

Assignment-1

Module-1 AWS CLOUD

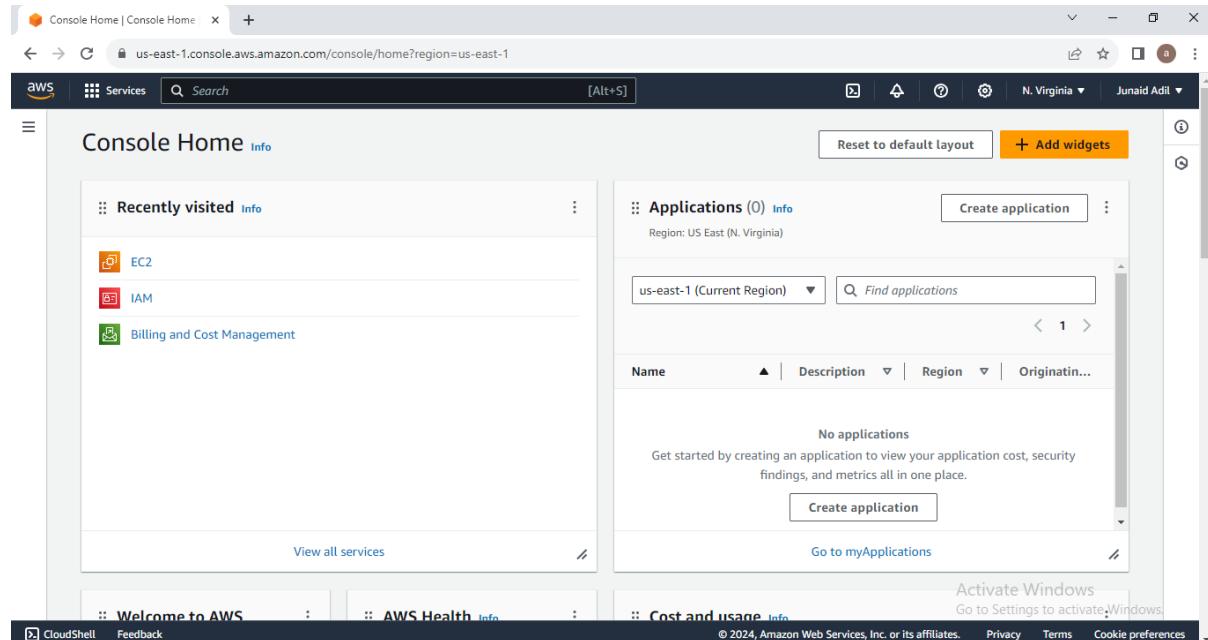
Submitted by : Shaik Junaid Adil

Date of Submission: 01-04-2024

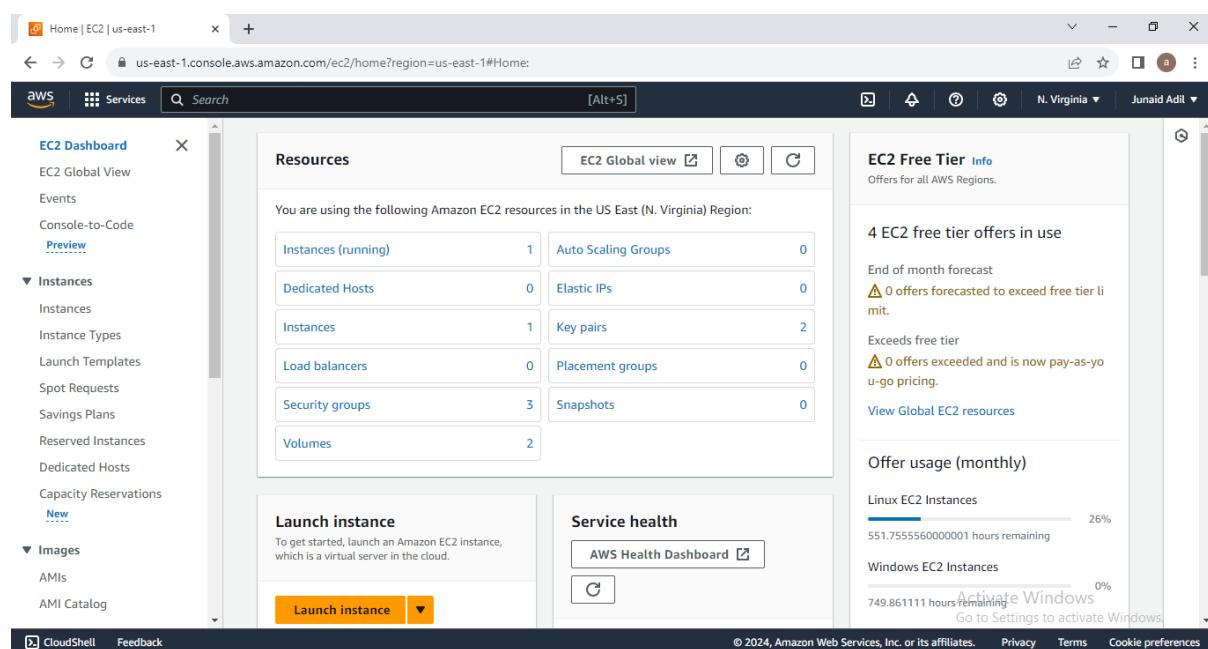
Submitted to: Vikul

L1 - Demonstrate the AWS EC2 Ubuntu Instance Creation steps and connect to EC2 Instance using Mobaxterm / putty agent.

Step 1: Login to the AWS Console using Root user / IAM User with the EC2 Full access and moving to EC2 Dashboard.

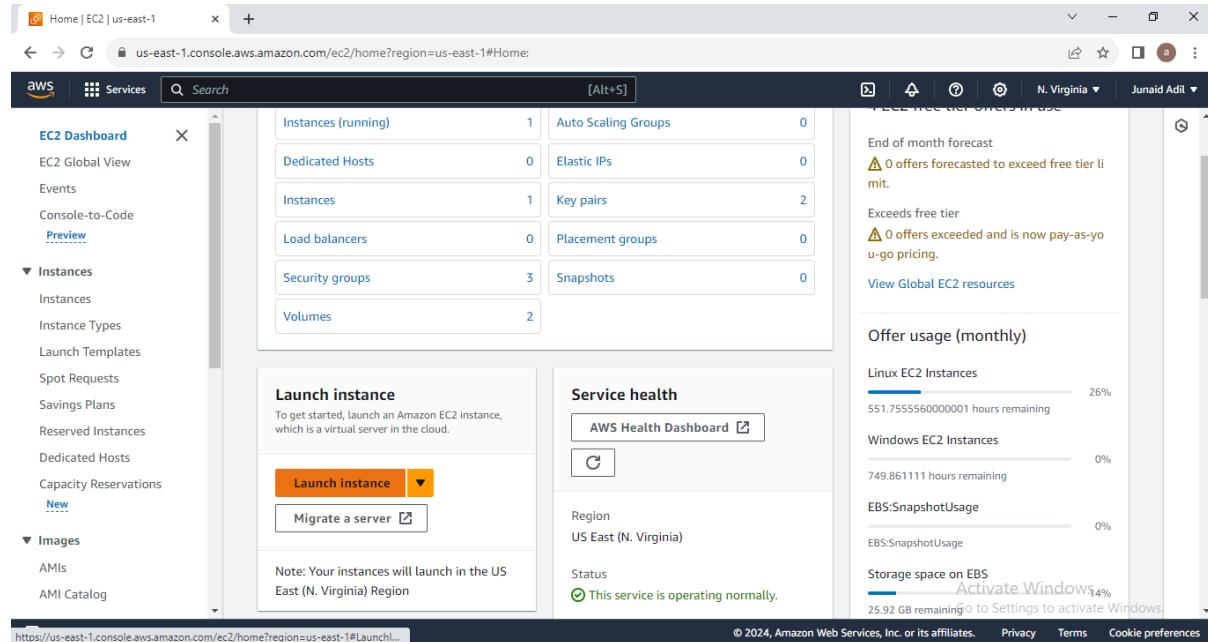


The screenshot shows the AWS Console Home page. In the top navigation bar, the URL is `us-east-1.console.aws.amazon.com/console/home?region=us-east-1`. The Services menu is open, and the EC2 icon is highlighted in the 'Recently visited' section. The main content area displays the Applications dashboard, which is currently empty. A prominent orange 'Create application' button is visible. The bottom navigation bar includes links for CloudShell, Feedback, AWS Health, Cost and usage, Welcome to AWS, and AWS Health.



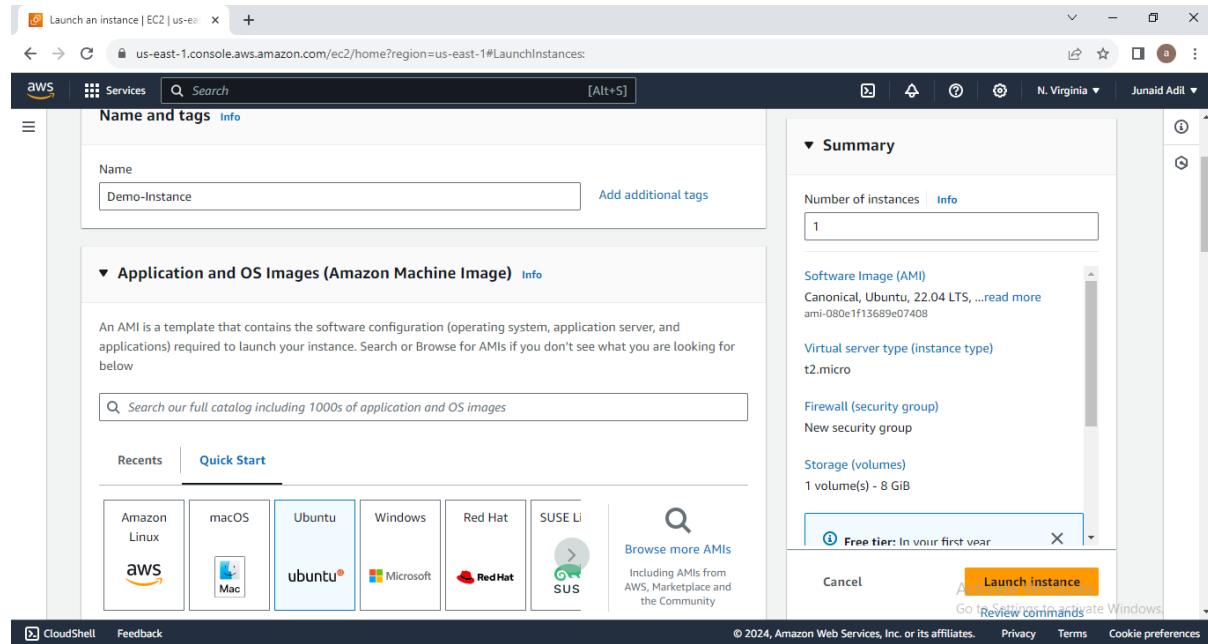
The screenshot shows the AWS EC2 Dashboard. The left sidebar has sections for EC2 Global View, Events, Console-to-Code (Preview), Instances (Instances, Instance Types, Launch Templates, Spot Requests, Savings Plans, Reserved Instances, Dedicated Hosts, Capacity Reservations), and Images (AMIs, AMI Catalog). The main content area has three main sections: 'Resources' (listing Instances (running) 1, Auto Scaling Groups 0, Dedicated Hosts 0, Elastic IPs 0, Instances 1, Key pairs 2, Load balancers 0, Placement groups 0, Security groups 3, Snapshots 0, Volumes 2), 'Launch instance' (with a large orange 'Launch instance' button), and 'Service health' (AWS Health Dashboard). On the right, there's a 'EC2 Free Tier' section, a 'Offer usage (monthly)' chart, and a note about exceeding free tier limits. The bottom navigation bar includes CloudShell, Feedback, AWS Health, Cost and usage, and AWS Health.

Step 2: Then click on the Launch Instance.



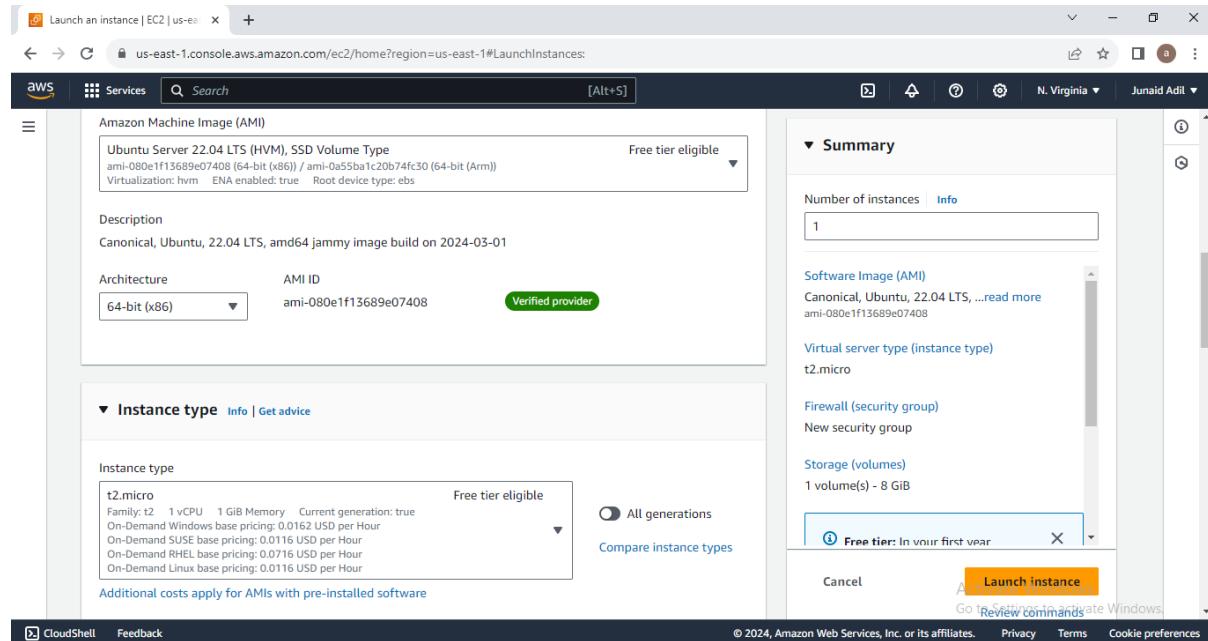
The screenshot shows the AWS EC2 Dashboard. On the left sidebar, under the 'Instances' section, there is a 'Launch Templates' option. In the main content area, there is a 'Launch instance' section with a large orange 'Launch instance' button. To the right, there is a 'Service health' section showing 'AWS Health Dashboard' and a status message 'This service is operating normally.'

Step 3: Name the Instance as “Demo-Instance” and select the OS Image as Ubuntu.

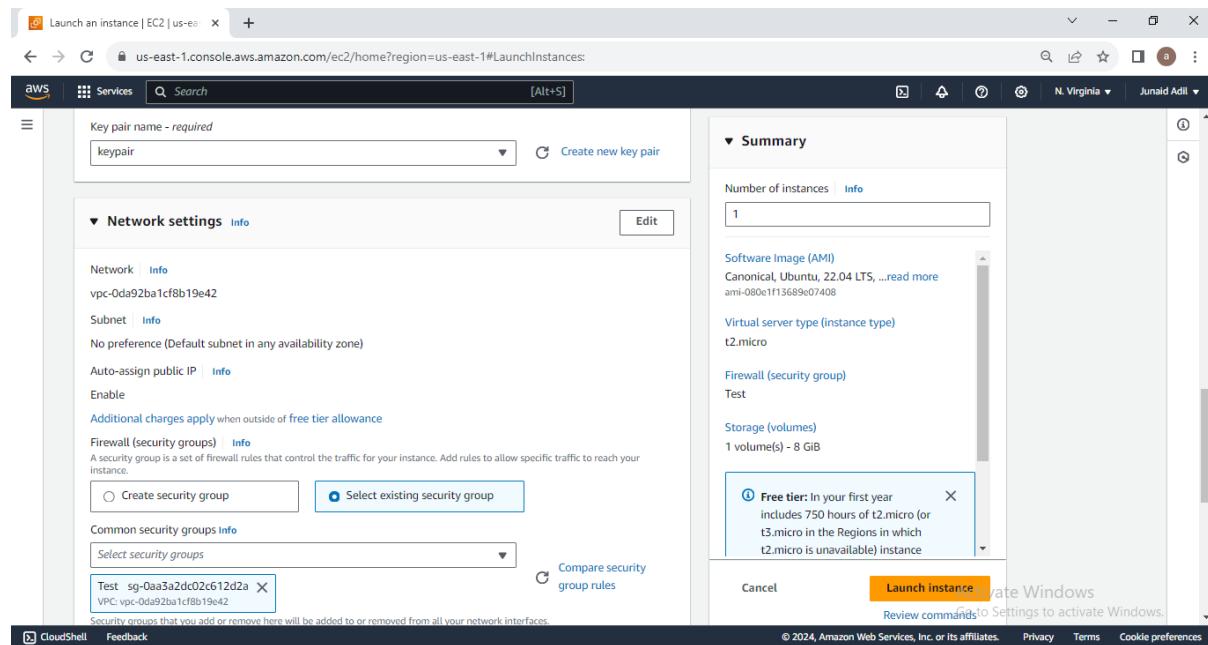


The screenshot shows the 'Launch an instance' wizard. In the 'Name and tags' step, the name 'Demo-Instance' is entered. In the 'Application and OS Images (Amazon Machine Image)' step, the 'ubuntu' image is selected. Other options shown include Amazon Linux, macOS, Windows, Red Hat, and SUSE Linux. The 'Quick Start' tab is selected. On the right, a summary shows 1 instance being launched with the Canonical, Ubuntu, 22.04 LTS AMI. The 'Launch instance' button is visible at the bottom.

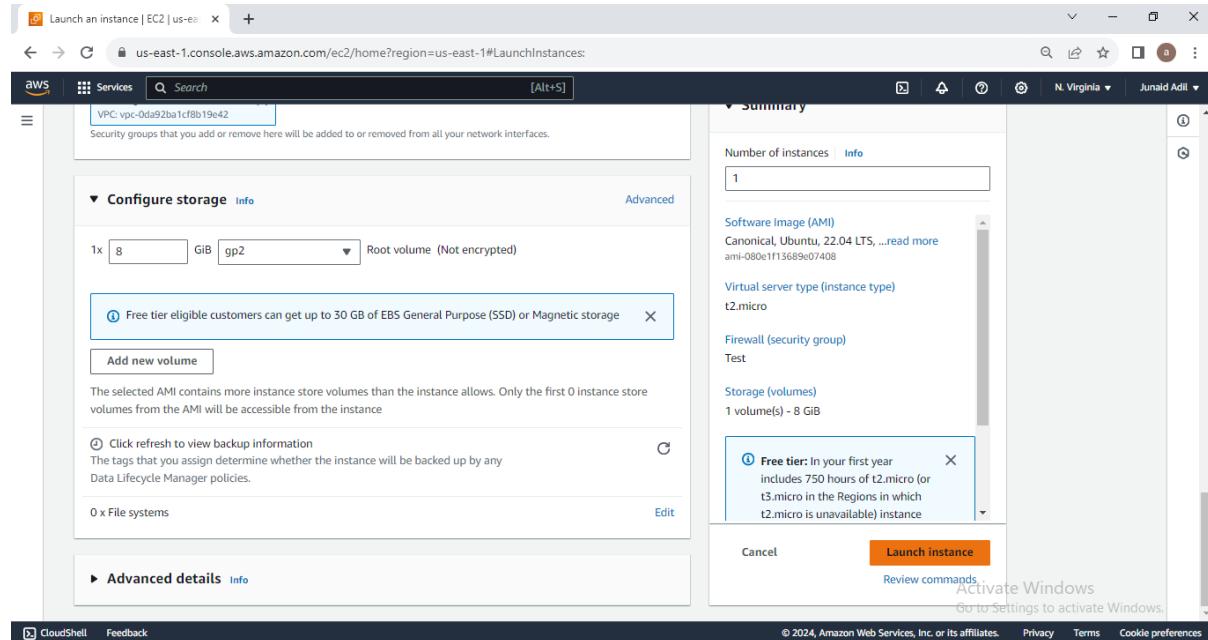
Step 4: Select the Amazon Machine Image (AMI) and Instance type as per the Requirement. for now selecting the Free Tier.



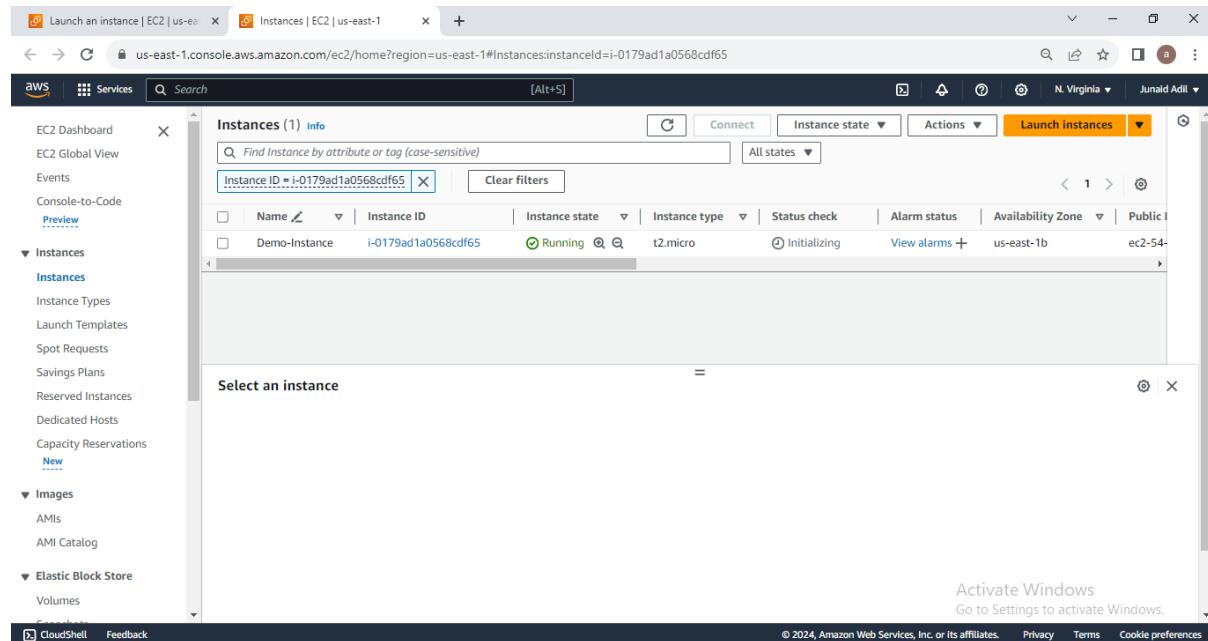
Step 5: Select the Key pair and Security Group if created.



Step 6: Select the Configure Storage and click on the Launch Instance.



Instance will be created and wait until the Instance state comes to the running state.



Step 7: To connect to the EC2 Instance, Open the Instance and click on connect.

The screenshot shows the AWS EC2 Instances details page for an instance named 'Demo-Instance' with ID 'i-0179ad1a0568cdf65'. The instance is currently running. Key details include:

- Public IPv4 address: 54.163.52.66
- Private IP4 addresses: 172.31.27.86
- Public IPv4 DNS: ec2-54-163-52-66.compute-1.amazonaws.com
- Instance type: t2.micro
- VPC ID: vpc-0da92ba1cf8b19e42
- Subnet ID: subnet-069412e9a8c909fe5

To connect through Mobaxterm, got to SSH Client section.

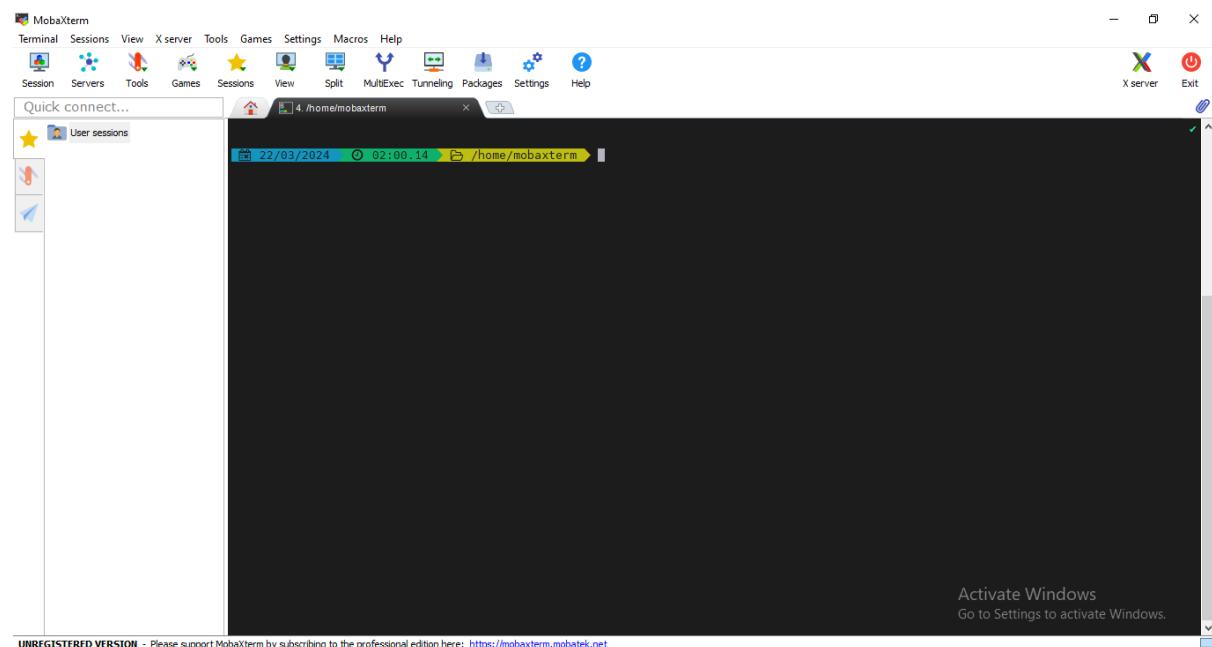
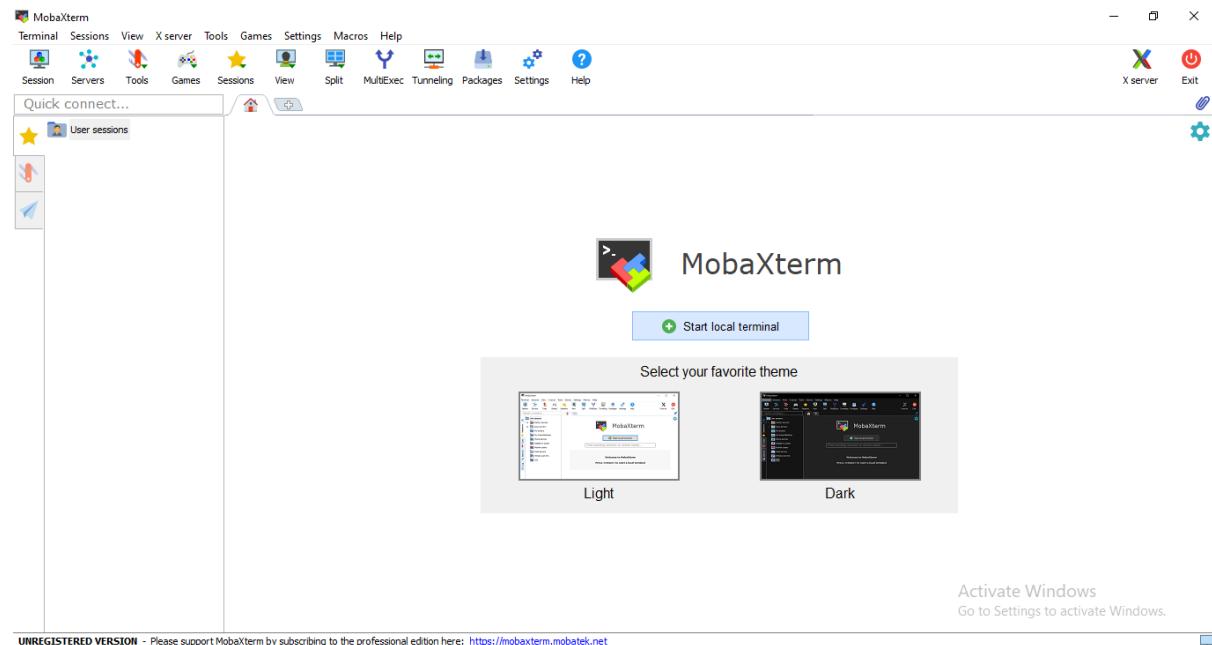
The screenshot shows the 'Connect to instance' page for the same EC2 instance. The 'SSH client' tab is selected. The page provides instructions for connecting via SSH:

- Open an SSH client.
- Locate your private key file. The key used to launch this instance is keypair.pem.
- Run this command, if necessary, to ensure your key is not publicly viewable:
chmod 400 "keypair.pem"
- Connect to your instance using its Public DNS:
ec2-54-163-52-66.compute-1.amazonaws.com

Example command:
ssh -i "keypair.pem" ubuntu@ec2-54-163-52-66.compute-1.amazonaws.com

Note: In most cases, the guessed username is correct. However, read your AMI usage instructions to check if the AMI owner has changed the default AMI username.

