Project 2

Build a Jenkins build server for the development team

Jenkins on AWS

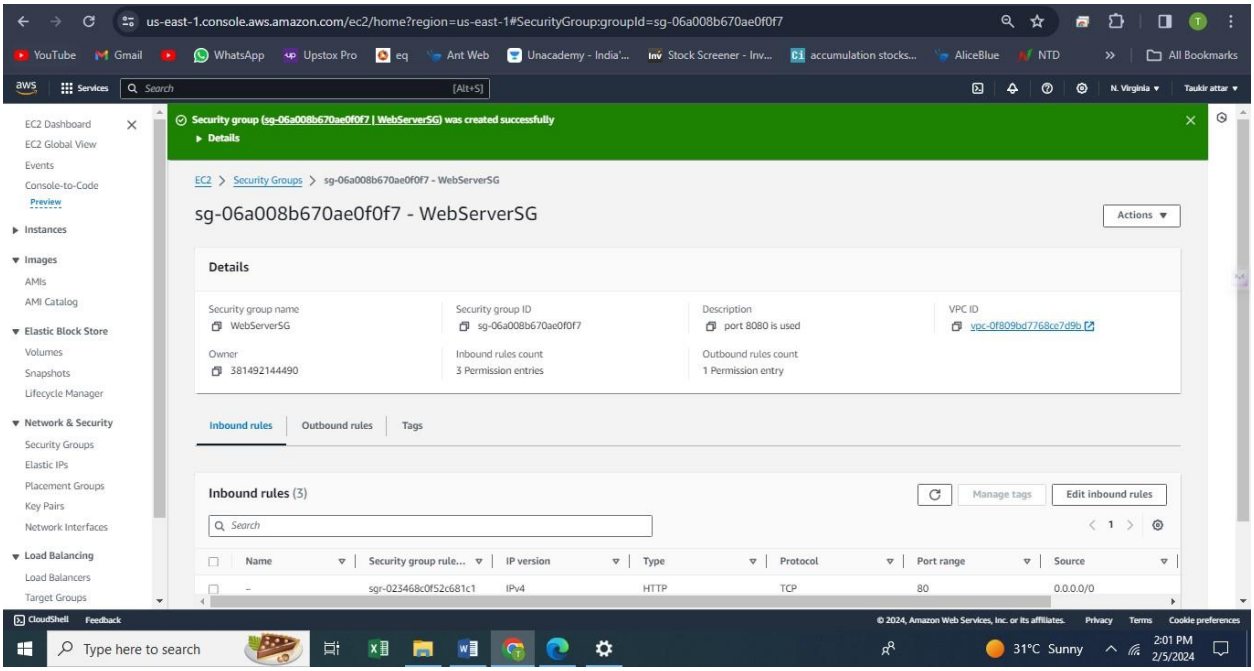
Jenkins is an open-source automation server that integrates with a number of AWS Services, including: AWS CodeCommit, AWS CodeDeploy, Amazon EC2 Spot, and Amazon EC2 Fleet. You can use Amazon Elastic Compute Cloud (Amazon EC2) to deploy a Jenkins application on AWS.

This tutorial walks you through the process of deploying a Jenkins application. You will launch an EC2 instance, install Jenkins on that instance, and configure Jenkins to automatically spin up Jenkins agents if build abilities need to be augmented on the instance.

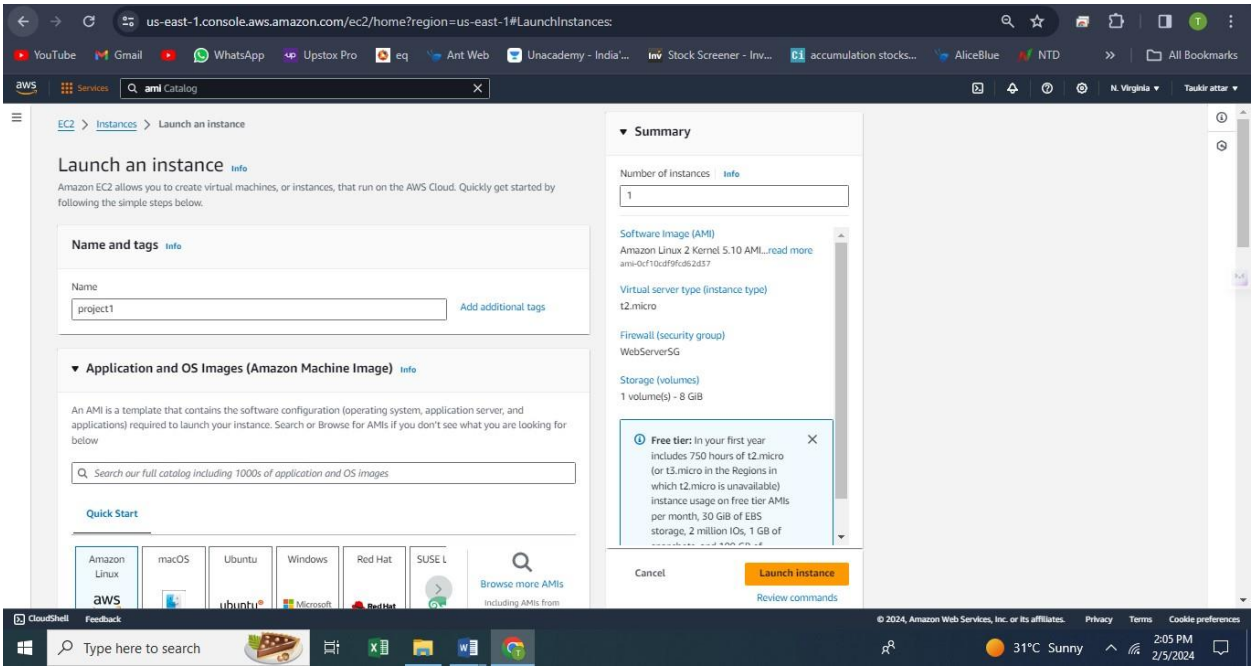
 Creating a security group

A security group acts as a firewall that controls the traffic allowed to reach one or more EC2 instances. When you launch an instance, you can assign it one or more security groups. You add rules that control the traffic allowed to reach the instances in each security group. You can modify a security group's rules any time, and the new rules take effect immediately.

