Elastic IP

An **Elastic IP (EIP)** is a **static, public IPv4 address** that you can allocate to your AWS account and associate with EC2 instances, NAT gateways, or other AWS resources. It allows you to maintain a **consistent IP address** even if the underlying instance stops or fails.

Key Features of Elastic IP:

✔ **Static Public IPv4 Address** → Unlike regular public IPs, an Elastic IP remains the same even if you restart your EC2 instance.
✔ **Easily Reassignable** → You can move an Elastic IP from one EC2 instance to another within the same AWS region.
✔ **Fault Tolerance** → If an instance fails, you can quickly remap the Elastic IP to a backup instance to ensure high availability.
✔ **One Free Elastic IP per Running Instance** → AWS provides one free Elastic IP **as long as it is attached** to a running instance. If it's **not associated with any instance**, AWS **charges you for it**.

Why Use Elastic IP?

🔹 **High Availability** – If an EC2 instance fails, you can quickly reassign the Elastic IP to a new instance.
🔹 **Static IP for External Access** – Useful for setting up DNS records, remote access, or hosting applications that require a fixed IP.
🔹 **Disaster Recovery** – Quickly switch traffic to a backup instance in case of failure.

How to Create and Assign an Elastic IP in AWS?

Step 1: Allocate an Elastic IP

1️⃣ Go to **AWS Management Console** → **EC2 Dashboard**.
2️⃣ Click on **Elastic IPs** (under "Network & Security").
3️⃣ Click **Allocate Elastic IP address**.
4️⃣ Choose "Amazon's pool of IPv4 addresses" and click **Allocate**.

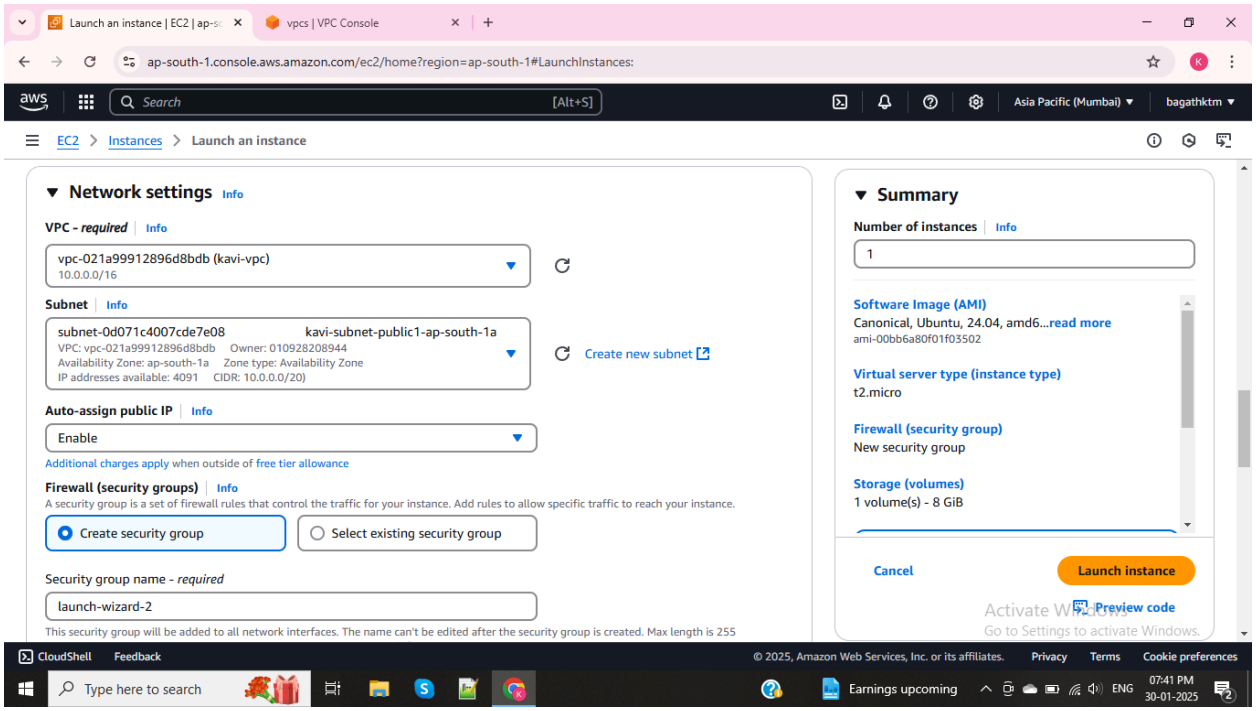
Step 2: Associate Elastic IP with an EC2 Instance

1. Select the allocated Elastic IP.
2. Click **Actions → Associate Elastic IP address**.
3. Select the EC2 instance.
4. Click **Associate**.