Step 8: Open Mobaxterm and start local Terminal



Step 9: Using the commands, use the Key Pair to connect.

```
22/03/2024 02:07:49 > /home/mobaxterm > cd /drives
22/03/2024 02:07:54 > /drives/c > cd c
22/03/2024 02:07:56 > /drives/c/c > cd users
22/03/2024 02:08:00 > /drives/c/users/tasleem > cd tasleem
22/03/2024 02:08:04 > /drives/c/users/tasleem/downloads > ls Keypair.pem
Keypair.pem
22/03/2024 02:08:09 > /drives/c/users/tasleem/downloads > chmod 400 "keypair.pem"
22/03/2024 02:08:21 > /drives/c/users/tasleem/downloads >

```

Activate Windows
Go to Settings to activate Windows.

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Instance is Connected.

```
ubuntu@ip-172-31-27-86: ~
22/03/2024 02:08:21 > /drives/c/users/tasleem/downloads > chmod 400 "keypair.pem"
22/03/2024 02:08:49 > /drives/c/users/tasleem/downloads > ssh -i "keypair.pem" ubuntu@ec2-54-163-52-66.compute-1.amazonaws.co
m
Welcome to Ubuntu 22.04.4 LTS (GNU/Linux 6.5.0-1014-aws x86_64)

 * Documentation:  https://help.ubuntu.com
 * Management:    https://landscape.canonical.com
 * Support:       https://ubuntu.com/pro

 System information as of Thu Mar 21 20:39:40 UTC 2024

 System load: 0.0004882125 Processes: 97
 Usage of /: 20.7% of 7.57GB Users logged in: 0
 Memory usage: 22% IPv4 address for eth0: 172.31.27.86
 Swap usage: 0%

 Expanded Security Maintenance for Applications is not enabled.
 0 updates can be applied immediately.

 Enable ESM Apps to receive additional future security updates.
 See https://ubuntu.com/esm or run: sudo pro status

 The list of available updates is more than a week old.
 To check for new updates run: sudo apt update

 Last login: Thu Mar 21 20:36:32 2024 from 122.164.162.31
 To run a command as administrator (user "root"), use "sudo <command>".
 See "man sudo_root" for details.

ubuntu@ip-172-31-27-86:~$ 
```

Activate Windows
Go to Settings to activate Windows.

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Instance summary for i-0179ad1a0568cdf65 (Demo-Instance)

- Instance ID:** i-0179ad1a0568cdf65 (Demo-Instance)
- IPV6 address:** -
- Hostname type:** IP name: ip-172-31-27-86.ec2.internal
- Answer private resource DNS name:** IPv4 (A)
- Auto-assigned IP address:** 54.163.52.66 [Public IP]
- IAM Role:** -
- IMDv2 Required:** Required
- Public IPv4 address:** 54.163.52.66 [Open address]
- Private IPv4 address:** 172.31.27.86
- Instance state:** Running
- Private IP DNS name (IPv4 only):** ip-172-31-27-86.ec2.internal
- Instance type:** t2.micro
- VPC ID:** vpc-0da92ba1cf8b19e42
- Subnet ID:** subnet-069412e9a8c909fe5
- Elastic IP addresses:** -
- AWS Compute Optimizer finding:** Opt-in to AWS Compute Optimizer for recommendations.
- Auto Scaling Group name:** -

Also done the Updates:

```

ubuntu@ip-172-31-27-86: ~
The list of available updates is more than a week old.
To check for new updates run: sudo apt update
Last login: Thu Mar 21 20:36:32 2024 from 122.164.162.31
To run a command as administrator (user "root"), use "sudo <command>".
See "man sudo_root" for details.

ubuntu@ip-172-31-27-86:~$ sudo apt update
Hit:1 http://us-east-1.ec2.archive.ubuntu.com/ubuntu jammy InRelease
Get:2 http://us-east-1.ec2.archive.ubuntu.com/ubuntu jammy-updates InRelease [119 kB]
Get:3 http://us-east-1.ec2.archive.ubuntu.com/ubuntu jammy-backports InRelease [109 kB]
Get:4 http://security.ubuntu.com/ubuntu jammy-security InRelease [119 kB]
Get:5 http://us-east-1.ec2.archive.ubuntu.com/ubuntu jammy/universe amd64 Packages [14.1 MB]
Get:6 http://security.ubuntu.com/ubuntu jammy-security/main amd64 Packages [1286 kB]
Get:7 http://us-east-1.ec2.archive.ubuntu.com/ubuntu jammy/universe Translation-en [5652 kB]
Get:8 http://security.ubuntu.com/ubuntu jammy-security/main Translation-en [229 kB]
Get:9 http://security.ubuntu.com/ubuntu jammy-security/restricted amd64 Packages [1591 kB]
Get:10 http://security.ubuntu.com/ubuntu jammy-security/restricted Translation-en [267 kB]
Get:11 http://security.ubuntu.com/ubuntu jammy-security/universe amd64 Packages [851 kB]
Get:12 http://security.ubuntu.com/ubuntu jammy-security/universe Translation-en [162 kB]
Get:13 http://security.ubuntu.com/ubuntu jammy-security/universe amd64 c-n-f Metadata [16.8 kB]
Get:14 http://security.ubuntu.com/ubuntu jammy-security/multiverse amd64 Packages [37.1 kB]
Get:15 http://security.ubuntu.com/ubuntu jammy-security/multiverse Translation-en [7476 B]
Get:16 http://security.ubuntu.com/ubuntu jammy-security/universe amd64 c-n-f Metadata [260 B]
Get:17 http://us-east-1.ec2.archive.ubuntu.com/ubuntu jammy/universe amd64 c-n-f Metadata [260 kB]
Get:18 http://us-east-1.ec2.archive.ubuntu.com/ubuntu jammy/multiverse amd64 Packages [217 kB]
Get:19 http://us-east-1.ec2.archive.ubuntu.com/ubuntu jammy/multiverse Translation-en [112 kB]
Get:20 http://us-east-1.ec2.archive.ubuntu.com/ubuntu jammy/multiverse amd64 c-n-f Metadata [8372 B]
Get:21 http://us-east-1.ec2.archive.ubuntu.com/ubuntu jammy-updates/main amd64 Packages [1502 kB]
Get:22 http://us-east-1.ec2.archive.ubuntu.com/ubuntu jammy-updates/main Translation-en [289 kB]
Get:23 http://us-east-1.ec2.archive.ubuntu.com/ubuntu jammy-updates/restricted amd64 Packages [1619 kB]
Get:24 http://us-east-1.ec2.archive.ubuntu.com/ubuntu jammy-updates/restricted Translation-en [271 kB]
Get:25 http://us-east-1.ec2.archive.ubuntu.com/ubuntu jammy-updates/universe amd64 Packages [1059 kB]
Get:26 http://us-east-1.ec2.archive.ubuntu.com/ubuntu jammy-updates/universe Translation-en [240 kB]
Get:27 http://us-east-1.ec2.archive.ubuntu.com/ubuntu jammy-updates/universe amd64 c-n-f Metadata [22.1 kB]
Get:28 http://us-east-1.ec2.archive.ubuntu.com/ubuntu jammy-updates/multiverse amd64 Packages [42.1 kB]
Get:29 http://us-east-1.ec2.archive.ubuntu.com/ubuntu jammy-updates/multiverse Translation-en [10.1 kB]

```

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ubuntu@ip-172-31-27-86: ~

Terminal Sessions View Xserver Tools Games Settings Macros Help

Session Servers Tools Games Sessions View Split MultiExec Tunneling Packages Settings Help

Xserver Exit

Quick connect...

6. ubuntu@ip-172-31-27-86: ~

```
Get:7 http://us-east-1.ec2.archive.ubuntu.com/ubuntu jammy/universe Translation-en [5652 kB]
Get:8 http://security.ubuntu.com/ubuntu jammy-security/main Translation-en [229 kB]
Get:9 http://security.ubuntu.com/ubuntu jammy-security/restricted amd64 Packages [1501 kB]
Get:10 http://security.ubuntu.com/ubuntu jammy-security/universe Translation-en [267 kB]
Get:11 http://security.ubuntu.com/ubuntu jammy-security/universe amd64 Packages [851 kB]
Get:12 http://security.ubuntu.com/ubuntu jammy-security/universe Translation-en [162 kB]
Get:13 http://security.ubuntu.com/ubuntu jammy-security/universe amd64 c-n-f Metadata [16.8 kB]
Get:14 http://security.ubuntu.com/ubuntu jammy-security/multiverse amd64 Packages [37.1 kB]
Get:15 http://security.ubuntu.com/ubuntu jammy-security/multiverse Translation-en [7476 kB]
Get:16 http://security.ubuntu.com/ubuntu jammy-security/multiverse amd64 c-n-f Metadata [260 kB]
Get:17 http://us-east-1.ec2.archive.ubuntu.com/ubuntu jammy/universe amd64 c-n-f Metadata [286 kB]
Get:18 http://us-east-1.ec2.archive.ubuntu.com/ubuntu jammy/multiverse amd64 Packages [217 kB]
Get:19 http://us-east-1.ec2.archive.ubuntu.com/ubuntu jammy/multiverse Translation-en [112 kB]
Get:20 http://us-east-1.ec2.archive.ubuntu.com/ubuntu jammy/multiverse amd64 c-n-f Metadata [8372 kB]
Get:21 http://us-east-1.ec2.archive.ubuntu.com/ubuntu jammy-updates/main amd64 Packages [1502 kB]
Get:22 http://us-east-1.ec2.archive.ubuntu.com/ubuntu jammy-updates/main Translation-en [289 kB]
Get:23 http://us-east-1.ec2.archive.ubuntu.com/ubuntu jammy-updates/restricted amd64 Packages [1610 kB]
Get:24 http://us-east-1.ec2.archive.ubuntu.com/ubuntu jammy-updates/restricted Translation-en [271 kB]
Get:25 http://us-east-1.ec2.archive.ubuntu.com/ubuntu jammy-updates/universe amd64 Packages [1059 kB]
Get:26 http://us-east-1.ec2.archive.ubuntu.com/ubuntu jammy-updates/universe Translation-en [240 kB]
Get:27 http://us-east-1.ec2.archive.ubuntu.com/ubuntu jammy-updates/universe amd64 c-n-f Metadata [22.1 kB]
Get:28 http://us-east-1.ec2.archive.ubuntu.com/ubuntu jammy-updates/multiverse amd64 Packages [42.1 kB]
Get:29 http://us-east-1.ec2.archive.ubuntu.com/ubuntu jammy-updates/multiverse Translation-en [10.1 kB]
Get:30 http://us-east-1.ec2.archive.ubuntu.com/ubuntu jammy-updates/multiverse amd64 c-n-f Metadata [472 kB]
Get:31 http://us-east-1.ec2.archive.ubuntu.com/ubuntu jammy-backports/main amd64 Packages [67.1 kB]
Get:32 http://us-east-1.ec2.archive.ubuntu.com/ubuntu jammy-backports/main Translation-en [11.0 kB]
Get:33 http://us-east-1.ec2.archive.ubuntu.com/ubuntu jammy-backports/main amd64 c-n-f Metadata [388 kB]
Get:34 http://us-east-1.ec2.archive.ubuntu.com/ubuntu jammy-backports/restricted amd64 c-n-f Metadata [116 kB]
Get:35 http://us-east-1.ec2.archive.ubuntu.com/ubuntu jammy-backports/universe amd64 Packages [28.4 kB]
Get:36 http://us-east-1.ec2.archive.ubuntu.com/ubuntu jammy-backports/universe Translation-en [16.2 kB]
Get:37 http://us-east-1.ec2.archive.ubuntu.com/ubuntu jammy-backports/universe amd64 c-n-f Metadata [644 kB]
Get:38 http://us-east-1.ec2.archive.ubuntu.com/ubuntu jammy-backports/multiverse amd64 c-n-f Metadata [116 kB]
```

Fetched 30.3 MB in 6s (5277 kB/s)

Reading package lists... Done

Building dependency tree... Done

Reading state information... Done

19 packages can be upgraded. Run 'apt list --upgradable' to see them.

ubuntu@ip-172-31-27-86: ~

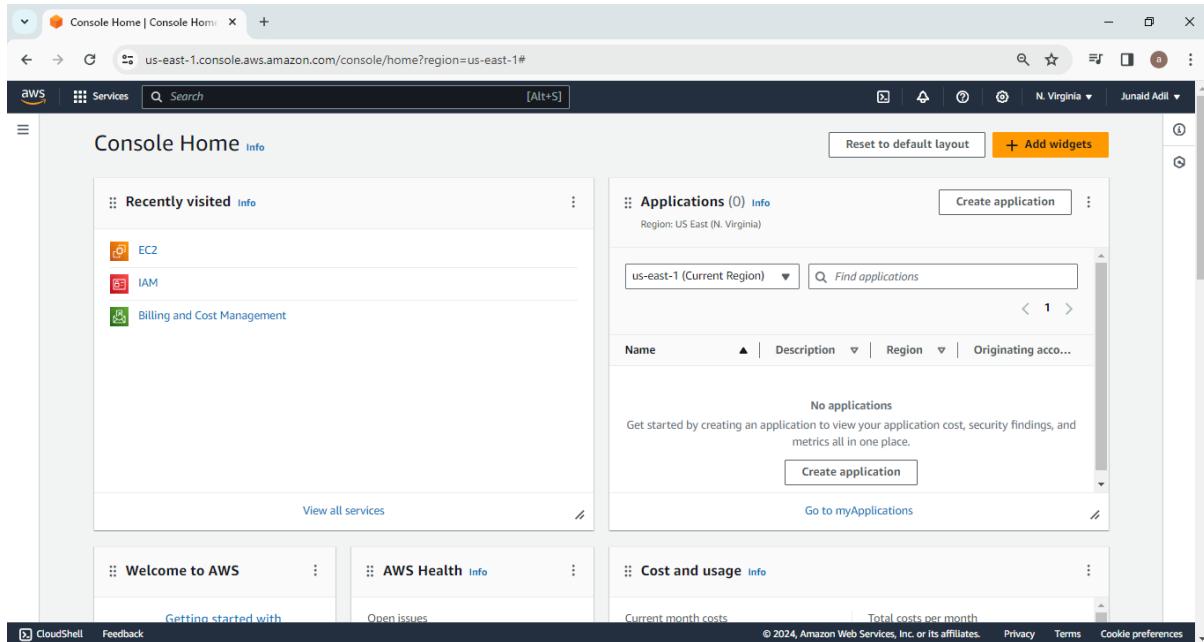
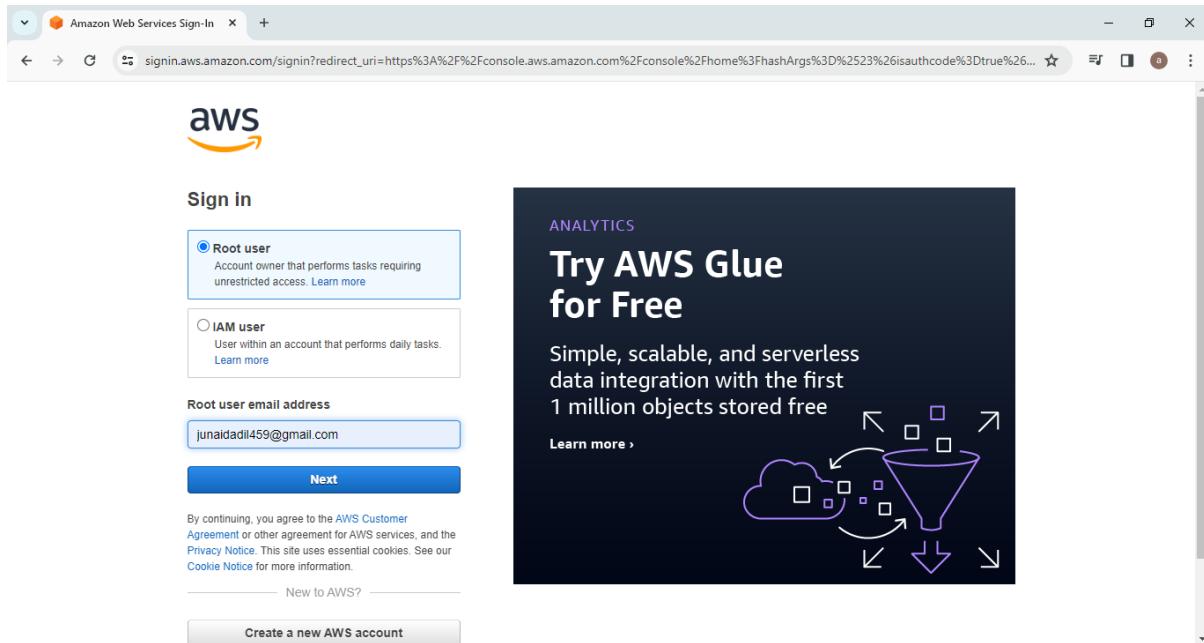
Activate Windows
Go to Settings to activate Windows.

Follow terminal folder

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L2 - Login to AWS Console and Create IAM User, Role, and Group.

Step 1: Login to AWS Console.



Step 2: Go to IAM Dashboard, and go to users.

The screenshot shows the AWS IAM Dashboard. On the left, there's a navigation sidebar with sections like 'Identity and Access Management (IAM)', 'Dashboard', 'Access management' (User groups, Users, Roles, Policies, Identity providers, Account settings), 'Access reports' (Access Analyzer, External access, Unused access, Analyzer settings, Credential report), and 'AWS CloudWatch Metrics' (Metrics, Metrics Insights). The main area has two panels: 'Security recommendations' (Add MFA for root user, Root user has no active access keys) and 'IAM resources' (User groups: 0, Users: 1, Roles: 3, Policies: 0, Identity providers: 0). On the right, there are 'AWS Account' details (Account ID: 381491867593, Account Alias: Create) and 'Quick Links' for 'My security credentials'. The URL in the address bar is <https://us-east-1.console.aws.amazon.com/iam/home?region=us-east-1#/users>.

Step 3: Click on Create User.

The screenshot shows the 'Users' page under the 'Identity and Access Management (IAM)' section. The left sidebar is identical to the previous screenshot. The main area shows a table titled 'Users (0) Info' with one row: 'No resources to display'. At the top right of the table, there are buttons for 'Delete' and 'Create user'. The URL in the address bar is <https://us-east-1.console.aws.amazon.com/iam/home?region=us-east-1#/users>.

Step 4: Provide IAM User Name as “Tester” & Enable “Provide user access to the AWS Management Console” Option.

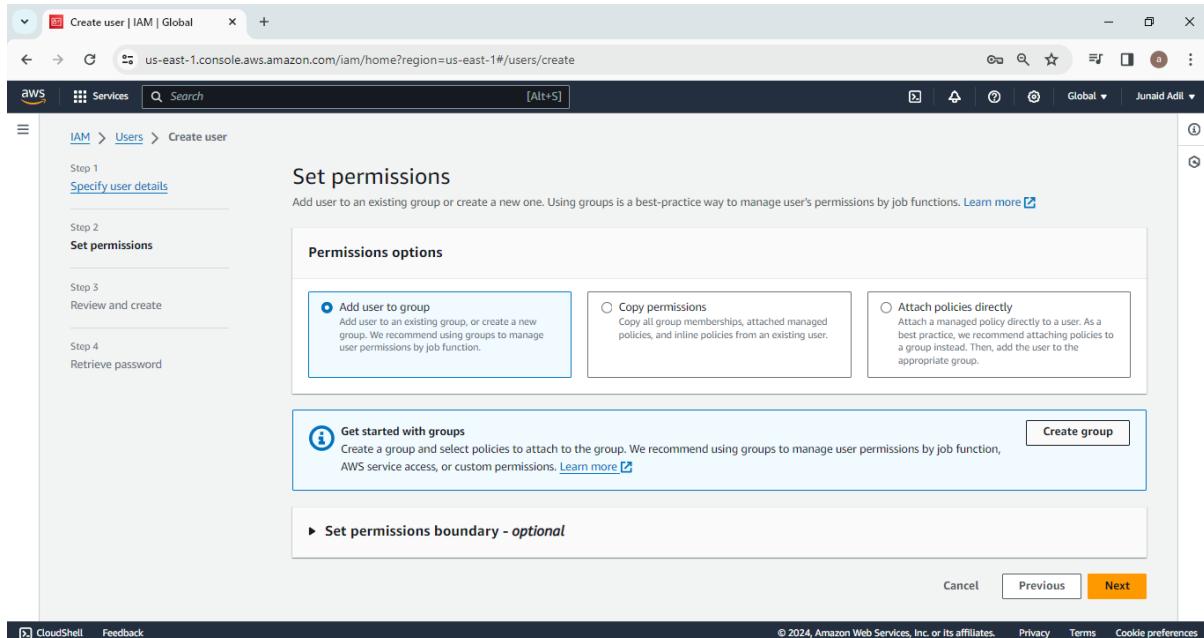
By enabling the above option, Password options will get visible below.

The screenshot shows the 'Specify user details' step of the IAM user creation wizard. The 'User name' field contains 'Tester'. The 'Provide user access to the AWS Management Console - optional' checkbox is checked. In the 'User type' section, 'I want to create an IAM user' is selected. The 'Console password' section shows 'Autogenerated password' selected. The URL in the browser is us-east-1.console.aws.amazon.com/iam/home?region=us-east-1#/users/create.

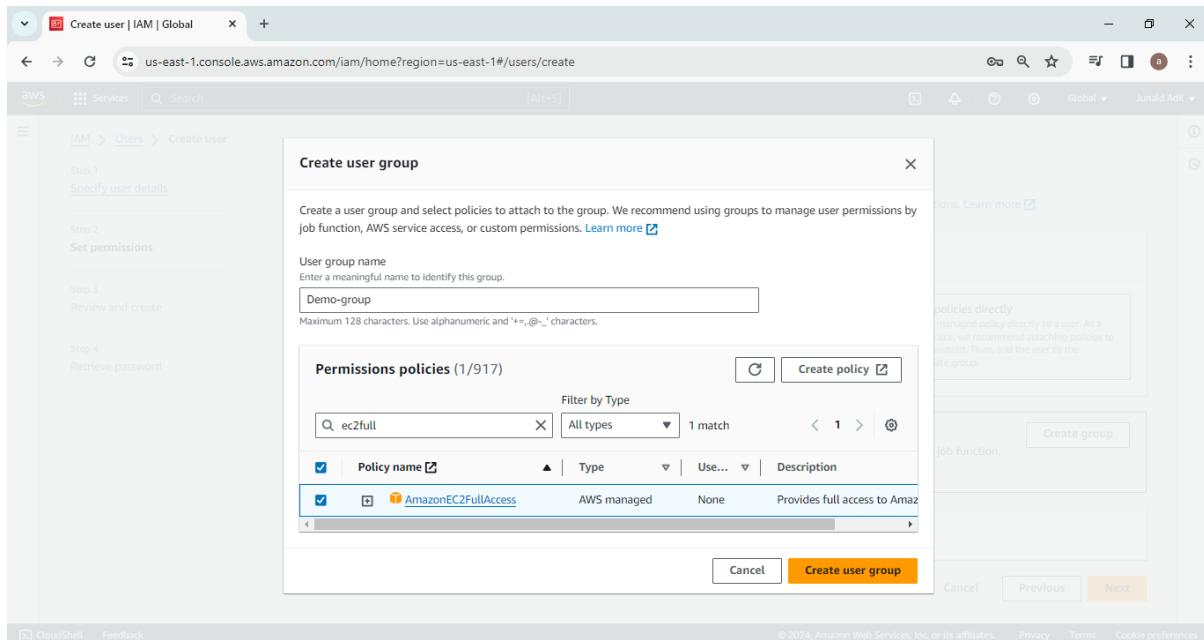
Step 5: Then in **Console Password section, select Custom Password option & enter the password. Enable “Users must create a new password at next sign-in” Option. Then click on Next.**

The screenshot shows the 'Specify user details' step of the IAM user creation wizard. The 'User type' section shows 'I want to create an IAM user' selected. The 'Console password' section shows 'Custom password' selected with a password entered in the field. The 'Users must create a new password at next sign-in' checkbox is checked. A note at the bottom states: 'If you are creating programmatic access through access keys or service-specific credentials for AWS CodeCommit or Amazon Keyspaces, you can generate them after you create this IAM user.' The URL in the browser is us-east-1.console.aws.amazon.com/iam/home?region=us-east-1#/users/create.

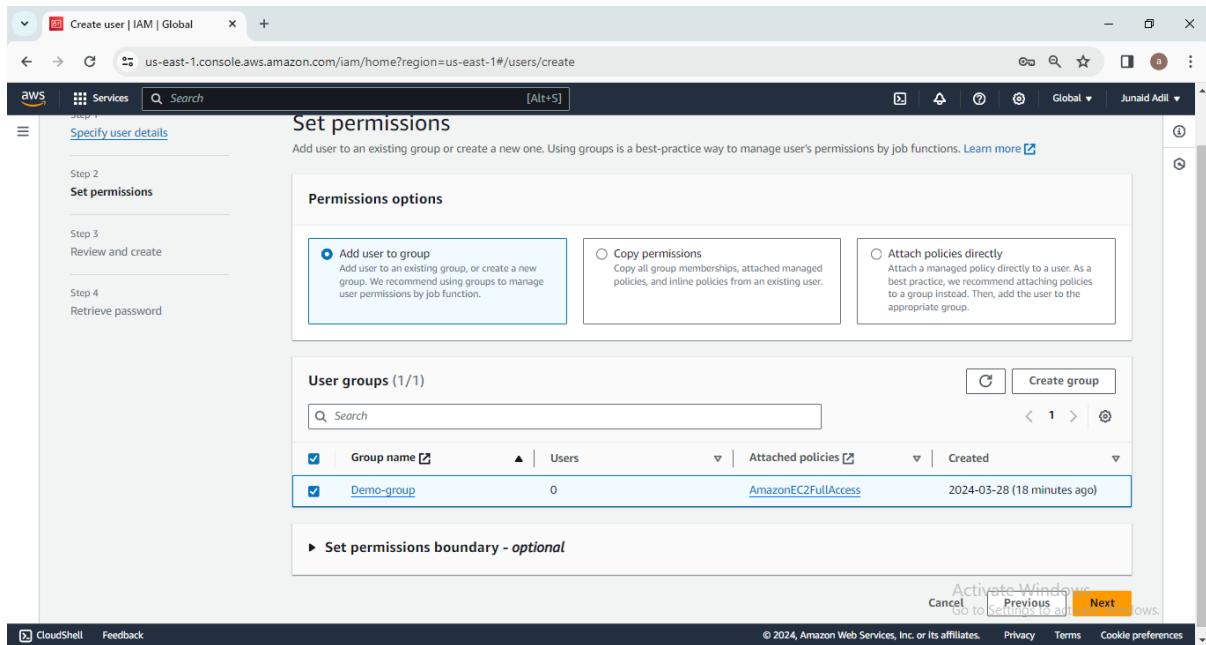
Step 6: Click on the “Create group” option to create a group.



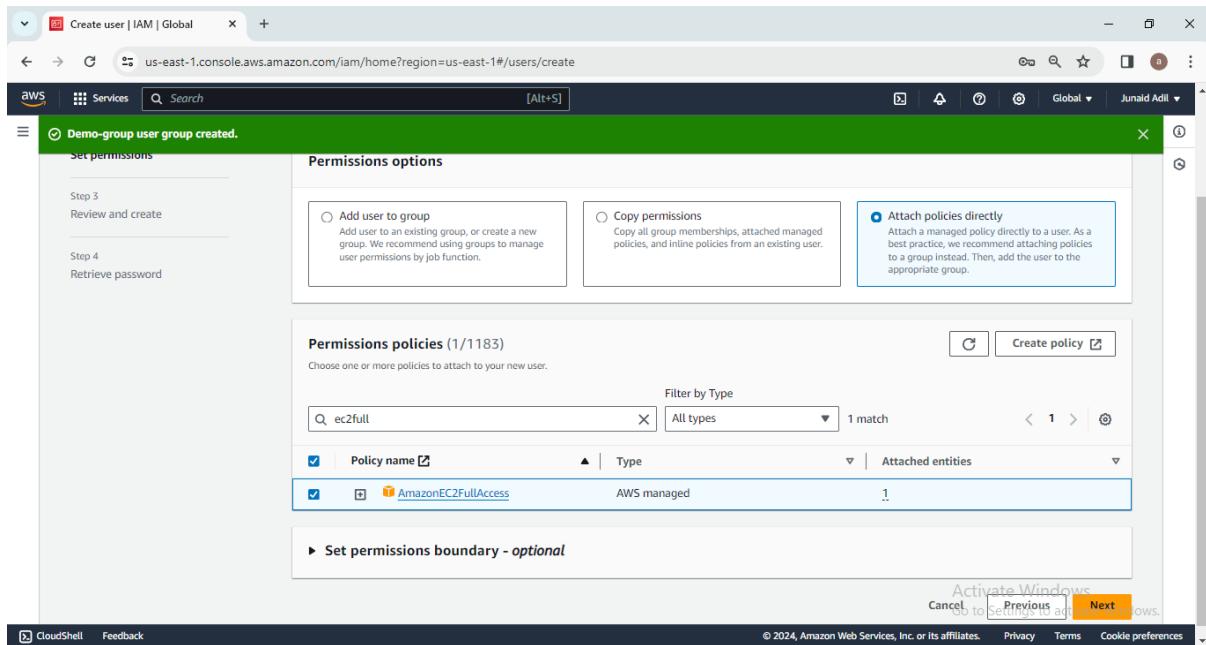
Step 7: Enter Group Name as “**Demo-group**”. Add Policies to give permission. Add “AmazonEC2FullAccess” to give EC2 full Permission to the users under the Group. Then Click on “Create user group”.



