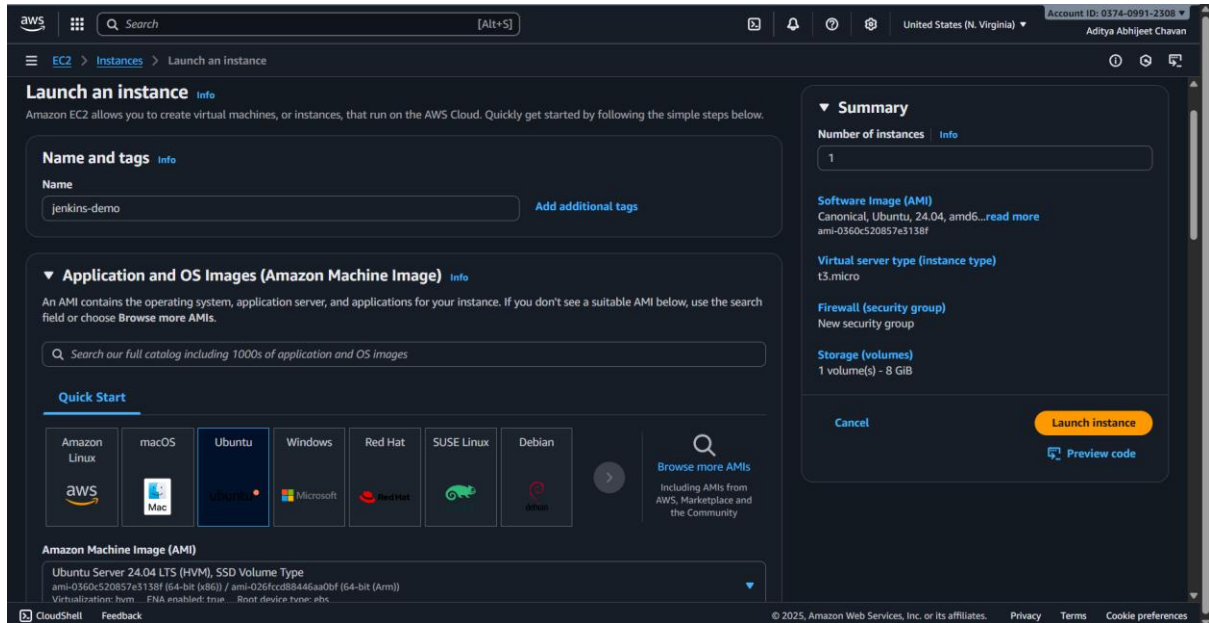
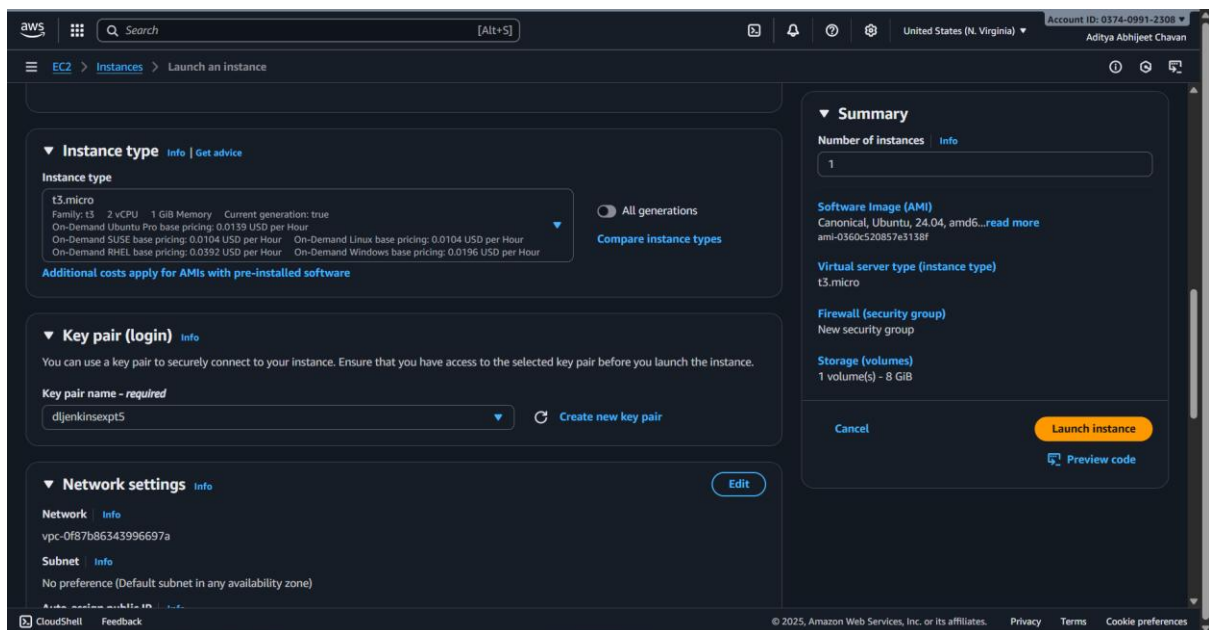


Experiment 5

Launching Instance



Instance Type



Network Settings

The screenshot shows the 'Network settings' configuration page in AWS CloudShell. The 'Network' section is set to 'vpc-0f87b86343996697a'. The 'Subnet' is set to 'No preference (Default subnet in any availability zone)'. The 'Auto-assign public IP' is set to 'Enable'. The 'Firewall (security groups)' section shows 'Create security group' selected, with a warning that rules with source 0.0.0.0/0 allow all IP addresses to access the instance. The 'Number of instances' is set to 1. The 'Software Image (AMI)' is 'Canonical, Ubuntu, 24.04, amd64...'. The 'Virtual server type (instance type)' is 't3.micro'. The 'Firewall (security group)' is 'New security group'. The 'Storage (volumes)' is '1 volume(s) - 8 GiB'. The 'Launch instance' button is visible.