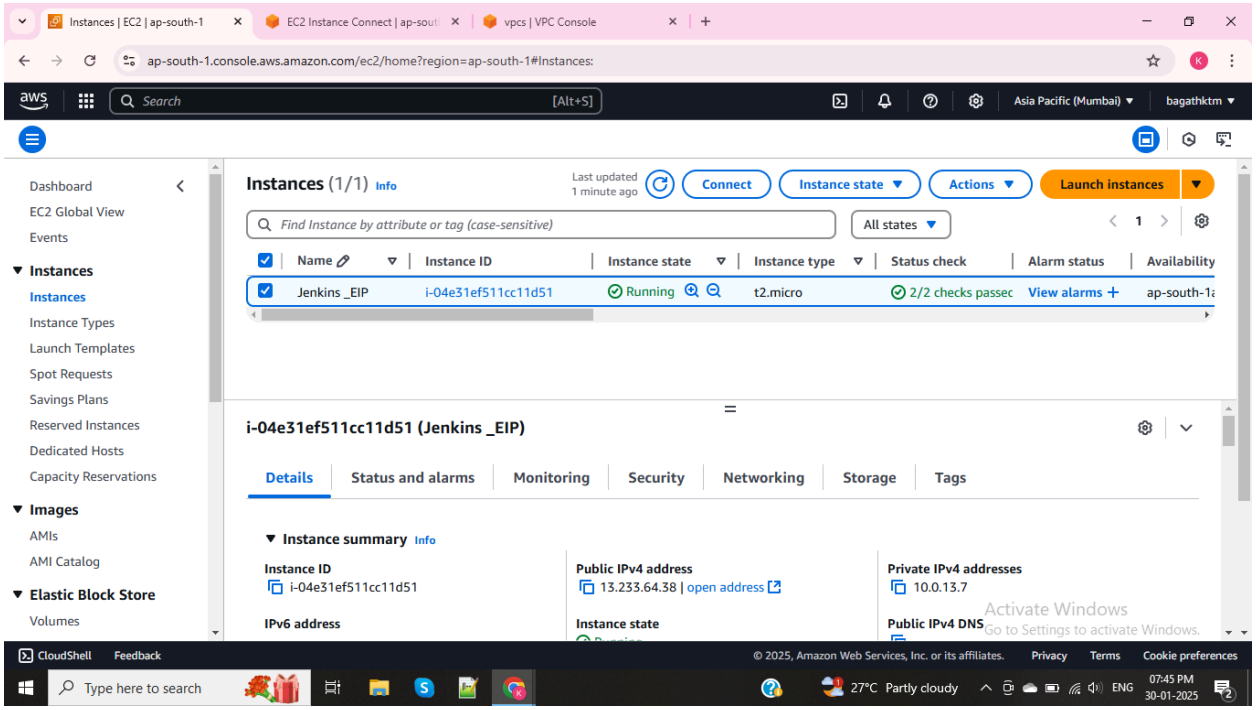
TASK : Create an EC2 instance that deploy Jenkins and application access with Elastic IP.

Go to **AWS Management Console → EC2 Dashboard**.