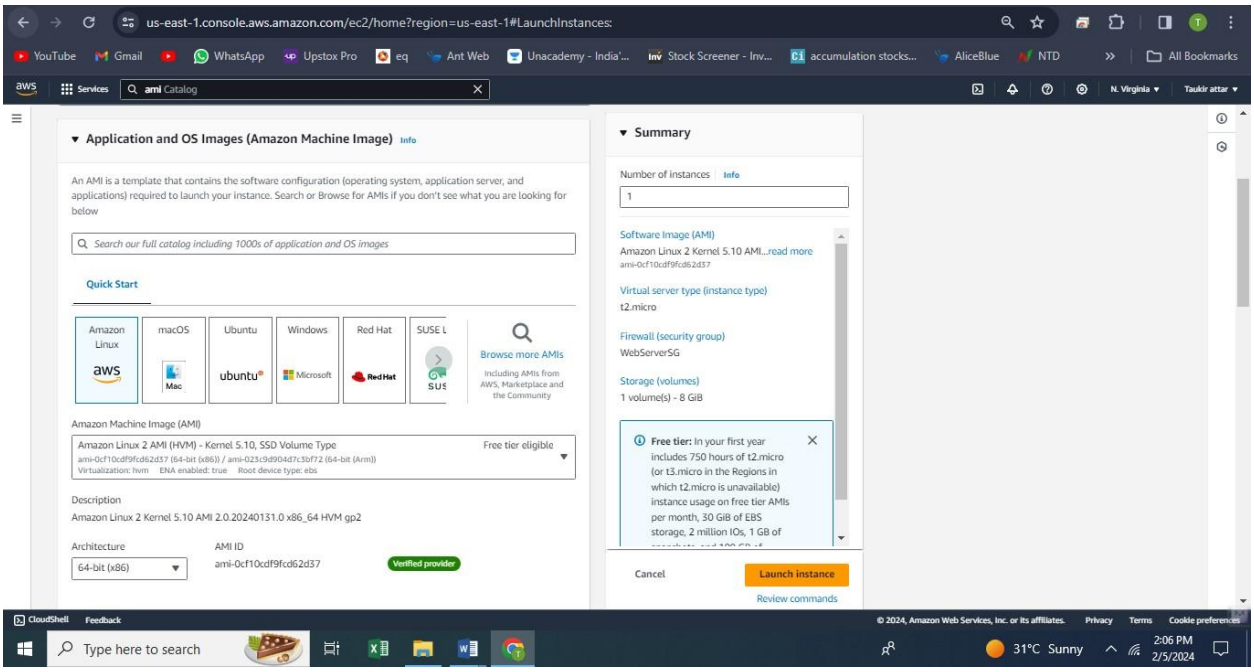
- We will create a security group and add the following rules:
- Allow inbound HTTP access from anywhere.
- Allow inbound SSH traffic from your computer's public IP address so you can connect to your instance.
- In Security group name, enter WebServerSG or any preferred name of your choice, and provide a description.
- Select your VPC from the list. You can use the default VPC.
- On the Inbound tab, add the rules as follows:
- Select Add Rule, and then select SSH from the Type list.
- Under Source, select Custom, and in the text box, enter the IP address from step 1, followed by /32 indicating a single IP Address. For example, 104.34.241.123/32 is a single IP address, while 198.51.100.2/24 results in a range of 256 IP addresses.
- Select Add Rule, and then select HTTP from the Type list.
- Select Add Rule, and then select Custom TCP Rule from the Type list.
- Under Port Range, enter 8080. Select Create



