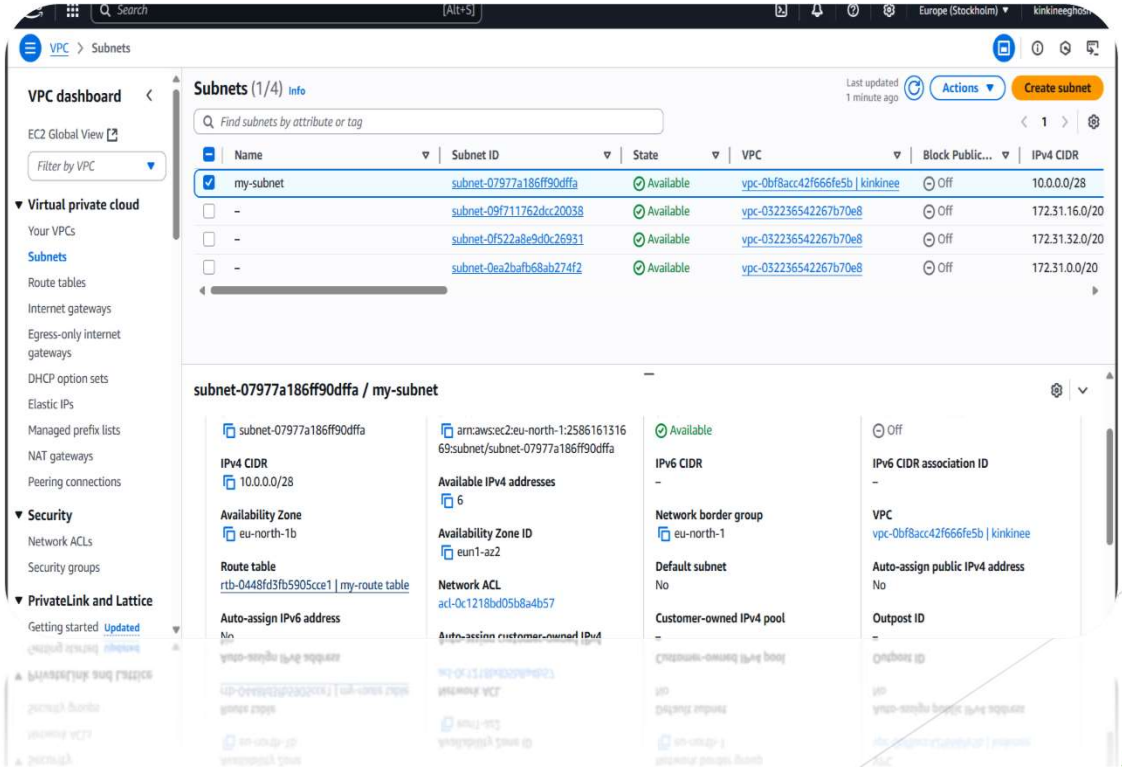
To create VPC: creation of VPC includes four steps. These are- your VPC, subnet, route tables and internet gateways.

1. **Your VPC:** We need to go to your VPC, click on **create VPC** ,create a name ,choose **IPV4 CDR value(10.0.0.0/24)**, click on **create VPC.**(named kinkinee)



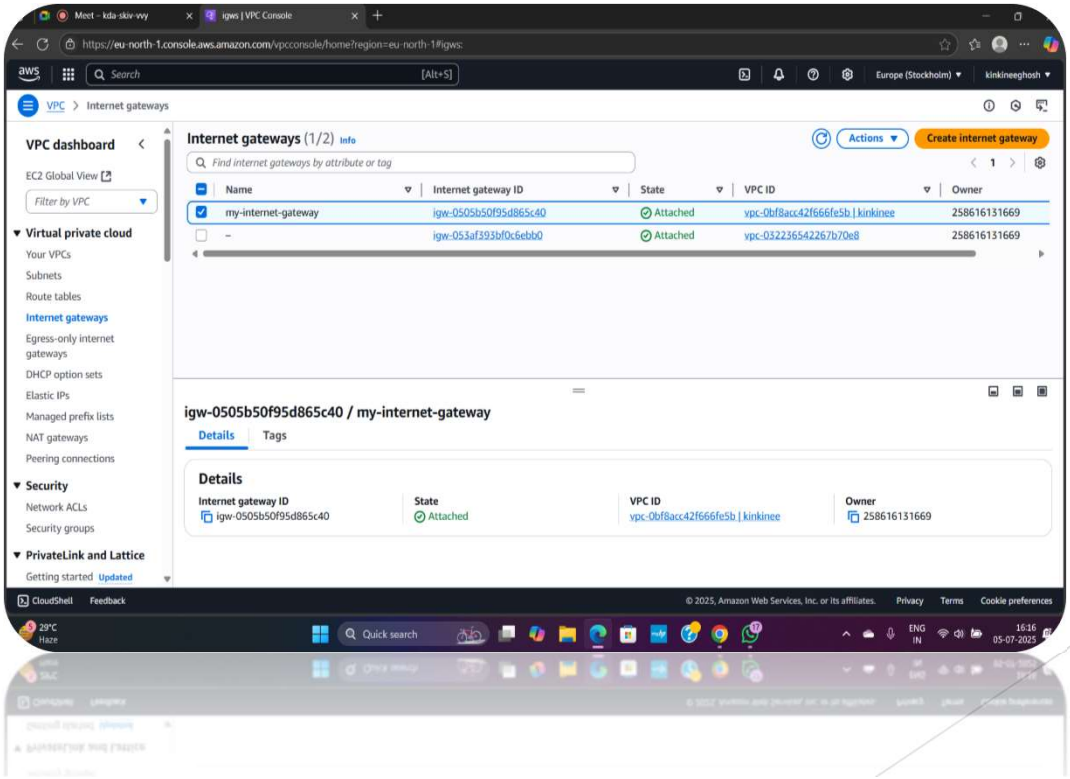
2.Creating a subnet:

- click on **subnet**, click on **create subnet**, select the **VPC**(here, it is named kinkinee), put the **subnet name** while choosing the **availability zone**, select **IPV4 subnet CIDR** block where range is **10.0.0.0/28** then click on **create subnet.**



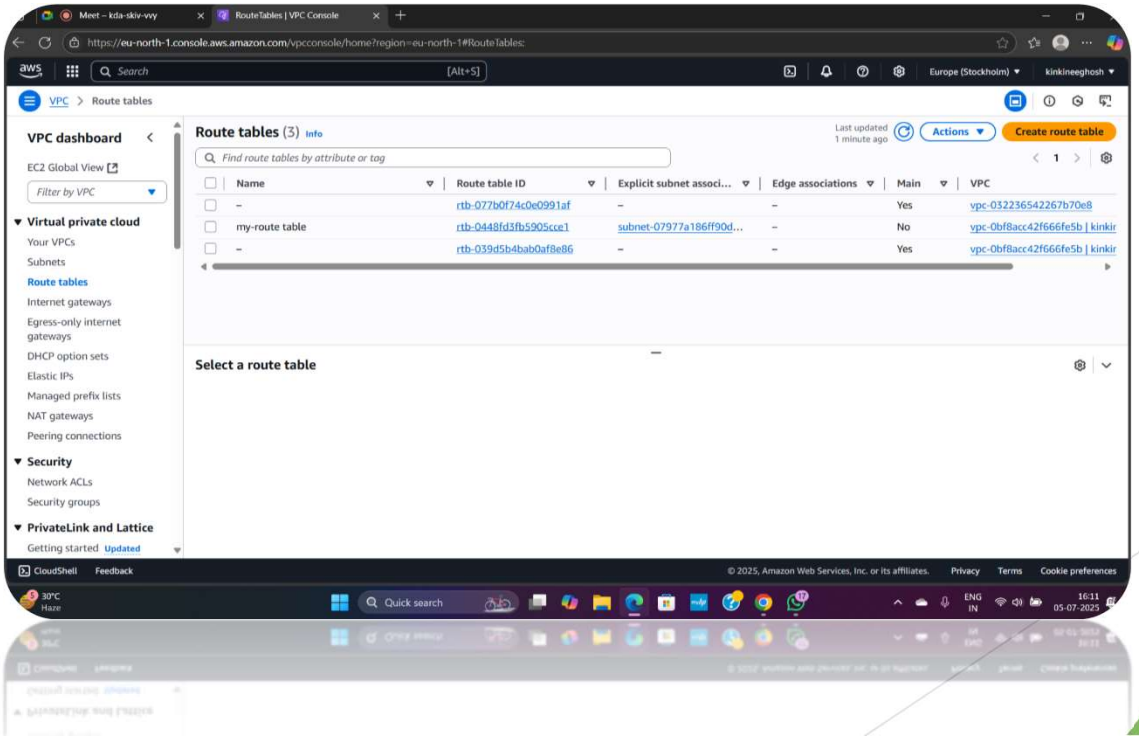
3. Creating an internet gateway:

- **Click on internet gateways, click on create internet gateways, give a name, click on create internet gateways. Click on attach to a VPC, select the VPC (kinkinee),** click on **attach internet gateway.**



4. Creating route tables:

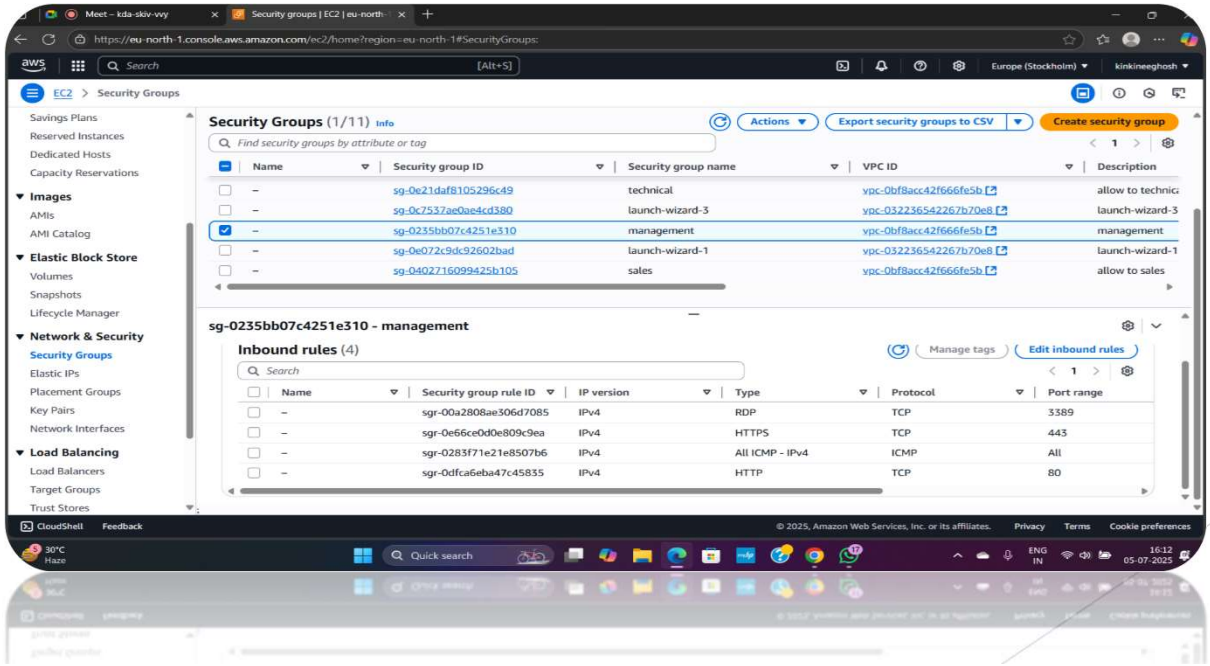
- Click on **route tables** ,click on **create route tables**, put the **name**, select the **VPC**(here, kinkinee), click on **create route tables** ,click on **edit routes**, click on **add route** , select by **default IP address(0.0.0.0/0)**, click on **internet gateways**. Select the **gateway**. click on **save changes**. click on **subnet associations** ,click on **edit subnet associations** ,select the **subnet** and then **save associations.**