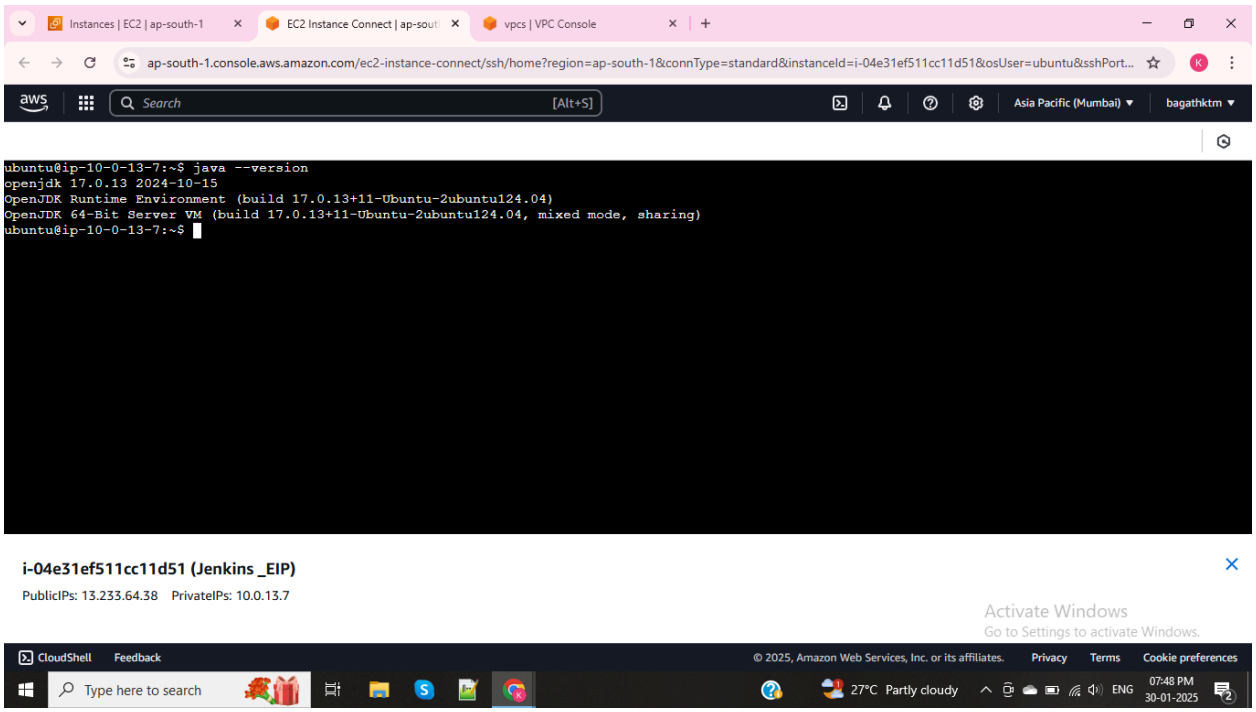
Creating an EC2 instance with **Customized VPC**.



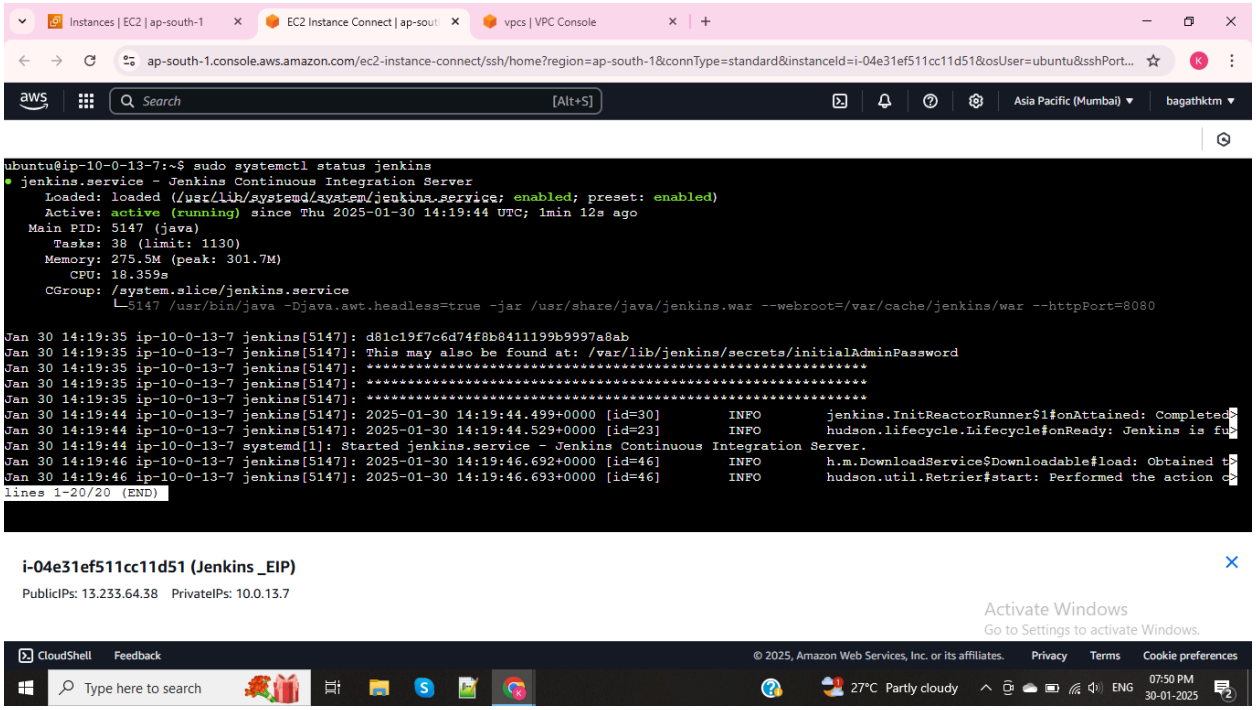
EC2 Instance created. Noted **Public IPV4 address - 13.233.64.38** & **Private IPV4 address - 10.0.13.7**