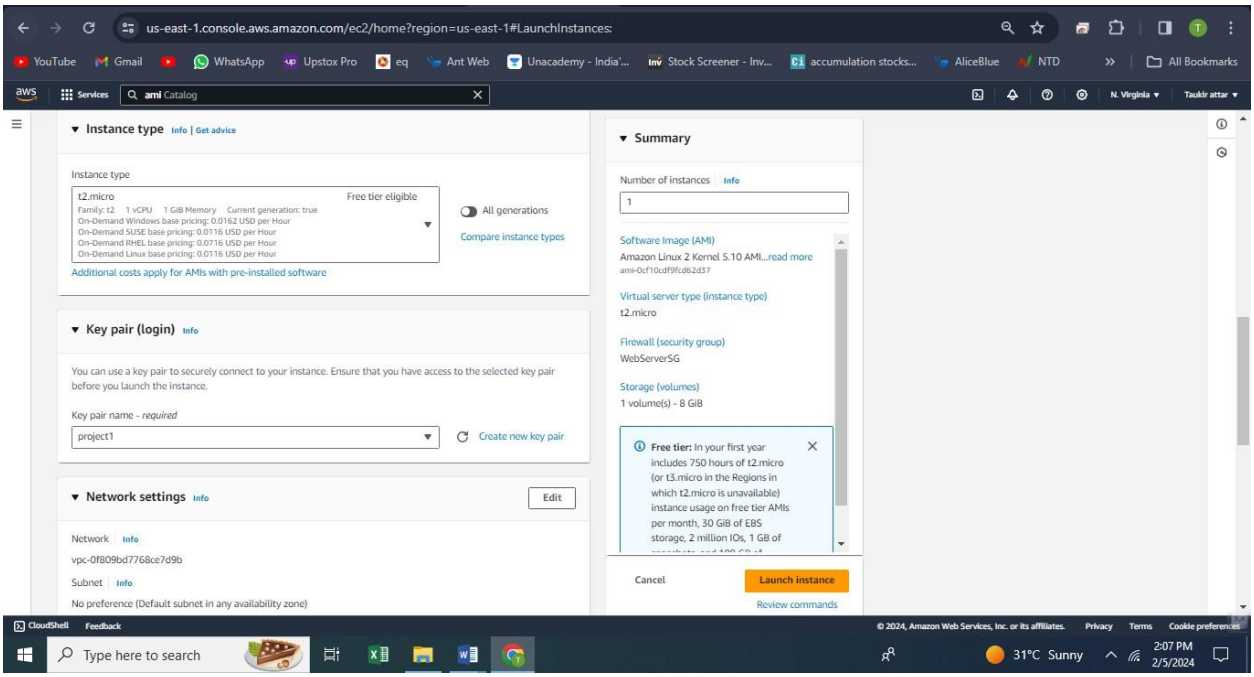
Launching an Amazon EC2 instance



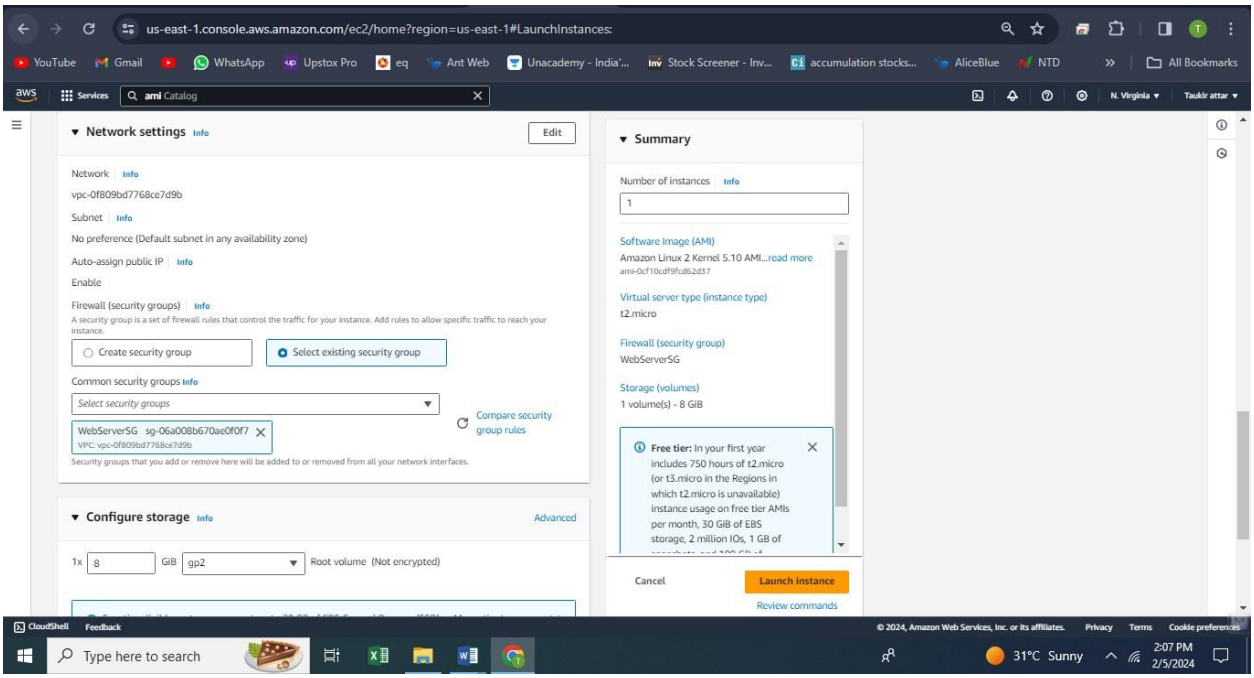
- The Choose an Amazon Machine Image (AMI) page displays a list of basic configurations called Amazon Machine Images (AMIs) that serve as templates for your instance. Select the HVM edition of the Amazon Linux AMI.



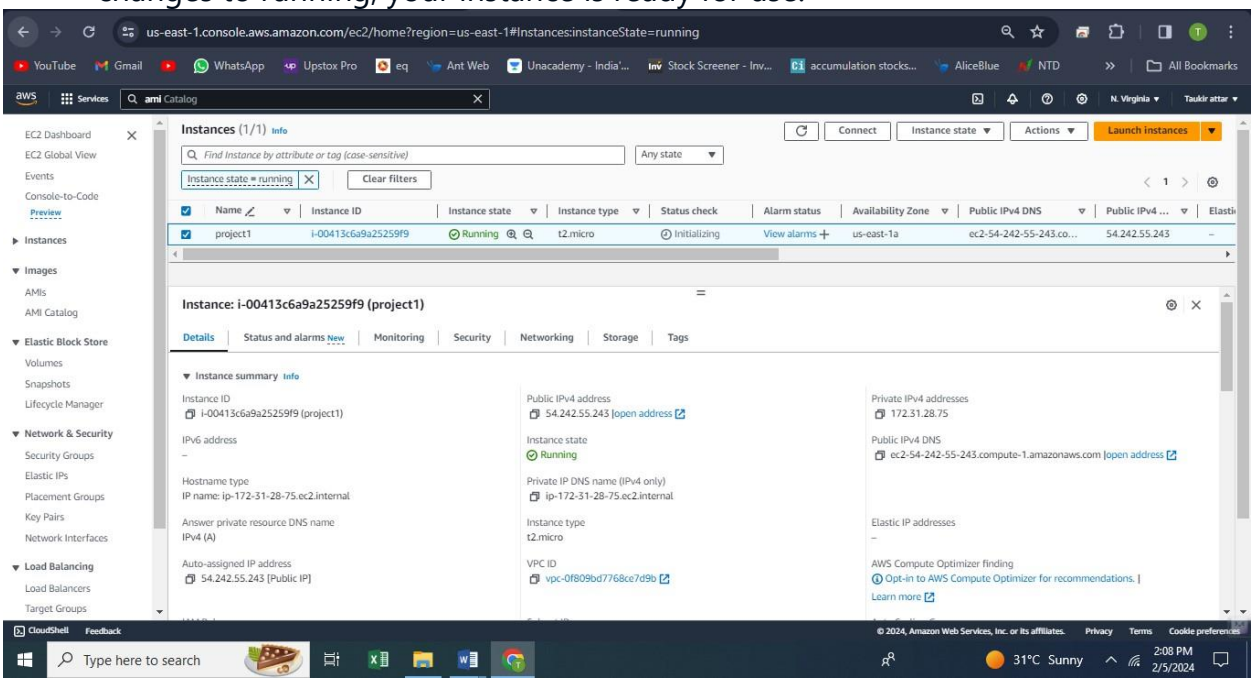
- Scroll down and select the key pair you created in the creating a key pair section above or any existing key pair you intend to use.



a. Select Select an existing security group.
b. Select the WebServerSG security group that you created.
c. Select Launch Instance



- In the left-hand navigation bar, choose Instances to view the status of your instance. Initially, the status of your instance is pending. After the status changes to running, your instance is ready for use.