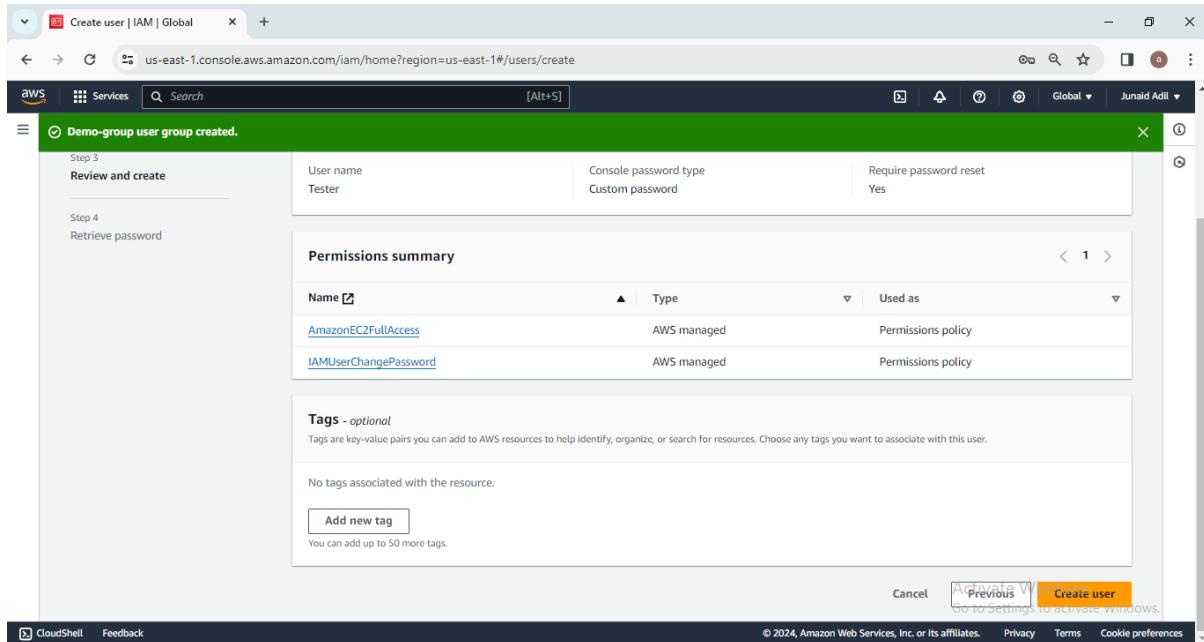
Next page we can see the group is created. Then Select the created group to add user to the group.



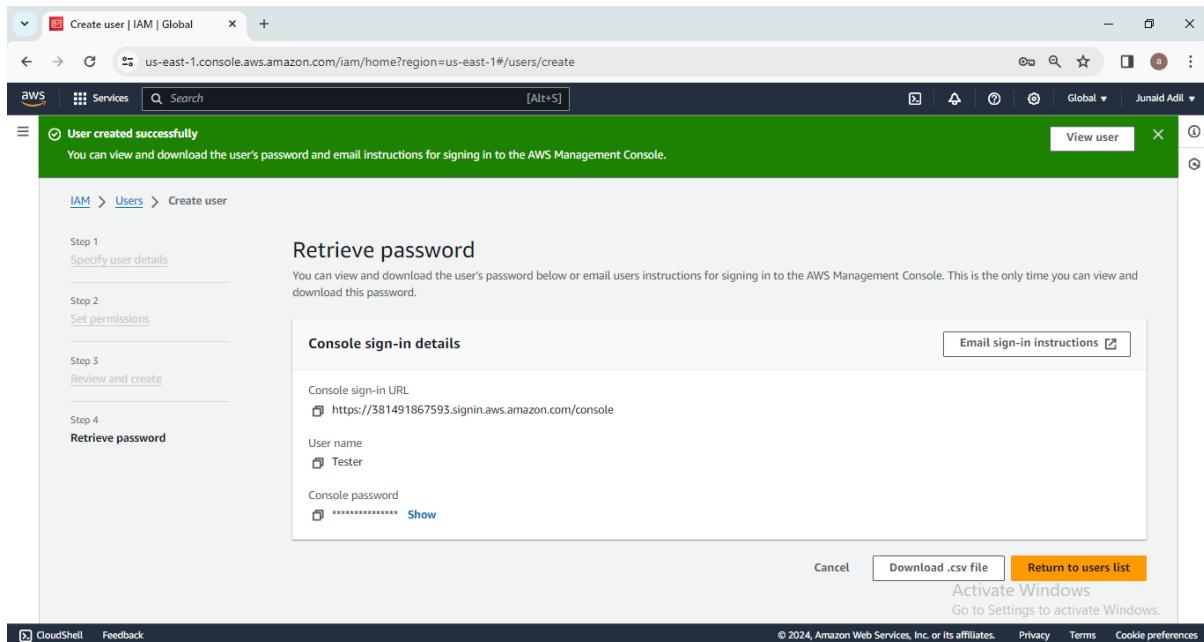
Step 8: If we opt to directly assign the policies to the user, we can select the third option “Attach Policies directly” and select the policy below “AmazonEC2FullAccess”. Then click on Next.



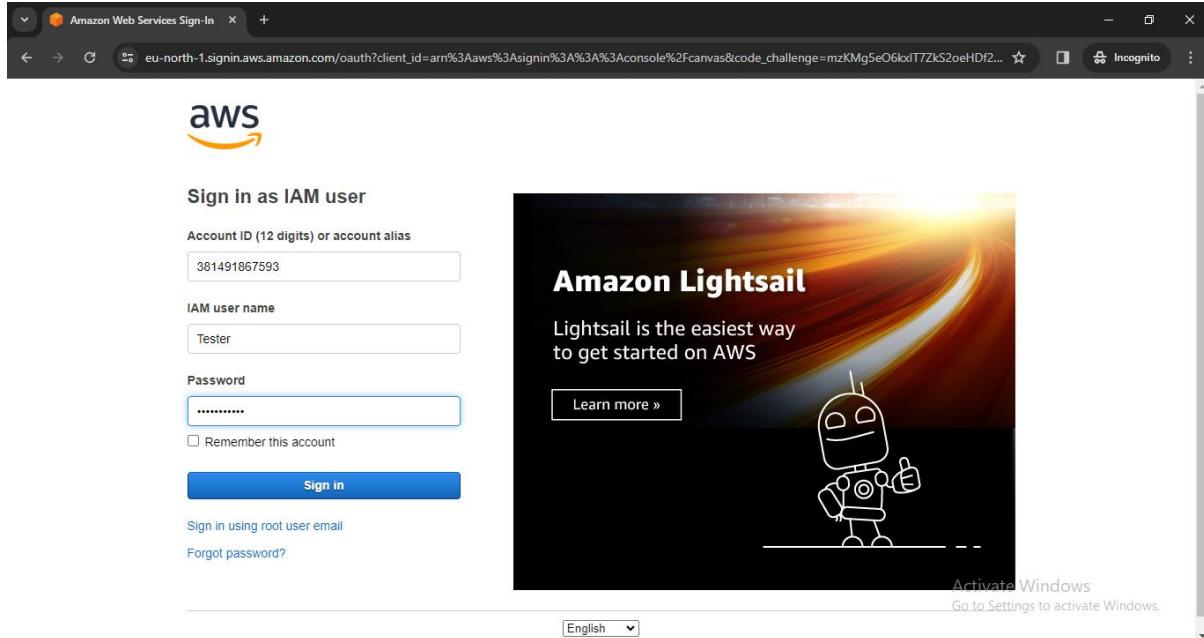
Step 9: Click on Create User.



User has been created.

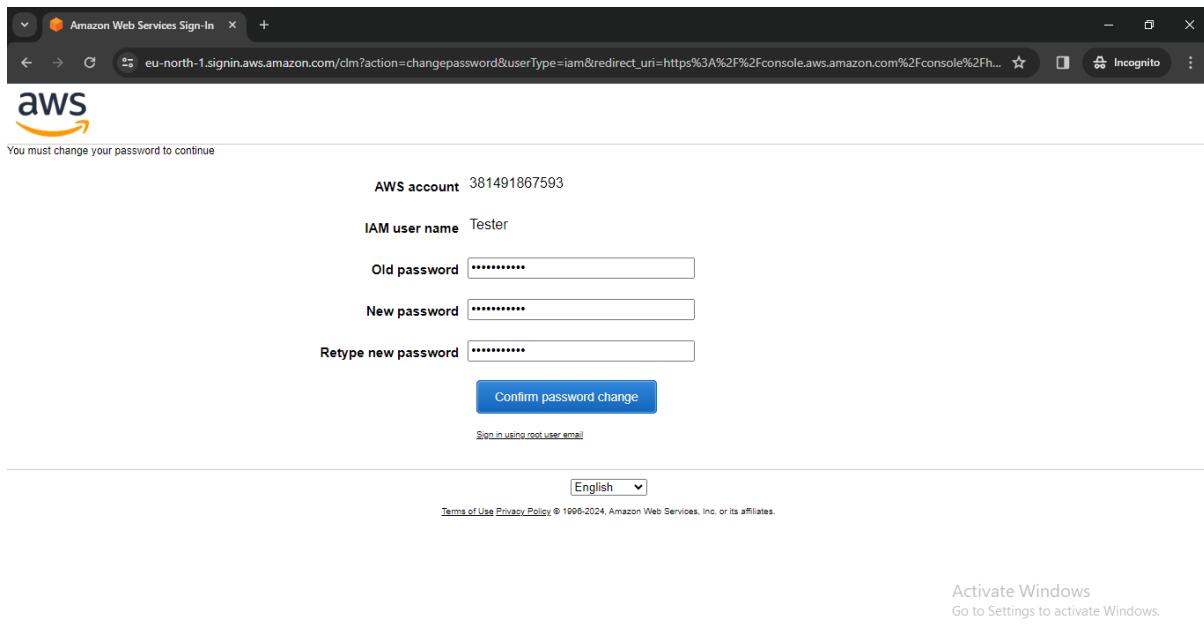


Step 10: Then use the Console sign-in URL to open the login page. Login using IAM User credentials.



Step 11: In Next Page, IAM User can change/Set the Password.

Then enter the password and click on Confirm Password change.



As per defined policies to the user, User can only work on EC2 as shown in the image below.

The screenshot shows the AWS EC2 Dashboard in the Stockholm region. The sidebar navigation includes EC2 Global View, Events, Instances (with sub-options like Instances, Instance Types, Launch Templates, Spot Requests, Savings Plans, Reserved Instances, Dedicated Hosts, Capacity, and Reservations), Images (AMIs, AMI Catalog), and Elastic Block Store. The main panel displays 'Resources' with counts for Instances (running), Auto Scaling Groups, Dedicated Hosts, Elastic IPs, Instances, Key pairs, Load balancers, Placement groups, Security groups (1), Snapshots, and Volumes. A 'Launch instance' button is available. On the right, an 'EC2 Free Tier' section shows 0 offers in use, followed by an error message from AWS IAM regarding the 'freetier:GetFreeTierUsage' action. The footer includes links for CloudShell, Feedback, and various AWS terms like Privacy, Terms, and Cookie preferences.

The screenshot shows the AWS Console Home page in the Stockholm region. The sidebar navigation includes Services (with sub-options like EC2, Lambda, S3, etc.), a search bar, and links for Reset to default layout and Add widgets. The main panel features 'Recently visited' services (including EC2) and an 'Applications' section showing 0 applications with a 'Create application' button. A prominent red box highlights an 'Access denied' message. The footer includes links for CloudShell, Feedback, and various AWS terms like Privacy, Terms, and Cookie preferences.

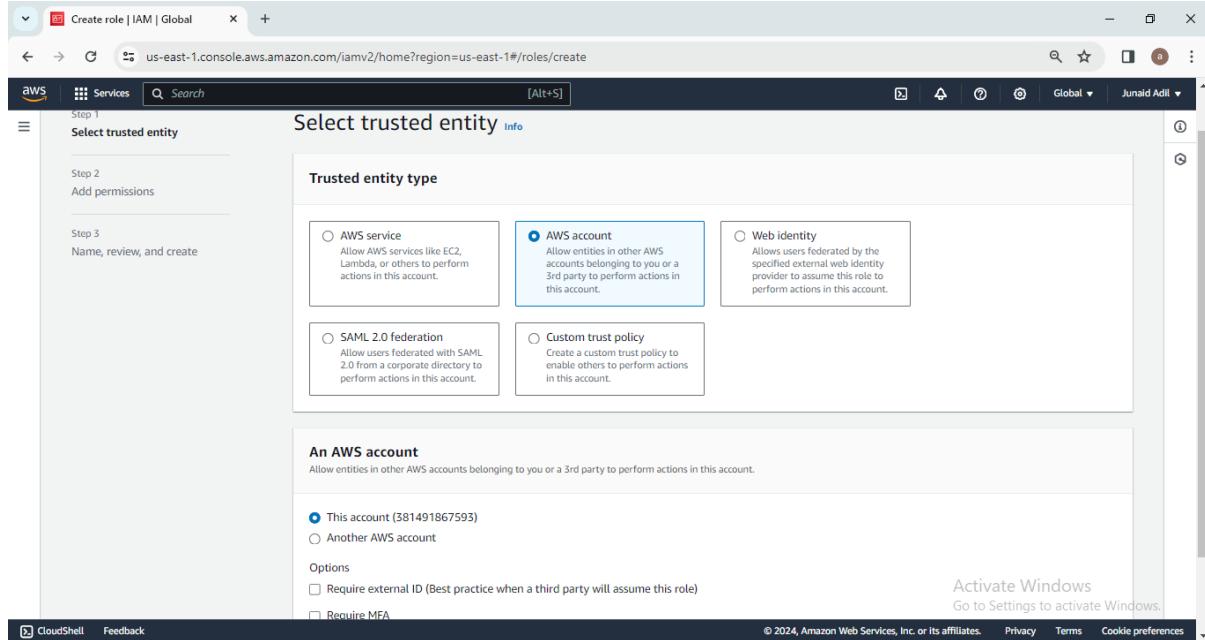
We can also see that user has been added to the Group.

The screenshot shows the AWS IAM Groups page. On the left, there's a navigation sidebar with options like Dashboard, Access management (User groups, Roles, Policies, Identity providers, Account settings), Access reports (Access Analyzer, External access, Unused access, Analyzer settings, Credential report), and CloudShell/Feedback. The main content area shows a summary for the 'Demo-group' with details: User group name (Demo-group), Creation time (March 28, 2024, 23:10 (UTC+05:30)), and ARN (arn:aws:iam::381491867593:group/Demo-group). Below this, there are tabs for 'Users (1)', 'Permissions', and 'Access Advisor'. Under 'Users in this group (1)', it lists a single user named 'Tester'. At the bottom right, there's a note: 'Go to Settings to activate Windows.'

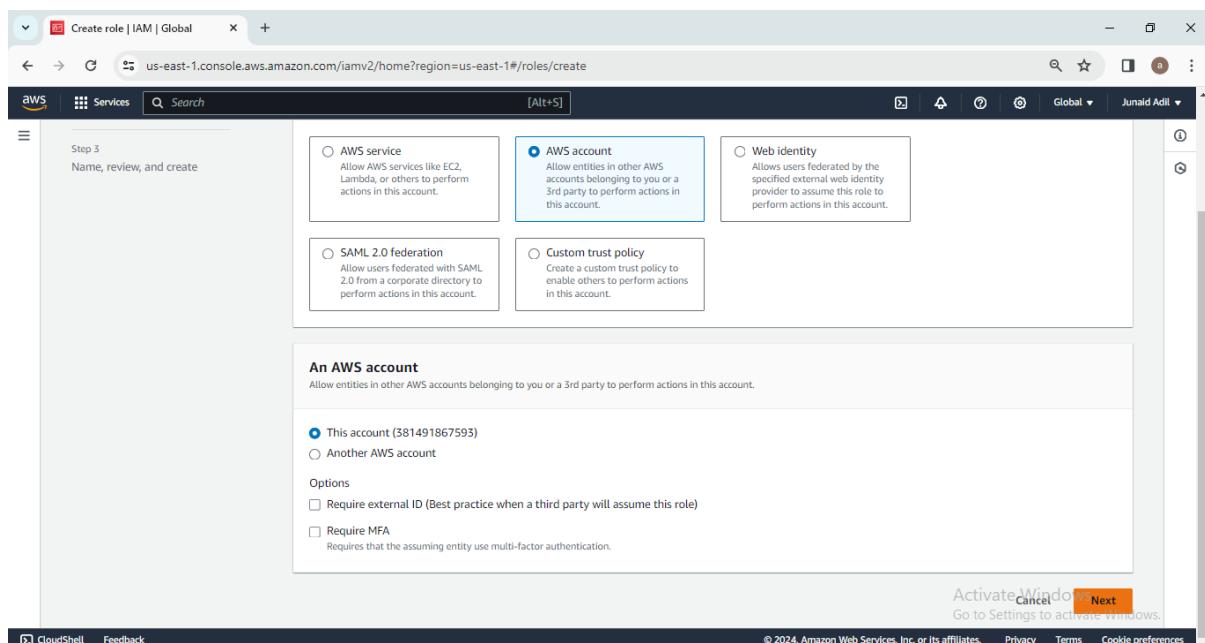
Step 12: To Create the Role, Go to IAM → Roles → Click on Create role

The screenshot shows the AWS IAM Roles page. The left sidebar includes options for Dashboard, Access management (User groups, Roles, Policies, Identity providers, Account settings), Access reports (Access Analyzer, External access, Unused access, Analyzer settings, Credential report), and CloudShell/Feedback. The main area displays a list of roles: 'aws-ec2-spot-fleet-tagging-role' (AWS Service: spotfleet), 'AWSServiceRoleForSupport' (AWS Service: support (Service-Linked)), and 'AWSServiceRoleForTrustedAdvisor' (AWS Service: trustedadvisor (Service)). There's a 'Create role' button at the top right of the role list. Below the list, there's a section titled 'Roles Anywhere' with three options: 'Access AWS from your non AWS workloads', 'X.509 Standard', and 'Temporary credentials'. A note at the bottom right says: 'Go to Settings to activate Windows.'

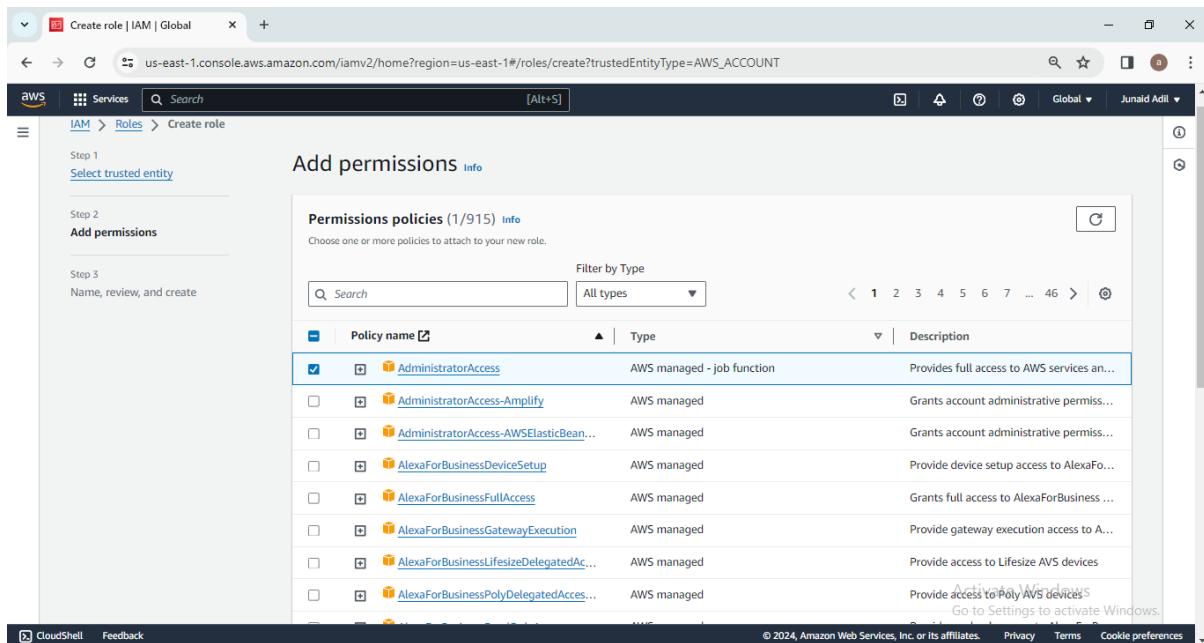
Step 13: Then select AWS Account. (Here we can directly create a Role to the user by selecting “AWS Account” option. Where we will get an option to select this account or mention the Account ID to which we want to give the access to the resource). Select “This Account” Option below.



Then click on next.

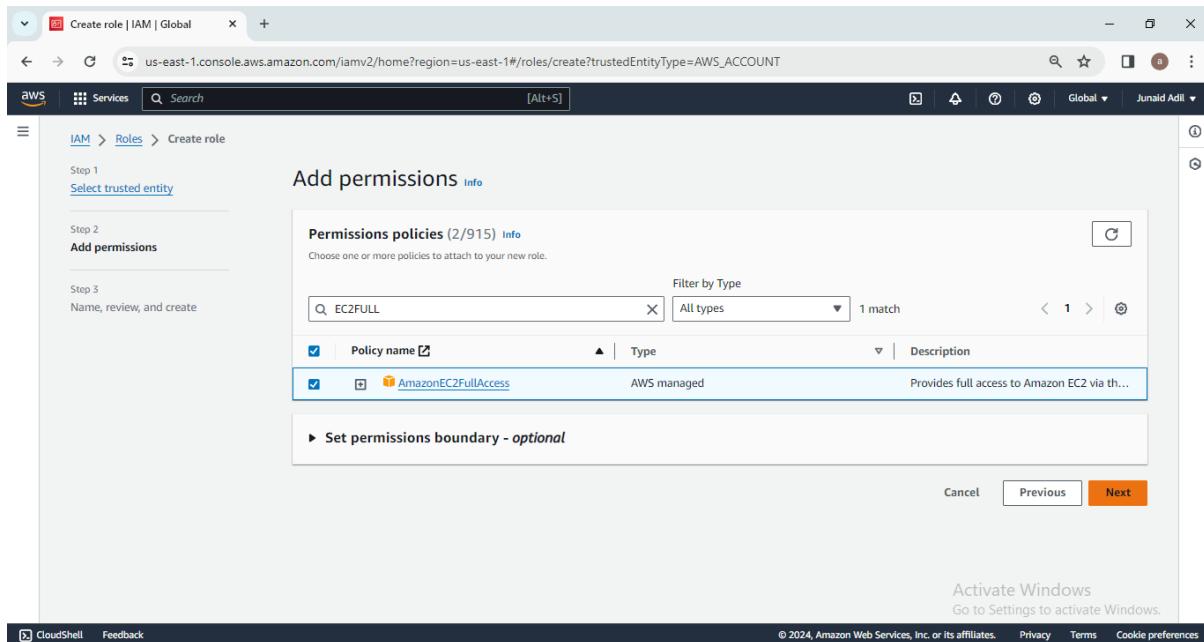


Step 14: Select “AdministratorAccess” and “EC2FullAccess” to give Admin and EC2 Full Access to the user.



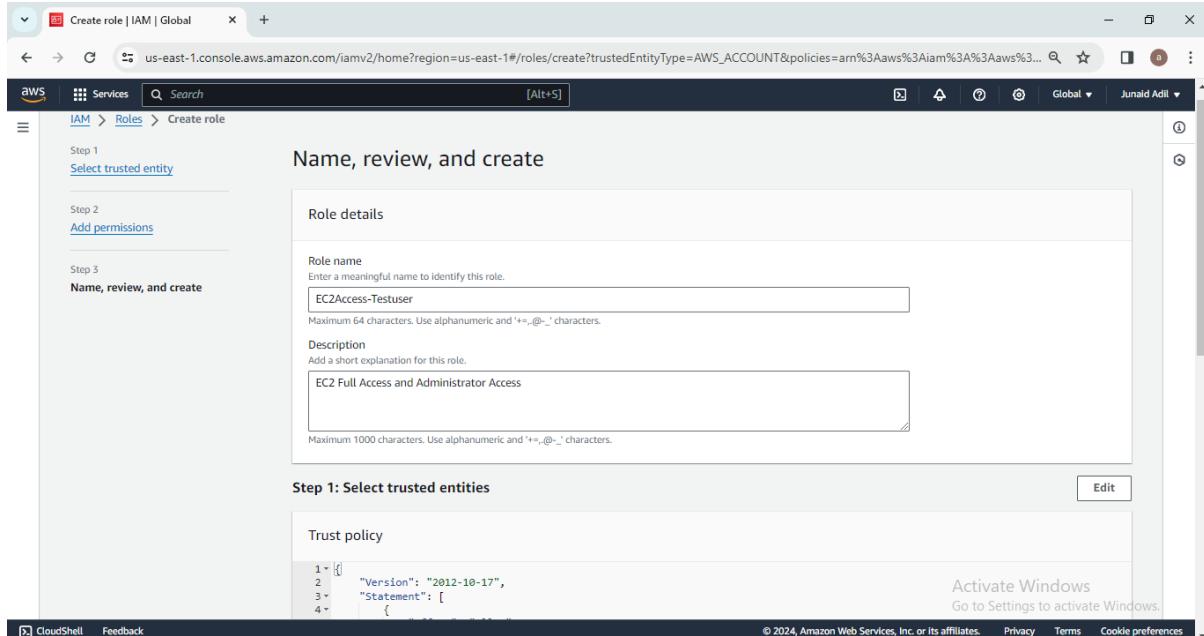
The screenshot shows the AWS IAM 'Create role' wizard at Step 2: Add permissions. The 'Permissions policies' section displays a list of available policies. The 'AdministratorAccess' policy is selected and highlighted with a blue border. Other policies listed include 'AdministratorAccess-Amplify', 'AdministratorAccess-AWSLambda...', 'AlexaForBusinessDeviceSetup', 'AlexaForBusinessFullAccess', 'AlexaForBusinessGatewayExecution', 'AlexaForBusinessLifesizeDelegatedAcc...', and 'AlexaForBusinessPolyDelegatedAcc...'. A search bar and a filter by type dropdown are also visible.

Then click on Next

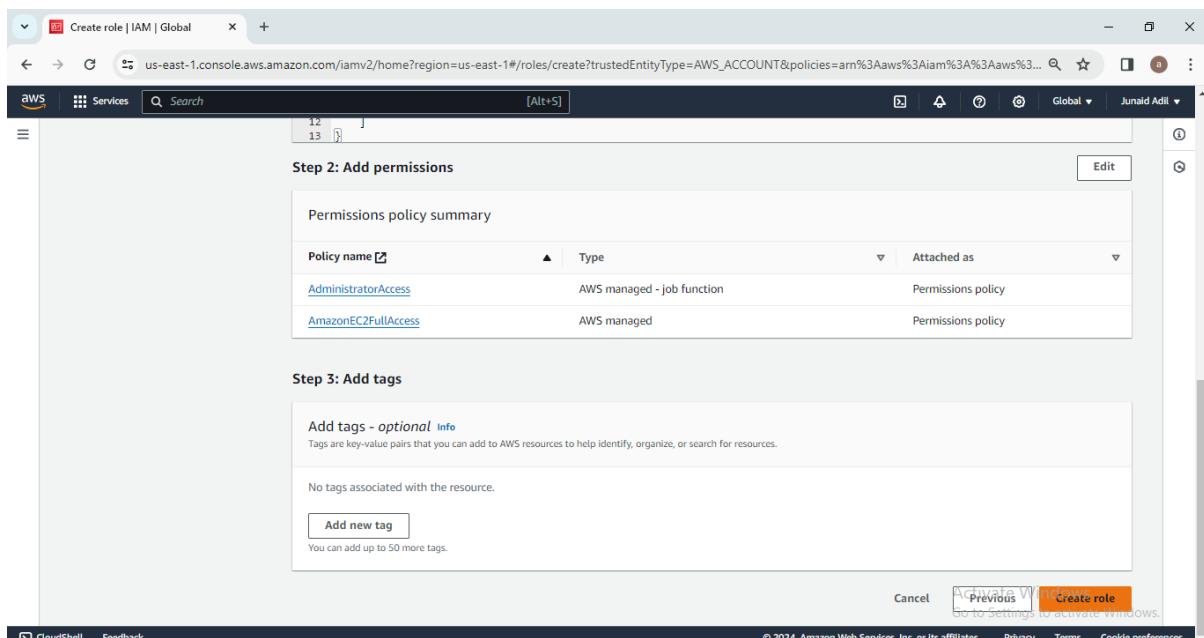


The screenshot shows the AWS IAM 'Create role' wizard at Step 2: Add permissions. The 'Permissions policies' section displays a list of policies, with 'EC2Full' searched in the filter bar. The 'AmazonEC2FullAccess' policy is selected and highlighted with a blue border. A 'Set permissions boundary - optional' section is present below the policy list. Navigation buttons 'Cancel', 'Previous', and 'Next' are at the bottom right, along with an 'Activate Windows' watermark.