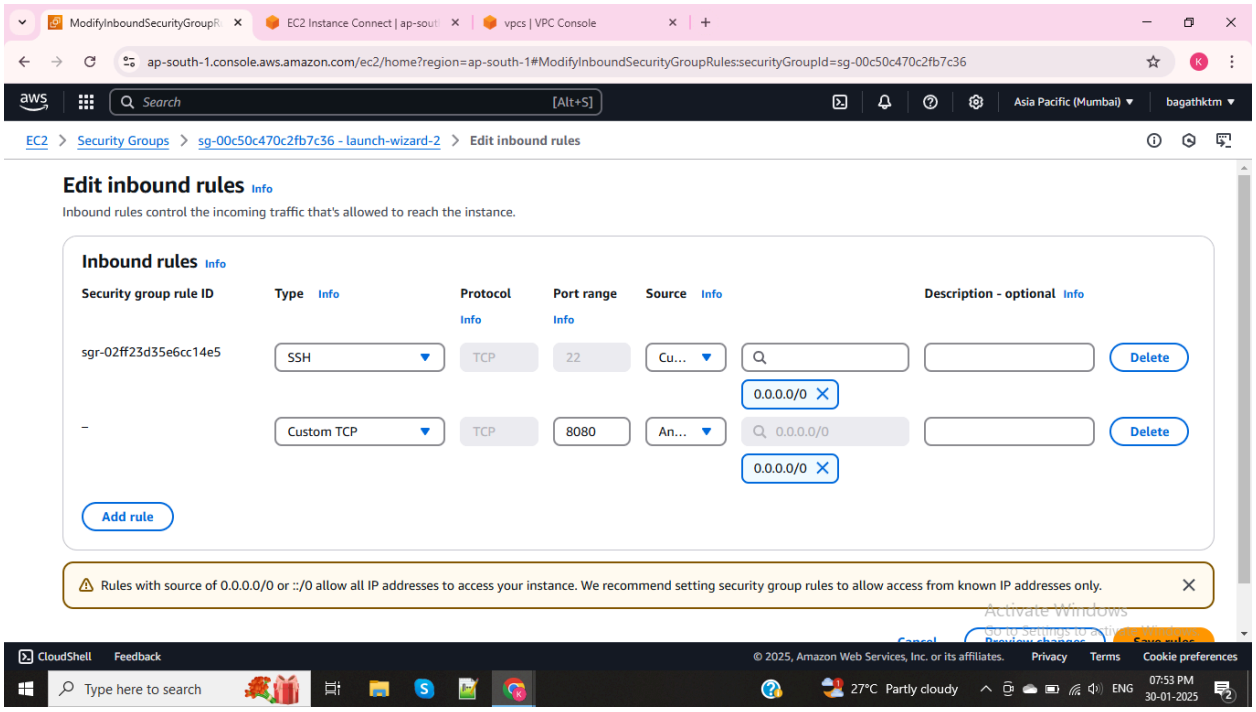
Connect EC2 instance > For Install Jenkins requires Java (Prerequisites).