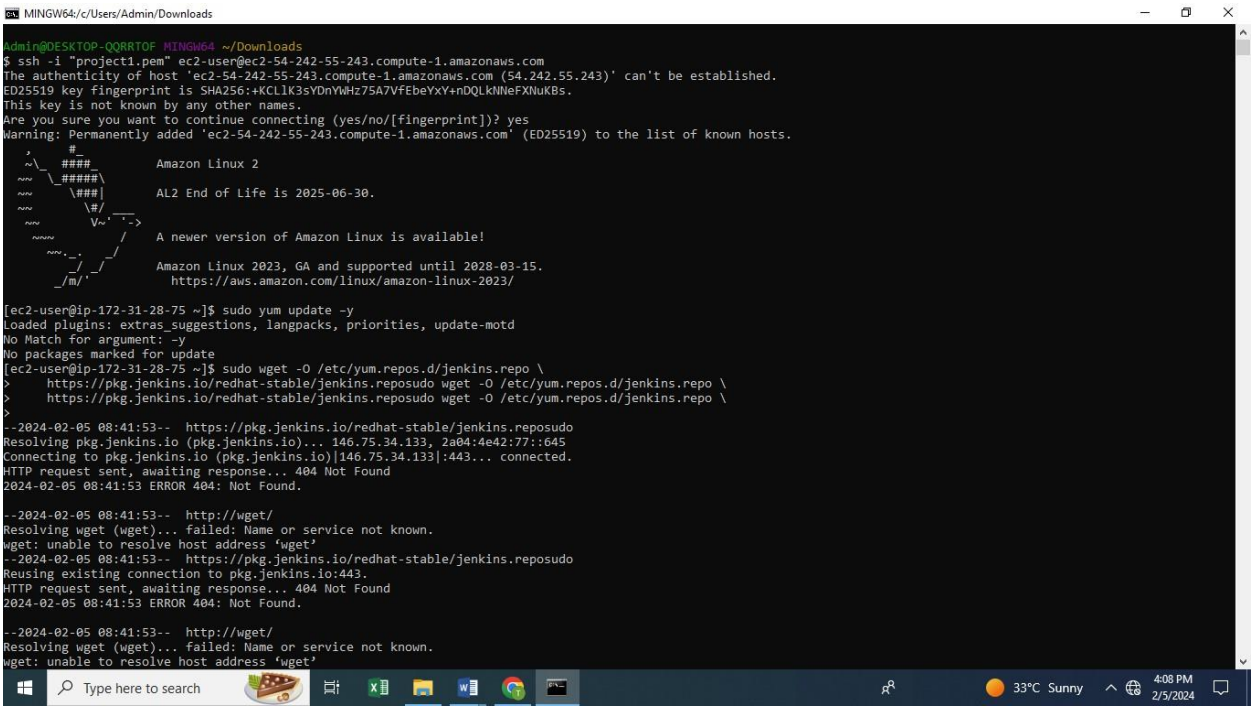


Installing and configuring Jenkins

- Now that the Amazon EC2 instance has been launched, Jenkins can be installed properly.

Using SSH to connect to your instance
Use the ssh command to connect to the instance. You will specify the private key (.pem) file and ec2-user@public_dns_name.

- [ec2-user ~]$ sudo yum update –y



- [ec2-user ~]$ sudo wget -O /etc/yum.repos.d/jenkins.repo \
  https://pkg.jenkins.io/redhat-stable/jenkins.repo

- [ec2-user ~]$ sudo yum upgrade
- [ec2-user ~]$ sudo dnf install java-17-amazon-corretto -y
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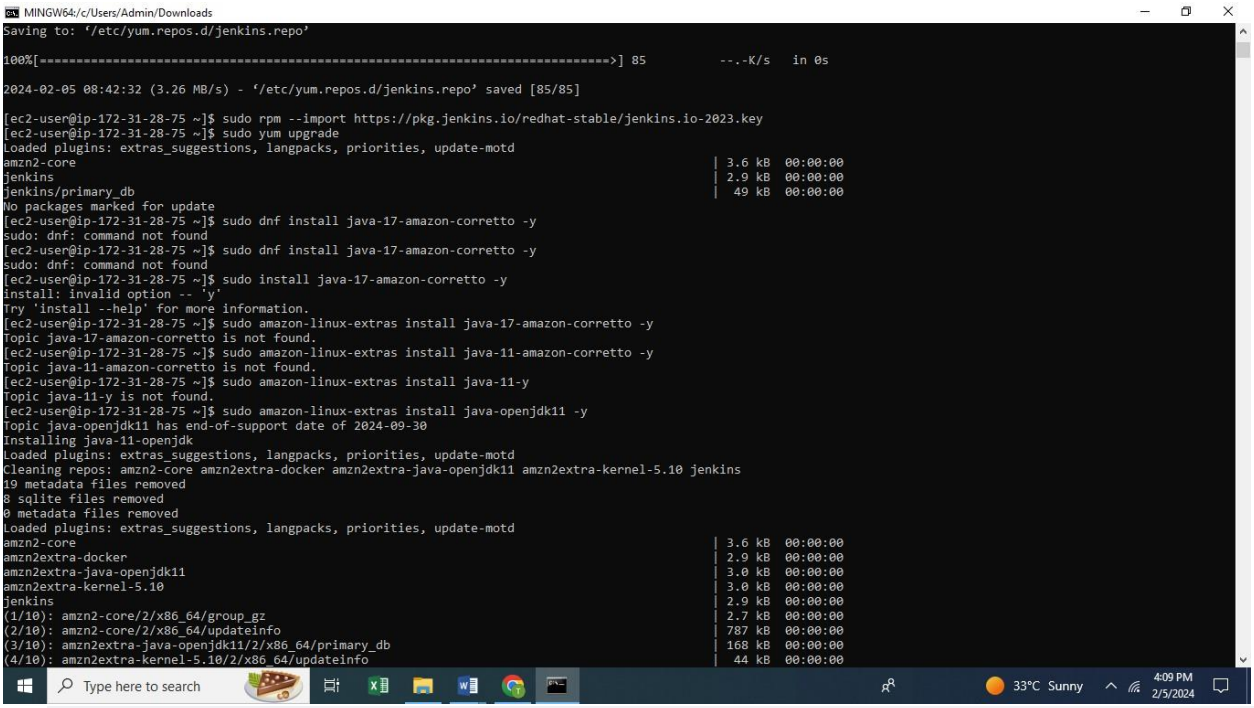
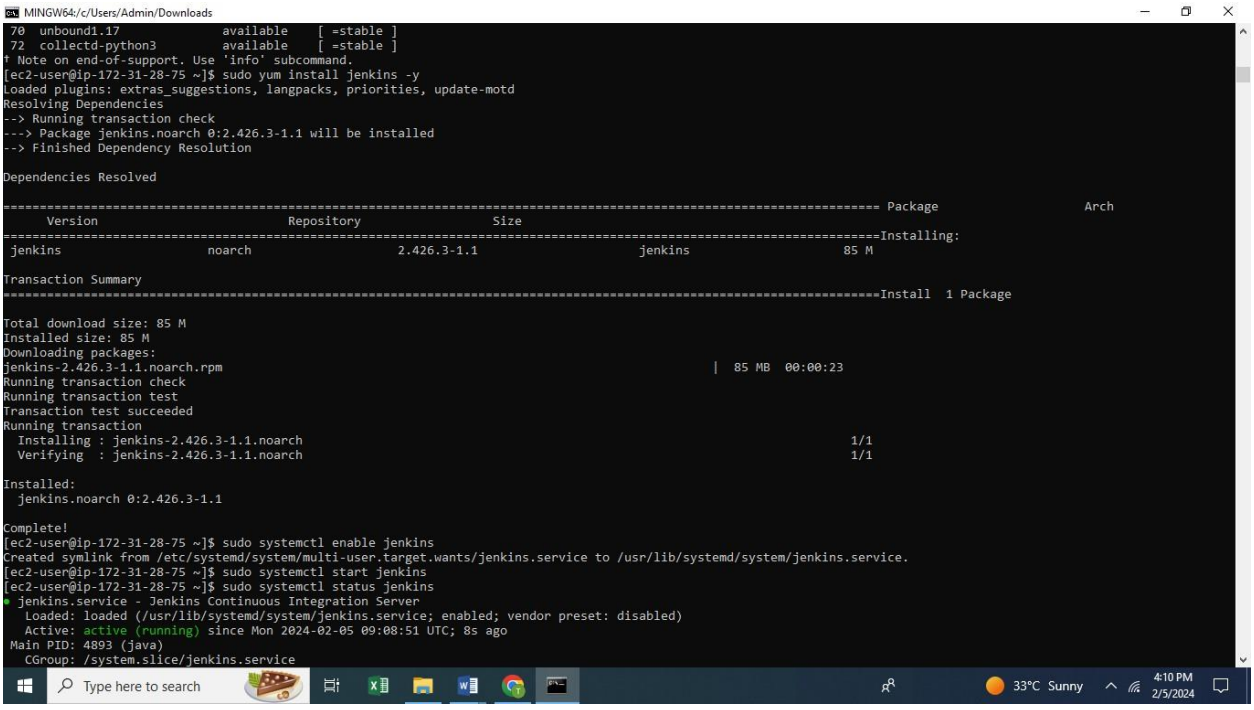
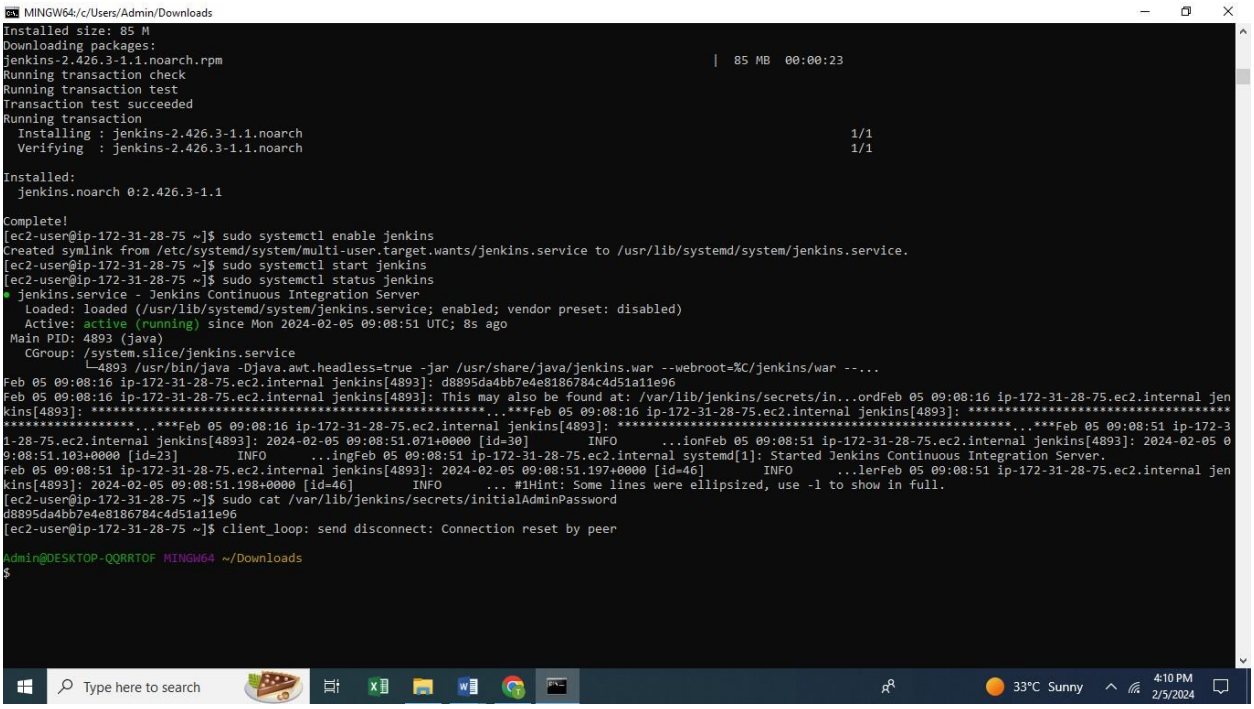