Network settings [Info](#) [Edit](#)

Network [Info](#)
vpc-0f87b86343996697a

Subnet [Info](#)
No preference (Default subnet in any availability zone)

Auto-assign public IP [Info](#)
Enable

Firewall (security groups) [Info](#)
A security group is a set of firewall rules that control the traffic for your instance. Add rules to allow specific traffic to reach your instance.
☒ Create security group ☐ Select existing security group

We'll create a new security group called 'launch-wizard-1' with the following rules:

- ☒ Allow SSH traffic from
- ☒ Allow HTTPS traffic from the internet
To set up an endpoint, for example when creating a web server
- ☒ Allow HTTP traffic from the internet
To set up an endpoint, for example when creating a web server

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

Number of instances [Info](#)
1

Software Image (AMI)
Canonical, Ubuntu, 24.04, amd64...[read more](#)
ami-0360c520857e3138f

Virtual server type (instance type)
t3.micro

Firewall (security group)
New security group

Storage (volumes)
1 volume(s) - 8 GiB

[Cancel](#) [Launch instance](#) [Preview code](#)

No changes in 'configure storage' and 'advanced details'.

EC2 instance is running

The screenshot shows the AWS Management Console 'Instances' page. A single instance named 'jenkins-demo' with ID 'i-09a62c48ea3563a75' is listed in a 'Running' state. The instance type is 't3.micro' and it is in the 'us-east-1b' availability zone. The 'Connect' button is visible. Below the table, the 'Details' tab for the instance shows its public IPv4 address (54.82.168.70), private IPv4 address (172.31.25.58), and public DNS name (ec2-54-82-168-70.compute-1.amazonaws.com).

Instances (1/1) [Info](#) [Connect](#) [Instance state](#) [Actions](#) [Launch instances](#)

☒ Find instance by attribute or tag (case-sensitive)

<input checked="" type="checkbox"/>	Name	Instance ID	Instance state	Instance type	Status check	Alarm status	Availability Zone	Public IP
<input checked="" type="checkbox"/>	jenkins-demo	i-09a62c48ea3563a75	Running	t3.micro	Initializing	View alarms +	us-east-1b	ec2-54-82-168-70.compute-1.amazonaws.com

i-09a62c48ea3563a75 (jenkins-demo)

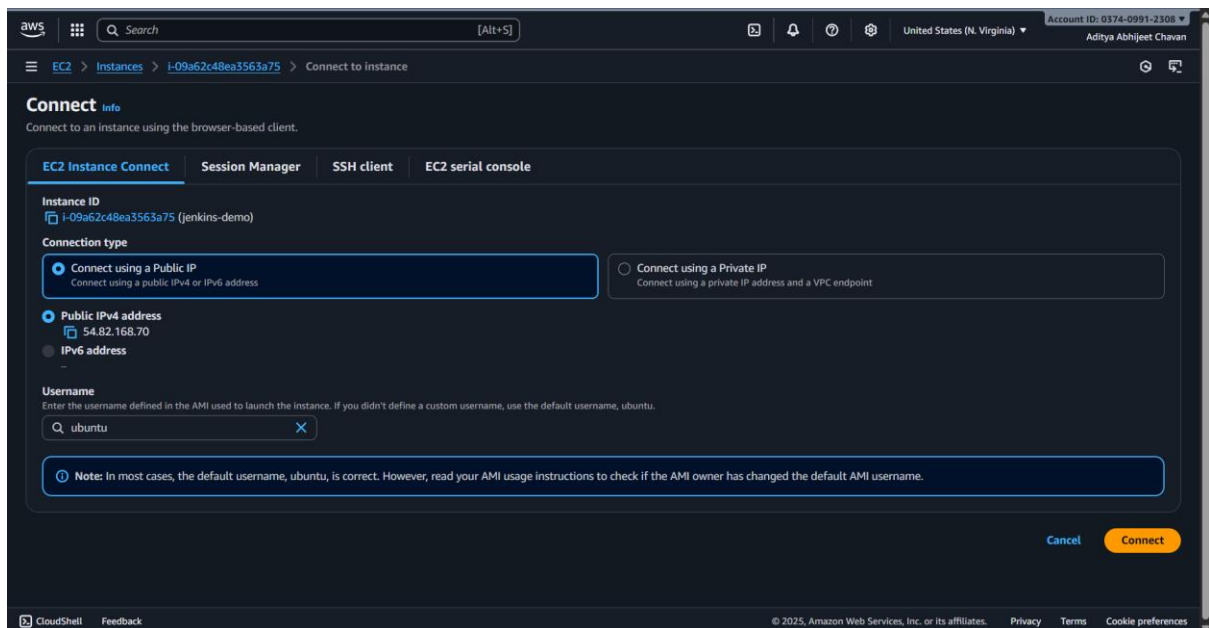
[Details](#) [Status and alarms](#) [Monitoring](#) [Security](#) [Networking](#) [Storage](#) [Tags](#)