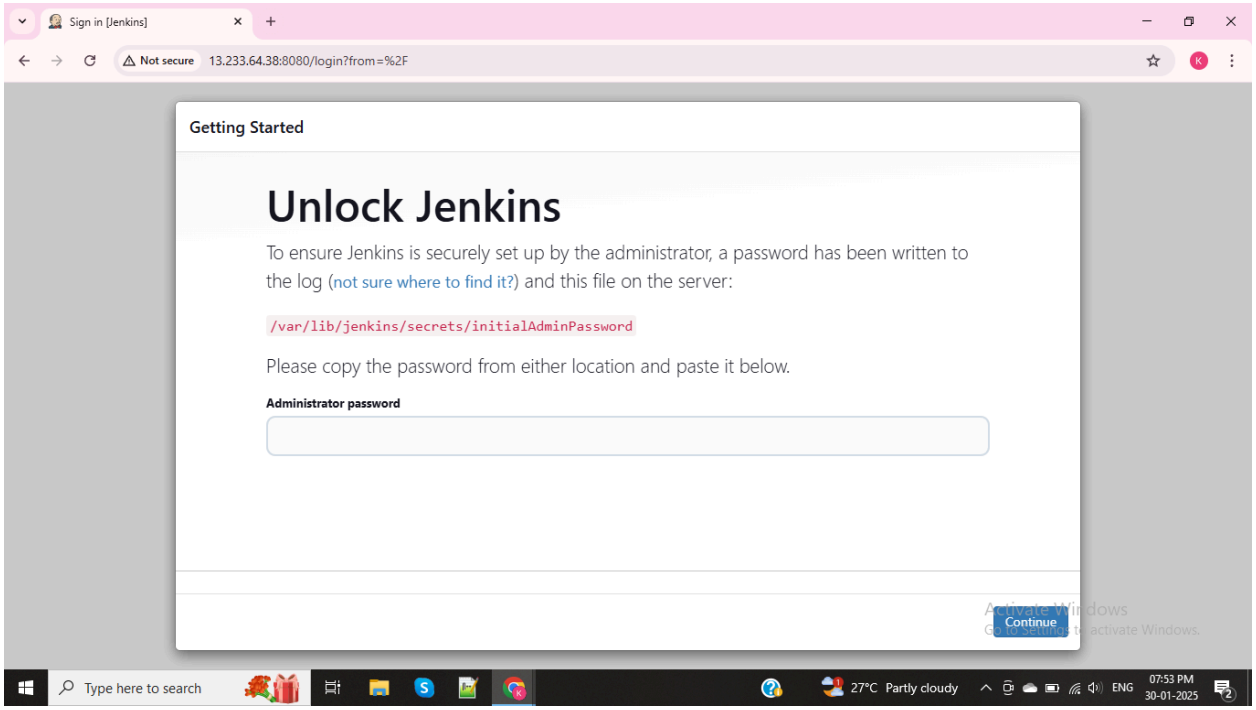
Installed Jenkins and it is active state



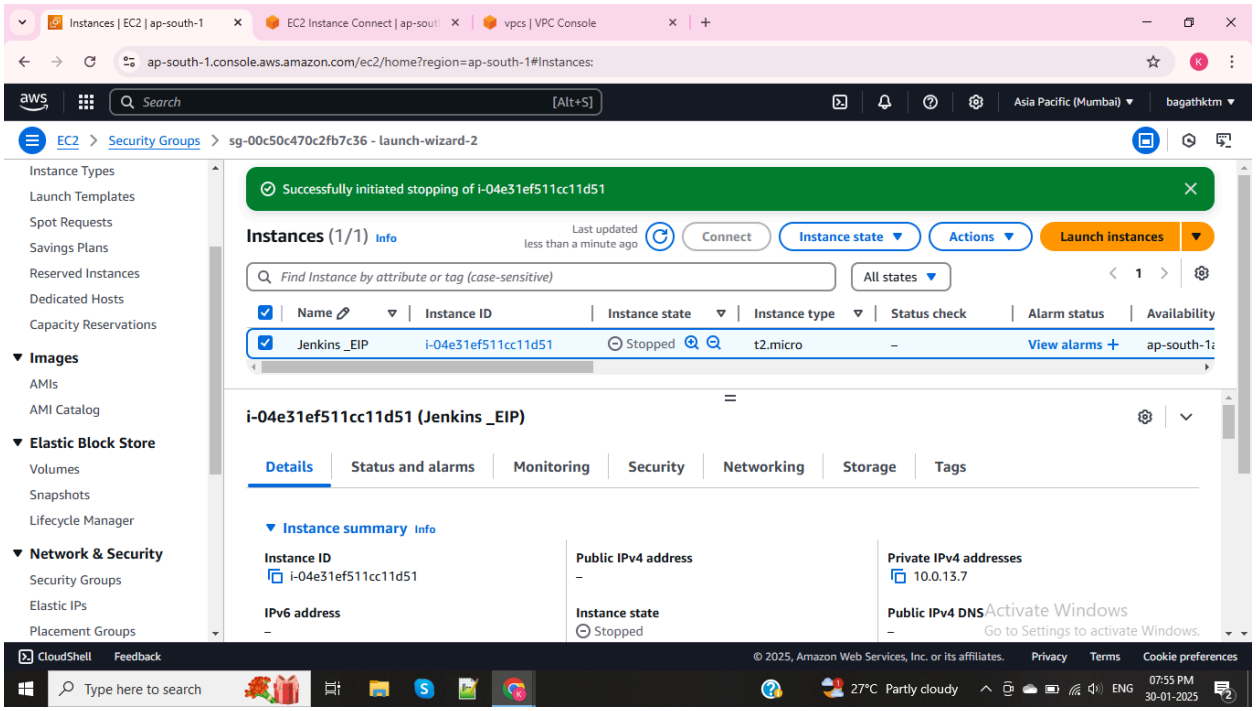
To access Jenkins application > In security groups open jenkins default port 8080