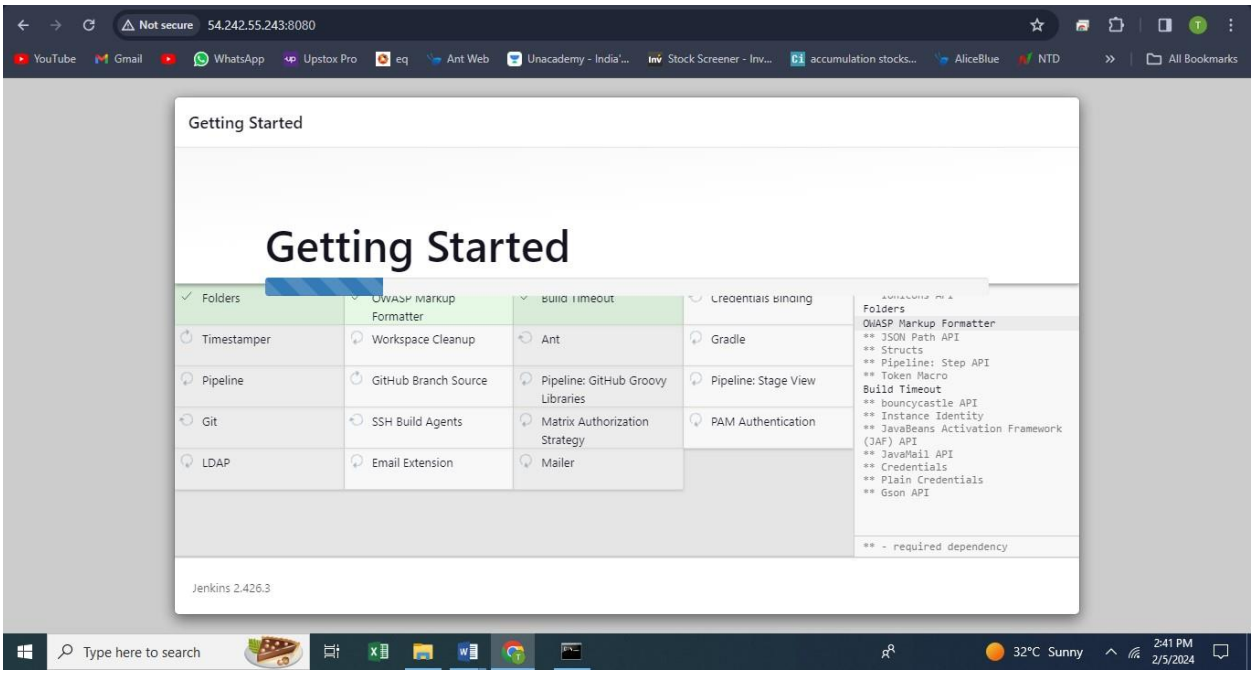
- [ec2-user ~]$ sudo yum install jenkins –y
- [ec2-user ~]$ sudo systemctl enable jenkins
- [ec2-user ~]$ sudo systemctl start jenkins
- [ec2-user ~]$ sudo systemctl status jenkins