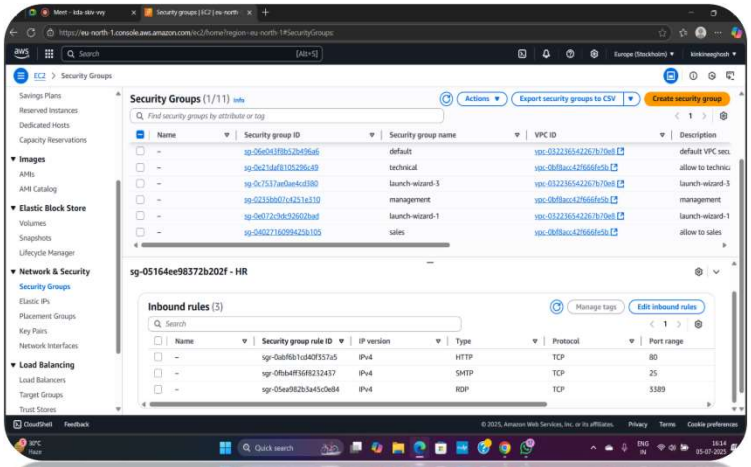
To create security groups:

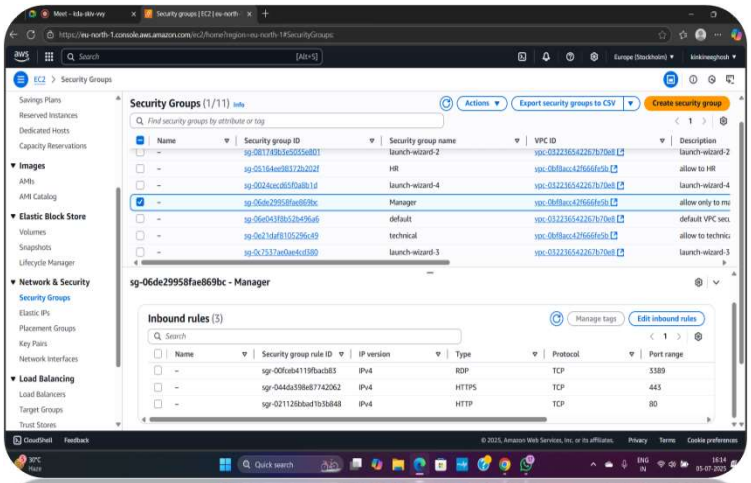
We need to create **security groups for each domain**. To create security groups – click on create security groups then we have to fill the details (name ,description and VPC created). To control traffic ,we need to choose inbound rules and respective outbound rules then click on create security groups.

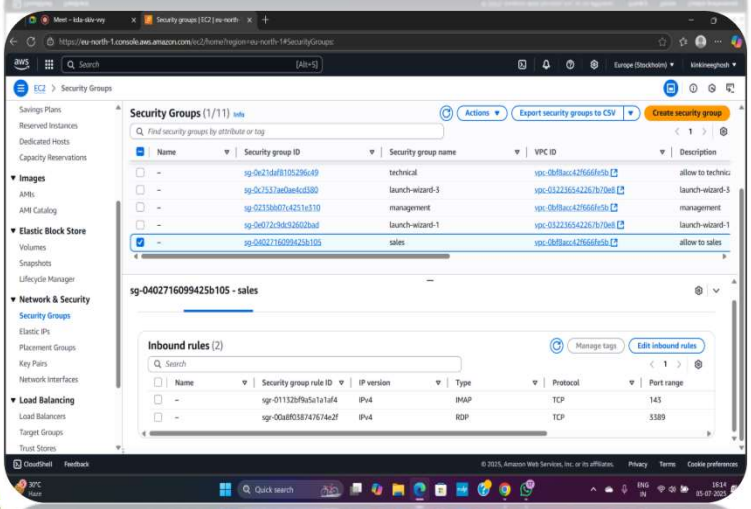
- Example: **In case of Management-** name was management , description were given allow access to management then selecting the VPC named kinkinee and then the respective inbound rule were including RDP, ICMP,HTTP,HTTPS.