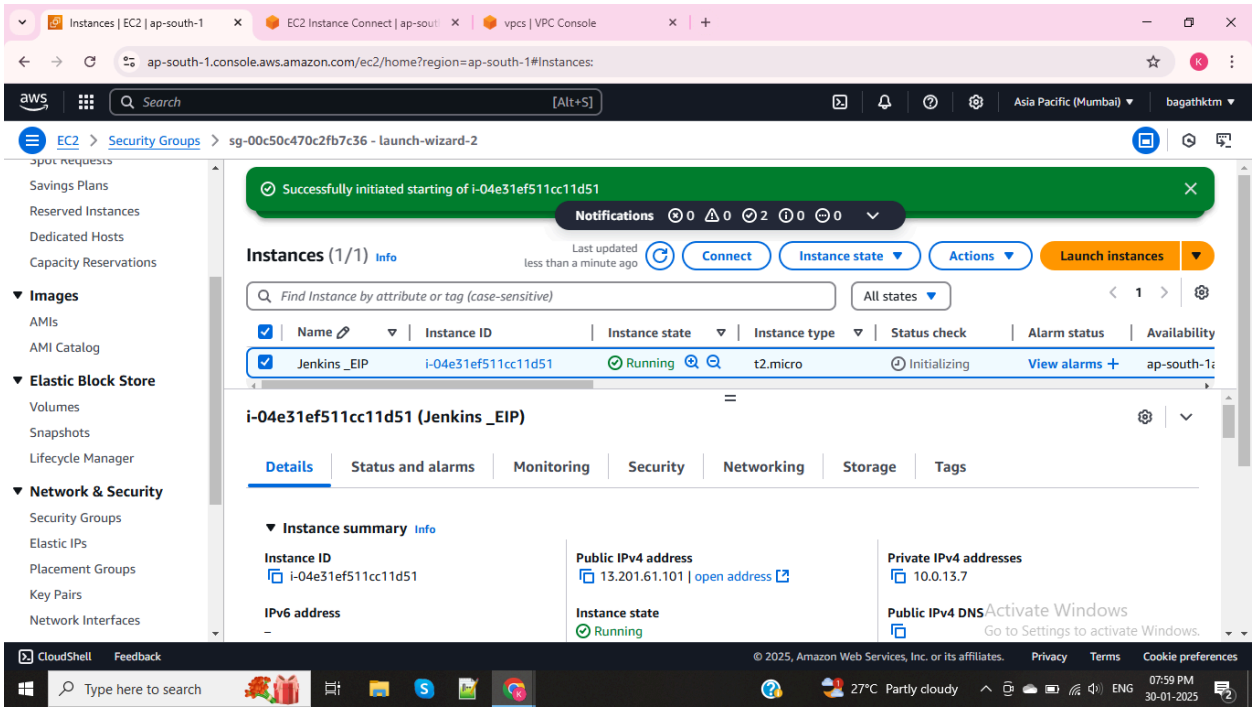
Jenkins access with Public IP address : **13.233.64.38:8080**