Step 15: Give Username as “EC2Access-Testuser” and Description as “EC2 Full Access and Administrator Access”.



Then click on Create Role.



Role has been created under specified account.

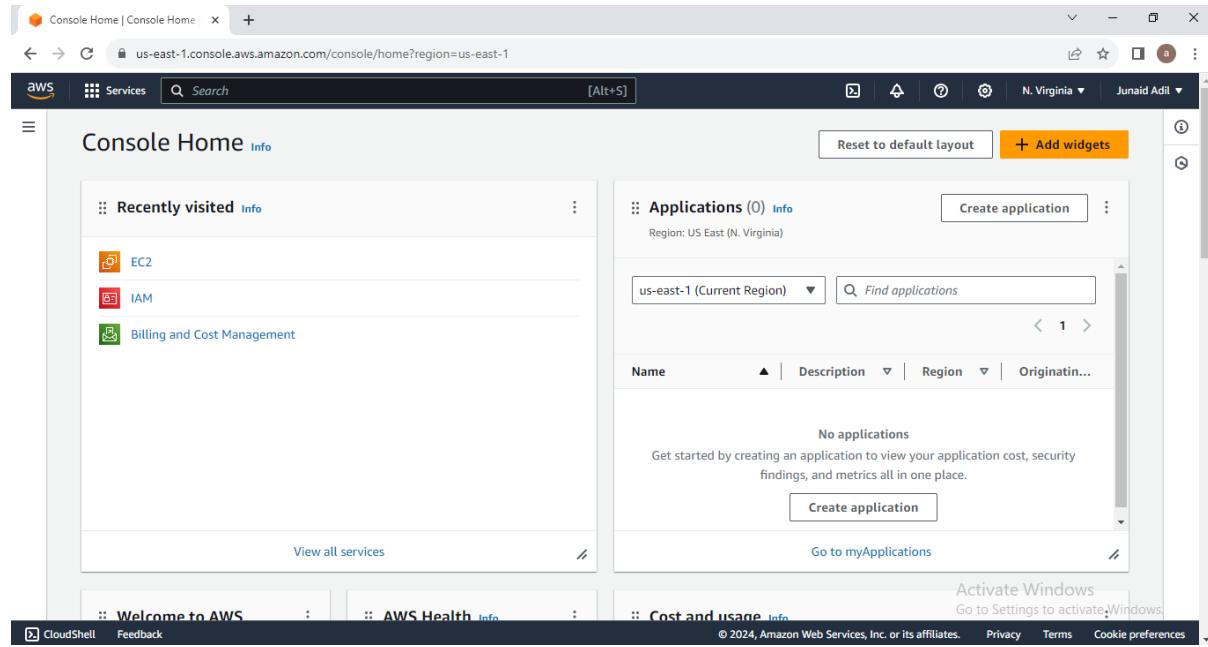
The screenshot shows the AWS IAM Roles page. A green banner at the top indicates that the role 'EC2Access-Testuser' has been created. The main table lists four roles:

Role name	Trusted entities	Last activity
aws-ec2-spot-fleet-tagging-role	AWS Service: spotfleet	-
AWSServiceRoleForSupport	AWS Service: support (Service-Linked Role)	-
AWSServiceRoleForTrustedAdvisor	AWS Service: trustedadvisor (Service-Linked Role)	-
EC2Access-Testuser	Account: 381491867593	-

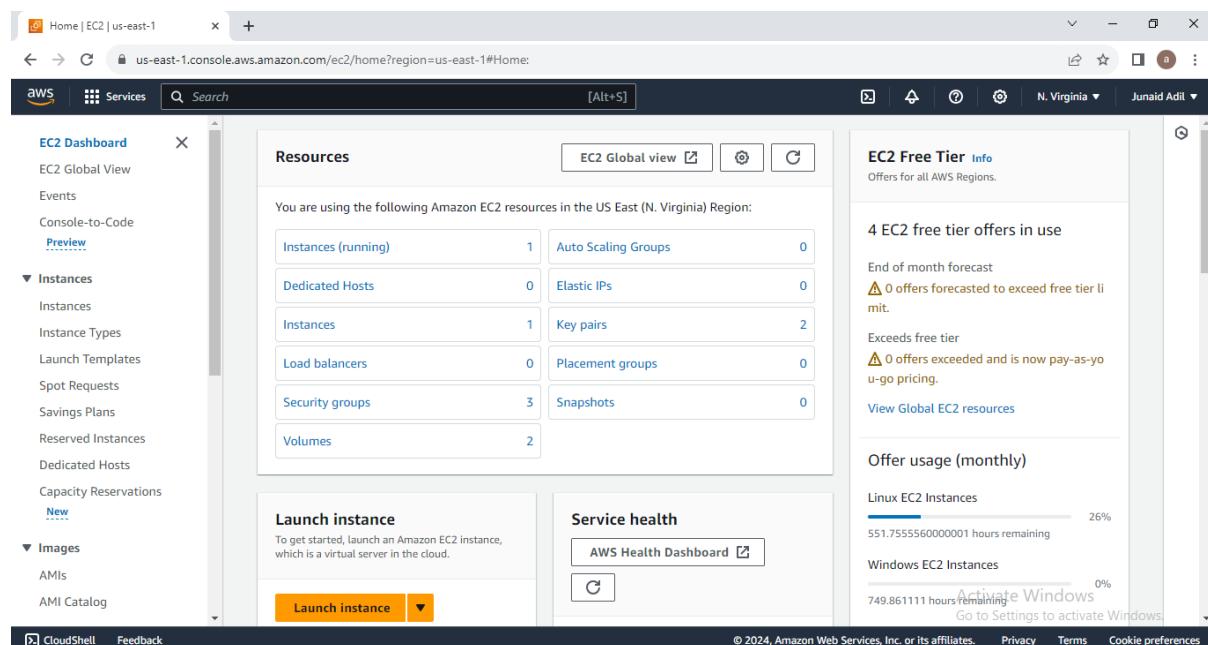
Below the table, there are sections for 'Roles Anywhere' and 'Temporary credentials'. The 'Temporary credentials' section includes a link to 'Windows'.

L3 - Launch AWS EC2 Ubuntu Instance and configure the Security Group - Inbound Rule: 8080. Justify the usage of Inbound Rules.

Step 1: Login to the AWS Console.



The screenshot shows the AWS Console Home page. The top navigation bar includes the AWS logo, a search bar, and a region selector set to N. Virginia. Below the navigation is a sidebar with 'Recently visited' links for EC2, IAM, and Billing and Cost Management. To the right, there's a 'Applications' section with a 'Create application' button and a note about getting started with applications. At the bottom, there are links for 'View all services', 'Go to myApplications', and other navigation items like 'Welcome to AWS', 'AWS Health', and 'Cost and usage'.



The screenshot shows the AWS EC2 Dashboard. The left sidebar has sections for EC2 Dashboard (EC2 Global View, Events, Console-to-Code), Instances (Instances, Instance Types, Launch Templates, Spot Requests, Savings Plans, Reserved Instances, Dedicated Hosts, Capacity Reservations), and Images (AMIs, AMI Catalog). The main content area is titled 'Resources' and displays a summary of Amazon EC2 resources in the US East (N. Virginia) Region. It shows 1 running instance, 0 auto scaling groups, 0 dedicated hosts, 0 elastic IPs, 1 instance, 2 key pairs, 0 load balancers, 0 placement groups, 3 security groups, 0 snapshots, and 2 volumes. Below this is a 'Launch instance' button with a note: 'To get started, launch an Amazon EC2 instance, which is a virtual server in the cloud.' To the right, there's a 'EC2 Free Tier' section, a 'Offer usage (monthly)' section for Linux and Windows EC2 instances, and a note to activate Windows.

Step 2: Then click on the Launch Instance.

The screenshot shows the AWS EC2 Home page. On the left, there's a sidebar with navigation links like EC2 Dashboard, Instances, and Images. The main area displays various resource counts: Instances (running) 1, Auto Scaling Groups 0, Dedicated Hosts 0, Elastic IPs 0, Instances 1, Key pairs 2, Load balancers 0, Placement groups 0, Security groups 3, Snapshots 0, and Volumes 2. Below this, there's a section titled 'Launch instance' with a large orange 'Launch instance' button. To the right, there's a 'Service health' section showing 'AWS Health Dashboard' and a status message 'This service is operating normally.' On the far right, there's a sidebar with resource usage metrics for Linux EC2 Instances, Windows EC2 Instances, EBS:SnapshotUsage, and Storage space on EBS.

Step 3: Name the Instance as “Demo-Instance” and select the OS Image as Ubuntu.

The screenshot shows the 'Launch an instance' wizard. Step 1 is 'Name and tags'. It has a 'Name' field containing 'Demo-Instance' and an 'Add additional tags' link. Step 2 is 'Application and OS Images (Amazon Machine Image)'. It shows a search bar and a grid of recent AMIs: Amazon Linux, macOS, Ubuntu, Windows, Red Hat, and SUSE. There's also a 'Browse more AMIs' link. Step 3 is 'Summary', which shows 'Number of instances' set to 1, 'Software Image (AMI)' as Canonical, Ubuntu, 22.04 LTS, 'Virtual server type (instance type)' as t2.micro, 'Firewall (security group)' as New security group, and 'Storage (volumes)' as 1 volume(s) - 8 GiB. At the bottom, there's a 'Launch instance' button.

Step 4: Select the Amazon Machine Image (AMI) and Instance type as per the Requirement.

The screenshot shows the AWS EC2 Launch Instance wizard at Step 4. The left panel displays the selected AMI: "Ubuntu Server 22.04 LTS (HVM), SSD Volume Type" (ami-080e1f13689e07408). It also shows the instance type as "t2.micro". The right panel, titled "Summary", shows the configuration: 1 instance of Canonical, Ubuntu, 22.04 LTS, t2.micro, with a new security group and 1 volume (8 GiB). A "Launch instance" button is prominently displayed.

Step 5: Select the Key pair and Default security group.

The screenshot shows the AWS EC2 Launch Instance wizard at Step 5. The left panel shows the key pair name as "keypair". The network settings section includes a subnet (vpc-0da92ba1cf8b19e42), auto-assign public IP, and a selected security group ("Test"). The right panel, titled "Summary", shows the configuration: 1 instance of Canonical, Ubuntu, 22.04 LTS, t2.micro, with a test security group and 1 volume (8 GiB). A "Launch instance" button is prominently displayed.

Step 6: Select the Configure Storage and click on the Launch Instance.

The screenshot shows the 'Launch an instance' configuration page in the AWS Management Console. The 'Configure storage' section is selected, showing a root volume of 8 GiB (gp2). A tooltip indicates that free-tier eligible customers can get up to 30 GB of EBS General Purpose (SSD) or Magnetic storage. The 'Virtual server type (instance type)' is set to t2.micro. The 'Firewall (security group)' is set to 'Test'. The 'Storage (volumes)' section shows 1 volume(s) - 8 GiB. A tooltip for the free tier states: 'Free tier: In your first year includes 750 hours of t2.micro (or t3.micro in the Regions in which t2.micro is unavailable) instance'. At the bottom right, there are 'Cancel', 'Launch instance' (which is highlighted in orange), 'Review commands', and links to 'Activate Windows' and 'Go to Settings to activate Windows.'

The screenshot shows the 'Success' page after launching an instance. It displays the message 'Successfully initiated launch of instance (i-05596f655366526b6)'. Below this, there is a 'Launch log' link. The 'Next Steps' section contains four cards: 'Create billing and free tier usage alerts' (with a 'Create billing alerts' button), 'Connect to your instance' (with a 'Connect to instance' button), 'Connect an RDS database' (with a 'Connect an RDS database' button), and 'Create EBS snapshot policy' (with a 'Create EBS snapshot policy' button). A tooltip for the free tier is visible at the bottom right, stating: 'Free tier: In your first year includes 750 hours of t2.micro (or t3.micro in the Regions in which t2.micro is unavailable) instance'. Navigation links for 'CloudShell' and 'Feedback' are at the bottom left, and copyright information for 2024 Amazon Web Services, Inc. or its affiliates is at the bottom right.

Instance will be created and wait until the Instance state comes to the running state.

Then Instance will be Launched.

The screenshot shows the AWS EC2 Instances page. On the left, there's a navigation sidebar with options like EC2 Dashboard, EC2 Global View, Events, Console-to-Code, Instances (selected), Instance Types, Launch Templates, Spot Requests, Savings Plans, Reserved Instances, Dedicated Hosts, Capacity Reservations, Images (AMIs, AMI Catalog), and Elastic Block Store (Volumes). The main content area has a heading 'Instances (1) Info' with a search bar and filters. A table lists one instance: 'Demo-Instance' (Instance ID: i-0179ad1a0568cdf65, State: Running, Type: t2.micro, Status: Initializing, Availability Zone: us-east-1b, Public IP: ec2-54-). Below the table is a modal window titled 'Select an instance' which is currently empty. At the bottom right of the main area, there's a message: 'Activate Windows Go to Settings to activate Windows.'

Step 7: Go to Instance → Open “Demo-Instance” then go to Security section and open security groups

The screenshot shows the AWS EC2 Instance details page for the 'Demo-Instance'. The left sidebar is identical to the previous screenshot. The main content area has tabs: Required, Details, Status and alarms (New), Monitoring, Security (selected), Networking, Storage, and Tags. Under the Security tab, there are sections for 'Security details' (IAM Role: -, Owner ID: 381491867593, Launch time: Sat Mar 30 2024 14:11:43 GMT+0530 (India Standard Time)) and 'Inbound rules' (a table with one rule: Name: sgr-01ecd771ad7c2e701, Security group rule ID: sgr-01ecd771ad7c2e701, Port range: 22, Protocol: TCP, Source: 0.0.0.0/0). There's also an 'Outbound rules' section at the bottom. A message 'Activate Windows Go to Settings to activate Windows.' is visible at the bottom right.

Step 8: Then click on Edit inbound rules.

The screenshot shows the AWS EC2 Security Group Details page. The security group name is "launch-wizard-2". It has one inbound rule: "sgr-01ecd771ad7c2e701" (Type: SSH, Protocol: TCP, Port range: 22, Source: Custom, Source IP: 0.0.0.0/0). The Outbound rules count is 1 (Permission entry).

Step 9: Add rule as Custom TCP, Port Range: 8080 and Source as Anywhere-IPv4. Click on save rules.

The screenshot shows the "Edit inbound rules" section of the AWS ModifyInboundSecurityGroup page. It displays two existing rules and a new rule being added. The new rule is a "Custom TCP" rule with the following details:

Security group rule ID	Type	Protocol	Port range	Source	Description - optional
sgr-01ecd771ad7c2e701	SSH	TCP	22	Custom	0.0.0.0/0
-	Custom TCP	TCP	8080	Anyw...	0.0.0.0/0

A warning message at the bottom states: "⚠️ Rules with source of 0.0.0.0/0 or ::/0 allow all IP addresses to access your instance. We recommend setting security group rules to allow access from known IP addresses only." There are "Cancel", "Preview changes", "Save rules", and "DWS" buttons at the bottom.

We can see the custom TCP has been added under the Inbound rules in Demo-Instance.

The screenshot shows the AWS EC2 Security Group Details page for a group named 'launch-wizard-2'. It displays basic information like the security group name, ID, owner, and VPC ID. Under the 'Inbound rules' tab, there are two entries:

Name	Security group rule...	IP version	Type	Protocol	Port range
-	sgr-0e37f11302aab53d	IPv4	Custom TCP	TCP	8080
-	sgr-01ecd771ad7c2e701	IPv4	SSH	TCP	22

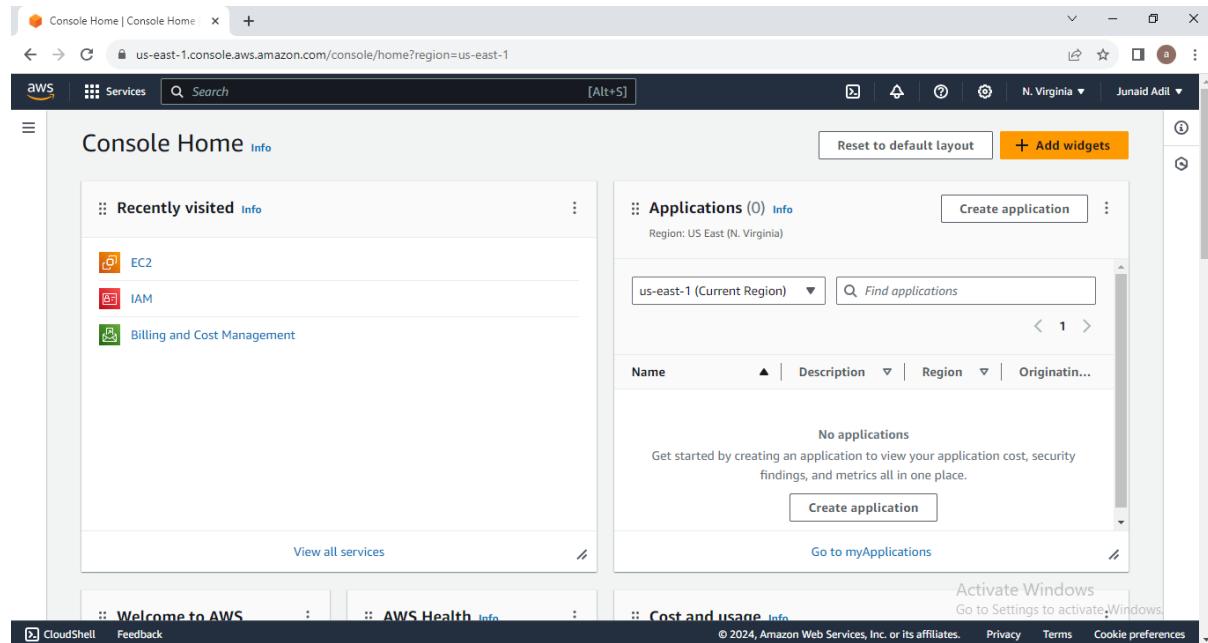
Justify the usage of Inbound Rules:

Here we have added Port number: 8080 in Inbound Rule to allow the traffic from a specific Port range. Where Inbound rule protect the network by blocking the traffic from unknown malicious sources and thereby prevent malware attacks. Malicious traffic can be blocked based on ports, type of traffic, or IP addresses.

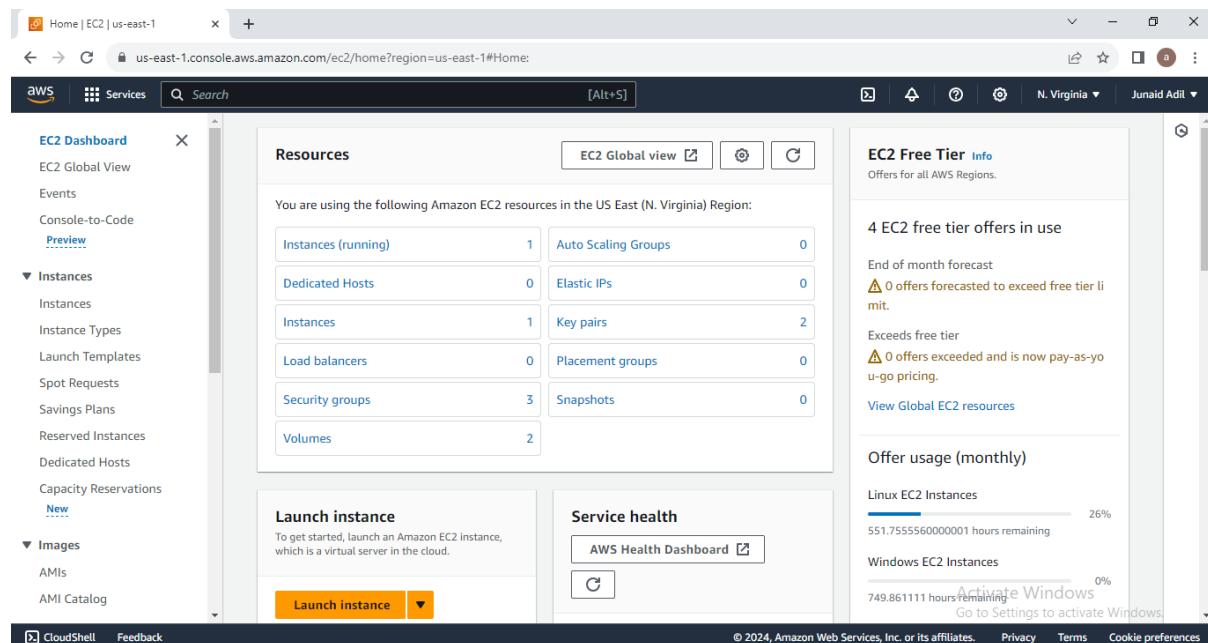
When we create a security group, it has no inbound rules. No inbound traffic originating from another host to the instance is allowed until we add inbound rules to the security group. Security groups are usually Stateful. When we establish an Inbound connection, it automatically allows return traffic. To restrict the connection only to certain instances, we can specify the private IP address (CIDR Block) of the instances that we want to allow.

L4 - Connect to the AWS EC2 Ubuntu Instance and Update default packages, install JDK, Maven, git, and validate the versions.

Step 1: Login to the AWS Console.



Go to EC2 Dashboard.



Step 2: Then click on the Launch Instance.

The screenshot shows the AWS EC2 Home page. On the left, there's a sidebar with navigation links like EC2 Dashboard, Instances, and Images. The main area displays various resource counts: Instances (running) 1, Auto Scaling Groups 0, Dedicated Hosts 0, Elastic IPs 0, Instances 1, Key pairs 2, Load balancers 0, Placement groups 0, Security groups 3, Snapshots 0, and Volumes 2. Below this, there's a section titled "Launch instance" with a large orange "Launch instance" button. To the right, there's a "Service health" section showing "AWS Health Dashboard" and a status message "This service is operating normally." On the far right, there's a sidebar with resource usage metrics for Linux EC2 Instances, Windows EC2 Instances, EBS:SnapshotUsage, and Storage space on EBS.

Step 3: Name the Instance as “Demo-Instance” and select the OS Image as Ubuntu.

The screenshot shows the "Launch an instance" wizard. Step 1: Name and tags. It has a "Name" field containing "Demo-Instance" and an "Add additional tags" button. Step 2: Application and OS Images (Amazon Machine Image). It shows a search bar and a grid of recent AMI icons: Amazon Linux, macOS, Ubuntu, Windows, Red Hat, and SUSE. There's also a "Browse more AMIs" link. Step 3: Summary. It shows the configuration: Number of instances 1, Software Image (AMI) Canonical, Ubuntu, 22.04 LTS, Virtual server type (instance type) t2.micro, Firewall (security group) New security group, Storage (volumes) 1 volume(s) - 8 GiB. A "Launch instance" button is at the bottom. A tooltip for the free tier is visible: "Free tier: In your first year".

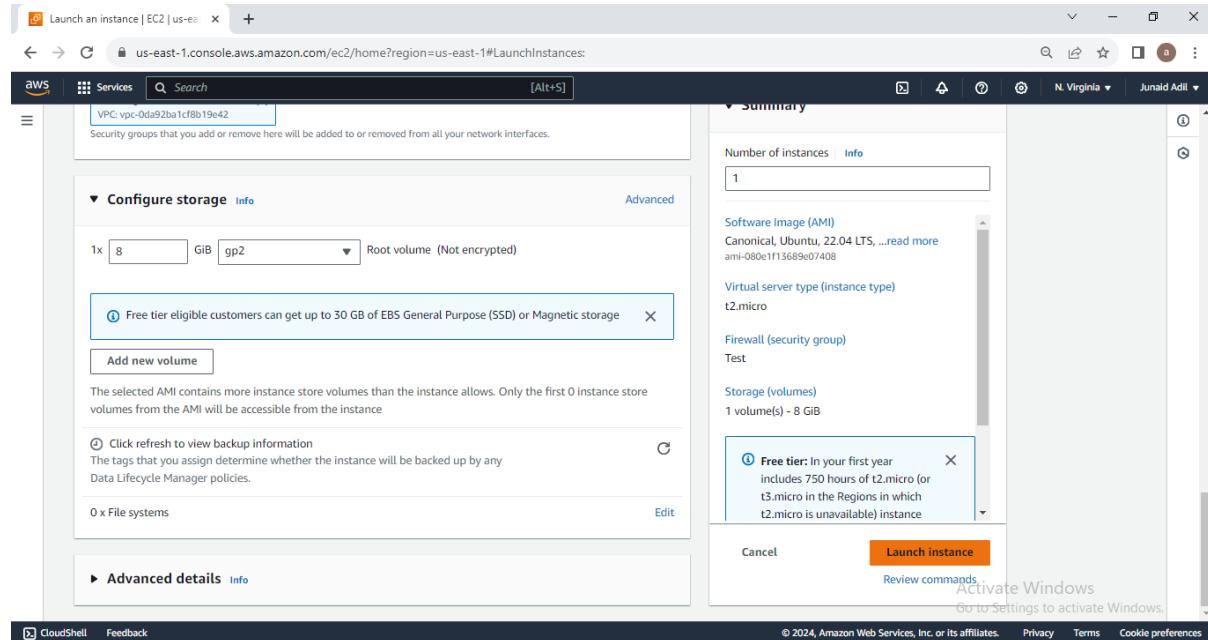
Step 4: Select the Amazon Machine Image (AMI) and Instance type as per the Requirement.

The screenshot shows the AWS EC2 Launch Instance wizard at Step 4. The left panel displays the selected AMI: "Ubuntu Server 22.04 LTS (HVM), SSD Volume Type" (ami-080e1f13689e07408). It also shows the instance type as "t2.micro". The right panel contains the "Summary" section, which includes the number of instances (1), software image (Canonical, Ubuntu, 22.04 LTS), virtual server type (t2.micro), firewall (New security group), storage (1 volume - 8 GiB), and a note about the free tier. At the bottom right is a prominent orange "Launch instance" button.

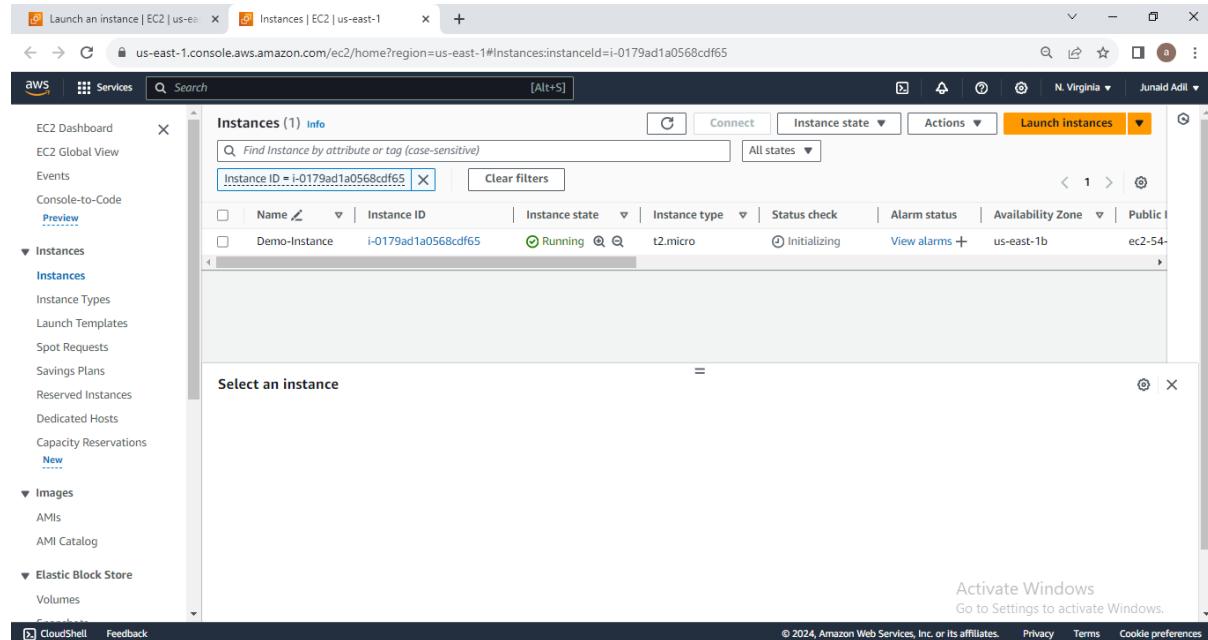
Step 5: Select the Key pair and Security Group.

The screenshot shows the AWS EC2 Launch Instance wizard at Step 5. The left panel shows the key pair name is set to "keypair". The network settings section shows the subnet as "No preference (Default subnet in any availability zone)". The right panel contains the "Summary" section, which includes the number of instances (1), software image (Canonical, Ubuntu, 22.04 LTS), virtual server type (t2.micro), firewall (Test), storage (1 volume - 8 GiB), and a note about the free tier. At the bottom right is a prominent orange "Launch instance" button.