Instance summary [Info](#)

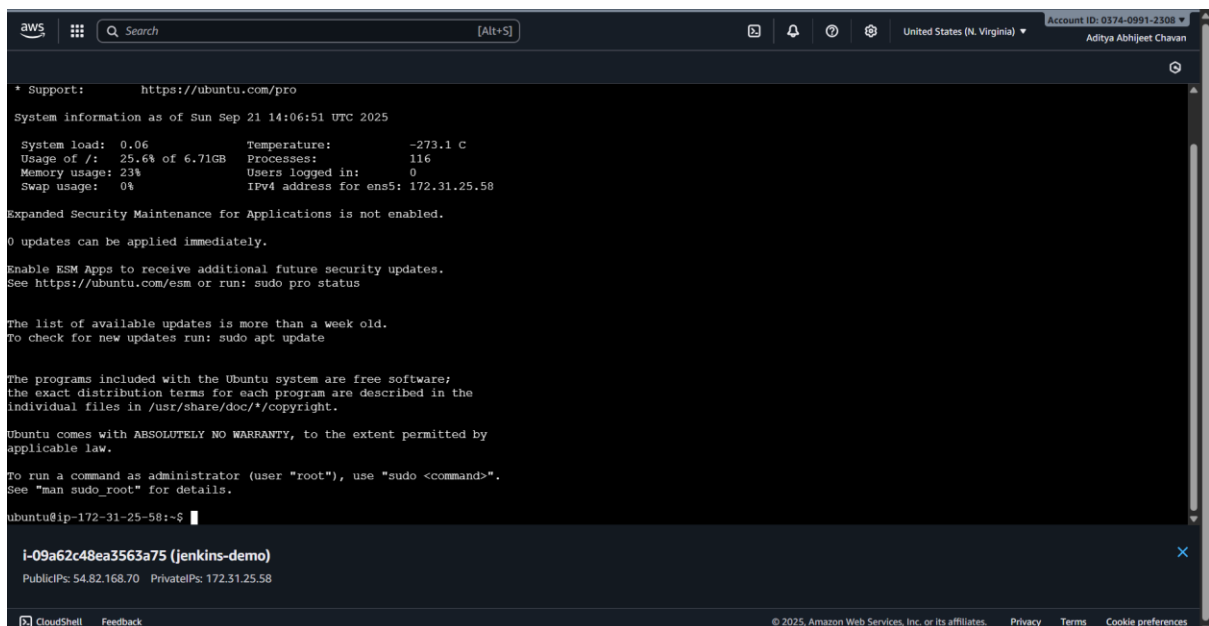
Instance ID i-09a62c48ea3563a75	Public IPv4 address 54.82.168.70 open address	Private IPv4 addresses 172.31.25.58
IPv6 address -	Instance state Running	Public DNS ec2-54-82-168-70.compute-1.amazonaws.com open address
Hostname tune	Private IP DNS name (IPv4 only)	

Select the checkbox of the instance and click on 'Connect'