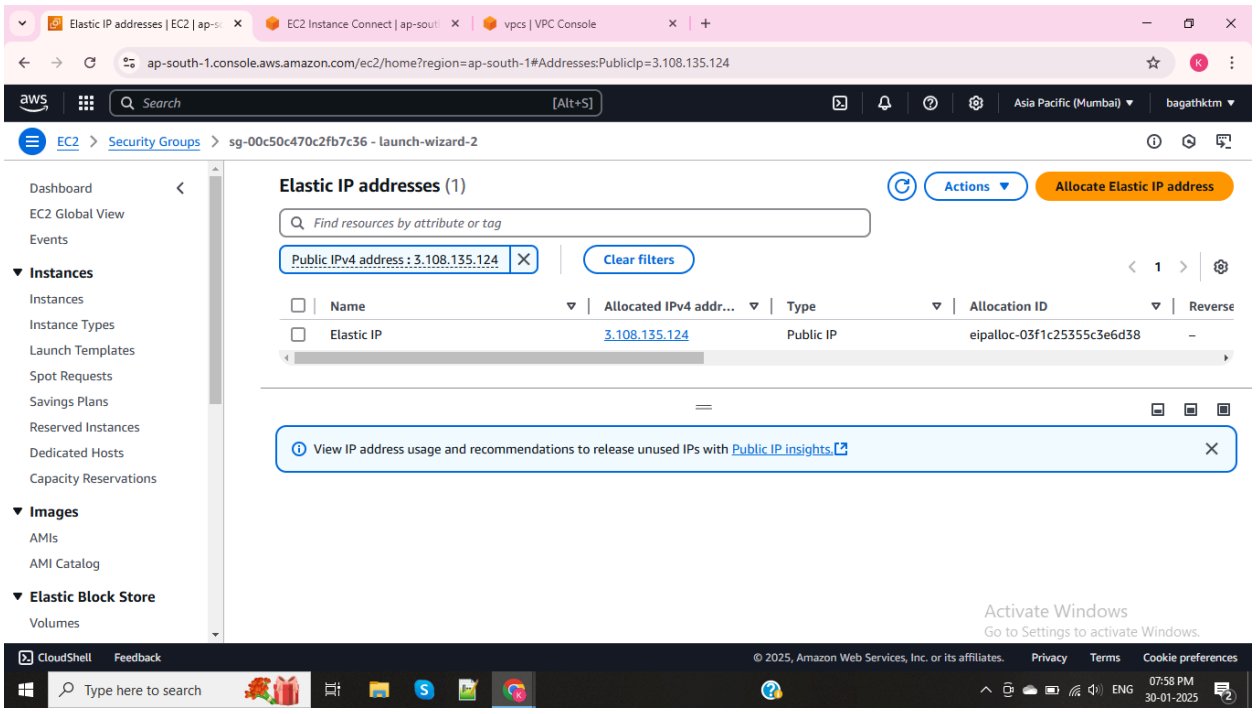
Now, EC2 instance is stopped - In public IP address shows none & private IP address remains same.



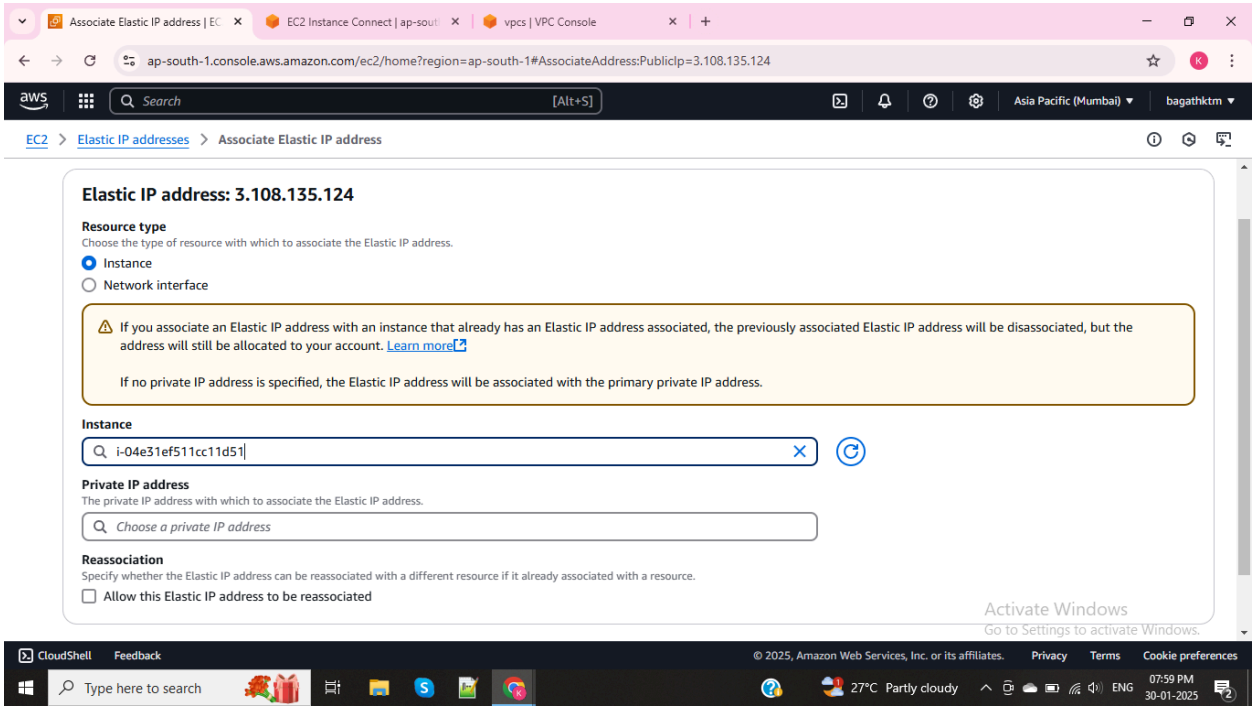
Again same EC2 instance is started now public IP address is changed **13.233.64.38 to 13.201.61.101** so its dynamic (always changing when it stop or start).