Step 6: Select the Configure Storage and click on the Launch Instance.



Instance will be created and wait until the Instance state comes to the running state.



Step 7: To connect to the EC2 Instance, Open the Instance and click on connect.

The screenshot shows the AWS EC2 Instances details page for an instance with ID i-05596f655366526b6. The 'Connect' button is highlighted in the top right corner of the main content area. The left sidebar shows navigation options like EC2 Dashboard, Services, and Instances.

Then Click on Connect option below.

The screenshot shows the 'Connect to instance' dialog box for the same EC2 instance. The 'EC2 Instance Connect' tab is selected. It displays the instance ID (i-05596f655366526b6), connection type options (EC2 Instance Connect or EC2 Instance Connect Endpoint), and a note about the default username (ubuntu). The 'Connect' button is visible at the bottom right.

Instance is connected.

The screenshot shows an EC2 Instance Connect session. At the top, there are three tabs: "Launch an instance | EC2 | us-east-1", "Instance details | EC2 | us-east-1", and "EC2 Instance Connect | us-east-1". The main area displays system information for March 30, 2024, including system load (0.00146494375), memory usage (20%), and swap usage (0%). It also shows network details like IPv4 address (172.31.84.76). Below this, a terminal window shows the user's session on a Ubuntu 20.04 LTS instance (i-05596f655366526b6). The user runs the command "sudo apt update", which outputs a message stating that the list of available updates is more than a week old. The user then runs "sudo apt install default-jre", which installs Java Runtime Environment (JRE) version 11. The session ends with the user logging out.

```
System information as of Sat Mar 30 08:48:16 UTC 2024
System load: 0.00146494375 Processes: 98
Usage of /: 20.7% of 7.57GB Users logged in: 0
Memory usage: 20% IPv4 address for eth0: 172.31.84.76
Swap usage: 0%

Expanded Security Maintenance for Applications is not enabled.
0 updates can be applied immediately.

Enable ESM Apps to receive additional future security updates.
See https://ubuntu.com/esm or run: sudo pro status

The list of available updates is more than a week old.
to check for new updates run: sudo apt update

Last login: Sat Mar 30 08:44:22 2024 from 18.206.107.28
to run a command as administrator (user "root"), use "sudo <command>".
See "man sudo_root" for details.

ubuntu@ip-172-31-84-76:~$ i-05596f655366526b6 (Demo-Instance)
PublicIPs: 3.80.157.91 PrivateIPs: 172.31.84.76

Activate Windows
Go to Settings to activate Windows.

CloudShell Feedback
```

Step 8: Use command: “ sudo apt install default-jre ” to install JRE

This screenshot continues the EC2 Instance Connect session from the previous one. The user has run the command "sudo apt install default-jre" and is now viewing the output of the "dpkg -l" command, which lists the installed packages. The output shows that "java" and "default-jre-headless" are installed, along with their dependencies like "libjava-common" and "openjdk-11-jre-headless". The session ends with the user logging out.

```
System information as of Sat Mar 30 08:48:16 UTC 2024
System load: 0.00146494375 Processes: 98
Usage of /: 20.7% of 7.57GB Users logged in: 0
Memory usage: 20% IPv4 address for eth0: 172.31.84.76
Swap usage: 0%

Expanded Security Maintenance for Applications is not enabled.
0 updates can be applied immediately.

Enable ESM Apps to receive additional future security updates.
See https://ubuntu.com/esm or run: sudo pro status

The list of available updates is more than a week old.
to check for new updates run: sudo apt update

Last login: Sat Mar 30 08:44:22 2024 from 18.206.107.28
to run a command as administrator (user "root"), use "sudo <command>".
See "man sudo_root" for details.

ubuntu@ip-172-31-84-76:~$ sudo apt install default-jre
ubuntu@ip-172-31-84-76:~$ dpkg -l
Desired=Present/Installed/Available
  Name        Version      Architecture Description
+---+
  libjava-common          all          optional  Java runtime environment common files
  java                    11.0.15-1    amd64       Java runtime environment
  default-jre-headless    11.0.15-1    amd64       Java runtime environment headless
  openjdk-11-jre-headless 11.0.15-1    amd64       Java runtime environment headless
ubuntu@ip-172-31-84-76:~$ i-05596f655366526b6 (Demo-Instance)
PublicIPs: 3.80.157.91 PrivateIPs: 172.31.84.76

Activate Windows
Go to Settings to activate Windows.

CloudShell Feedback
```

Then Enter Y

The screenshot shows a browser window with three tabs: "Launch an instance | EC2 | us-east-1", "Instance details | EC2 | us-east-1", and "EC2 Instance Connect | us-east-1". The main content area displays a terminal session titled "Session migration x11-common x11-utils". The terminal output shows the dependency tree building, state information, and a list of packages to be installed. It includes packages like libasound2, fonts-dejavu-core, libatk1.0, libatk-wrapper, libavahi-client, libavahi-common-data, libavahi-common, libcupsp2, libdconf1, libdrm-amdgpu, libdrm-intel, libdrm-nouveau2, libgbm-radeon, libfontconfig, libgbif7, libgl1, libgl1-amber-dri, libglapi-mesa, libglvnd0, libglx-mesa0, libglx0, libgraham2-3, libharfbuzz0b, libice6, libjpeg-turbo0, libjpeg9, liblcms2-2, liblvm15, libpcaccess0, libpccslib, libsensors-config, libsm6, libxcb-xcb, libxaw7, libxcb-dr12-0, libxcb-dr13-0, libxcb-glx0, libxcb-present0, libxcb-randr0, libxcb-shape0, libxcb-shm0, libxcb-sync1, libxcb-xfixes0, libcomposite1, libxfixes3, libxf86, libxinerama1, libxkbfile1, libxmu0, libxpms1, libxrandr2, libxrender1, libxshmfence1, libxt6, libxtst6, libxv1, libxf86dg1, libxf86vm1, openjdk-11-jre, openjdk-11-jre-headless, session-migration, x11-common, x11-utils. A "Suggested packages" section lists libasound2-plugins, cups-common, liblcms2-0-libs, pcscd, lm-sensors, libnss-mdns, fonts-ipafont-gothic, fonts-ipafont-mincho, fonts-wqy-microhei, fonts-wqy-zhhei, fonts-indic, mesa-utils, and others. A note states "The following NEW packages will be installed:" followed by a list of new packages. At the bottom, it says "0 upgraded, 84 newly installed, 0 to remove and 0 not upgraded. Need to get 88.2 MB of archives. After this operation, 368 MB of additional disk space will be used. Do you want to continue? [Y/n]". Below the terminal, it shows the instance ID "i-05596f655366526b6 (Demo-Instance)" and IP addresses "PublicIPs: 3.80.157.91 PrivateIPs: 172.31.84.76". The status bar at the bottom right includes links for "Activate Windows", "CloudShell", "Feedback", and copyright information.

got an error due to updates missing.

The screenshot shows a browser window with three tabs: "Launch an instance | EC2 | us-east-1", "Instance details | EC2 | us-east-1", and "EC2 Instance Connect | us-east-1". The main content area displays a terminal session titled "Session migration x11-common x11-utils". The terminal output shows a series of "Failed to fetch" errors from the Ubuntu archive. The errors are: "Failed to fetch http://us-east-1.ec2.archive.ubuntu.com/ubuntu/main amd64 libatk1.0-0-data all 2.36.0-3build1 [2824 B]", "Failed to fetch http://us-east-1.ec2.archive.ubuntu.com/ubuntu/main amd64 libatk1.0-0 amd64 2.36.0-3build1 [51.9 kB]", "Failed to fetch http://us-east-1.ec2.archive.ubuntu.com/ubuntu/main amd64 libatk-bridge2.0-0 amd64 2.36.0-3 [66.6 kB]", "Failed to fetch http://us-east-1.ec2.archive.ubuntu.com/ubuntu/main amd64 libfontconfig1 amd64 2.11.4-1~ubuntu3 [14.7 kB]", "Failed to fetch http://us-east-1.ec2.archive.ubuntu.com/ubuntu/main amd64 libice6 amd64 2:1.0.10~ubuntu2 [42.6 kB]", "Failed to fetch http://us-east-1.ec2.archive.ubuntu.com/ubuntu/main amd64 libsm6 amd64 2:1.2.2-3~ubuntu2 [16.7 kB]", "Failed to fetch http://us-east-1.ec2.archive.ubuntu.com/ubuntu/main amd64 libxt6 amd64 2:1.1.2.1-1 [77.8 kB]", "Failed to fetch http://us-east-1.ec2.archive.ubuntu.com/ubuntu/main amd64 libxrandr2 amd64 2:1.5.2-1~ubuntu2 [49.6 kB]", "Failed to fetch http://us-east-1.ec2.archive.ubuntu.com/ubuntu/main amd64 libxpm1 amd64 1:3.5.12-1ubuntu0.22.04.2 [36.7 kB]", "Failed to fetch http://us-east-1.ec2.archive.ubuntu.com/ubuntu/main amd64 libxaw7 amd64 2:1.1.14-1 [19.8 kB]", "Failed to fetch http://us-east-1.ec2.archive.ubuntu.com/ubuntu/main amd64 libxcb-shape0 amd64 1.14~ubuntu3 [6158 B]", "Failed to fetch http://us-east-1.ec2.archive.ubuntu.com/ubuntu/main amd64 libxcb-composite0 amd64 1:0.4.5~ubuntu2 [7192 B]", "Failed to fetch http://us-east-1.ec2.archive.ubuntu.com/ubuntu/main amd64 libxf86-video-amdgpu0 amd64 2.3.4-1 [41.8 kB]", "Failed to fetch http://us-east-1.ec2.archive.ubuntu.com/ubuntu/main amd64 libxf86-video-intel0 amd64 1:1.1.0~ubuntu3 [7382 B]", "Failed to fetch http://us-east-1.ec2.archive.ubuntu.com/ubuntu/main amd64 libxinerama1 amd64 2:1.1.4-3 [71.8 kB]", "Failed to fetch http://us-east-1.ec2.archive.ubuntu.com/ubuntu/main amd64 libxkbfile1 amd64 1:1.1.0~ubuntu2 [20.4 kB]", "Failed to fetch http://us-east-1.ec2.archive.ubuntu.com/ubuntu/main amd64 libxrandr2 amd64 2:1.5.2~ubuntu2 [11.2 kB]", "Failed to fetch http://us-east-1.ec2.archive.ubuntu.com/ubuntu/main amd64 libxf86dg1 amd64 2:1.1.5~ubuntu3 [12.6 kB]", "Failed to fetch http://us-east-1.ec2.archive.ubuntu.com/ubuntu/main amd64 x11-utils amd64 7.7+ubuntu2 [206 kB]", "Failed to fetch http://us-east-1.ec2.archive.ubuntu.com/ubuntu/main amd64 libatk-wrapper-java-jni amd64 0.38.0~ubuntu1 [53.1 kB]", "Failed to fetch http://us-east-1.ec2.archive.ubuntu.com/ubuntu/main amd64 libatk-wrapper-java-jni amd64 0.38.0~ubuntu1 [49.0 kB]", "Failed to fetch http://us-east-1.ec2.archive.ubuntu.com/ubuntu/main amd64 libgl1-amber-dri amd64 21.3.9~ubuntu1~22.04.1 [4210 kB]. Perched 88.2 MB in 2s (42.0 MB/s)". The status bar at the bottom right includes links for "Activate Windows", "CloudShell", "Feedback", and copyright information.

Step 9: Run the command “ sudo apt update ”

```
aws Services Search [Alt+S] - □ X N. Virginia Junaid Adil □ : 
Get:75 http://us-east-1.ec2.archive.ubuntu.com/ubuntu jammy/main amd64 libxft2 amd64 2.3.4-1 [41.8 kB]
Get:76 http://us-east-1.ec2.archive.ubuntu.com/ubuntu jammy/main amd64 libxinerama1 amd64 2:1.1.4-3 [7382 B]
Get:77 http://us-east-1.ec2.archive.ubuntu.com/ubuntu jammy/main amd64 libxkbfile2 amd64 1:1.1.0-1build3 [71.8 kB]
Get:78 http://us-east-1.ec2.archive.ubuntu.com/ubuntu jammy/main amd64 libxrandr2 amd64 2:1.5.2-1build1 [20.4 kB]
Get:79 http://us-east-1.ec2.archive.ubuntu.com/ubuntu jammy/main amd64 libxv1 amd64 2:1.0.11-1build2 [11.2 kB]
Get:80 http://us-east-1.ec2.archive.ubuntu.com/ubuntu jammy/main amd64 libxxf86dg1 amd64 2:1.1.5-0ubuntu3 [12.6 kB]
Get:81 http://us-east-1.ec2.archive.ubuntu.com/ubuntu jammy/main amd64 x11-utils amd64 7.7+5build2 [206 kB]
Get:82 http://us-east-1.ec2.archive.ubuntu.com/ubuntu jammy/main amd64 libatk-wrapper-java all 0.38.0-5build1 [53.1 kB]
Get:83 http://us-east-1.ec2.archive.ubuntu.com/ubuntu jammy/main amd64 libatk-wrapper-java-jni amd64 0.38.0-5build1 [49.0 kB]
Get:84 http://us-east-1.ec2.archive.ubuntu.com/ubuntu jammy-updates/main amd64 libgl1-amber-dri amd64 21.3.9-0ubuntu1-22.04.1 [4218 kB]
Fetched 88.2 MB in 2s (42.0 MB/s)
E: Failed to fetch http://us-east-1.ec2.archive.ubuntu.com/pool/main/a/alsa-ucm-conf/alsa-ucm-conf_1.2.6.3-1ubuntu1.10_all.deb 404 Not Found [IP: 18.232.15.0.247 80]
E: Unable to fetch some archives, maybe run apt-get update or try with --fix-missing?
ubuntu@ip-172-31-84-76:~$ apt update
Reading package lists... Done
E: Could not open lock file /var/lib/apt/lists/lock - open (13: Permission denied)
E: Unable to lock directory /var/lib/apt/lists/
W: Problem unlinking the file /var/cache/apt/pkgcache.bin - RemoveCaches (13: Permission denied)
W: Problem unlinking the file /var/cache/apt/srcpkgcache.bin - RemoveCaches (13: Permission denied)
ubuntu@ip-172-31-84-76:~$ apt-get update
Reading package lists... Done
E: Could not open lock file /var/lib/apt/lists/lock - open (13: Permission denied)
E: Unable to lock directory /var/lib/apt/lists/
W: Problem unlinking the file /var/cache/apt/pkgcache.bin - RemoveCaches (13: Permission denied)
W: Problem unlinking the file /var/cache/apt/srcpkgcache.bin - RemoveCaches (13: Permission denied)
ubuntu@ip-172-31-84-76:~$ sudo apt update
Reading package lists... Done
E: Could not open lock file /var/lib/apt/lists/lock - open (13: Permission denied)
E: Unable to lock directory /var/lib/apt/lists/
W: Problem unlinking the file /var/cache/apt/pkgcache.bin - RemoveCaches (13: Permission denied)
W: Problemunlinking the file /var/cache/apt/srcpkgcache.bin - RemoveCaches (13: Permission denied)
ubuntu@ip-172-31-84-76:~$ 

i-05596f655366526b6 (Demo-Instance)
PublicIPs: 3.80.157.91 PrivateIPs: 172.31.84.76
```

Activate Windows
Go to Settings to activate Windows.

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Step 10: After completing the updates now again run the command “sudo apt install default-jre”.

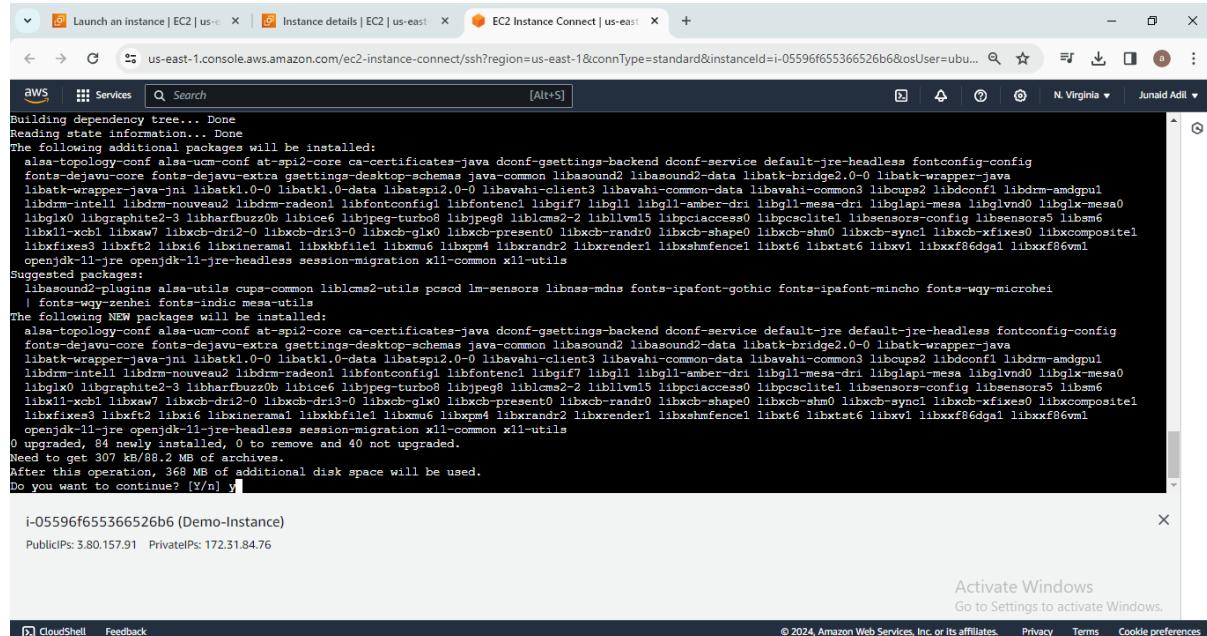
```
aws Services Search [Alt+S] - □ X N. Virginia Junaid Adil □ : 
Get:18 http://us-east-1.ec2.archive.ubuntu.com/ubuntu jammy-updates/multiverse amd64 Packages [49.6 kB]
Get:19 http://us-east-1.ec2.archive.ubuntu.com/ubuntu jammy-updates/multiverse Translation-en [12.0 kB]
Get:20 http://us-east-1.ec2.archive.ubuntu.com/ubuntu jammy-updates/multiverse amd64 c-n-f Metadata [472 B]
Get:21 http://us-east-1.ec2.archive.ubuntu.com/ubuntu jammy-backports/main amd64 Packages [67.1 kB]
Get:22 http://us-east-1.ec2.archive.ubuntu.com/ubuntu jammy-backports/main Translation-en [11.0 kB]
Get:23 http://us-east-1.ec2.archive.ubuntu.com/ubuntu jammy-backports/main amd64 c-n-f Metadata [388 B]
Get:24 http://us-east-1.ec2.archive.ubuntu.com/ubuntu jammy-backports/restricted amd64 c-n-f Metadata [116 B]
Get:25 http://us-east-1.ec2.archive.ubuntu.com/ubuntu jammy-backports/universe amd64 Packages [28.4 kB]
Get:26 http://us-east-1.ec2.archive.ubuntu.com/ubuntu jammy-backports/universe Translation-en [16.2 kB]
Get:27 http://us-east-1.ec2.archive.ubuntu.com/ubuntu jammy-backports/universe amd64 c-n-f Metadata [644 B]
Get:28 http://us-east-1.ec2.archive.ubuntu.com/ubuntu jammy-backports/multiverse amd64 c-n-f Metadata [116 B]
Get:29 http://security.ubuntu.com/ubuntu jammy-security/main amd64 Packages [1303 kB]
Get:30 http://security.ubuntu.com/ubuntu jammy-security/main Translation-en [233 kB]
Get:31 http://security.ubuntu.com/ubuntu jammy-security/restricted amd64 Packages [1616 kB]
Get:32 http://security.ubuntu.com/ubuntu jammy-security/restricted Translation-en [271 kB]
Get:33 http://security.ubuntu.com/ubuntu jammy-security/universe amd64 Packages [852 kB]
Get:34 http://security.ubuntu.com/ubuntu jammy-security/universe Translation-en [163 kB]
Get:35 http://security.ubuntu.com/ubuntu jammy-security/universe amd64 c-n-f Metadata [16.8 kB]
Get:36 http://security.ubuntu.com/ubuntu jammy-security/multiverse amd64 Packages [37.1 kB]
Get:37 http://security.ubuntu.com/ubuntu jammy-security/multiverse Translation-en [7476 B]
Get:38 http://security.ubuntu.com/ubuntu jammy-security/multiverse amd64 c-n-f Metadata [260 B]
Fetched 20.4 MB in 6s (5439 kB/s)
Reading package lists... Done
Building dependency tree... Done
Reading state information... Done
40 packages can be upgraded. Run 'apt list --upgradable' to see them.
ubuntu@ip-172-31-84-76:~$ sudo apt install default-jre
ubuntu@ip-172-31-84-76:~$ 

i-05596f655366526b6 (Demo-Instance)
PublicIPs: 3.80.157.91 PrivateIPs: 172.31.84.76
```

Activate Windows
Go to Settings to activate Windows.

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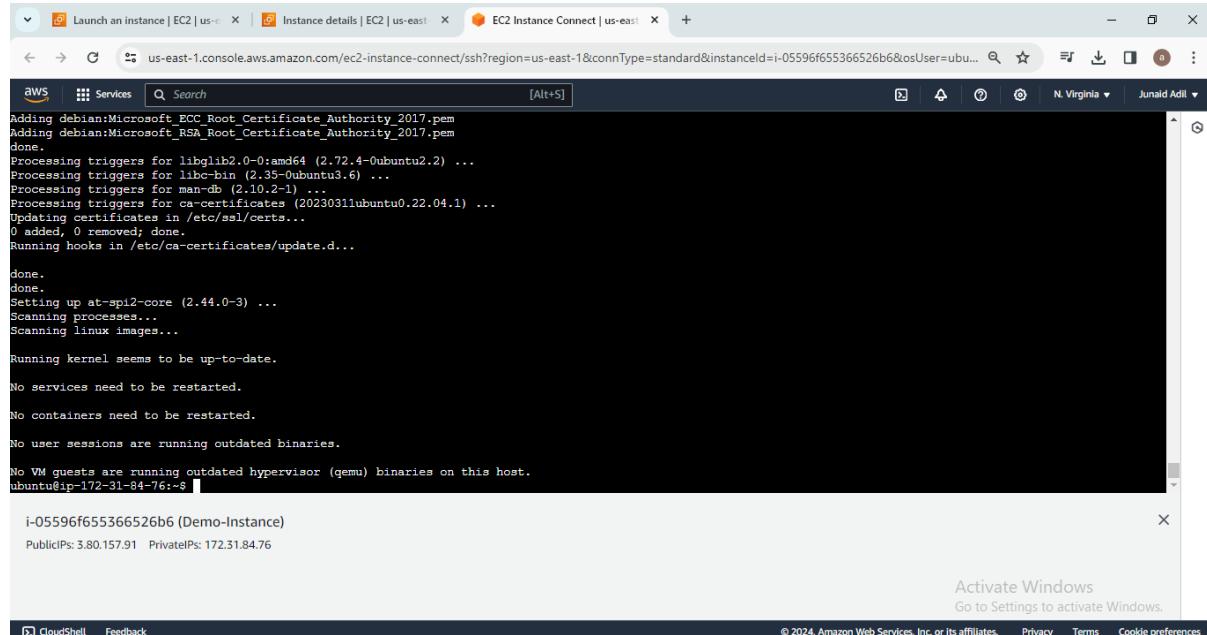
Enter Y



The screenshot shows a terminal window titled "EC2 Instance Connect | us-east-1" on an AWS CloudShell. The terminal is executing a command to migrate a session from an older Java version to a newer one. The output shows the dependency tree being built, packages being installed, and the session migration process. A message at the bottom asks if the user wants to continue with the migration.

```
Building dependency tree... Done
Reading state information... Done
The following additional packages will be installed:
alsa-topology-conf alsamixer-common ca-certificates-java dconf-gsettings-backend dconf-service default-jre-headless fontconfig-config
fonts-dejavu-core fonts-dejavu-extra gsettings-desktop-schemas java-common libasound2 libasound2-data libatk-bridge2.0-0 libatk-wrapper-jav
libatk-wrapper-javajava-jni libatk1.0-0 libatk1.0-data libatspi2.0-0 libavahi-client3 libavahi-common-data libavahi-common3 libcupsp2 libdconf1 libdrm-amdgpu
libdrm-intel libdrm-nouveau2 libdrm-radeon1 libfontconfig libfontenc libglf7 libgl1 libgl1-amber-dri libgl1-mesa-dri libglapi-mesa libglvnd0 libglx-mesa0
libglx0 libgraphite2-3 libharfbuzz0b libice6 libjpeg-turbo8 libjpeg9 liblcms2-2 liblomm15 libpcaccess0 libpccore1 libsensors-config libsensors5 libsm6
libx11-xcb libxaw7 libxcb-dr12-0 libxcb-dr13-0 libxcb-glx0 libxcb-present0 libxcb-randr0 libxcb-shape0 libxcb-shm0 libxcb-sync libxcb-xfixes0 libcomposite1
libxfixed3 libxfx2 libx16 libxinerama1 libxxbfifile libxmu libxpmlibxrandr2 libxrender1 libxsmfencel libxt6 libxtst6 libxv1 libxf86dg1 libxf86vm1
openjdk-11-jre openjdk-11-jre-headless session-migration x11-common x11-utils
Suggested packages:
libasound2-plugins alsamixer-common liblcms2-utils pcscd lm-sensors libnss-mdns fonts-ipafont-gothic fonts-ipafont-mincho fonts-wgy-microhei
fonts-wgy-zenneli fonts-indic mesa-utils
The following NEW packages will be installed:
alsa-topology-conf alsamixer-common ca-certificates-java dconf-gsettings-backend dconf-service default-jre default-jre-headless fontconfig-config
fonts-dejavu-core fonts-dejavu-extra gsettings-desktop-schemas java-common libasound2 libasound2-data libatk-bridge2.0-0 libatk-wrapper-jav
libatk-wrapper-javajava-jni libatk1.0-0 libatk1.0-data libatspi2.0-0 libavahi-client3 libavahi-common-data libavahi-common3 libcupsp2 libdconf1 libdrm-amdgpu
libdrm-intel libdrm-nouveau2 libdrm-radeon1 libfontconfig libfontenc libglf7 libgl1 libgl1-amber-dri libgl1-mesa-dri libglapi-mesa libglvnd0 libglx-mesa0
libglx0 libgraphite2-3 libharfbuzz0b libice6 libjpeg-turbo8 libjpeg9 liblcms2-2 liblomm15 libpcaccess0 libpccore1 libsensors-config libsensors5 libsm6
libx11-xcb libxaw7 libxcb-dr12-0 libxcb-dr13-0 libxcb-glx0 libxcb-present0 libxcb-randr0 libxcb-shape0 libxcb-shm0 libxcb-sync libxcb-xfixes0 libcomposite1
libxfixed3 libxfx2 libx16 libxinerama1 libxxbfifile libxmu libxpmlibxrandr2 libxrender1 libxsmfencel libxt6 libxtst6 libxv1 libxf86dg1 libxf86vm1
openjdk-11-jre openjdk-11-jre-headless session-migration x11-common x11-utils
0 upgraded, 84 newly installed, 0 to remove and 40 not upgraded.
Need to get 307 kB/88.2 MB of additional disk space will be used.
After this operation, 368 MB of additional disk space will be used.
Do you want to continue? [Y/n] y
i-05596f655366526b6 (Demo-Instance)
PublicIPs: 3.80.157.91 PrivateIPs: 172.31.84.76
```