EC2 Instance Connect



Ubuntu Terminal



Run sudo apt update in the terminal and begin with Jenkins Installation

Install Java

```
ubuntu@ip-172-31-25-58:~$ sudo apt install openjdk-8-jdk -y
Reading package lists... Done
Building dependency tree... Done
Reading state information... Done
The following additional packages will be installed:
  adwaita-icon-theme alsa-topology-conf alsa-ucm-conf at-spi2-common at-spi2-core ca-certificates-java dconf-gsettings-backend dconf-service fontconfig
  fonts-dejavu-core fonts-dejavu-extra fonts-dejavu-mono gsettings-desktop-schemas gtk-update-icon-cache hicolor-icon-theme humanity-icon-theme
  java-common libasound2-data libasound2t64 libasyncns0 libatk-bridge2.0-0t64 libatk-wrapper-java libatk-wrapper-java-jni libatk1.0-0t64 libatspi2.0-0t64
  libavahi-client3 libavahi-common-data libavahi-common3 libcairo-gobject2 libcairo2 libcups2t64 libdatriel libdconf1 libdrm-amdgpu libdrm-intel1
  libflac12t64 libfontconfig1 libgail-common libgail18t64 libgdm1 libgdk-pixbuf2.0-0 libgdk-pixbuf2.0-bin libgdk-pixbuf2.0-common libgif7 libgl1 libgl1-mesa-dri
  libglvnd0 libglx-mesa0 libglx0 libgraphite2-3 libgtk2.0-0t64 libgtk2.0-bin libgtk2.0-common libharfbuzz0b libice-dev libice6 libjbig0 libjpeg-turbo8 libjpeg8
  liblcms2-2 liblerc4 libllvmd0 libmp3lame0 libmpeg123-0t64 libogg0 libopus0 libpango-1.0-0 libpangocairo-1.0-0 libpangoft2-1.0-0 libpciaccess0 libpcsclite1
  libpixman-1-0 libpthread-stubs0-dev libpulse0 librsvg2-2 librsvg2-common libsharpyuv0 libsm-dev libsm6 libsndfile1 libthai-data libthai0 libtiff6 libvorbis0a
  libvorbisenc2 libvulkan1 libwayland-client0 libwayland-server0 libwebp7 libx11-dev libx11-xcb1 libxau-dev libxaw7 libxcb-dri3-0 libxcb-glx0 libxcb-present0
  libxcb-randr0 libxcb-render0 libxcb-shape0 libxcb-shm0 libxcb-sync1 libxcb-xf86vm0 libxcb1-dev libxcomposite1 libxcursor1 libxdamage1 libxdmcp-dev libxfixes3
  libxft2 libxi6 libxinerama1 libxkbfile1 libxmu6 libxpm4 libxrandr2 libxrender1 libxshmfence1 libxt-dev libxt6t64 libxtest6 libxv1 libxxf86dga1 libxxf86vm1
  mesa-libgallium mesa-vulkan-drivers openjdk-8-jdk-headless openjdk-8-jre openjdk-8-jre-headless session-migration ubuntu-mono x11-common x11-utils x11proto-dev
  xorg-sgml-doctools xtrans-dev
Suggested packages:
  default-jre alsa-utils libasound2-plugins cups-common gvfs libice-doc liblcms2-utils opus-tools pcsd pulseaudio librsvg2-bin libsm-doc libx11-doc libxcb-doc
  libxt-doc openjdk-8-demo openjdk-8-source visualvm libnss-mdns fonts-nanum fonts-ipafont-gothic fonts-ipafont-mincho fonts-wqy-microhei fonts-wqy-zenhei
  fonts-indic mesa-utils
Recommended packages:
  luit
The following NEW packages will be installed:
  adwaita-icon-theme alsa-topology-conf alsa-ucm-conf at-spi2-common at-spi2-core ca-certificates-java dconf-gsettings-backend dconf-service fontconfig
  fontconfig-config fonts-dejavu-core fonts-dejavu-extra fonts-dejavu-mono gsettings-desktop-schemas gtk-update-icon-cache hicolor-icon-theme humanity-icon-theme
  java-common libasound2-data libasound2t64 libasyncns0 libatk-bridge2.0-0t64 libatk-wrapper-java libatk-wrapper-java-jni libatk1.0-0t64 libatspi2.0-0t64
  libavahi-client3 libavahi-common-data libavahi-common3 libcairo-gobject2 libcairo2 libcups2t64 libdatriel libdconf1 libdeflate0 libdrm-amdgpu libdrm-intel1
  libflac12t64 libfontconfig1 libgail-common libgail18t64 libgdm1 libgdk-pixbuf2.0-0 libgdk-pixbuf2.0-bin libgdk-pixbuf2.0-common libgif7 libgl1 libgl1-mesa-dri
  libglvnd0 libglx-mesa0 libglx0 libgraphite2-3 libgtk2.0-0t64 libgtk2.0-bin libgtk2.0-common libharfbuzz0b libice-dev libice6 libjbig0 libjpeg-turbo8 libjpeg8
  liblcms2-2 liblerc4 libllvmd0 libmp3lame0 libmpeg123-0t64 libogg0 libopus0 libpango-1.0-0 libpangocairo-1.0-0 libpangoft2-1.0-0 libpciaccess0 libpcsclite1
  libpixman-1-0 libpthread-stubs0-dev libpulse0 librsvg2-2 librsvg2-common libsharpyuv0 libsm-dev libsm6 libsndfile1 libthai-data libthai0 libtiff6 libvorbis0a
  libvorbisenc2 libvulkan1 libwayland-client0 libwayland-server0 libwebp7 libx11-dev libx11-xcb1 libxau-dev libxaw7 libxcb-dri3-0 libxcb-glx0 libxcb-present0
  libxcb-randr0 libxcb-render0 libxcb-shape0 libxcb-shm0 libxcb-sync1 libxcb-xf86vm0 libxcb1-dev libxcomposite1 libxcursor1 libxdamage1 libxdmcp-dev libxfixes3
  libxft2 libxi6 libxinerama1 libxkbfile1 libxmu6 libxpm4 libxrandr2 libxrender1 libxshmfence1 libxt-dev libxt6t64 libxtest6 libxv1 libxxf86dga1 libxxf86vm1
  mesa-libgallium mesa-vulkan-drivers openjdk-8-jdk-headless openjdk-8-jre openjdk-8-jre-headless session-migration ubuntu-mono x11-common x11-utils x11proto-dev
  xorg-sgml-doctools xtrans-dev
```