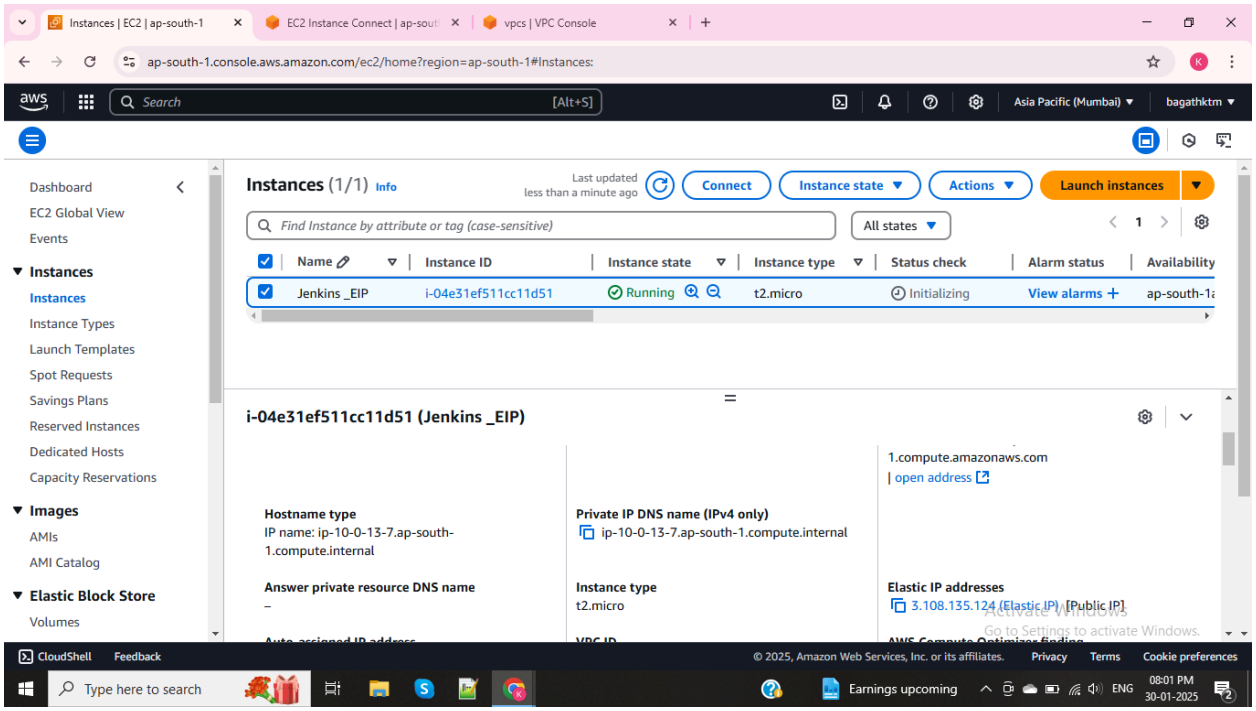
For this, Creating **ELASTIC IP** (its a static IP)



Associate Elastic IP address with running EC2 instance



Output of Elastic IP : **3.108.135.124** its attached with EC2 instance



Jenkins application accessing with Elastic IP