Java has been successfully Installed



The screenshot shows the terminal session migration completed. The terminal window displays the final output of the migration command, indicating that Java has been successfully installed on the instance. The terminal prompt shows the instance ID and public/private IP addresses.

```
Adding debian:Microsoft_ECC_Root_Certificate_Authority_2017.pem
Adding debian:Microsoft_RSA_Root_Certificate_Authority_2017.pem
done.
Processing triggers for libgb2.0-0:amd64 (2.72.4-0ubuntu2.2) ...
Processing triggers for libgb-bin (2.35-0ubuntu3.6) ...
Processing triggers for man-db (2.10.2-1) ...
Processing triggers for ca-certificates (20230311ubuntu0.22.04.1) ...
Updating certificates in /etc/ssl/certs...
0 added, 0 removed; done.
Running hooks in /etc/ca-certificates/update.d...

done.
done.
Setting up up at-spi2-core (2.44.0-3) ...
Scanning processes...
Scanning linux images...

Running kernel seems to be up-to-date.

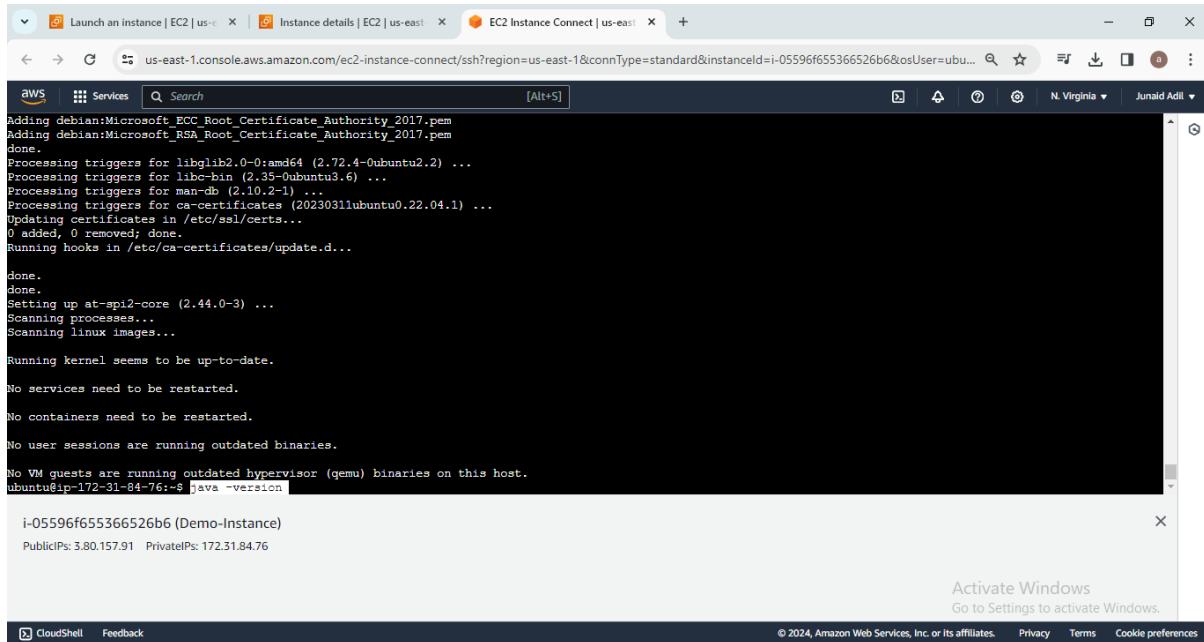
No services need to be restarted.

No containers need to be restarted.

No user sessions are running outdated binaries.

No VM guests are running outdated hypervisor (qemu) binaries on this host.
ubuntu@ip-172-31-84-76:~$ i-05596f655366526b6 (Demo-Instance)
PublicIPs: 3.80.157.91 PrivateIPs: 172.31.84.76
```

Step 11: To check the version run command “ java --version ”



```
Adding debian:Microsoft ECC Root Certificate Authority 2017.pem
Adding debian:Microsoft_RSA_Root_Certificate_Authority_2017.pem
done.
Processing triggers for libcurl2.0-0:amd64 (2.72.4-0ubuntu2.2) ...
Processing triggers for libc-bin (2.35-0ubuntu3.6) ...
Processing triggers for man-db (2.10.2-1) ...
Processing triggers for ca-certificates (20230311ubuntu0.22.04.1) ...
Updating certificates in /etc/ssl/certs...
0 added, 0 removed; done.
Running hooks in /etc/ca-certificates/update.d...

done.
done.
Setting up at-spi2-core (2.44.0-3) ...
Scanning processes...
Scanning linux images...

Running kernel seems to be up-to-date.

No services need to be restarted.

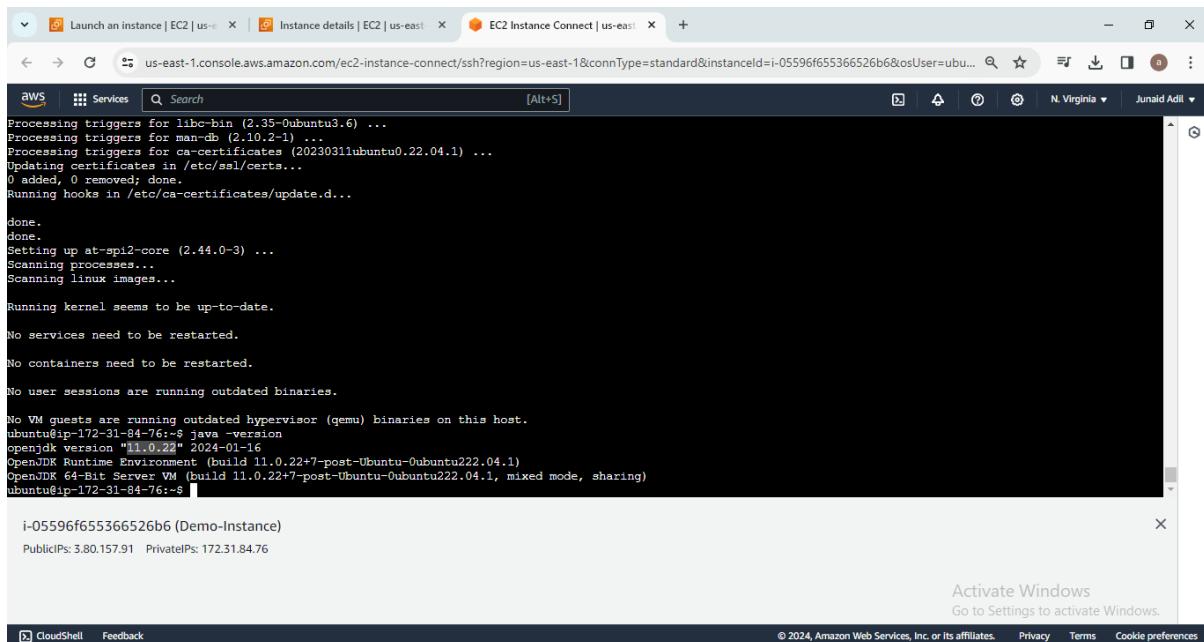
No containers need to be restarted.

No user sessions are running outdated binaries.

No VM guests are running outdated hypervisor (qemu) binaries on this host.

ubuntu@ip-172-31-84-76:~$ java --version
i-05596f655366526b6 (Demo-Instance)
PublicIPs: 3.80.157.91 PrivateIPs: 172.31.84.76
```

We can see the Java version below.



```
Processing triggers for libcurl2.0-0:amd64 (2.35-0ubuntu3.6) ...
Processing triggers for man-db (2.10.2-1) ...
Processing triggers for ca-certificates (20230311ubuntu0.22.04.1) ...
Updating certificates in /etc/ssl/certs...
0 added, 0 removed; done.
Running hooks in /etc/ca-certificates/update.d...

done.
done.
Setting up at-spi2-core (2.44.0-3) ...
Scanning processes...
Scanning linux images...

Running kernel seems to be up-to-date.

No services need to be restarted.

No containers need to be restarted.

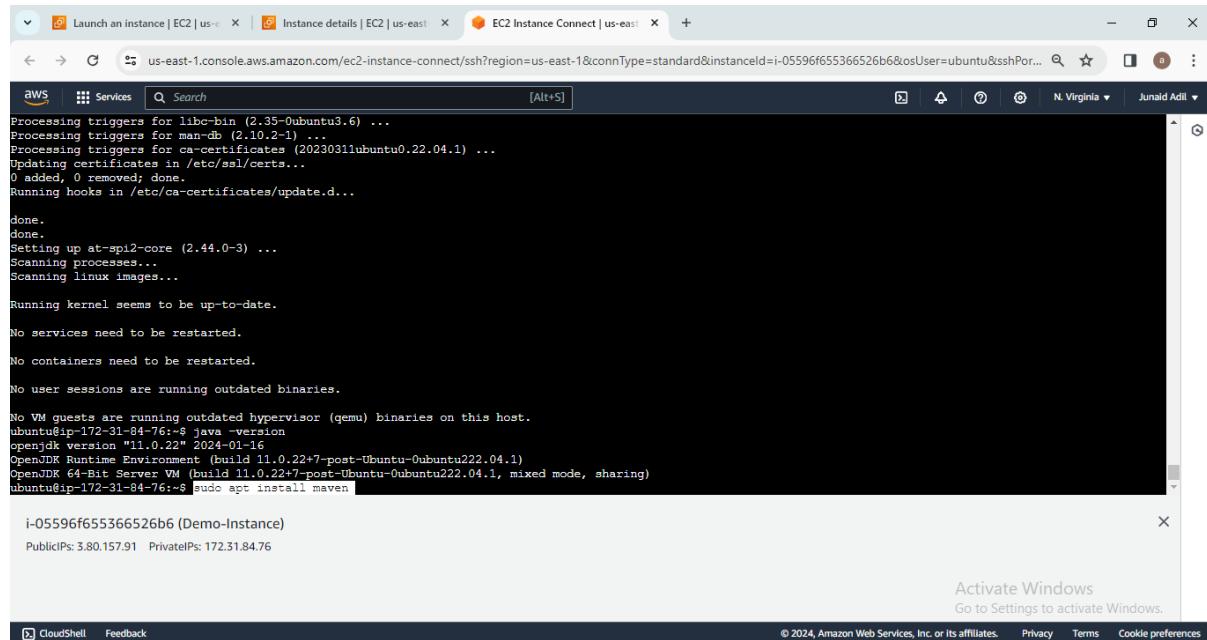
No user sessions are running outdated binaries.

No VM guests are running outdated hypervisor (qemu) binaries on this host.

ubuntu@ip-172-31-84-76:~$ java --version
openjdk version "11.0.22" 2024-01-16
OpenJDK Runtime Environment (build 11.0.22+7-post-Ubuntu-0ubuntu222.04.1)
OpenJDK 64-Bit Server VM (build 11.0.22+7-post-Ubuntu-0ubuntu222.04.1, mixed mode, sharing)
ubuntu@ip-172-31-84-76:~$
```

Install MAVEN:

Step 12: To install maven we need to run the command “ sudo apt install maven ”



```
Processing triggers for libc-bin (2.35-0ubuntu3.6) ...
Processing triggers for man-db (2.10.2-1) ...
Processing triggers for ca-certificates (0230311ubuntu0.22.04.1) ...
Updating certificates in /etc/ssl/certs...
0 added, 0 removed; done.
Running hooks in /etc/ca-certificates/update.d...

done.
done.
Setting up at-spi2-core (2.44.0-3) ...
Scanning processes...
Scanning linux images...

Running kernel seems to be up-to-date.

No services need to be restarted.

No containers need to be restarted.

No user sessions are running outdated binaries.

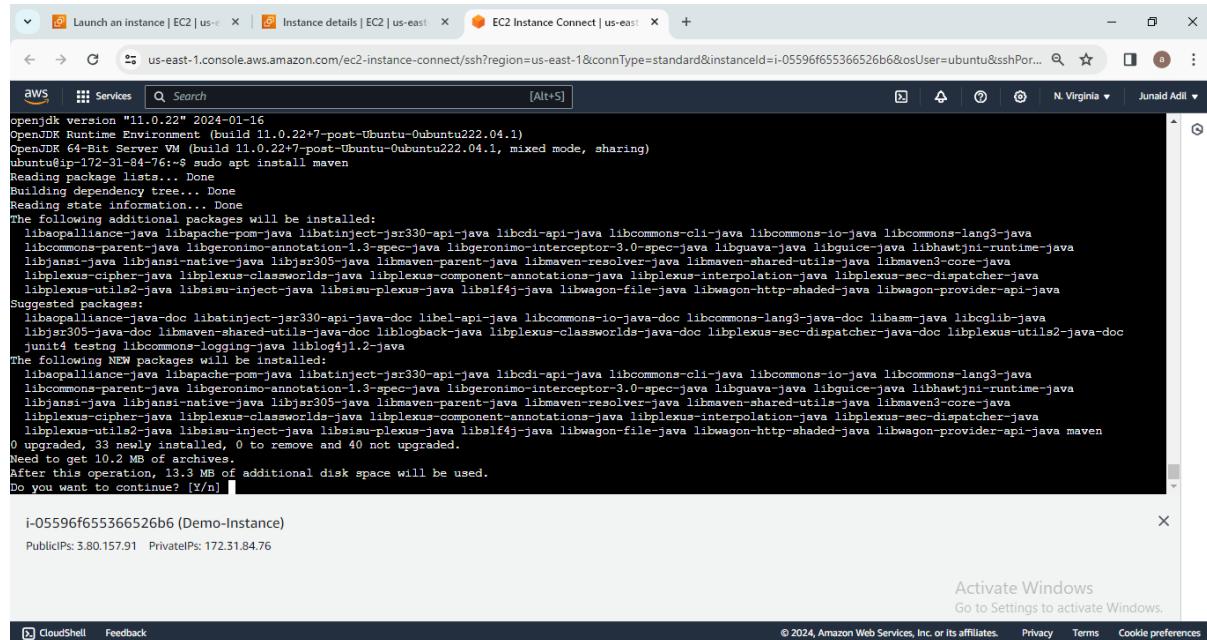
No VM guests are running outdated hypervisor (qemu) binaries on this host.
ubuntu@ip-172-31-84-76:~$ java -version
openjdk version "11.0.22" 2024-01-16
OpenJDK Runtime Environment (build 11.0.22+7-post-Ubuntu-0ubuntu22.04.1)
OpenJDK 64-Bit Server VM (build 11.0.22+7-post-Ubuntu-0ubuntu22.04.1, mixed mode, sharing)
ubuntu@ip-172-31-84-76:~$ sudo apt install maven

i-05596f655366526b6 (Demo-Instance)
PublicIPs: 3.80.157.91 PrivateIPs: 172.31.84.76

Activate Windows
Go to Settings to activate Windows.

CloudShell Feedback © 2024, Amazon Web Services, Inc. or its affiliates. Privacy Terms Cookie preferences
```

Then enter Y



```
openjdk version "11.0.22" 2024-01-16
OpenJDK Runtime Environment (build 11.0.22+7-post-Ubuntu-0ubuntu22.04.1)
OpenJDK 64-Bit Server VM (build 11.0.22+7-post-Ubuntu-0ubuntu22.04.1, mixed mode, sharing)
ubuntu@ip-172-31-84-76:~$ sudo apt install maven
Reading package lists... Done
Building dependency tree... Done
Reading state information... Done
The following additional packages will be installed:
libaopalliance-java libapache-pom-java libatinject-jsr330-api-java libcdi-api-java libcommons-cli-java libcommons-io-java libcommons-lang3-java
libcommons-parent-java libgeronimo-annotation-1.3-spec-java libgeronimo-interceptor-3.0-spec-java libguava-java libguice-java libhawtjni-runtime-java
libjansi-java libjansi-native-java libjxr305-java libmaven-parent-java libmaven-resolver-java libmaven-shared-utils-java libmaven3-core-java
libplexus-cipher-java libplexus-classworlds-java libplexus-component-annotations-java libplexus-interpolation-java libplexus-sec-dispatcher-java
libplexus-util2-java libsisu-inject-java libsisu-plexus-java libsf4j-java libwagon-file-java libwagon-http-shaded-java libwagon-provider-api-java
Suggested packages:
libaopalliance-java-doc libatinject-jsr330-api-java-doc libel-api-java libcommons-io-java-doc libcommons-lang3-java-doc libasm-java libcglib-java
libjxr305-java-doc libmaven-shared-utils-java-doc liblogback-java libplexus-classworlds-java-doc libplexus-sec-dispatcher-java-doc libplexus-utils2-java-doc
junit4 testing libcommons-logging-java liblog4j1.2-java
The following NEW packages will be installed:
libaopalliance-java libapache-pom-java libatinject-jsr330-api-java libcdi-api-java libcommons-cli-java libcommons-io-java libcommons-lang3-java
libcommons-parent-java libgeronimo-annotation-1.3-spec-java libgeronimo-interceptor-3.0-spec-java libguava-java libguice-java libhawtjni-runtime-java
libjansi-java libjansi-native-java libjxr305-java libmaven-parent-java libmaven-resolver-java libmaven-shared-utils-java libmaven3-core-java
libplexus-cipher-java libplexus-classworlds-java libplexus-component-annotations-java libplexus-interpolation-java libplexus-sec-dispatcher-java
libplexus-util2-java libsisu-inject-java libsisu-plexus-java libsf4j-java libwagon-file-java libwagon-http-shaded-java libwagon-provider-api-java maven
0 upgraded, 33 newly installed, 0 to remove and 40 not upgraded.
0 upgraded, 33 newly installed, 0 to remove and 40 not upgraded.
Need to get 10.2 MB of archives.
After this operation, 13.3 MB of additional disk space will be used.
Do you want to continue? [Y/n] [Y]

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```

Maven Installed Successfully

```
Setting up libsisu-inject-java (0.3.4-2) ...
Setting up libsisu-plexus-java (0.3.4-3) ...
Setting up libmaven-resolver-java (1.4.2-3build1) ...
Setting up libguava-java (29.0-6) ...
Setting up libcommons-lang3-java (3.11-1) ...
Setting up libjansi-native-java (1.8-1) ...
Setting up libwagon-file-java (3.3.4-1) ...
Setting up libcommons-io-java (2.11.0-2) ...
Setting up libguice-java (4.2.3-2) ...
Setting up libjansi-java (1.18-1) ...
Setting up libmaven-shared-utils-java (3.3.0-1) ...
Setting up libmaven3-core-java (3.6.3-5) ...
Setting up maven (3.6.3-5) ...
update-alternatives: using /usr/share/maven/bin/mvn to provide /usr/bin/mvn (mvn) in auto mode
Scanning processes...
Scanning linux images...

Running kernel seems to be up-to-date.

No services need to be restarted.

No containers need to be restarted.

No user sessions are running outdated binaries.

No VM guests are running outdated hypervisor (qemu) binaries on this host.

ubuntu@ip-172-31-84-76:~$
```

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Step 13: To check the version run the command “ mvn --version ”

```
Setting up libsisu-inject-java (0.3.4-2) ...
Setting up libsisu-plexus-java (0.3.4-3) ...
Setting up libmaven-resolver-java (1.4.2-3build1) ...
Setting up libguava-java (29.0-6) ...
Setting up libcommons-lang3-java (3.11-1) ...
Setting up libjansi-native-java (1.8-1) ...
Setting up libwagon-file-java (3.3.4-1) ...
Setting up libcommons-io-java (2.11.0-2) ...
Setting up libguice-java (4.2.3-2) ...
Setting up libjansi-java (1.18-1) ...
Setting up libmaven-shared-utils-java (3.3.0-1) ...
Setting up libmaven3-core-java (3.6.3-5) ...
Setting up maven (3.6.3-5) ...
update-alternatives: using /usr/share/maven/bin/mvn to provide /usr/bin/mvn (mvn) in auto mode
Scanning processes...
Scanning linux images...

Running kernel seems to be up-to-date.

No services need to be restarted.

No containers need to be restarted.

No user sessions are running outdated binaries.

No VM guests are running outdated hypervisor (qemu) binaries on this host.

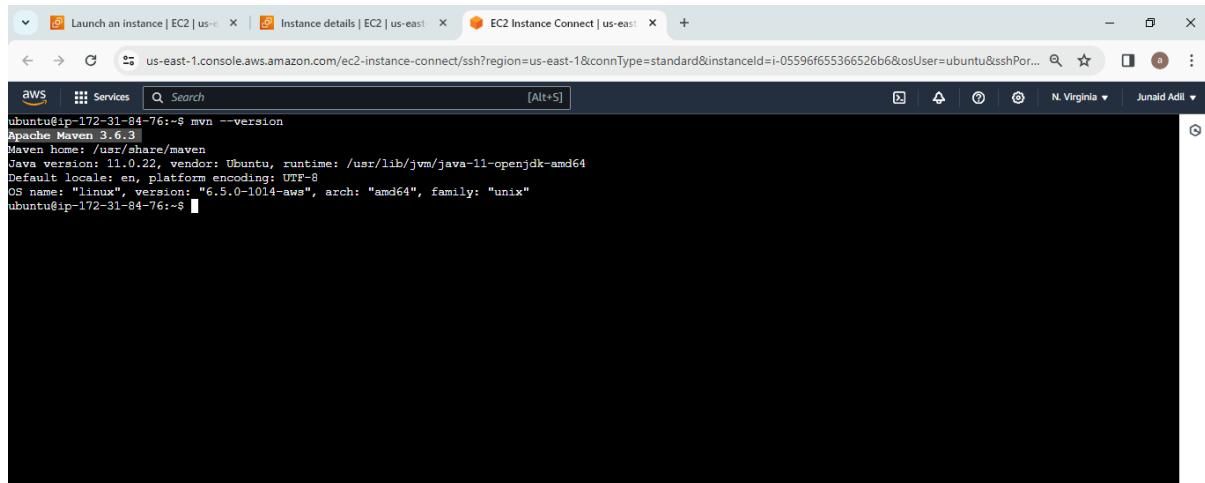
ubuntu@ip-172-31-84-76:~$ mvn --version
```

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We can see the MAVEN Version below.



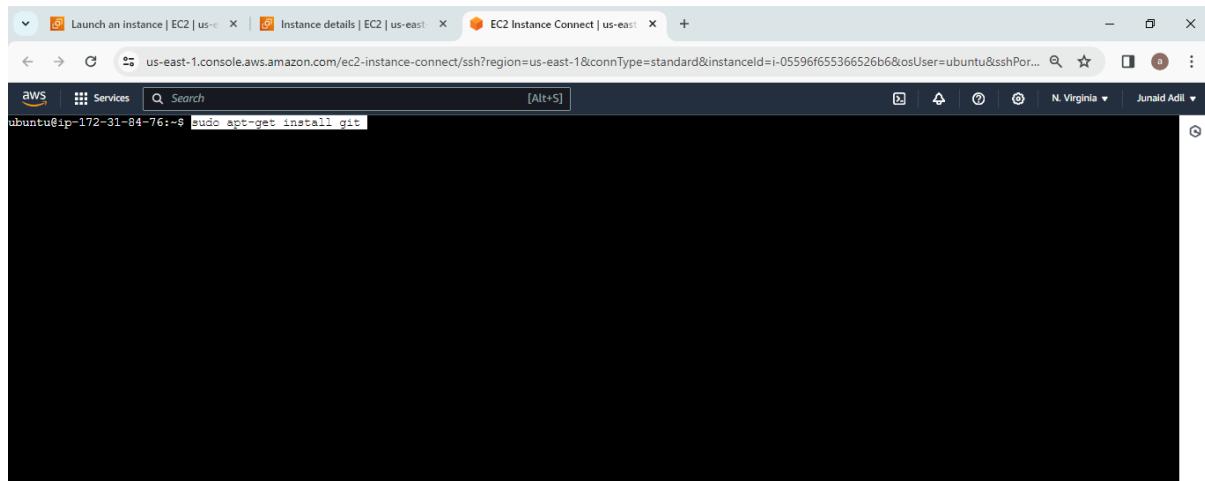
```
ubuntu@ip-172-31-84-76:~$ mvn --version
Apache Maven 3.6.3
Maven home: /usr/share/maven
Java version: 11.0.22, vendor: Ubuntu, runtime: /usr/lib/jvm/java-11-openjdk-amd64
default locale: en_US.UTF-8, platform encoding: UTF-8
OS name: "linux", version: "6.5.0-1014-aws", arch: "amd64", family: "unix"
ubuntu@ip-172-31-84-76:~$
```

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Step 14: To Install GIT, run the command “`sudo apt-get install git`”



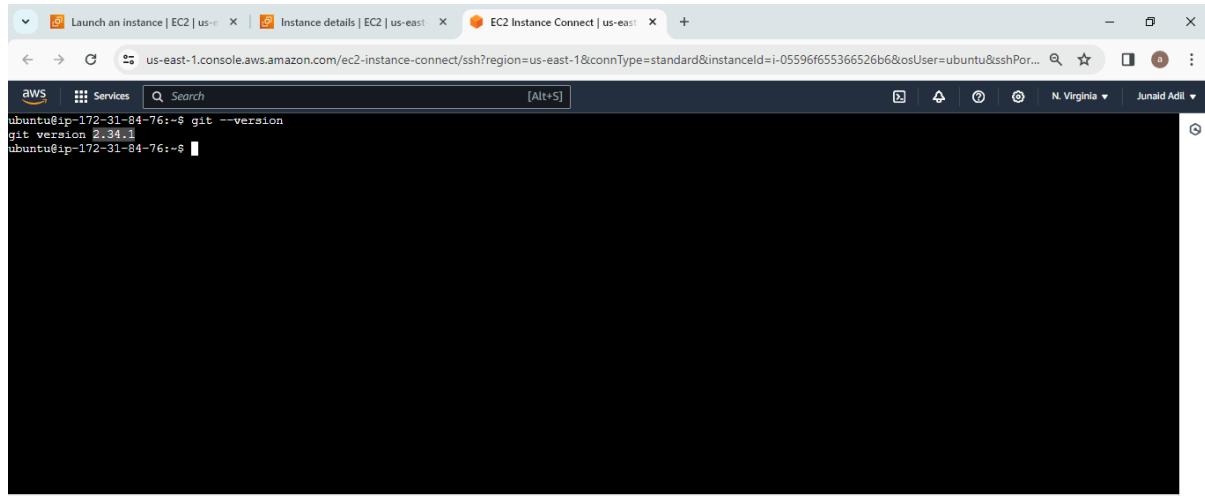
```
ubuntu@ip-172-31-84-76:~$ sudo apt-get install git
```

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Step 15: We can check the version by running the command “git --version”



```
ubuntu@ip-172-31-84-76:~$ git --version
git version 2.34.1
ubuntu@ip-172-31-84-76:~$
```

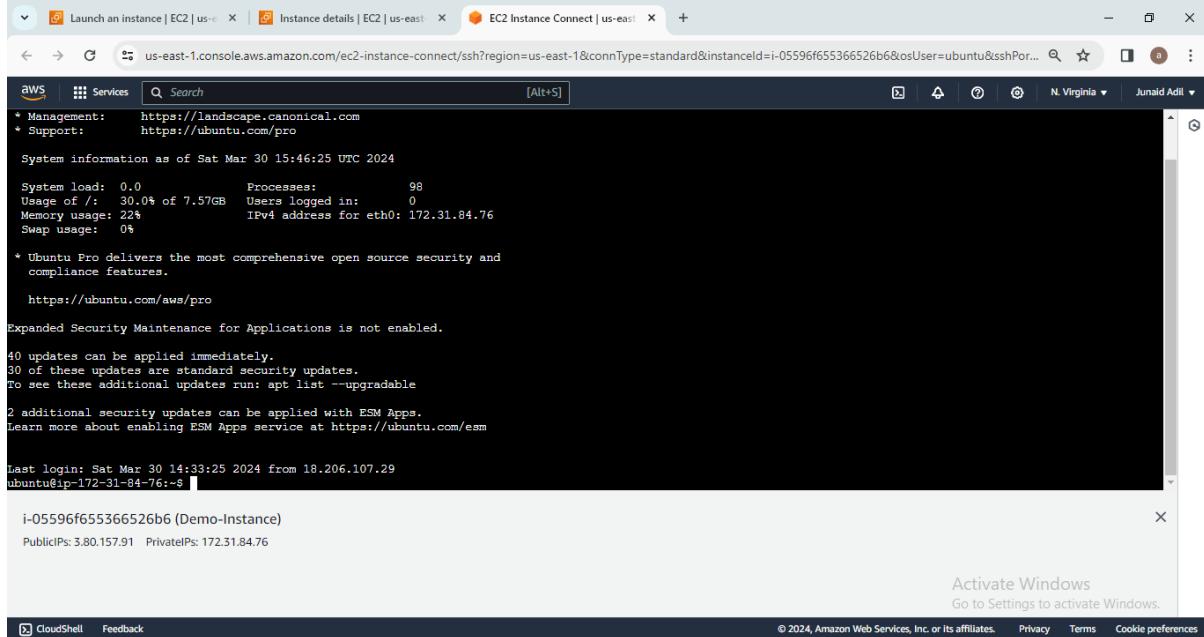
i-05596f65536526b6 (Demo-Instance)
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L5 - Install Tomcat web application server in AWS EC2 Ubuntu Instance and access Tomcat using a web browser.

Step 1: Connect to an EC2 Ubuntu Instance.



The screenshot shows a terminal window titled "CloudShell" with the following content:

```
aws Services Search [Alt+S]
us-east-1.console.aws.amazon.com/ec2-instance-connect/ssh?region=us-east-1&connType=standard&instanceId=i-05596f655366526b6&osUser=ubuntu&sshPort=22

Management: https://landscape.canonical.com
Support: https://ubuntu.com/pro

System information as of Sat Mar 30 15:46:25 UTC 2024

System load: 0.0 Processes: 98
Usage of /: 30.0% of 7.57GB Users logged in: 0
Memory usage: 22% IPv4 address for eth0: 172.31.84.76
Swap usage: 0%

* Ubuntu Pro delivers the most comprehensive open source security and
  compliance features.

https://ubuntu.com/aws/pro

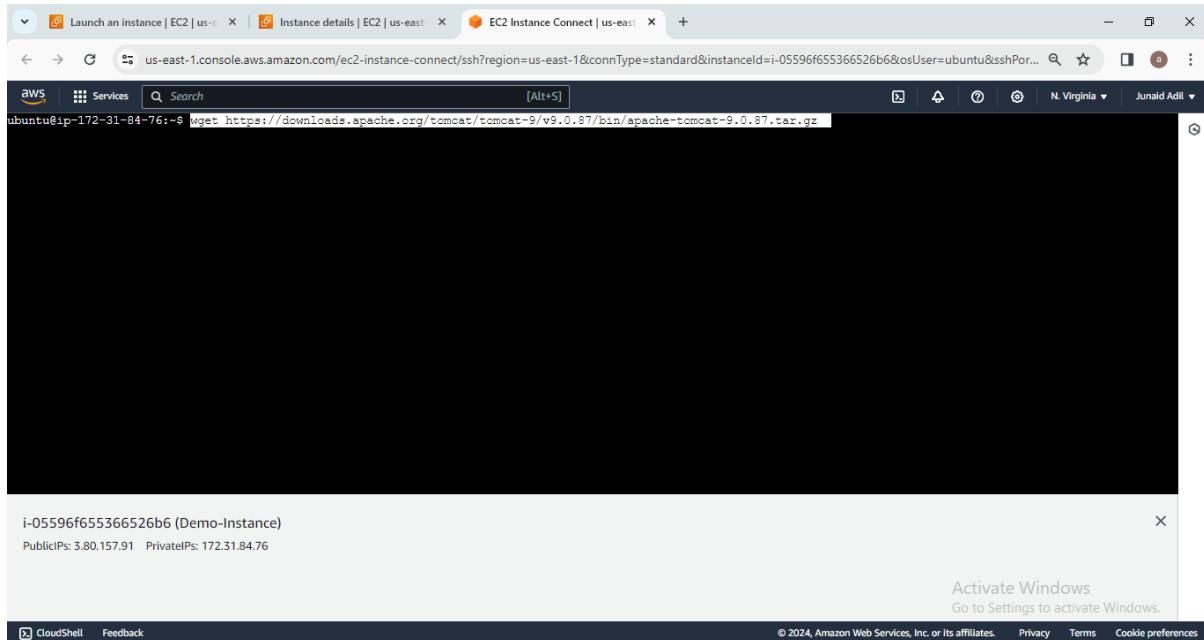
Expanded Security Maintenance for Applications is not enabled.