Jenkins Installation

Visit pkg.jenkins.io and select debian stable

Copy paste all the commands present in the document

```
ubuntu@ip-172-31-25-58:~$ sudo wget -O /etc/apt/keyrings/jenkins-keyring.asc \
https://pkg.jenkins.io/debian-stable/jenkins.io-2023.key
--2025-09-21 14:16:15-- https://pkg.jenkins.io/debian-stable/jenkins.io-2023.key
Resolving pkg.jenkins.io (pkg.jenkins.io)... 146.75.34.133, 2a04:4e42:79::645
Connecting to pkg.jenkins.io (pkg.jenkins.io)|146.75.34.133|:443... connected.
HTTP request sent, awaiting response... 200 OK
Length: 3175 (3.1K) [application/pgp-keys]
Saving to: '/etc/apt/keyrings/jenkins-keyring.asc'

/etc/apt/keyrings/jenkins-keyring.asc 100%[=====>] 3.10K --.-KB/s in 0s

2025-09-21 14:16:15 (32.1 MB/s) - '/etc/apt/keyrings/jenkins-keyring.asc' saved [3175/3175]

ubuntu@ip-172-31-25-58:~$
```

```
ubuntu@ip-172-31-25-58:~$ echo "deb [signed-by=/etc/apt/keyrings/jenkins-keyring.asc]" \
https://pkg.jenkins.io/debian-stable binary/ | sudo tee \
/etc/apt/sources.list.d/jenkins.list > /dev/null
ubuntu@ip-172-31-25-58:~$ sudo apt-get update
Hit:1 http://us-east-1.ec2.archive.ubuntu.com/ubuntu noble InRelease
Hit:2 http://us-east-1.ec2.archive.ubuntu.com/ubuntu noble-updates InRelease
Hit:3 http://us-east-1.ec2.archive.ubuntu.com/ubuntu noble-backports InRelease
Ign:4 https://pkg.jenkins.io/debian-stable binary/ InRelease
Get:5 https://pkg.jenkins.io/debian-stable binary/ Release [2044 B]
Get:6 https://pkg.jenkins.io/debian-stable binary/ Release.gpg [833 B]
Hit:7 http://security.ubuntu.com/ubuntu noble-security InRelease
Get:8 https://pkg.jenkins.io/debian-stable binary/ Packages [29.7 kB]
Fetched 32.6 kB in 0s (99.6 kB/s)
Reading package lists... Done
ubuntu@ip-172-31-25-58:~$
```

```
ubuntu@ip-172-31-25-58:~$ sudo apt-get install fontconfig openjdk-17-jre
Reading package lists... Done
Building dependency tree... Done
Reading state information... Done
fontconfig is already the newest version (2.15.0-1ubuntu2).
fontconfig set to manually installed.
Suggested packages:
  libnss-mdns fonts-ipafont-gothic fonts-ipafont-mincho fonts-wqy-microhei | fonts-wqy-zenhei fonts-indic
The following NEW packages will be installed:
  openjdk-17-jre openjdk-17-jre-headless
0 upgraded, 2 newly installed, 0 to remove and 30 not upgraded.
```

```
ubuntu@ip-172-31-25-58:~$ sudo apt-get install jenkins
Reading package lists... Done
Building dependency tree... Done
Reading state information... Done
The following additional packages will be installed:
  net-tools
The following NEW packages will be installed:
  jenkins net-tools
0 upgraded, 2 newly installed, 0 to remove and 30 not upgraded.
Need to get 87.3 MB of archives.
After this operation, 88.4 MB of additional disk space will be used.
Do you want to continue? [Y/n] Y
Get:1 http://us-east-1.ec2.archive.ubuntu.com/ubuntu noble-updates/main amd64 net-tools amd64 2.10-0.1ubuntu4.4 [204 kB]
Get:2 https://pkg.jenkins.io/debian-stable binary/ jenkins 2.516.3 [87.1 MB]
Fetched 87.3 MB in 20s (4307 kB/s)
```

Java Version

```
ubuntu@ip-172-31-25-58:~$ java --version
openjdk 17.0.16 2025-07-15
OpenJDK Runtime Environment (build 17.0.16+8-Ubuntu-0ubuntu124.04.1)
OpenJDK 64-Bit Server VM (build 17.0.16+8-Ubuntu-0ubuntu124.04.1, mixed mode, sharing)
ubuntu@ip-172-31-25-58:~$
```

Start and enable Jenkins

```
ubuntu@ip-172-31-25-58:~$ sudo systemctl start jenkins
ubuntu@ip-172-31-25-58:~$ sudo systemctl enable jenkins
Synchronizing state of jenkins.service with SysV service script with /usr/lib/systemd/systemd-sysv-install.
Executing: /usr/lib/systemd/systemd-sysv-install enable jenkins
ubuntu@ip-172-31-25-58:~$
```