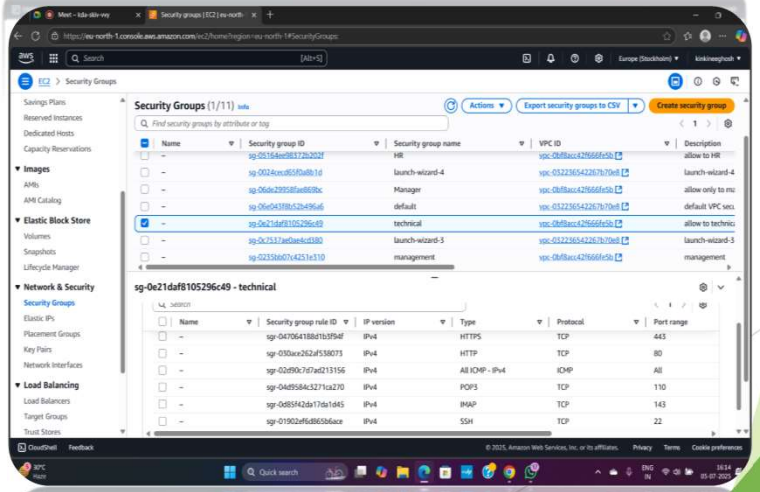


Other respective security groups:



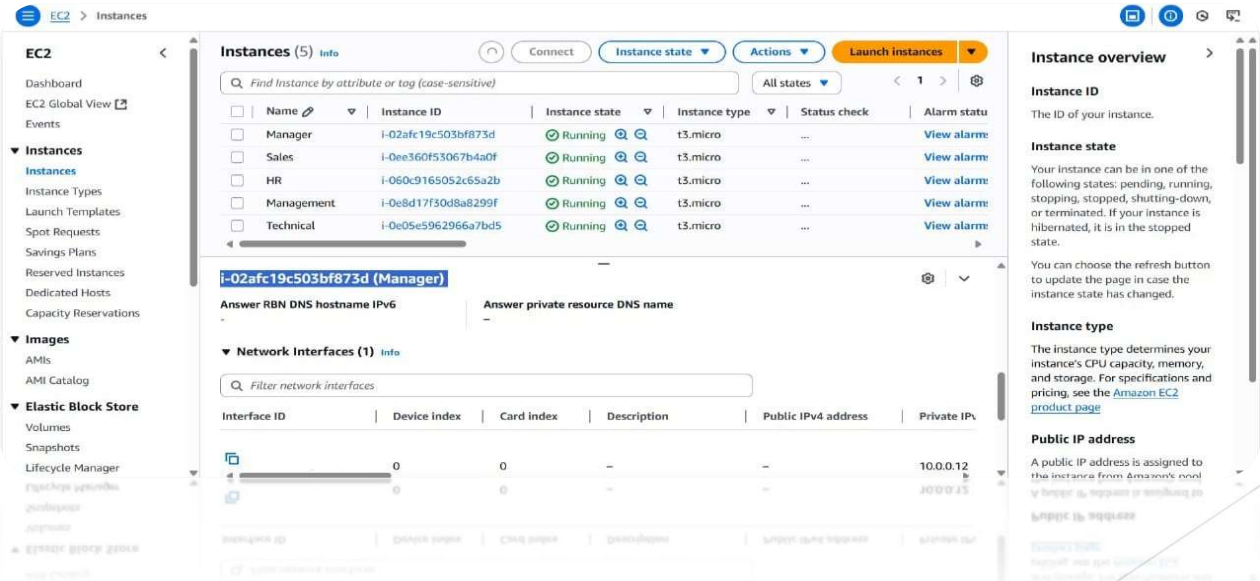






Launching an instance:

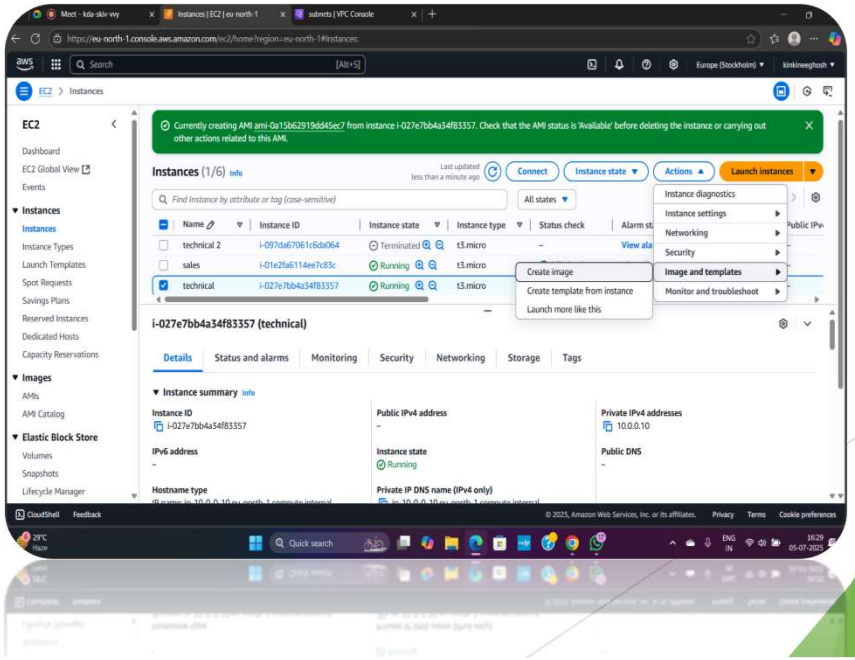
- Now after going to the EC2 instance dashboard click on **Launch instance** then naming them as the respective domain names(e.g.- TECH-EC2,HR-EC2), then choose an **AMI** based on department's requirement(e.g. for Management its Windows OS) then choose **instance type** based on usage (free tier), then either create **new key pair or use existing one**, then form network setting click on the **VPC**(kinkinee) made earlier or default one of your choice. choose the **subnet** (eu-north-1b)based on department. then **enable auto assign public IP**. Then choosing the respective security groups you created make sure it allows all the needed configuration then click on **launch instance**.