40 updates can be applied immediately.
30 of these updates are standard security updates.
To see these additional updates run: apt list --upgradable

2 additional security updates can be applied with ESM Apps.
Learn more about enabling ESM Apps service at https://ubuntu.com/esm

Last login: Sat Mar 30 14:33:25 2024 from 18.206.107.29
ubuntu@ip-172-31-84-76:~$ i-05596f655366526b6 (Demo-Instance)
PublicIPs: 3.80.157.91 PrivateIPs: 172.31.84.76
```

Step 2: Enter the command : “`wget https://downloads.apache.org/tomcat/tomcat-9/v9.0.87/bin/apache-tomcat-9.0.87.tar.gz`” to Download the Tomcat.



The screenshot shows a terminal window titled "CloudShell" with the following content:

```
aws Services Search [Alt+S]
us-east-1.console.aws.amazon.com/ec2-instance-connect/ssh?region=us-east-1&connType=standard&instanceId=i-05596f655366526b6&osUser=ubuntu&sshPort=22

ubuntu@ip-172-31-84-76:~$ wget https://downloads.apache.org/tomcat/tomcat-9/v9.0.87/bin/apache-tomcat-9.0.87.tar.gz
```

```
ubuntu@ip-172-31-84-76:~$ wget https://downloads.apache.org/tomcat/tomcat-9/v9.0.87/bin/apache-tomcat-9.0.87.tar.gz
--2024-03-30 15:51:28-- https://downloads.apache.org/tomcat/tomcat-9/v9.0.87/bin/apache-tomcat-9.0.87.tar.gz
Resolving downloads.apache.org (downloads.apache.org)... 88.99.208.237, 135.181.214.104, 2a01:4f9:3a:2c57::2, ...
Connecting to downloads.apache.org (downloads.apache.org)|88.99.208.237|:443... connected.
HTTP request sent, awaiting response... 200 OK
Length: 11743322 (11M) [application/x-gzip]
Saving to: 'apache-tomcat-9.0.87.tar.gz'

apache-tomcat-9.0.87.tar.gz      100%[=====]  11.20M  5.96MB/s   in 1.9s
2024-03-30 15:51:31 (5.96 MB/s) - 'apache-tomcat-9.0.87.tar.gz' saved [11743322/11743322]

ubuntu@ip-172-31-84-76:~$
```

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Step 3: Now to unzip the file run command : “ tar -xvf apache-tomcat-9.0.87.tar.gz ”

```
ubuntu@ip-172-31-84-76:~$ wget https://downloads.apache.org/tomcat/tomcat-9/v9.0.87/bin/apache-tomcat-9.0.87.tar.gz
--2024-03-30 15:51:28-- https://downloads.apache.org/tomcat/tomcat-9/v9.0.87/bin/apache-tomcat-9.0.87.tar.gz
Resolving downloads.apache.org (downloads.apache.org)... 88.99.208.237, 135.181.214.104, 2a01:4f9:3a:2c57::2, ...
Connecting to downloads.apache.org (downloads.apache.org)|88.99.208.237|:443... connected.
HTTP request sent, awaiting response... 200 OK
Length: 11743322 (11M) [application/x-gzip]
Saving to: 'apache-tomcat-9.0.87.tar.gz'

apache-tomcat-9.0.87.tar.gz      100%[=====]  11.20M  5.96MB/s   in 1.9s
2024-03-30 15:51:31 (5.96 MB/s) - 'apache-tomcat-9.0.87.tar.gz' saved [11743322/11743322]

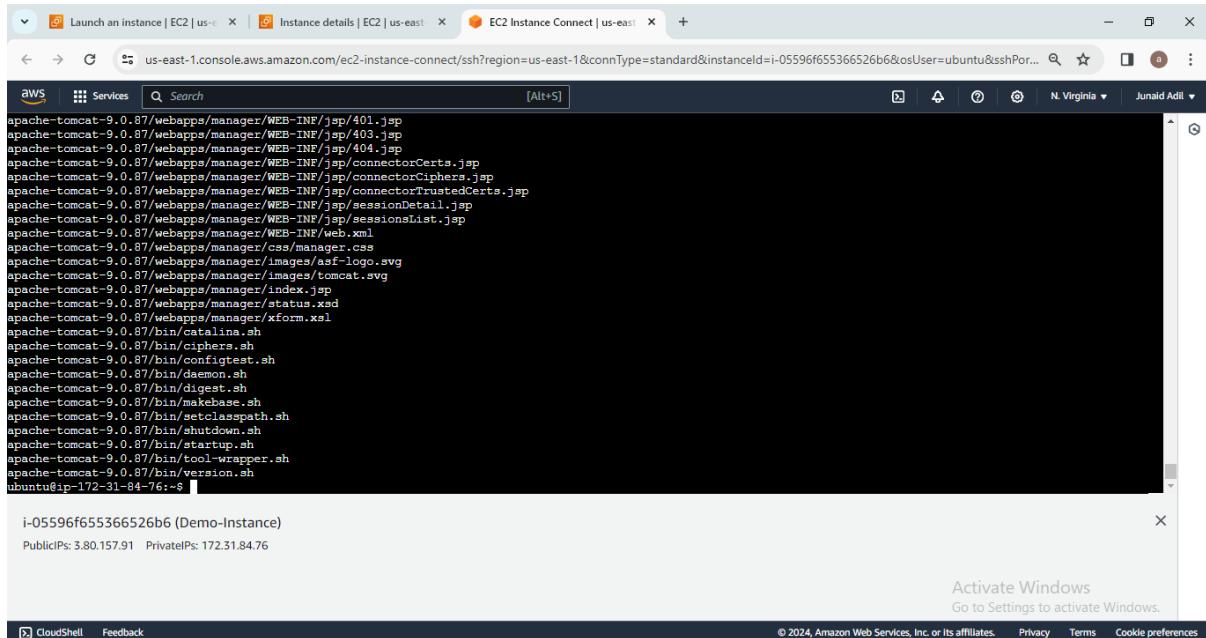
ubuntu@ip-172-31-84-76:~$ tar -xvf apache-tomcat-9.0.87.tar.gz
ubuntu@ip-172-31-84-76:~$
```

i-05596f655366526b6 (Demo-Instance)
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Now we can see the file has been extracted.



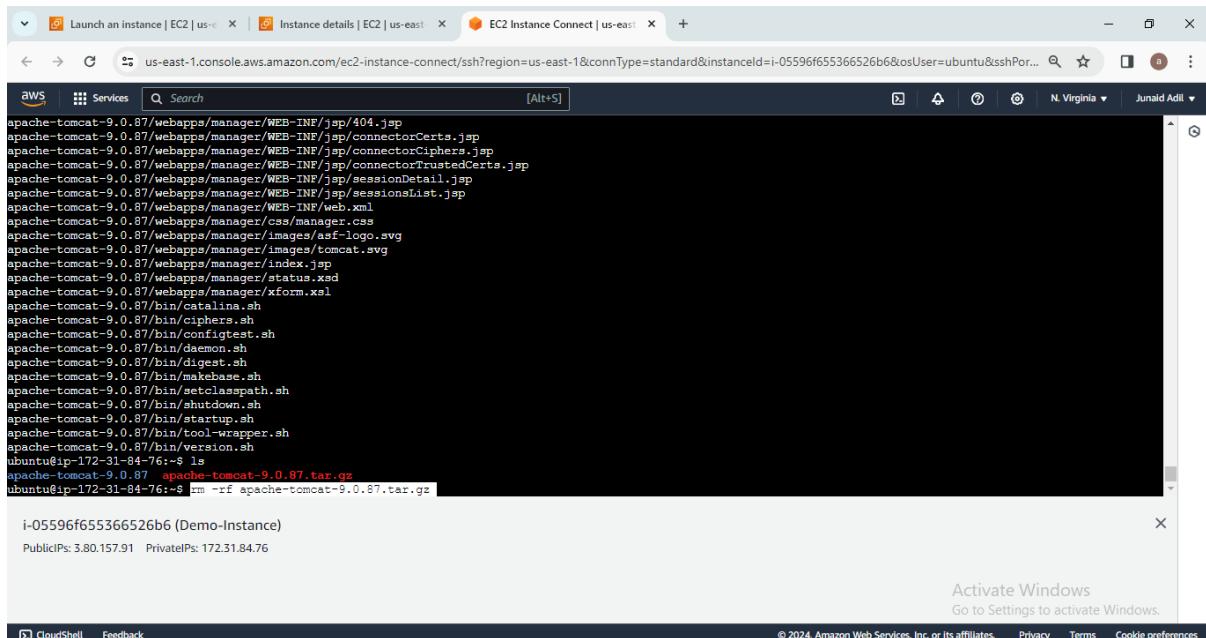
```
apache-tomcat-9.0.87/webapps/manager/WEB-INF/jsp/401.jsp
apache-tomcat-9.0.87/webapps/manager/WEB-INF/jsp/403.jsp
apache-tomcat-9.0.87/webapps/manager/WEB-INF/jsp/404.jsp
apache-tomcat-9.0.87/webapps/manager/WEB-INF/jsp/connectorCerts.jsp
apache-tomcat-9.0.87/webapps/manager/WEB-INF/jsp/connectorCiphers.jsp
apache-tomcat-9.0.87/webapps/manager/WEB-INF/jsp/connectorTrustedCerts.jsp
apache-tomcat-9.0.87/webapps/manager/WEB-INF/jsp/sessionDetail.jsp
apache-tomcat-9.0.87/webapps/manager/WEB-INF/jsp/sessionsList.jsp
apache-tomcat-9.0.87/webapps/manager/WEB-INF/web.xml
apache-tomcat-9.0.87/webapps/manager/css/manager.css
apache-tomcat-9.0.87/webapps/manager/images/asf-logo.svg
apache-tomcat-9.0.87/webapps/manager/images/tomcat.svg
apache-tomcat-9.0.87/webapps/manager/index.jsp
apache-tomcat-9.0.87/webapps/manager/status.xsd
apache-tomcat-9.0.87/webapps/manager/xform.xsl
apache-tomcat-9.0.87/bin/catalina.sh
apache-tomcat-9.0.87/bin/ciphers.sh
apache-tomcat-9.0.87/bin/configtest.sh
apache-tomcat-9.0.87/bin/daemon.sh
apache-tomcat-9.0.87/bin/digest.sh
apache-tomcat-9.0.87/bin/makebase.sh
apache-tomcat-9.0.87/bin/setclasspath.sh
apache-tomcat-9.0.87/bin/shutdown.sh
apache-tomcat-9.0.87/bin/startup.sh
apache-tomcat-9.0.87/bin/tool-wrapper.sh
apache-tomcat-9.0.87/bin/version.sh
ubuntu@ip-172-31-84-76:~$
```

i-05596f655366526b6 (Demo-Instance)
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Step 4: As we have extracted the compressed file, we can also delete the file which is not required using command “ rm -rf apache-tomcat-9.0.87.tar.gz ”. We delete the file which is not required to save the storage space.



```
apache-tomcat-9.0.87/webapps/manager/WEB-INF/jsp/401.jsp
apache-tomcat-9.0.87/webapps/manager/WEB-INF/jsp/connectorCerts.jsp
apache-tomcat-9.0.87/webapps/manager/WEB-INF/jsp/connectorCiphers.jsp
apache-tomcat-9.0.87/webapps/manager/WEB-INF/jsp/connectorTrustedCerts.jsp
apache-tomcat-9.0.87/webapps/manager/WEB-INF/jsp/sessionDetail.jsp
apache-tomcat-9.0.87/webapps/manager/WEB-INF/jsp/sessionsList.jsp
apache-tomcat-9.0.87/webapps/manager/WEB-INF/web.xml
apache-tomcat-9.0.87/webapps/manager/css/manager.css
apache-tomcat-9.0.87/webapps/manager/images/asf-logo.svg
apache-tomcat-9.0.87/webapps/manager/images/tomcat.svg
apache-tomcat-9.0.87/webapps/manager/index.jsp
apache-tomcat-9.0.87/webapps/manager/status.xsd
apache-tomcat-9.0.87/webapps/manager/xform.xsl
apache-tomcat-9.0.87/bin/catalina.sh
apache-tomcat-9.0.87/bin/ciphers.sh
apache-tomcat-9.0.87/bin/configtest.sh
apache-tomcat-9.0.87/bin/daemon.sh
apache-tomcat-9.0.87/bin/digest.sh
apache-tomcat-9.0.87/bin/makebase.sh
apache-tomcat-9.0.87/bin/setclasspath.sh
apache-tomcat-9.0.87/bin/shutdown.sh
apache-tomcat-9.0.87/bin/startup.sh
apache-tomcat-9.0.87/bin/tool-wrapper.sh
apache-tomcat-9.0.87/bin/version.sh
ubuntu@ip-172-31-84-76:~$ rm -rf apache-tomcat-9.0.87.tar.gz
ubuntu@ip-172-31-84-76:~$
```

i-05596f655366526b6 (Demo-Instance)
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The screenshot shows a terminal window in AWS CloudShell. The user has just run the command `rm -rf apache-tomcat-9.0.87.tar.gz`, which has removed the previously downloaded Apache Tomcat 9.0.87 tarball from the instance's storage.

```
apache-tomcat-9.0.87/webapps/manager/WEB-INF/jsp/connectorTrustedCerts.jsp
apache-tomcat-9.0.87/webapps/manager/WEB-INF/jsp/sessionDetail.jsp
apache-tomcat-9.0.87/webapps/manager/WEB-INF/jsp/sessionsList.jsp
apache-tomcat-9.0.87/webapps/manager/WEB-INF/web.xml
apache-tomcat-9.0.87/webapps/manager/css/manager.css
apache-tomcat-9.0.87/webapps/manager/images/asf-logo.svg
apache-tomcat-9.0.87/webapps/manager/images/tomcat.svg
apache-tomcat-9.0.87/webapps/manager/index.jsp
apache-tomcat-9.0.87/webapps/manager/status.xsd
apache-tomcat-9.0.87/webapps/manager/xform.xls
apache-tomcat-9.0.87/bin/catalina.sh
apache-tomcat-9.0.87/bin/ciphers.sh
apache-tomcat-9.0.87/bin/configtest.sh
apache-tomcat-9.0.87/bin/daemon.sh
apache-tomcat-9.0.87/bin/digest.sh
apache-tomcat-9.0.87/bin/makebase.sh
apache-tomcat-9.0.87/bin/setclasspath.sh
apache-tomcat-9.0.87/bin/shutdown.sh
apache-tomcat-9.0.87/bin/startup.sh
apache-tomcat-9.0.87/bin/tool-wrapper.sh
apache-tomcat-9.0.87/bin/version.sh
ubuntu@ip-172-31-84-76:~$ ls
apache-tomcat-9.0.87 apache-tomcat-9.0.87.tar.gz
ubuntu@ip-172-31-84-76:~$ rm -rf apache-tomcat-9.0.87.tar.gz
ubuntu@ip-172-31-84-76:~$ ls
apache-tomcat-9.0.87
ubuntu@ip-172-31-84-76:~$
```

i-05596f655366526b6 (Demo-Instance)
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Step 5: To open the apache use command “ cd apache-tomcat-9.0.87/ ”

The screenshot shows a terminal window in AWS CloudShell. The user has run the command `cd apache-tomcat-9.0.87/`, which changes the current working directory to the Apache Tomcat 9.0.87 installation path.

```
apache-tomcat-9.0.87/webapps/manager/WEB-INF/jsp/connectorTrustedCerts.jsp
apache-tomcat-9.0.87/webapps/manager/WEB-INF/jsp/sessionDetail.jsp
apache-tomcat-9.0.87/webapps/manager/WEB-INF/jsp/sessionsList.jsp
apache-tomcat-9.0.87/webapps/manager/WEB-INF/web.xml
apache-tomcat-9.0.87/webapps/manager/css/manager.css
apache-tomcat-9.0.87/webapps/manager/images/asf-logo.svg
apache-tomcat-9.0.87/webapps/manager/images/tomcat.svg
apache-tomcat-9.0.87/webapps/manager/index.jsp
apache-tomcat-9.0.87/webapps/manager/status.xsd
apache-tomcat-9.0.87/webapps/manager/xform.xls
apache-tomcat-9.0.87/bin/catalina.sh
apache-tomcat-9.0.87/bin/ciphers.sh
apache-tomcat-9.0.87/bin/configtest.sh
apache-tomcat-9.0.87/bin/daemon.sh
apache-tomcat-9.0.87/bin/digest.sh
apache-tomcat-9.0.87/bin/makebase.sh
apache-tomcat-9.0.87/bin/setclasspath.sh
apache-tomcat-9.0.87/bin/shutdown.sh
apache-tomcat-9.0.87/bin/startup.sh
apache-tomcat-9.0.87/bin/tool-wrapper.sh
apache-tomcat-9.0.87/bin/version.sh
ubuntu@ip-172-31-84-76:~$ ls
apache-tomcat-9.0.87 apache-tomcat-9.0.87.tar.gz
ubuntu@ip-172-31-84-76:~$ rm -rf apache-tomcat-9.0.87.tar.gz
ubuntu@ip-172-31-84-76:~$ ls
apache-tomcat-9.0.87
ubuntu@ip-172-31-84-76:~$ cd apache-tomcat-9.0.87/
```

i-05596f655366526b6 (Demo-Instance)
PublicIPs: 3.80.157.91 PrivateIPs: 172.31.84.76

```
apache-tomcat-9.0.87/webapps/manager/WEB-INF/web.xml
apache-tomcat-9.0.87/webapps/manager/css/manager.css
apache-tomcat-9.0.87/webapps/manager/images/asf-logo.svg
apache-tomcat-9.0.87/webapps/manager/images/tomcat.svg
apache-tomcat-9.0.87/webapps/manager/index.jsp
apache-tomcat-9.0.87/webapps/manager/status.xsd
apache-tomcat-9.0.87/webapps/manager/xform.xsl
apache-tomcat-9.0.87/bin/catalina.sh
apache-tomcat-9.0.87/bin/ciphers.sh
apache-tomcat-9.0.87/bin/configtest.sh
apache-tomcat-9.0.87/bin/daemon.sh
apache-tomcat-9.0.87/bin/digest.sh
apache-tomcat-9.0.87/bin/makebase.sh
apache-tomcat-9.0.87/bin/setclasspath.sh
apache-tomcat-9.0.87/bin/shutdown.sh
apache-tomcat-9.0.87/bin/startup.sh
apache-tomcat-9.0.87/bin/tool-wrapper.sh
apache-tomcat-9.0.87/bin/version.sh
ubuntu@ip-172-31-84-76:~$ ls
apache-tomcat-9.0.87 apache-tomcat-9.0.87.tar.gz
ubuntu@ip-172-31-84-76:~$ rm -rf apache-tomcat-9.0.87.tar.gz
ubuntu@ip-172-31-84-76:~$ ls
BUILDING.txt CONTRIBUTING.md LICENSE NOTICE README.md RELEASE-NOTES RUNNING.txt bin conf lib logs temp webapps work
ubuntu@ip-172-31-84-76:~$ apache-tomcat-9.0.87$
```

i-05596f655366526b6 (Demo-Instance)
PublicIPs: 3.80.157.91 PrivateIPs: 172.31.84.76

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Step 6: Use command “ cd bin/ “ to check the files in bin

```
apache-tomcat-9.0.87/webapps/manager/WEB-INF/web.xml
apache-tomcat-9.0.87/webapps/manager/css/manager.css
apache-tomcat-9.0.87/webapps/manager/images/asf-logo.svg
apache-tomcat-9.0.87/webapps/manager/images/tomcat.svg
apache-tomcat-9.0.87/webapps/manager/index.jsp
apache-tomcat-9.0.87/webapps/manager/status.xsd
apache-tomcat-9.0.87/webapps/manager/xform.xsl
apache-tomcat-9.0.87/bin/catalina.sh
apache-tomcat-9.0.87/bin/ciphers.sh
apache-tomcat-9.0.87/bin/configtest.sh
apache-tomcat-9.0.87/bin/daemon.sh
apache-tomcat-9.0.87/bin/digest.sh
apache-tomcat-9.0.87/bin/makebase.sh
apache-tomcat-9.0.87/bin/setclasspath.sh
apache-tomcat-9.0.87/bin/shutdown.sh
apache-tomcat-9.0.87/bin/startup.sh
apache-tomcat-9.0.87/bin/tool-wrapper.sh
apache-tomcat-9.0.87/bin/version.sh
ubuntu@ip-172-31-84-76:~$ ls
apache-tomcat-9.0.87 apache-tomcat-9.0.87.tar.gz
ubuntu@ip-172-31-84-76:~$ rm -rf apache-tomcat-9.0.87.tar.gz
ubuntu@ip-172-31-84-76:~$ ls
BUILDING.txt CONTRIBUTING.md LICENSE NOTICE README.md RELEASE-NOTES RUNNING.txt bin conf lib logs temp webapps work
ubuntu@ip-172-31-84-76:~$ apache-tomcat-9.0.87$
```

i-05596f655366526b6 (Demo-Instance)
PublicIPs: 3.80.157.91 PrivateIPs: 172.31.84.76

Activate Windows
Go to Settings to activate Windows.

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```
apache-tomcat-9.0.87/webapps/manager/status.xsd
apache-tomcat-9.0.87/webapps/manager/xform.xml
apache-tomcat-9.0.87/bin/catalina.sh
apache-tomcat-9.0.87/bin/ciphers.sh
apache-tomcat-9.0.87/bin/configtest.sh
apache-tomcat-9.0.87/bin/daemon.sh
apache-tomcat-9.0.87/bin/digest.sh
apache-tomcat-9.0.87/bin/makebase.sh
apache-tomcat-9.0.87/bin/setclasspath.sh
apache-tomcat-9.0.87/bin/shutdown.sh
apache-tomcat-9.0.87/bin/startup.sh
apache-tomcat-9.0.87/bin/tool-wrapper.sh
apache-tomcat-9.0.87/bin/version.sh
ubuntu@ip-172-31-84-76:~$ ls
apache-tomcat-9.0.87 apache-tomcat-9.0.87.tar.gz
ubuntu@ip-172-31-84-76:~$ rm -rf apache-tomcat-9.0.87.tar.gz
ubuntu@ip-172-31-84-76:~$ ls
apache-tomcat-9.0.87
ubuntu@ip-172-31-84-76:~$ cd apache-tomcat-9.0.87/
ubuntu@ip-172-31-84-76:~/apache-tomcat-9.0.87$ ls
BUILDING.txt CONTRIBUTING.md LICENSE NOTICE README.md RELEASE-NOTES RUNNING.txt bin conf lib logs temp webapps work
ubuntu@ip-172-31-84-76:~/apache-tomcat-9.0.87$ ls
bootstrap.jar catalina.sh commons-daemon-native.tar.gz configtest.sh digest.sh setclasspath.bat shutdown.sh tomcat-juli.jar tool-wrapper.sh
catalina-tasks.xml ciphers.bat commons-daemon.jar daemon.sh makebase.bat setclasspath.sh startup.bat tomcat-native.tar.gz version.bat
catalina.bat ciphers.sh configtest.bat digest.bat makebase.sh shutdown.bat startup.sh tool-wrapper.bat version.sh
ubuntu@ip-172-31-84-76:~/apache-tomcat-9.0.87$ ls
```

i-05596f655366526b6 (Demo-Instance)
PublicIPs: 3.80.157.91 PrivateIPs: 172.31.84.76

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Step 7: As we have to start the server, we can use the command “sh startup.sh”

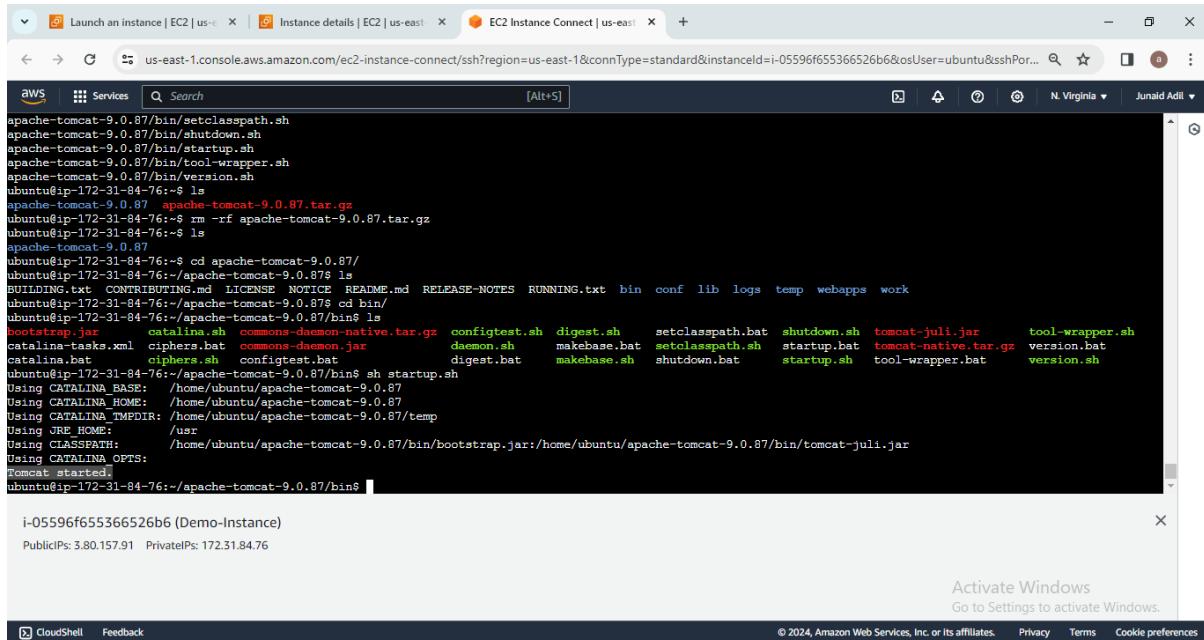
```
apache-tomcat-9.0.87/webapps/manager/status.xsd
apache-tomcat-9.0.87/webapps/manager/xform.xml
apache-tomcat-9.0.87/bin/catalina.sh
apache-tomcat-9.0.87/bin/ciphers.sh
apache-tomcat-9.0.87/bin/configtest.sh
apache-tomcat-9.0.87/bin/daemon.sh
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apache-tomcat-9.0.87/bin/makebase.sh
apache-tomcat-9.0.87/bin/setclasspath.sh
apache-tomcat-9.0.87/bin/shutdown.sh
apache-tomcat-9.0.87/bin/startup.sh
apache-tomcat-9.0.87/bin/tool-wrapper.sh
apache-tomcat-9.0.87/bin/version.sh
ubuntu@ip-172-31-84-76:~$ ls
apache-tomcat-9.0.87 apache-tomcat-9.0.87.tar.gz
ubuntu@ip-172-31-84-76:~$ rm -rf apache-tomcat-9.0.87.tar.gz
ubuntu@ip-172-31-84-76:~$ ls
apache-tomcat-9.0.87
ubuntu@ip-172-31-84-76:~$ cd apache-tomcat-9.0.87/
ubuntu@ip-172-31-84-76:~/apache-tomcat-9.0.87$ ls
BUILDING.txt CONTRIBUTING.md LICENSE NOTICE README.md RELEASE-NOTES RUNNING.txt bin conf lib logs temp webapps work
ubuntu@ip-172-31-84-76:~/apache-tomcat-9.0.87$ ls
bootstrap.jar catalina.sh commons-daemon-native.tar.gz configtest.sh digest.sh setclasspath.bat shutdown.sh tomcat-juli.jar tool-wrapper.sh
catalina-tasks.xml ciphers.bat commons-daemon.jar daemon.sh makebase.bat setclasspath.sh startup.bat tomcat-native.tar.gz version.bat
catalina.bat ciphers.sh configtest.bat digest.bat makebase.sh shutdown.bat startup.sh tool-wrapper.bat version.sh
ubuntu@ip-172-31-84-76:~/apache-tomcat-9.0.87$ sh startup.sh
```

i-05596f655366526b6 (Demo-Instance)
PublicIPs: 3.80.157.91 PrivateIPs: 172.31.84.76

Activate Windows
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Here we can see the Tomcat has been started.