Jenkins Status

```
ubuntu@ip-172-31-25-58:~$ sudo systemctl status jenkins
● jenkins.service - Jenkins Continuous Integration Server
   Loaded: loaded (/usr/lib/systemd/system/jenkins.service; enabled; preset: enabled)
   Active: active (running) since Sun 2025-09-21 14:19:46 UTC; 4min 14s ago
     Main PID: 4741 (java)
       Tasks: 38 (limit: 1008)
      Memory: 316.5M (peak: 347.1M)
         CPU: 21.113s
    CGroup: /system.slice/jenkins.service
            └─4741 /usr/bin/java -Djava.awt.headless=true -jar /usr/share/java/jenkins.war --webroot=/var/cache/jenkins/war --httpPort=8080

Sep 21 14:19:40 ip-172-31-25-58 jenkins[4741]: [LF]> This may also be found at: /var/lib/jenkins/secrets/initialAdminPassword
Sep 21 14:19:40 ip-172-31-25-58 jenkins[4741]: [LF]>
Sep 21 14:19:40 ip-172-31-25-58 jenkins[4741]: [LF]> *****
Sep 21 14:19:40 ip-172-31-25-58 jenkins[4741]: [LF]> *****
Sep 21 14:19:40 ip-172-31-25-58 jenkins[4741]: [LF]> *****
Sep 21 14:19:46 ip-172-31-25-58 jenkins[4741]: 2025-09-21 14:19:46.004+0000 [id=31] INFO jenkins.InitReactorRunner$1:onAttained: Completed initialization
Sep 21 14:19:46 ip-172-31-25-58 jenkins[4741]: 2025-09-21 14:19:46.033+0000 [id=23] INFO hudson.lifecycle.Lifecycle#onReady: Jenkins is fully up and running
Sep 21 14:19:46 ip-172-31-25-58 systemd[1]: Started jenkins.service - Jenkins Continuous Integration Server.
Sep 21 14:19:46 ip-172-31-25-58 jenkins[4741]: 2025-09-21 14:19:46.305+0000 [id=49] INFO h.m.DownloadService$Downloadable#load: Obtained the updated data
Sep 21 14:19:46 ip-172-31-25-58 jenkins[4741]: 2025-09-21 14:19:46.305+0000 [id=49] INFO hudson.util.Retrier#start: Performed the action check updates 8
lines 1-20/20 (END)
```

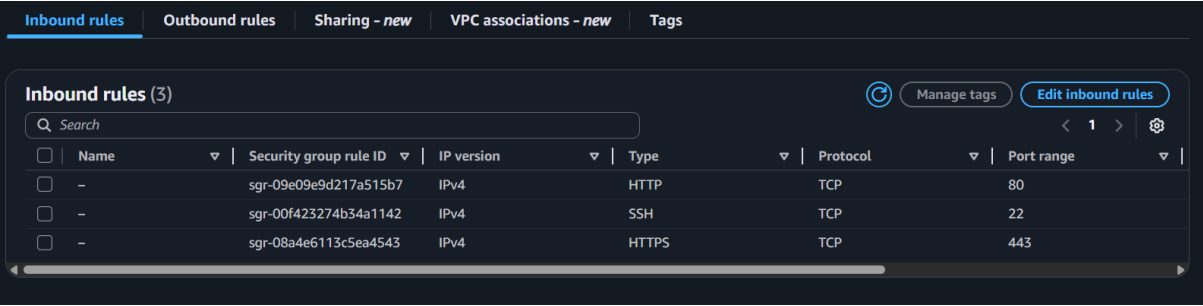
Go to Security Tab

Details	Status and alarms	Monitoring	Security	Networking	Storage	Tags
▼ Instance details Info						
AMI ID ami-0360c520857e3138f	Monitoring disabled		Platform details Linux/UNIX		Termination protection Disabled	
AMI name ubuntu/images/hvm-ssd-gp3/ubuntu-noble-24.04-amd64-server-20250821	Allowed image -		Launch time Sun Sep 21 2025 19:33:16 GMT+0530 (India Standard Time) (24 minutes)		AMI location amazon/ubuntu/images/hvm-ssd-gp3/ubuntu-noble-24.04-amd64-server-20250821	
Stop protection Disabled	Launch time Sun Sep 21 2025 19:33:16 GMT+0530 (India Standard Time) (24 minutes)		Instance auto-recovery Default		Lifecycle normal	
Instance reboot migration Default (On)	Instance auto-recovery Default		AMI Launch index 0		Key pair assigned at launch dljenkinsext5	
Stop-hibernate behavior Disabled	AMI Launch index 0		Credit specification unlimited		Kernel ID -	
State transition reason -	Credit specification unlimited		Usage operation RunInstances		RAM disk ID -	
State transition message -	Usage operation RunInstances		Enclaves Support		Boot mode	
Owner	Enclaves Support					