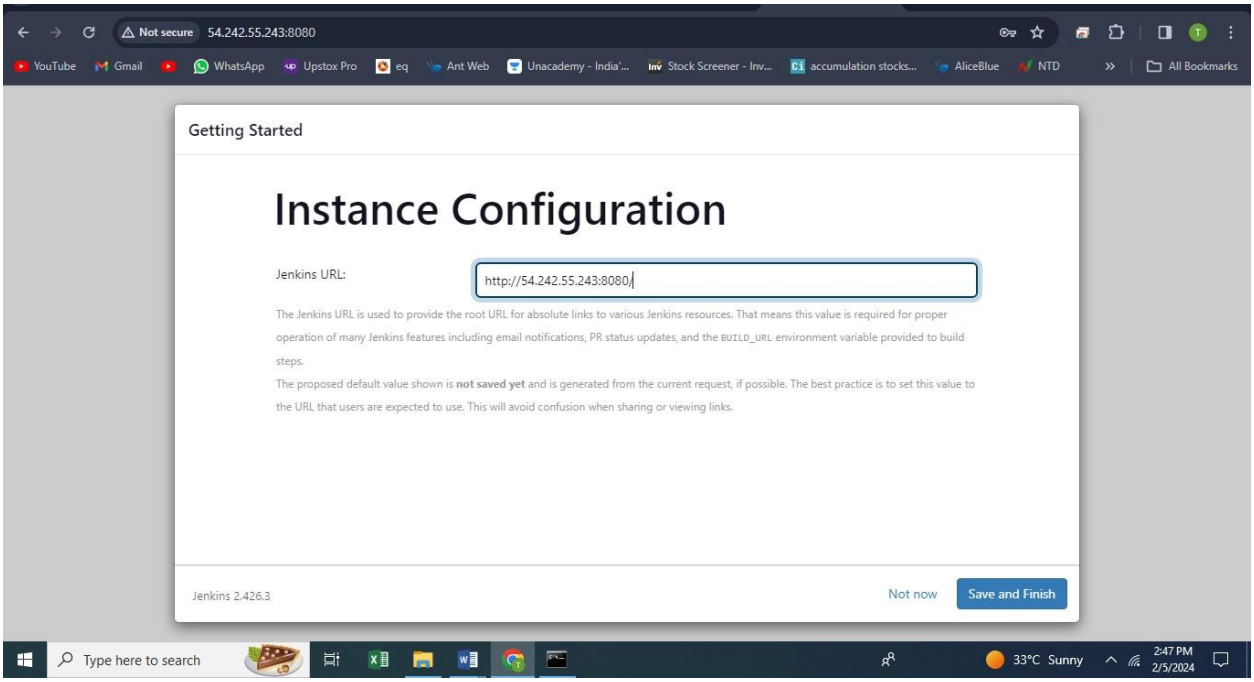
[ec2-user ~]$ sudo cat /var/lib/jenkins/secrets/initialAdminPassword

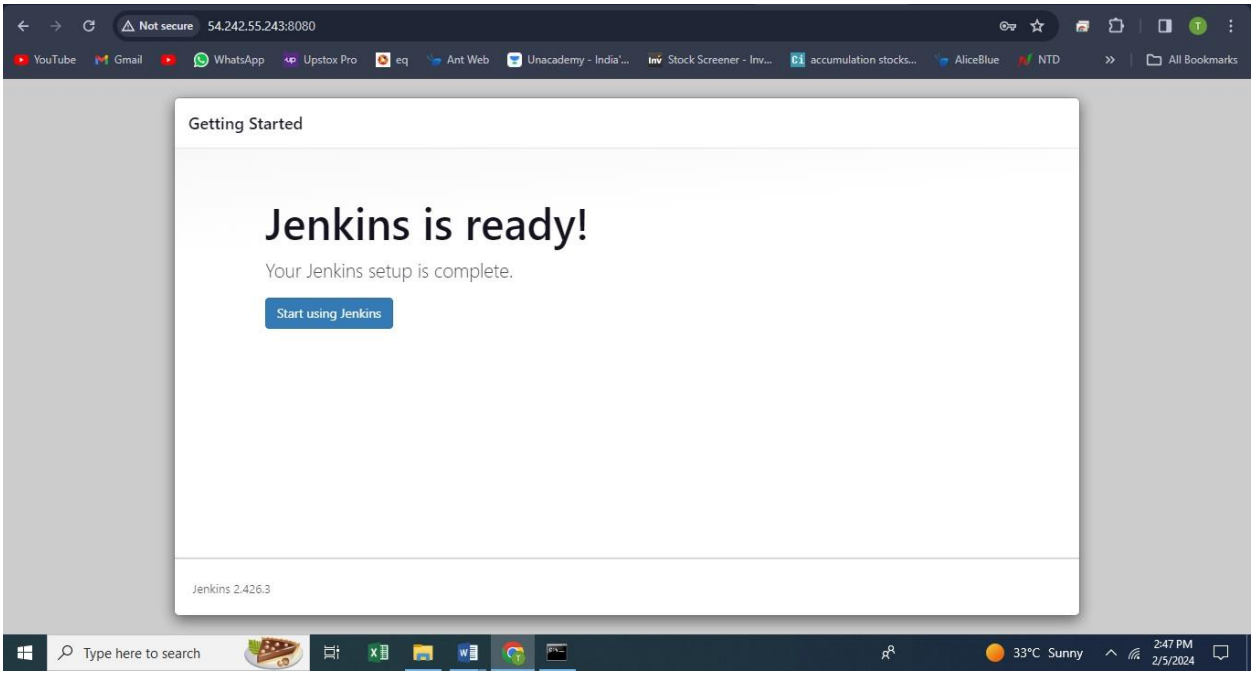


- Connect to http://<your_server_public_DNS>:8080 from your browser. You will be able to access Jenkins through its management interface:

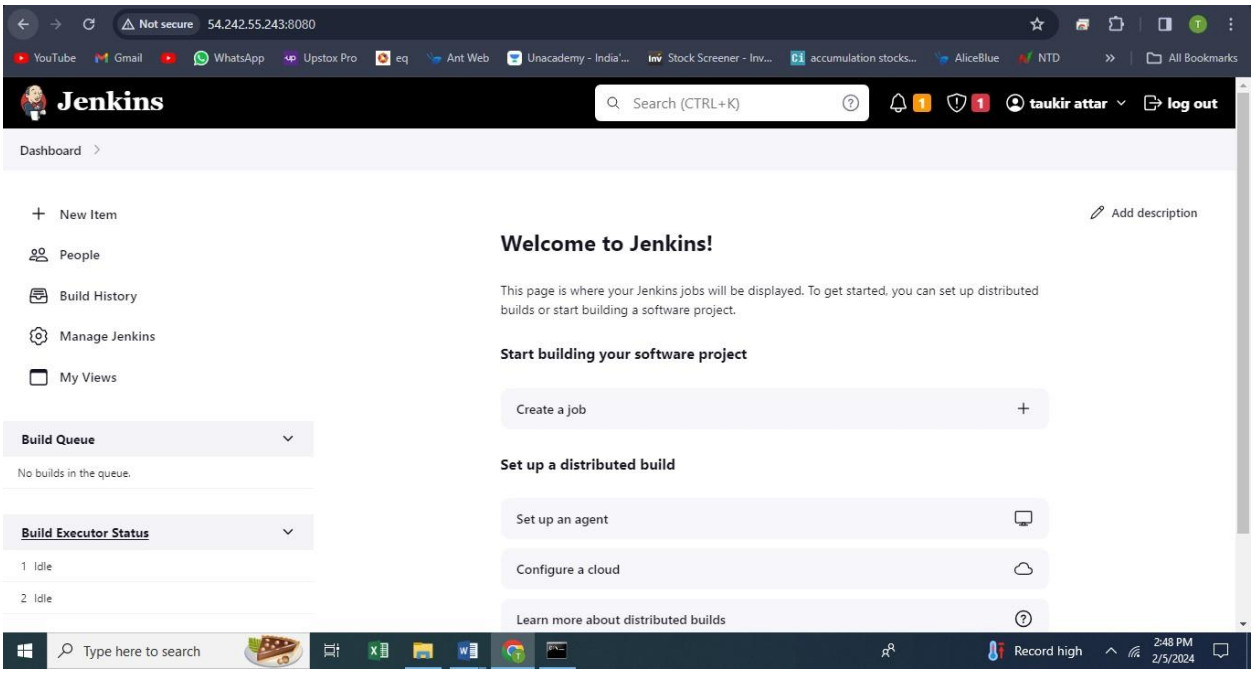


Once the installation is complete, the **Create First Admin User** will open. Enter your information, and then select **Save and Continue**.

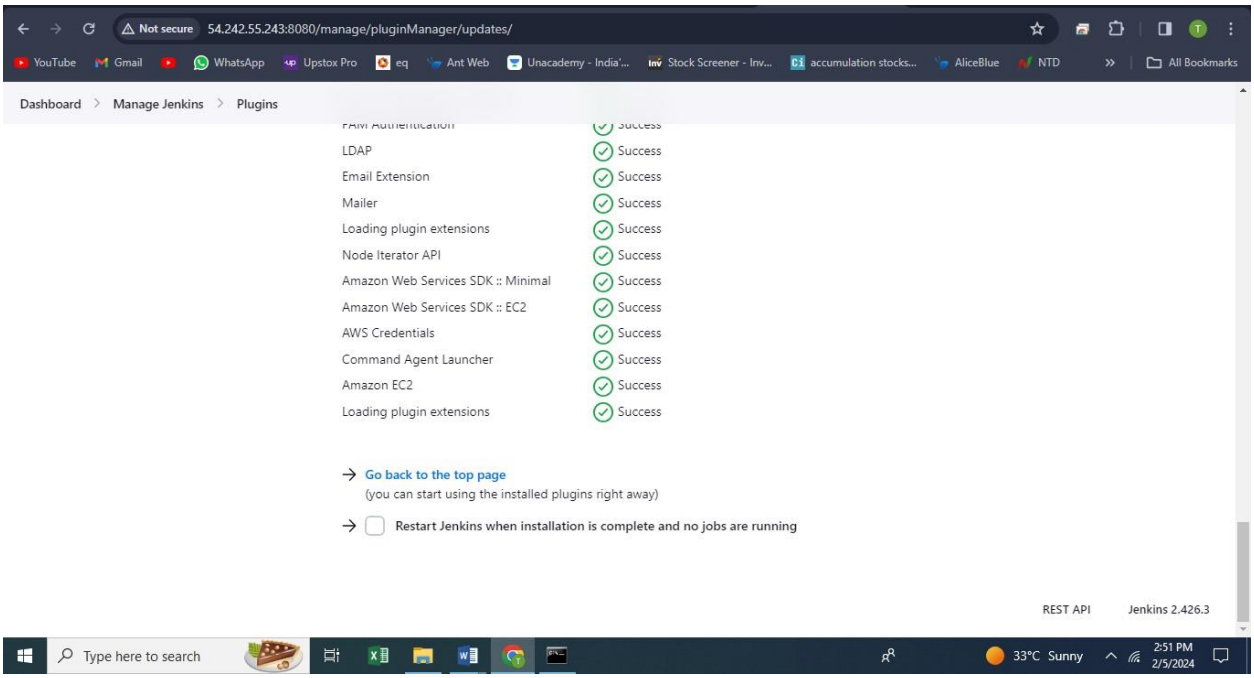




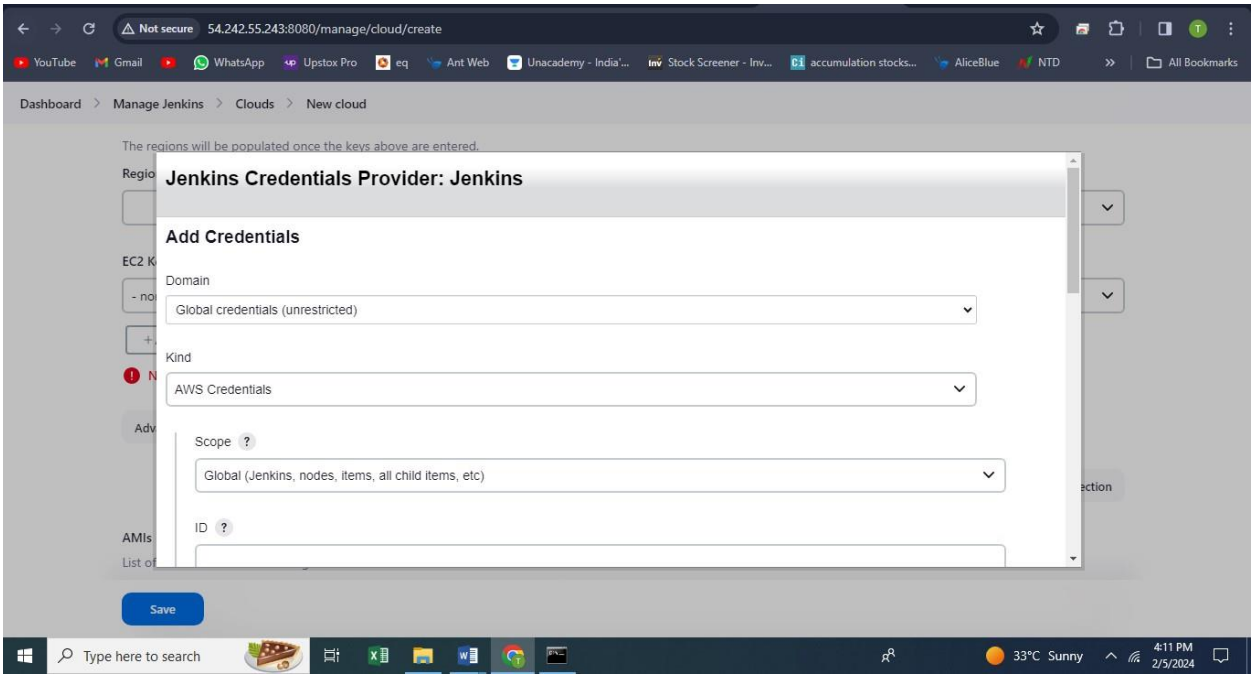
- If you already have other nodes or clouds set up, select **Manage Jenkins**.
- After navigating to **Manage Jenkins**, select **Configure Nodes and Clouds** from the left hand side of the page.
- Select **Add a new cloud**, and select **Amazon EC2**. A collection of new fields appears.