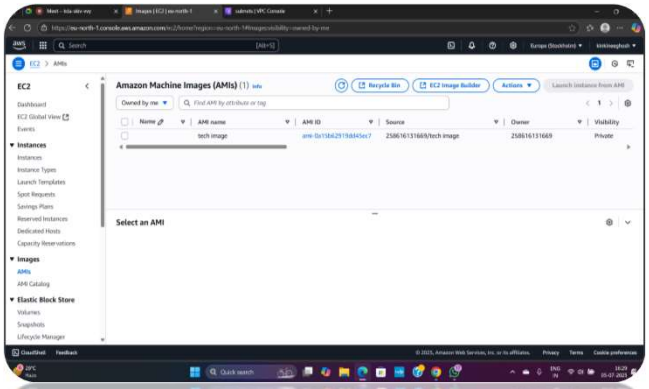
Creating replica of technical EC2 instance in another availability zone:

- Selected original TECHNICAL EC2 instance in eu-north-1b and created a custom AMI from it named TECHNICAL2.
- Launched a new instance from this AMI named TECHNICAL2 into a different subnet named TECHNICAL2 in eu-north-1c while selecting the previous Technical security group and used same VPC (Kinkinee)

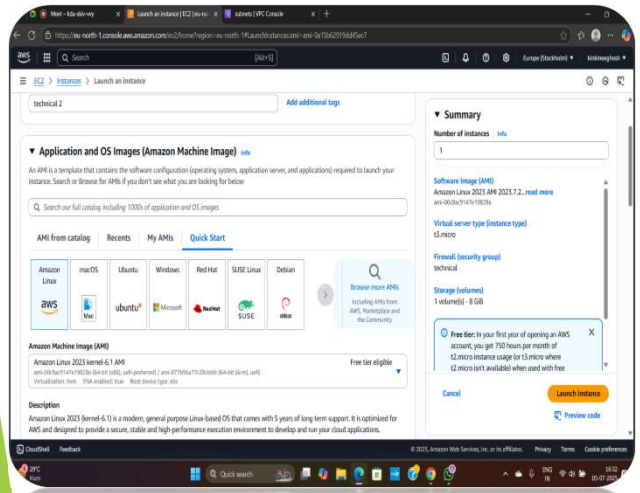
➢ **Launching instance with AMI**

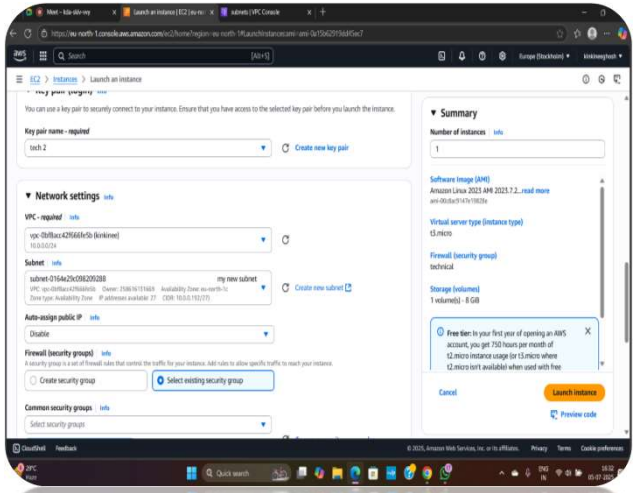


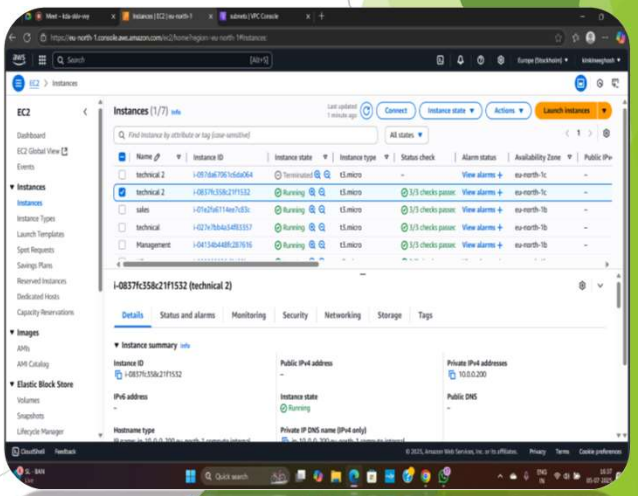
- Made an AMI named TECH image



- Launching the second instance named technical2 with respective AMI ,subnets and with existing security groups.