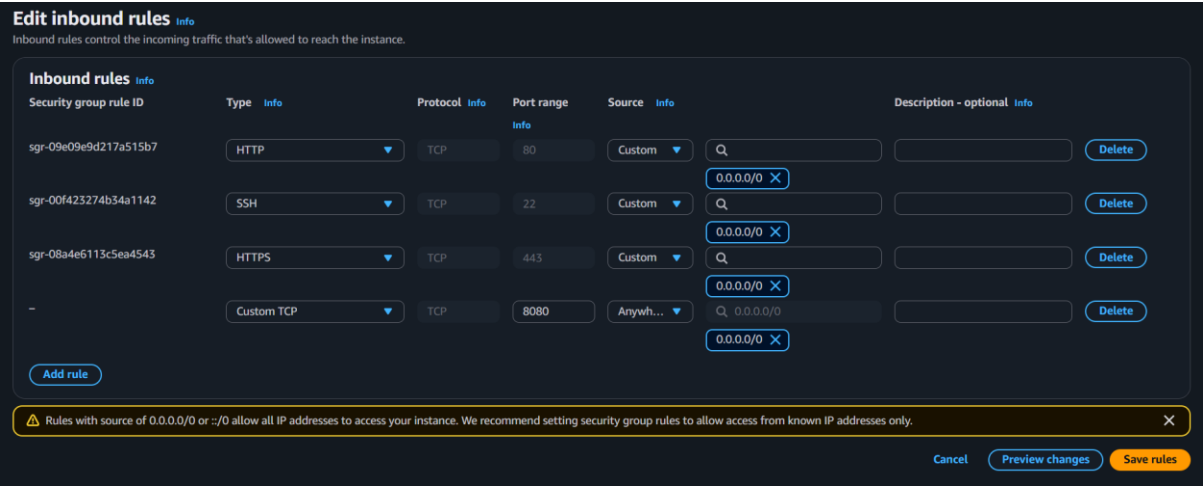
Click on Security Groups

▼ Security details
IAM Role
-
Security groups
sg-02a20dc6778f44b4d (launch-wizard-1)
▼ Inbound rules

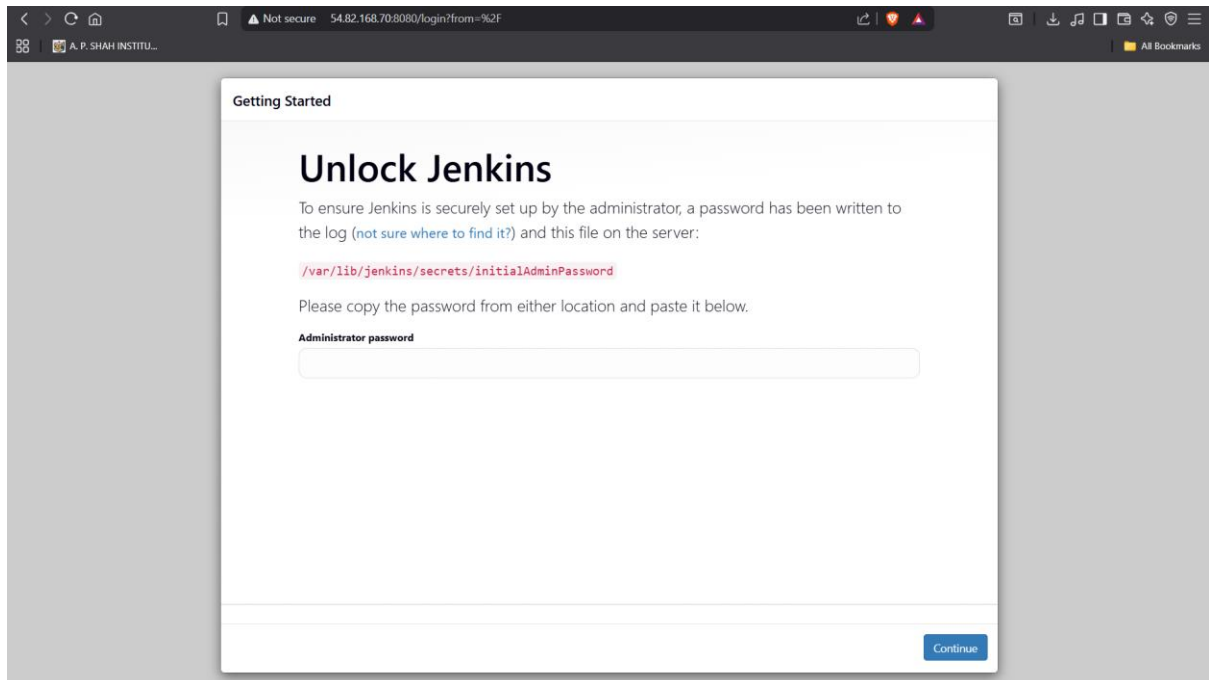
Click on edit inbound rules



Add rule and edit 'port range' to 8080 and add 0.0.0.0/0 next to 'source' and save



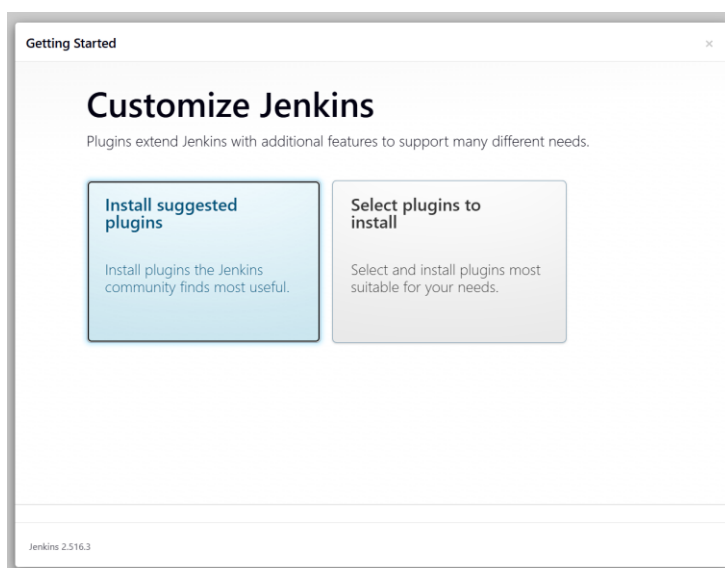
Open new tab, copy paste 'Public IPv4 address' from instance summary and append ':8080' at the end and run