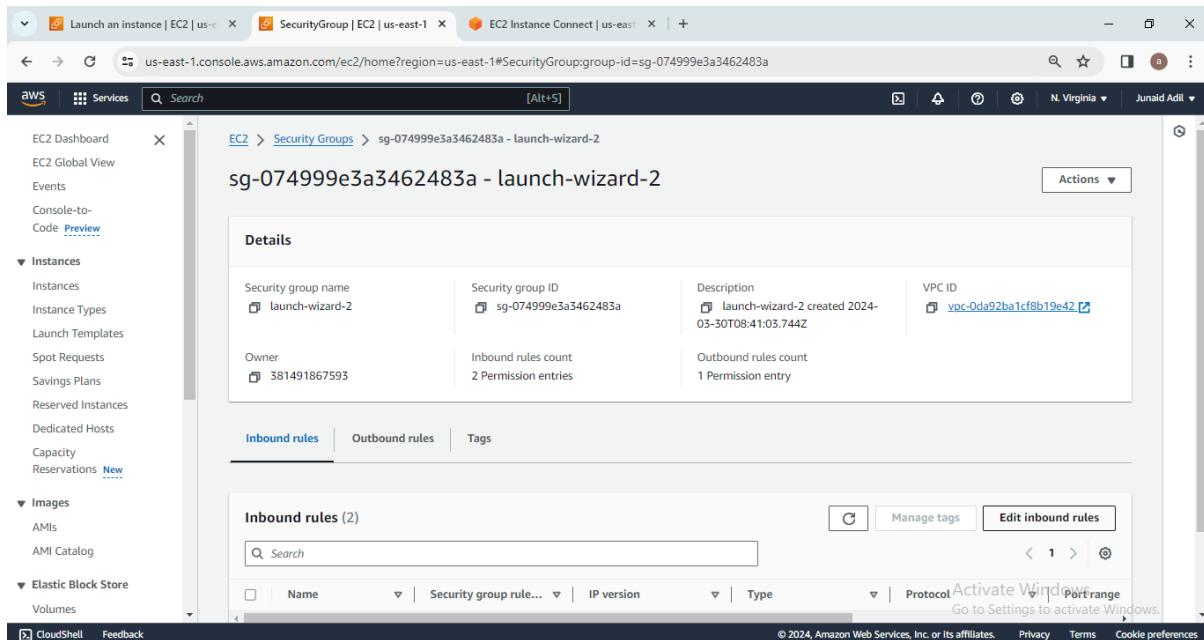


```
apache-tomcat-9.0.87/bin/setclasspath.sh
apache-tomcat-9.0.87/bin/shutdown.sh
apache-tomcat-9.0.87/bin/startup.sh
apache-tomcat-9.0.87/bin/tool-wrapper.sh
apache-tomcat-9.0.87/bin/version.sh
ubuntu@ip-172-31-84-76:~$ ls
apache-tomcat-9.0.87 apache-tomcat-9.0.87.tar.gz
ubuntu@ip-172-31-84-76:~$ rm -rf apache-tomcat-9.0.87.tar.gz
ubuntu@ip-172-31-84-76:~$ ls
apache-tomcat-9.0.87
ubuntu@ip-172-31-84-76:~$ cd apache-tomcat-9.0.87/
ubuntu@ip-172-31-84-76:~/apache-tomcat-9.0.87$ ls
BUILDING.txt CONTRIBUTING.md LICENSE NOTICE README.md RELEASE-NOTES RUNNING.txt bin conf lib logs temp webapps work
ubuntu@ip-172-31-84-76:~/apache-tomcat-9.0.87$ bin/
ubuntu@ip-172-31-84-76:~/apache-tomcat-9.0.87/bin$ ls
bootstrap.jar catalina.sh commons-daemon-native.tar.gz configtest.sh digest.sh setclasspath.bat shutdown.sh tomcat-juli.jar tool-wrapper.sh
catalina-tasks.xml ciphers.bat commons-daemon.jar daemon.sh makebase.bat setclasspath.sh startup.bat tomcat-native.tar.gz version.bat
catalina.bat ciphers.sh configtest.bat digest.bat makebase.sh shutdown.bat startup.sh tool-wrapper.bat version.sh
ubuntu@ip-172-31-84-76:~/apache-tomcat-9.0.87/bin$ sh startup.sh
Using CATALINA_BASE: /home/ubuntu/apache-tomcat-9.0.87
Using CATALINA_HOME: /home/ubuntu/apache-tomcat-9.0.87
Using CATALINA_TMPDIR: /home/ubuntu/apache-tomcat-9.0.87/temp
Using JRE_HOME: /usr
Using CLASSPATH: /home/ubuntu/apache-tomcat-9.0.87/bin/bootstrap.jar:/home/ubuntu/apache-tomcat-9.0.87/bin/tomcat-juli.jar
Using CATALINA_OPTS:
Tomcat started.
ubuntu@ip-172-31-84-76:~/apache-tomcat-9.0.87/bin$
```

i-05596f655366526b6 (Demo-Instance)
PublicIPs: 3.80.157.91 PrivateIPs: 172.31.84.76

To run the Tomcat we need to add the Tomcat port range 8080 to the security group Inbound rule to allow the traffic.

Step 8: Go to the instance → Security Groups → Inbound rules, then click on Edit Inbound rules



EC2 > Security Groups > sg-074999e3a3462483a - launch-wizard-2

Details			
Security group name: launch-wizard-2	Security group ID: sg-074999e3a3462483a	Description: launch-wizard-2 created 2024-05-30T08:41:03.744Z	VPC ID: vpc-0da92ba1cf8b19e42
Owner: 381491867593	Inbound rules count: 2 Permission entries	Outbound rules count: 1 Permission entry	

Inbound rules (2)

Name	Security group rule...	IP version	Type	Protocol	Port range
allow-ssh	allow-ssh	IPv4	TCP	SSH	22
allow-tomcat	allow-tomcat	IPv4	TCP	HTTP	8080

Step 9: Add rule, Type: Custom TCP, Port range: 8080, source: Anywhere-IPv4. Then click on save rules.

Inbound rules

Security group rule ID	Type	Protocol	Port range	Source	Description - optional
sgr-0e37f11302aaab53d	Custom TCP	TCP	8080	Anywhere-IPv4 (0.0.0.0/0)	
sgr-01ecd771ad7c2e701	SSH	TCP	22	Anywhere-IPv4 (0.0.0.0/0)	

Add rule

⚠ Rules with source of 0.0.0.0/0 or ::/0 allow all IP addresses to access your instance. We recommend setting security group rules to allow access from known IP addresses only.

Preview changes Save rules

Then we can access the Tomcat using the public IP and Connector Port.

Step 10: Go to “PublicIP:connector port” → “3.80.157.91:8080”

Apache Tomcat/9.0.87

If you're seeing this, you've successfully installed Tomcat. Congratulations!

Developer Quick Start

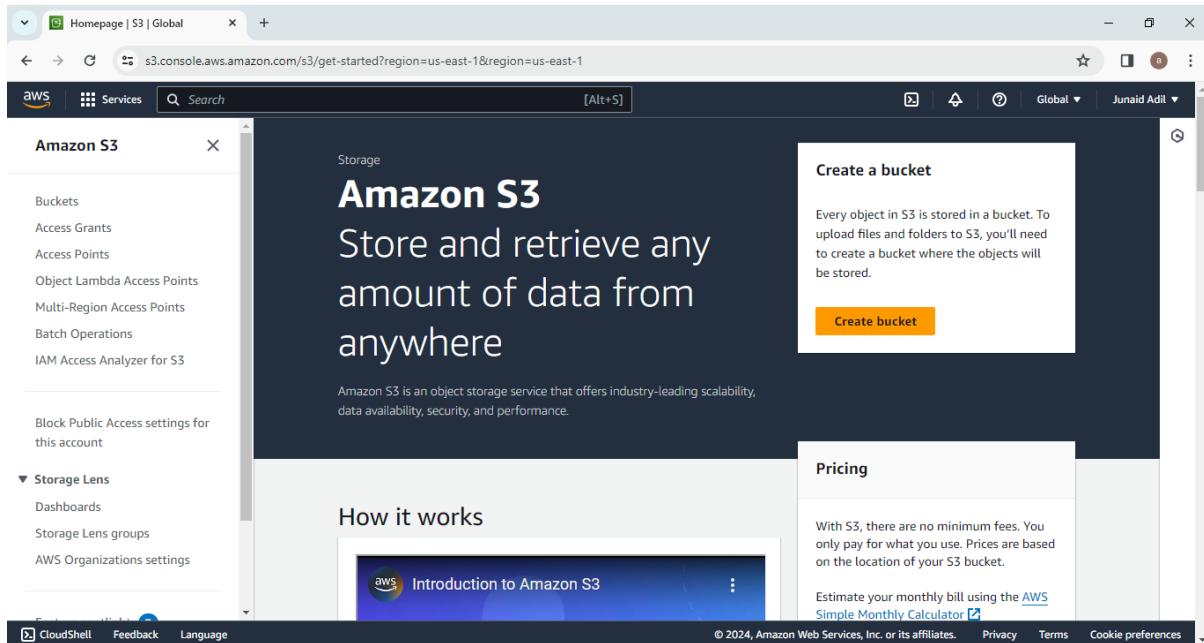
Documentation

Getting Help

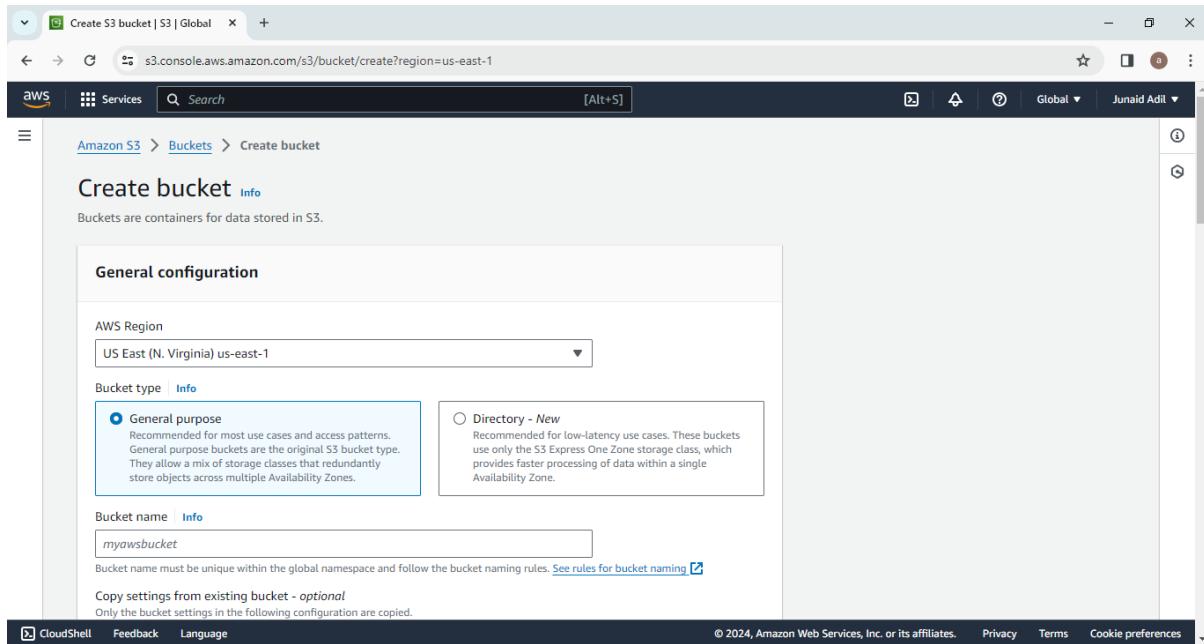
FAQ and Mailing Lists

L6 - Create S3 Bucket and add folders and files.

Step 1: Go to Amazon S3 and click on Create bucket.



The screenshot shows the Amazon S3 homepage. On the left, there's a sidebar with links like Buckets, Access Grants, Access Points, Object Lambda Access Points, Multi-Region Access Points, Batch Operations, and IAM Access Analyzer for S3. Below that is a section for Block Public Access settings. Under Storage Lens, there are links for Dashboards, Storage Lens groups, and AWS Organizations settings. The main content area features the Amazon S3 logo and the tagline "Store and retrieve any amount of data from anywhere". It includes a brief description of what S3 is and a large orange "Create bucket" button. To the right, there's a "Pricing" section with information about costs and a link to the Simple Monthly Calculator. At the bottom, there's footer information including copyright details and links for CloudShell, Feedback, Language, Privacy, Terms, and Cookie preferences.



The screenshot shows the "Create bucket" configuration page. At the top, it says "Create bucket" and "Info". Below that, it states "Buckets are containers for data stored in S3." The main form is titled "General configuration". It has two sections: "AWS Region" (set to "US East (N. Virginia) us-east-1") and "Bucket type" (with "General purpose" selected). There's also a "Bucket name" field containing "myawsbucket". A note below the name field says "Bucket name must be unique within the global namespace and follow the bucket naming rules. See rules for bucket naming." At the bottom, there's a section for "Copy settings from existing bucket - optional" with a note that only the bucket settings in the following configuration are copied. The footer includes links for CloudShell, Feedback, Language, Privacy, Terms, and Cookie preferences, along with a copyright notice for 2024.

Step 2: Select AWS Region, Bucket Type, and give Bucket Name: junaid-s-bucket, in Object Ownership as ACL Disabled.

Create S3 bucket | S3 | Global

aws Services Search [Alt+S]

AWS Region: US East (N. Virginia) us-east-1

Bucket type: General purpose

Bucket name: Junaid-s-bucket

Object Ownership: ACLs disabled (recommended)

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Create S3 bucket | S3 | Global

aws Services Search [Alt+S]

Choose bucket

Object Ownership: ACLs disabled (recommended)

Block Public Access settings for this bucket: Block all public access

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Step 3: If we want to give public permission, deselect the option “Block all Public access” and if we want to keep it private then enable the option.

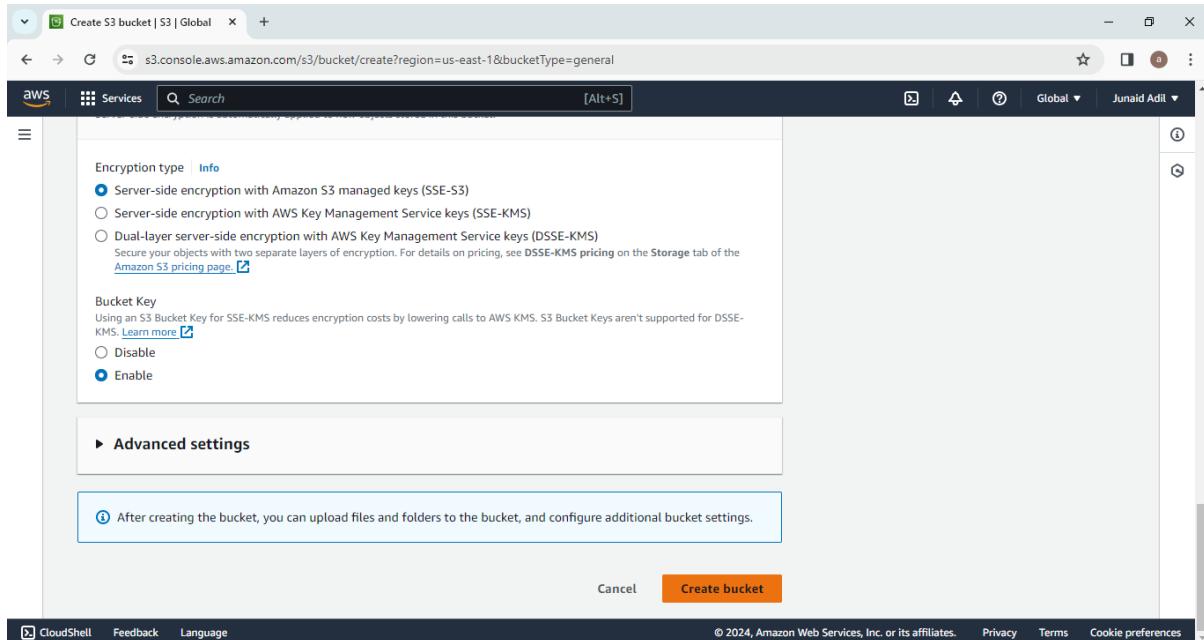
The screenshot shows the AWS S3 Bucket creation interface. In the 'Block Public Access settings for this bucket' section, the 'Block all public access' checkbox is checked. Below it, four detailed options are listed, each with a checkbox:

- Block public access to buckets and objects granted through new access control lists (ACLS)**: S3 will block public access permissions applied to newly added buckets or objects, and prevent the creation of new public access ACLs for existing buckets and objects. This setting doesn't change any existing permissions that allow public access to S3 resources using ACLs.
- Block public access to buckets and objects granted through any access control lists (ACLS)**: S3 will ignore all ACLs that grant public access to buckets and objects.
- Block public access to buckets and objects granted through new public bucket or access point policies**: S3 will block new bucket and access point policies that grant public access to buckets and objects. This setting doesn't change any existing policies that allow public access to S3 resources.
- Block public and cross-account access to buckets and objects through any public bucket or access point policies**: S3 will ignore public and cross-account access for buckets or access points with policies that grant public access to buckets and objects.

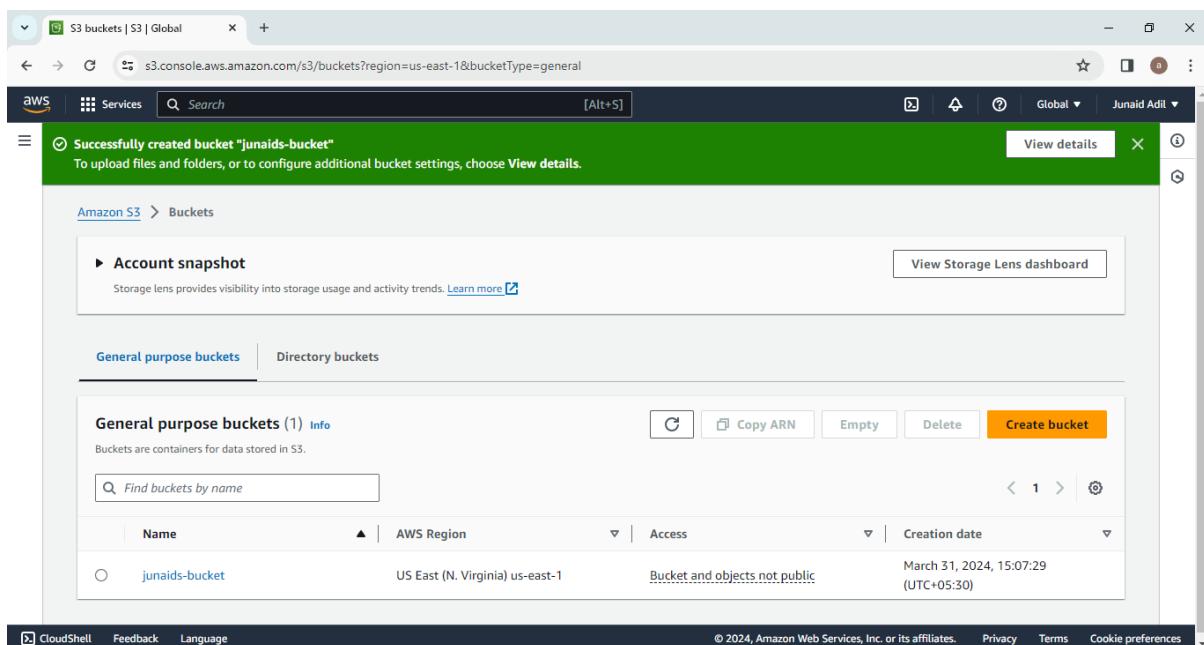
Step 4: Enable Bucket Versioning.

The screenshot shows the AWS S3 Bucket creation interface. In the 'Bucket Versioning' section, the 'Enable' radio button is selected. A note above the section states: "S3 will ignore public and cross-account access for buckets or access points with policies that grant public access to buckets and objects."

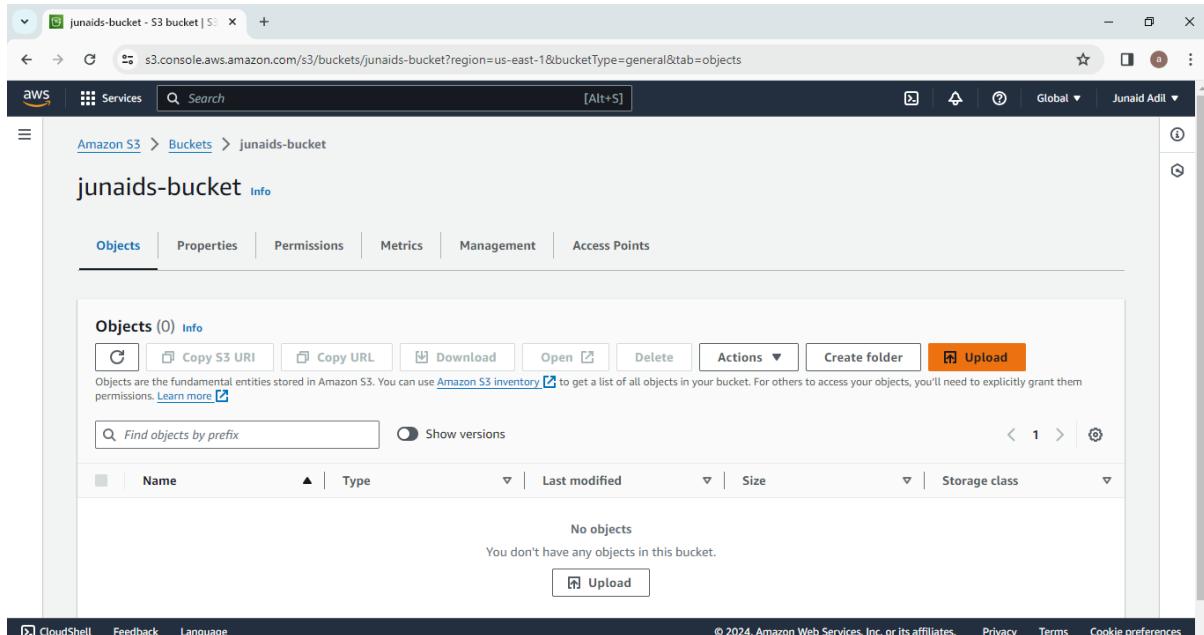
Step 5: Then click on Create Bucket



We can see the Bucket has been created

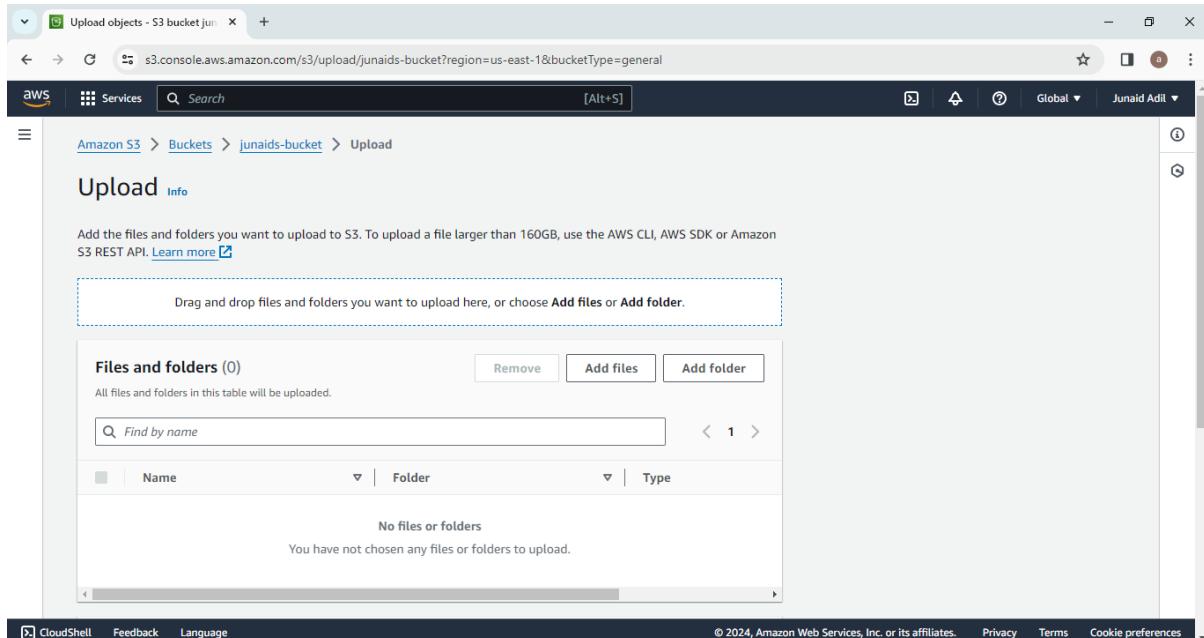


Step 6: Open the bucket and click on Upload



The screenshot shows the AWS S3 console interface. The browser address bar displays the URL: s3.console.aws.amazon.com/s3/buckets/junaids-bucket?region=us-east-1&bucketType=general&tab=objects. The main content area is titled 'junaids-bucket' and shows the 'Objects' tab selected. Below the tabs, there is a toolbar with various actions: Copy S3 URI, Copy URL, Download, Open, Delete, Actions, Create folder, and Upload. A message states: 'Objects are the fundamental entities stored in Amazon S3. You can use Amazon S3 inventory to get a list of all objects in your bucket. For others to access your objects, you'll need to explicitly grant them permissions.' A search bar labeled 'Find objects by prefix' and a 'Show versions' toggle are also present. The main table header includes columns for Name, Type, Last modified, Size, and Storage class. A message at the bottom center says 'No objects' and 'You don't have any objects in this bucket.' A prominent orange 'Upload' button is located at the bottom right of the table area.

Step 7: Then we can add File or folder to the bucket. So, click on Add files and select the file to upload.



The screenshot shows the AWS S3 console interface, specifically the 'Upload' tab for the 'junaids-bucket'. The browser address bar displays the URL: s3.console.aws.amazon.com/s3/upload/junaids-bucket?region=us-east-1&bucketType=general. The main content area is titled 'Upload' and shows the 'Upload' tab selected. A message at the top says: 'Add the files and folders you want to upload to S3. To upload a file larger than 160GB, use the AWS CLI, AWS SDK or Amazon S3 REST API.' Below this is a large dashed blue rectangular area with the text 'Drag and drop files and folders you want to upload here, or choose Add files or Add folder.' A 'Files and folders (0)' section follows, containing a 'Remove' button and 'Add files' and 'Add folder' buttons. A search bar labeled 'Find by name' and a table header with columns for Name, Folder, and Type are shown. A message at the bottom center says 'No files or folders' and 'You have not chosen any files or folders to upload.'

Step 8: After selecting the files and folder to upload, click on Upload option below.

Upload objects - S3 bucket junaids-bucket

Services Search [Alt+S]

Files and folders (1 Total, 1.6 KB)

All files and folders in this table will be uploaded.

Find by name < 1 >

Name | Folder | Type

Destination info

Destination: s3://junaids-bucket

▶ Destination details Bucket settings that impact new objects stored in the specified destination.

▶ Permissions Grant public access and access to other AWS accounts.

▶ Properties Specify storage class, encryption settings, tags, and more.

Cancel Upload

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Upload objects - S3 bucket junaids-bucket

Services Search [Alt+S]

Uploading

Total remaining: 1 file: 1.6 KB(100.00%)
Estimated time remaining: calculating...
Transfer rate: 0 B/s

Destination: s3://junaids-bucket

Succeeded	Failed
0 files, 0 B (0%)	0 files, 0 B (0%)

Files and folders Configuration

Files and folders (1 Total, 1.6 KB)

Find by name < 1 >

Name	Folder	Type	Size	Status	Error
keypair.pem	-	-	1.6 KB	Pending	-

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File and folder has been uploaded successfully.

The screenshot shows the AWS S3 console interface. The browser title bar reads "junaids-bucket - S3 bucket | S3". The URL in the address bar is "s3.console.aws.amazon.com/s3/buckets/junaids-bucket?region=us-east-1&bucketType=general&tab=objects". The top navigation bar includes the AWS logo, Services dropdown, search bar, and user profile "Junaid Adil". Below the navigation is a breadcrumb trail: "Amazon S3 > Buckets > junaids-bucket". The main content area is titled "junaids-bucket Info" and shows the "Objects" tab selected. It displays two items: a folder named "Key/" and a file named "keypair.pem".

Name	Type	Last modified	Size	Storage class
Key/	Folder	-	-	-
keypair.pem	pem	March 31, 2024, 15:14:01 (UTC+05:30)	1.6 KB	Standard