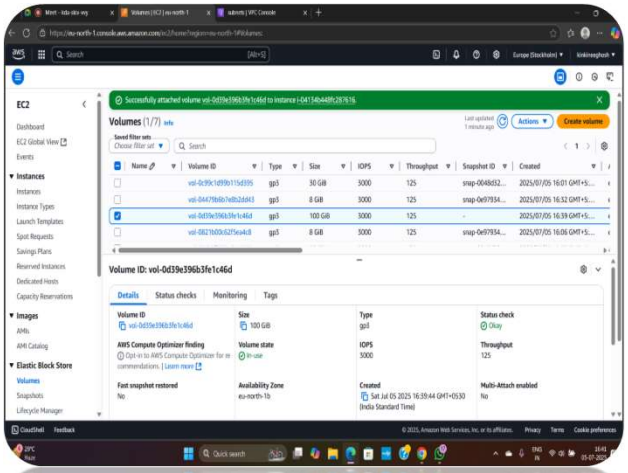


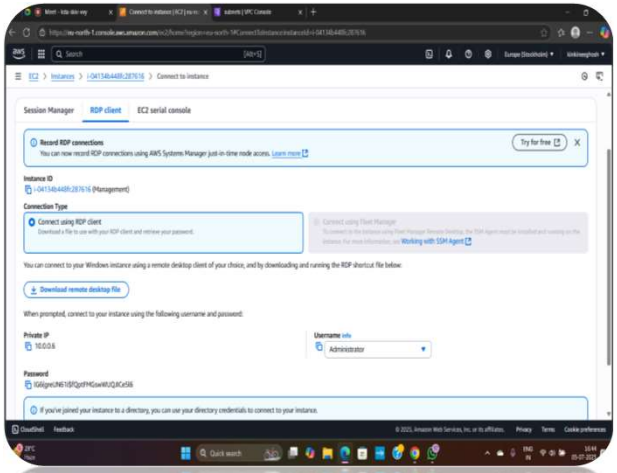


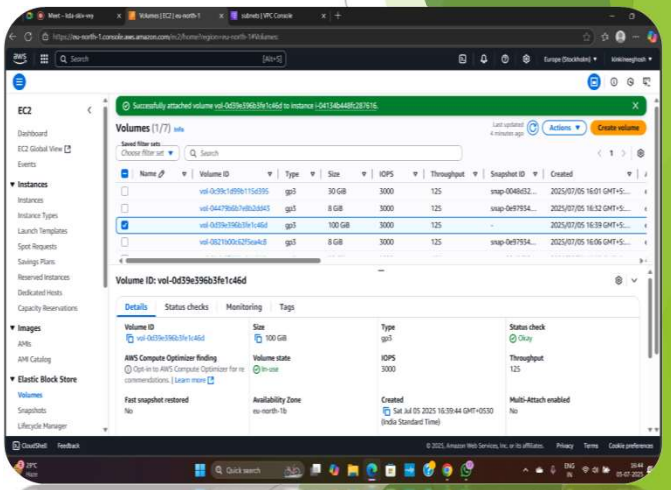


Creating and attaching EBS volume to management instance:

- Create new EBS volume of 100Gib in eu-north-1b availability zone with the volume type as magnetic standard.
- Then clicked on actions and attached the newly created volume to the management EC2 instance.
- Then connect to the management EC2 instance using RDP client and open Disk Management, initialized a new volume and create new simple volume and format it with NTFS.





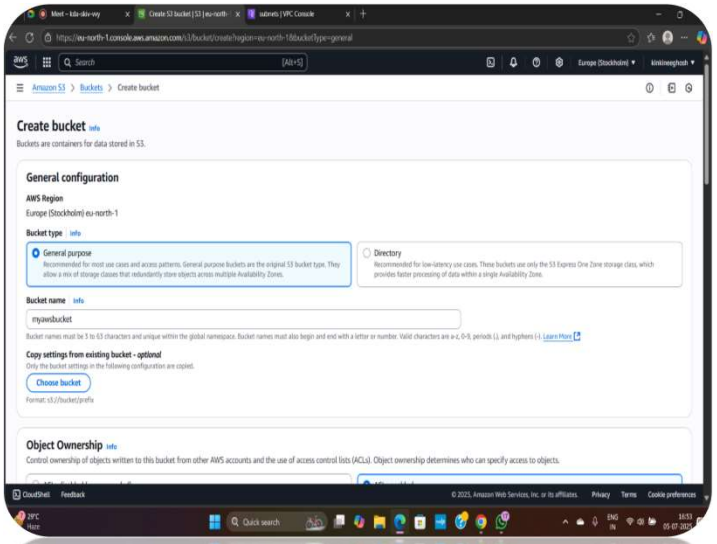


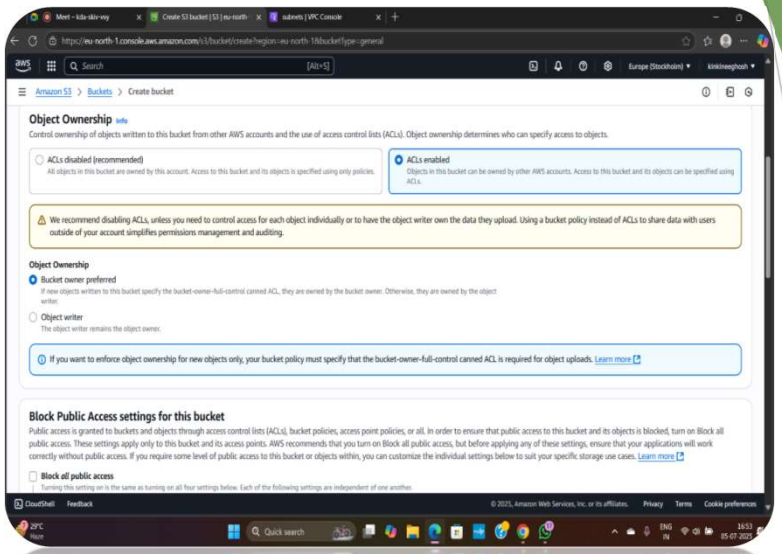
S3 static website hosting with versioning ,life cycle management and replication rule:

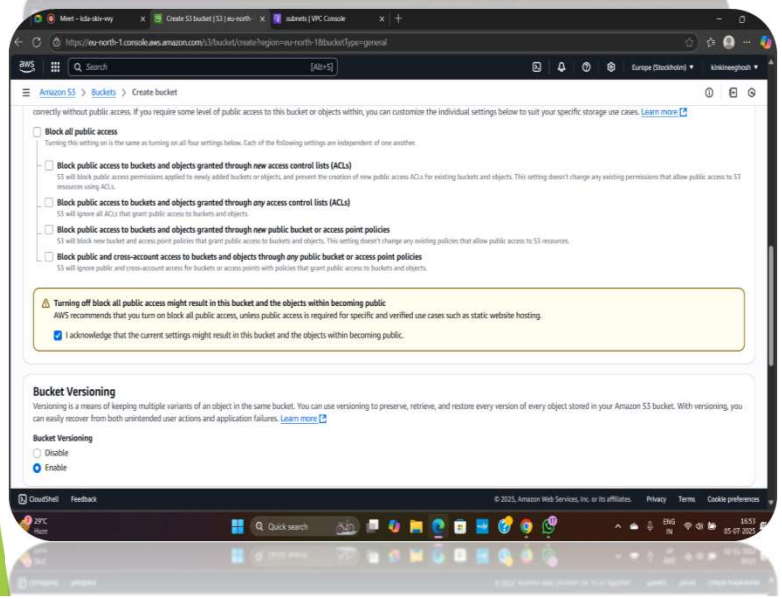
Part 2

CREATING BUCKETS AND IMPLEMENTING RULES:

- Creating a **S3** bucket named **KINKINEEBUCKET** in Europe Stockholm(eu-north-1b) with enabled static hosting website hosting , **disabling block all public access** ,added **bucket policy** to allow **public read access**, enabling **"make public ACL"** from actions inside the bucket.
- Then enabling **bucket versioning** which callows automatic tracking of any changes to the files.
- Configured life-cycle rule on **KINKINEEBUCKET**.
- Creating another bucket named **KINKINEEBUCKET2** creating a replication rule , choosing the destination bucket of replication rule as **KINKINEEBUCKET2** with replicate all the existing objects in the bucket option enabled and in the rule scope enabled apply to all objects in the bucket option.
- Then in the **"create batch operation job"** option all tasks selected in completion report destination section the destination bucket **KINKINEEBUCKET2** selected.
- Then IAM role policy section create new **IAM** selected and on save . Replication policy is created. Now any file in first bucket **"KINKINEEBUCKET"** will be automatically replicate to the destination bucket **"KINKINEEBUCKET2"**

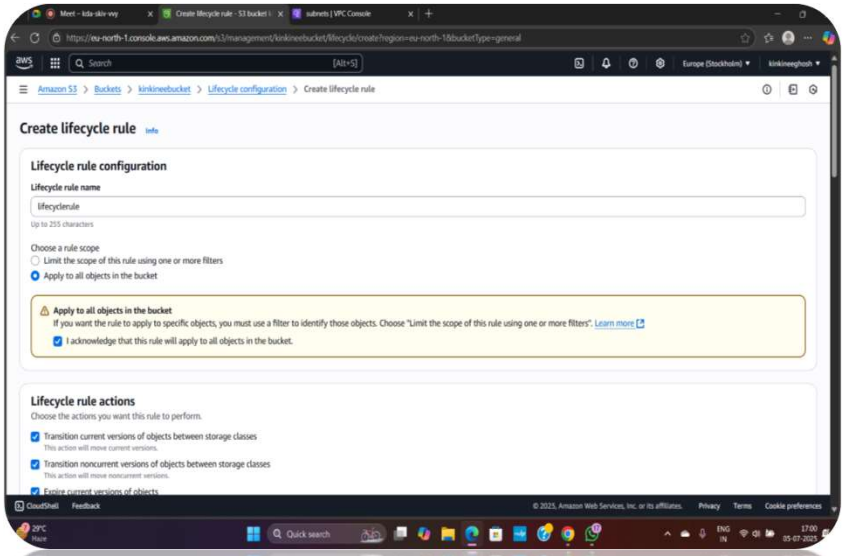


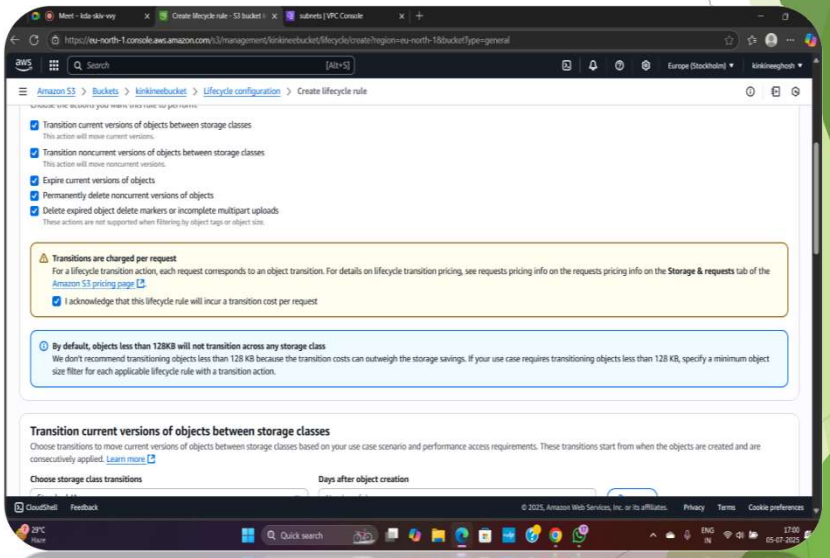




- Making a bucket with static website hosting enabled and with all the public access enabled and bucket versioning enabled named <u>"KINKINEEBUCKET".</u>

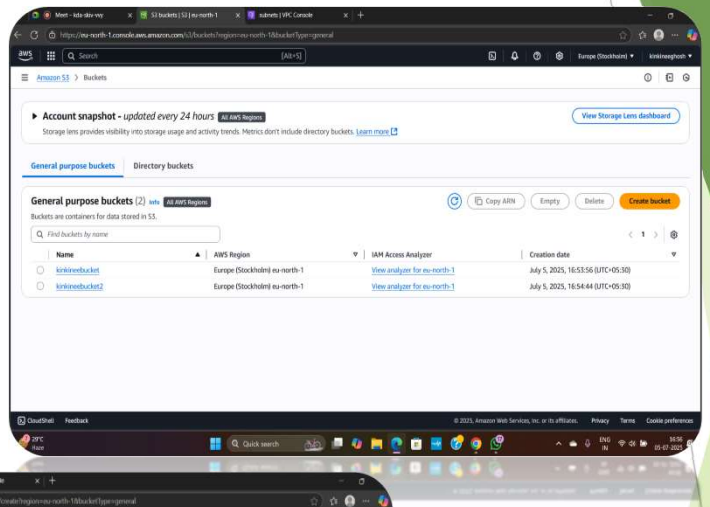
Life cycle rule configuration in KINKINEEBUCKET:



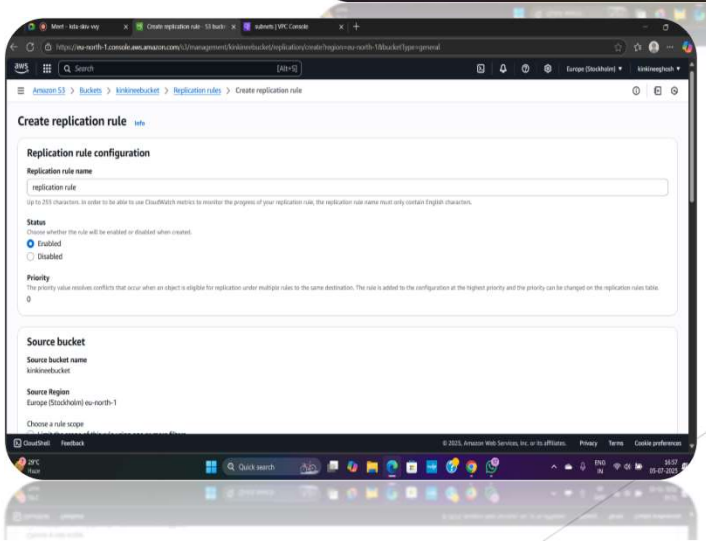


Replication rule configuration in KINKINEEBUCKET with the destination KINKINEEBUCKET2:

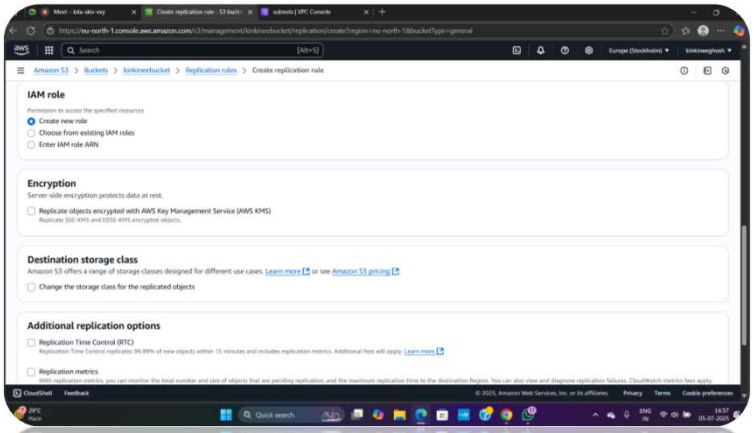
- We need two buckets in case of replication rule:



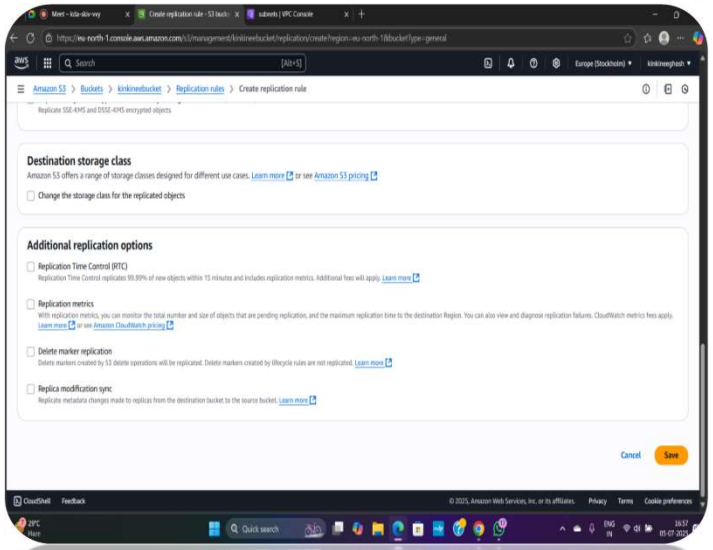
- Creating a Replication rule :

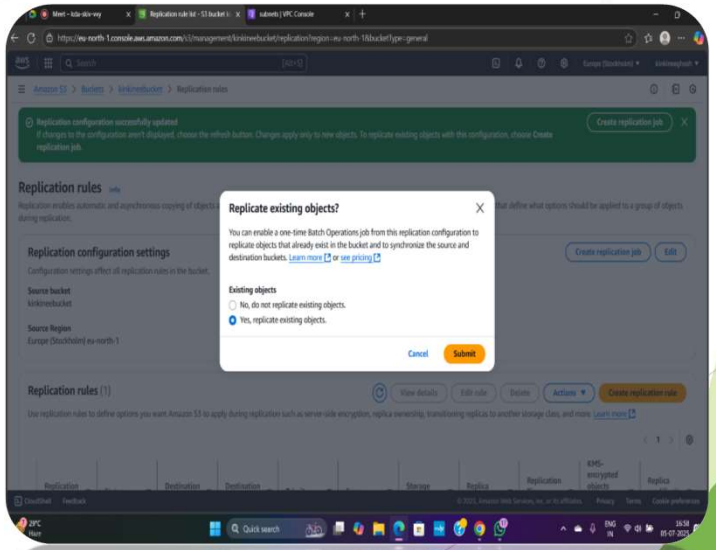


- Choosing the IAM role:



- Submitted replicated existing objects :





- Successfully created batch operation job and successfully created the replication rule all objects successfully replicated in **Kinkineebucket2**.