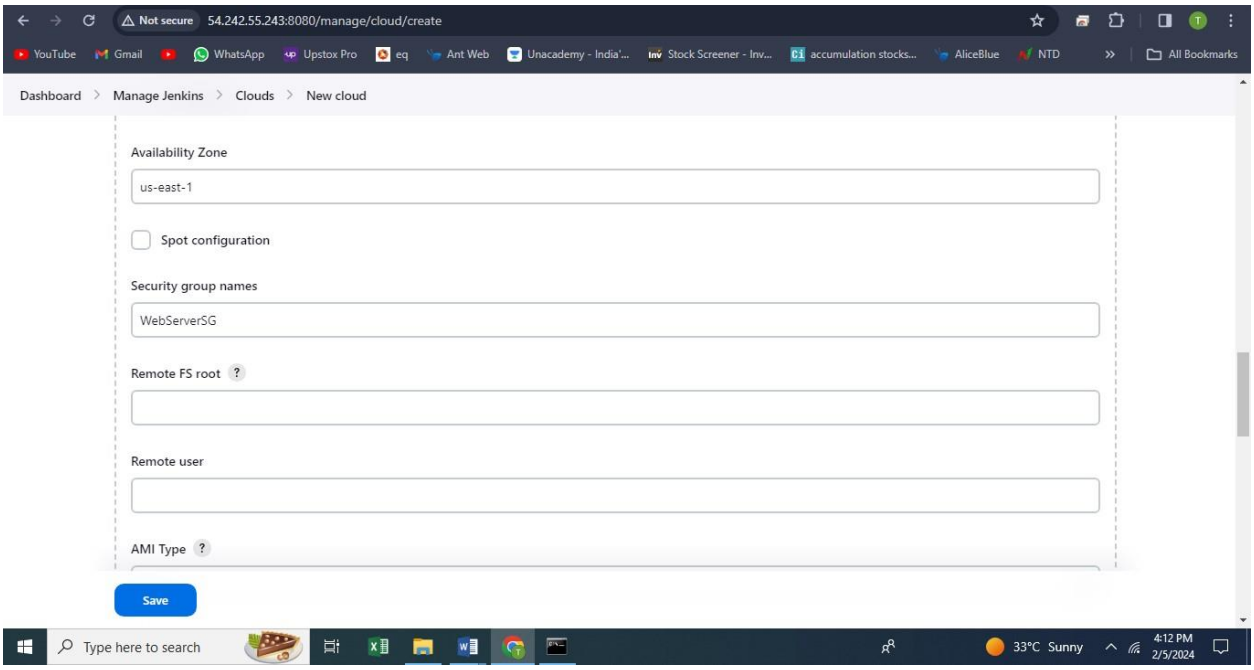


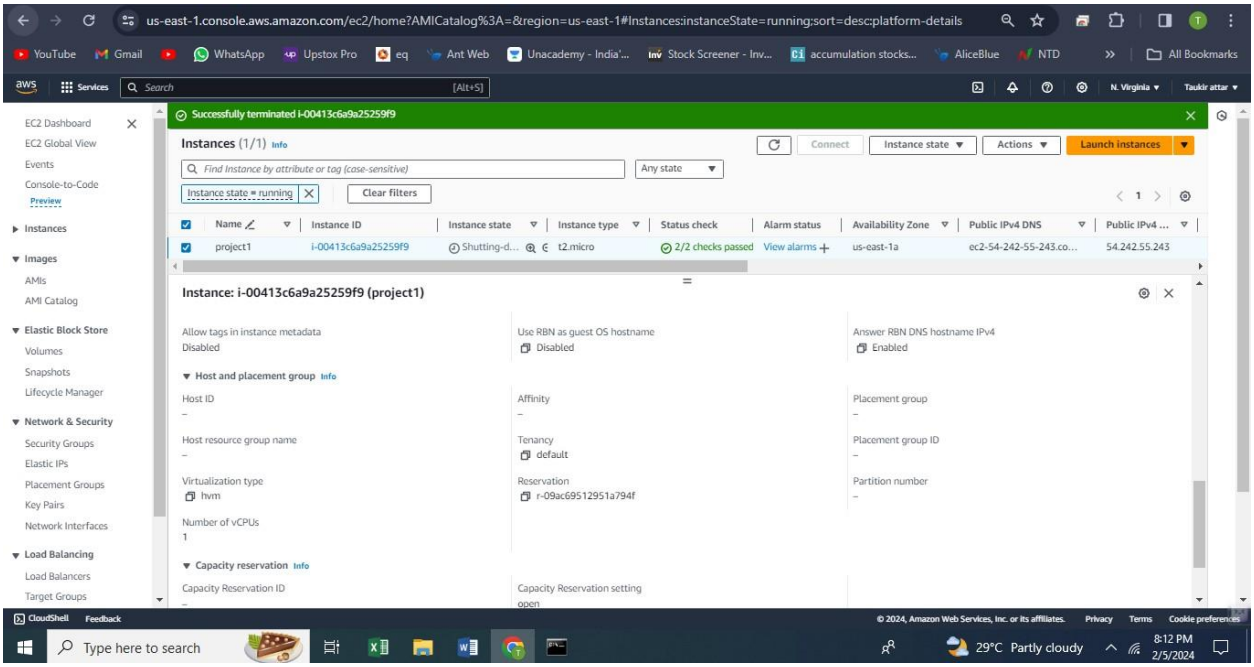
Amazon ec2 install



- Click **Add** under Amazon EC2 Credentials


Not secure 54.242.55.243:8080/manage/cloud/create
Dashboard > Manage Jenkins > Clouds > New cloud
Jenkins Credentials Provider: Jenkins
Add Credentials
Domain
Global credentials (unrestricted)
Kind
AWS Credentials
Scope
Global (Jenkins, nodes, items, all child items, etc)
ID
Save
Type here to search
33°C Sunny
4:11 PM
2/5/2024


Not secure 54.242.55.243:8080/manage/cloud/create
Dashboard > Manage Jenkins > Clouds > New cloud
Availability Zone
us-east-1
Spot configuration
Security group names
WebServerSG
Remote FS root
Remote user
AMI Type
Save
Type here to search
33°C Sunny
4:12 PM
2/5/2024



Cleaning up

After completing this tutorial, be sure to delete the AWS resources that you created so you do not continue to accrue charges.

Deleting your EC2 instance

1. In the left-hand navigation bar of the Amazon EC2 console, select **Instances**.
2. Right-click on the instance you created earlier, and select **Terminate**.