Copy paste the red command with 'sudo cat' to get initial admin password

```
ubuntu@ip-172-31-25-58:~$ sudo cat /var/lib/jenkins/secrets/initialAdminPassword
833d88bdd84e4a4fa7572104b4c47db3
ubuntu@ip-172-31-25-58:~$
```

Install Suggested Plugins



Once installed, enter credentials

Getting Started

Create First Admin User

Username

admin

Password

Confirm password

Full name

admin

E-mail address

Jenkins 2.516.3

Skip and continue as admin

Save and Continue

Instance Configuration

Getting Started

Instance Configuration

Jenkins URL:

http://54.82.168.70:8080/

The Jenkins URL is used to provide the root URL for absolute links to various Jenkins resources. That means this value is required for proper operation of many Jenkins features including email notifications, PR status updates, and the BUILD_URL environment variable provided to build steps.

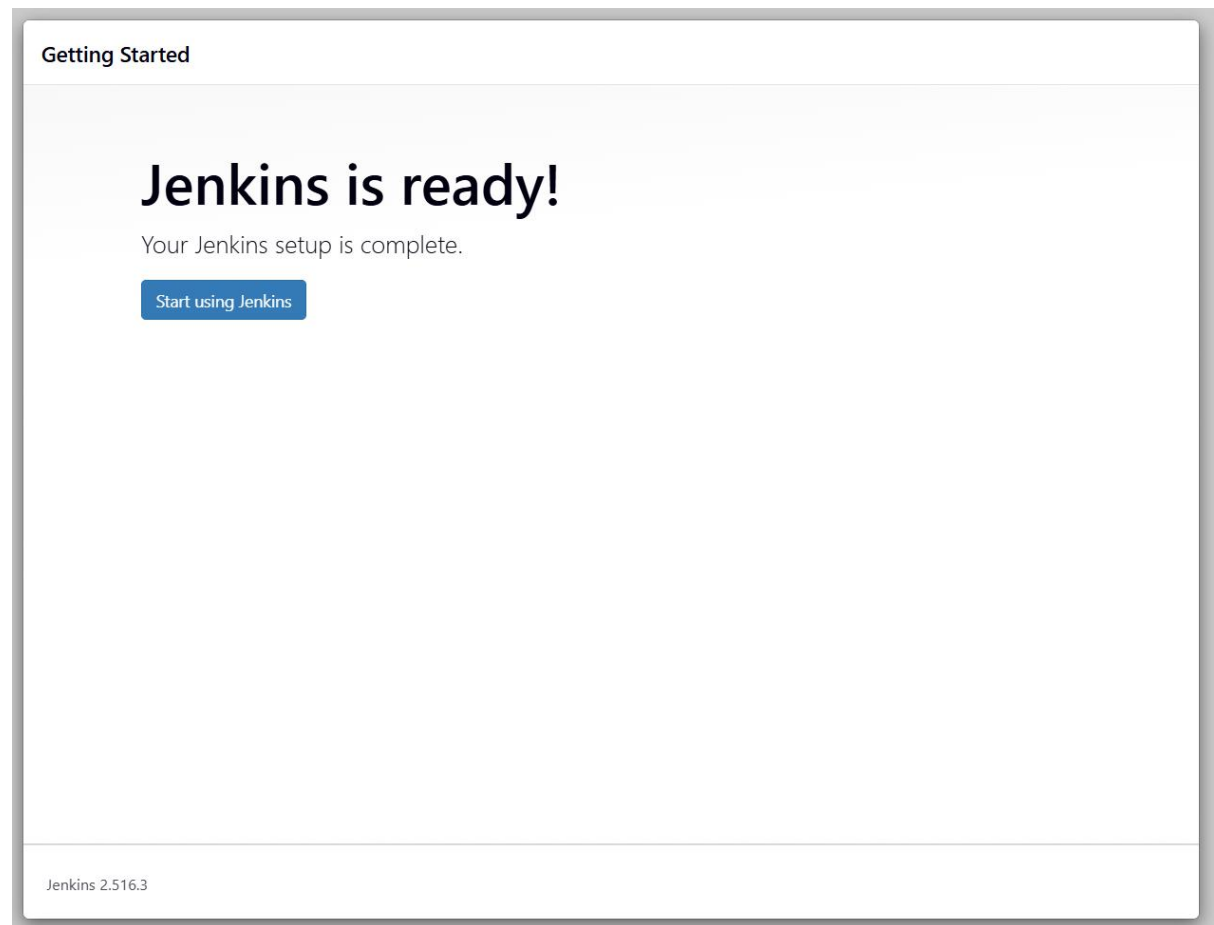
The proposed default value shown is **not saved yet** and is generated from the current request, if possible. The best practice is to set this value to the URL that users are expected to use. This will avoid confusion when sharing or viewing links.

Jenkins 2.516.3

Not now

Save and Finish

Jenkins is ready



Jenkins Dashboard

