

SonarQube Installation and configuration

SonarQube is an open-source platform used for continuous inspection of code quality. It helps developers identify bugs, code smells, and security vulnerabilities through static code analysis. SonarQube integrates easily with CI/CD tools like Jenkins to maintain high code quality standards.

Let's start the installation of the latest version of SonarQube on Ubuntu 22.04 LTS.

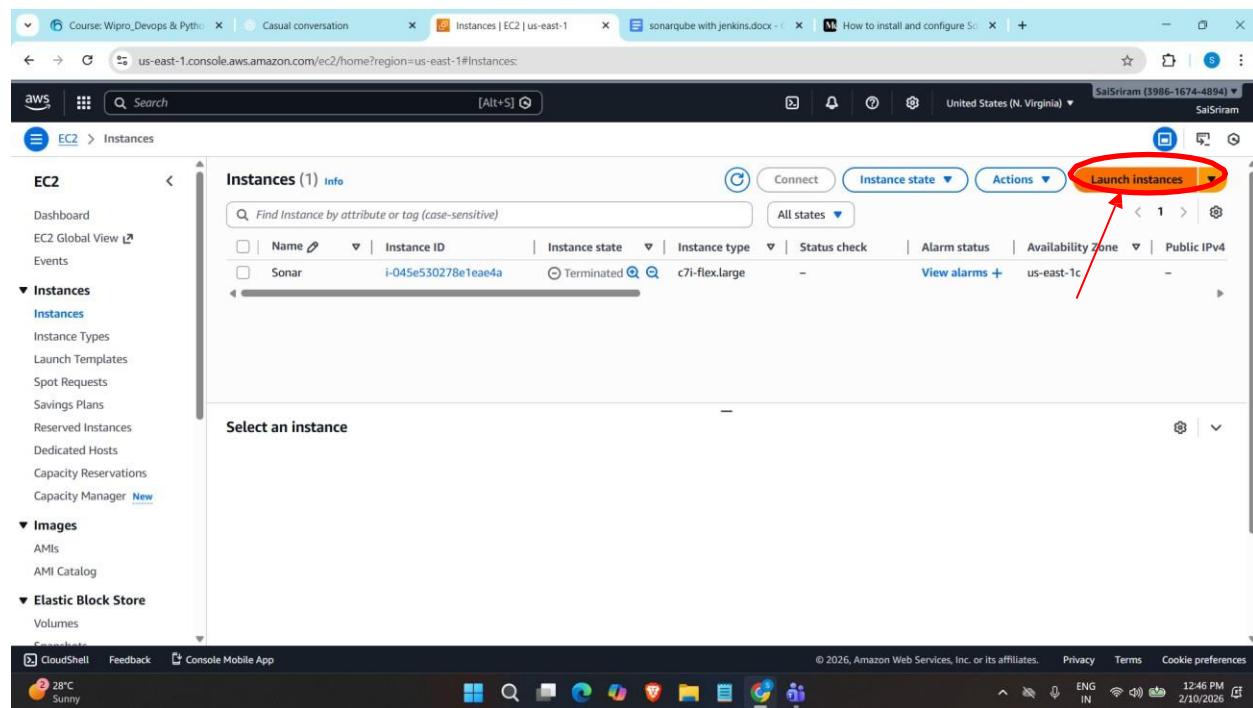
Note: The same steps also work on the AWS EC2 Ubuntu 20.04

Server Specification (Please choose as per your requirement):

1. **OS** = Ubuntu 22.04 LTS
2. **CPU**: 2 vCPU
3. **RAM**: 4 GB
4. **Storage**: 20 GB

To create an Instance in AWS:

Login AWS → Launch Instance.



Create name and select machine as ubuntu:

The screenshot shows the AWS EC2 'Launch an instance' wizard. In the 'Name and tags' step, the 'Name' field contains 'Jenkins-sonar-sriram'. In the 'Application and OS Images (Amazon Machine Image)' step, the 'Quick Start' dropdown is open, and 'Ubuntu' is selected. A red arrow points from the 'Ubuntu' label to the dropdown button. The right side of the screen shows the 'Summary' and 'Launch instance' buttons.

Instance type:

5. Select some large instance type so that you can work easily.

The screenshot shows the 'Launch an instance' wizard. In the 'Instance type' step, 'c7i-flex.large' is selected. A red box highlights this selection. In the 'Key pair (login)' step, a dropdown menu is open, showing 'Select' and 'Create new key pair' options. The right side of the screen shows the 'Summary' and 'Launch instance' buttons.

6. Create a new key pair or you can select the existing one and edit the security settings.

The screenshot shows the AWS EC2 'Launch an instance' wizard. The 'Key pair (login)' section is highlighted with a red box and has a red arrow pointing to the 'Edit' button in the 'Network settings' section. The 'Network settings' section includes fields for Network, Subnet, Auto-assign public IP, Firewall (security groups), and a preview of the security group rules.

7. In place of SSH Port select as All traffic so you can launch the page easily with all ports.

The screenshot shows the AWS EC2 'Launch an instance' wizard. A red arrow points to the 'Protocol' dropdown menu, which is set to 'All traffic'. The 'Source' dropdown is set to 'Anywhere'. The 'Description' field contains 'e.g. SSH for admin desktop'. A warning message at the bottom left states: '⚠ 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.' The 'Launch instance' button is visible on the right.

8. Configure the Storage as 20gb and launch instance

The screenshot shows the 'Launch an instance' wizard in the AWS Management Console. In the 'Configure storage' section, a root volume of 20 GiB is selected. A red box highlights the volume size input field. On the right, the 'Summary' panel shows 1 instance being launched. The 'Software Image (AMI)' is set to Canonical, Ubuntu, 24.04, amd64. The 'Virtual server type (instance type)' is c7i-flex.large. The 'Launch instance' button is highlighted with a yellow arrow. The status bar at the bottom indicates it's 28°C and sunny.

9. Launching Instance

The screenshot shows the 'Launch an instance' wizard in the AWS Management Console. A large blue progress bar at the top indicates 'Launch initiation' is 80% complete. Below it, a message says 'Please wait while we launch your instance. Do not close your browser while this is loading.' The status bar at the bottom indicates it's 28°C and sunny.

10. Instance created and connect it.

The screenshot shows the AWS EC2 Instances page. On the left, there's a sidebar with options like Dashboard, EC2 Global View, Events, Instances (selected), Instance Types, Launch Templates, Spot Requests, Savings Plans, Reserved Instances, Dedicated Hosts, Capacity Reservations, and Capacity Manager. The main area displays the 'Instance summary for i-0dc02e5e5d252387d (jenkins-sonar-sriram)'. It includes fields for Instance ID (i-0dc02e5e5d252387d), IPv6 address (none), Hostname type (IP name: ip-172-31-25-123.ec2.internal), Answer private resource DNS name (IPv4 (A)), Auto-assigned IP address (54.226.201.103 [Public IP]), IAM role (none), IMDSv2 (Required), and other details like Instance state (Running), Private IP DNS name (ip-172-31-25-123.ec2.internal), Instance type (c7i-flex.large), VPC ID (vpc-05ada6b6eab9f7cae), Subnet ID (subnet-00180ce825460c929), and Instance ARN (arn:aws:ec2:us-east-1:398616744894:instance/i-0dc02e5e5d252387d). At the top right, there are buttons for 'Connect', 'Instance state', and 'Actions'. The 'Connect' button is circled in red. The Public IPv4 address (54.226.201.103) is also highlighted with a red box.

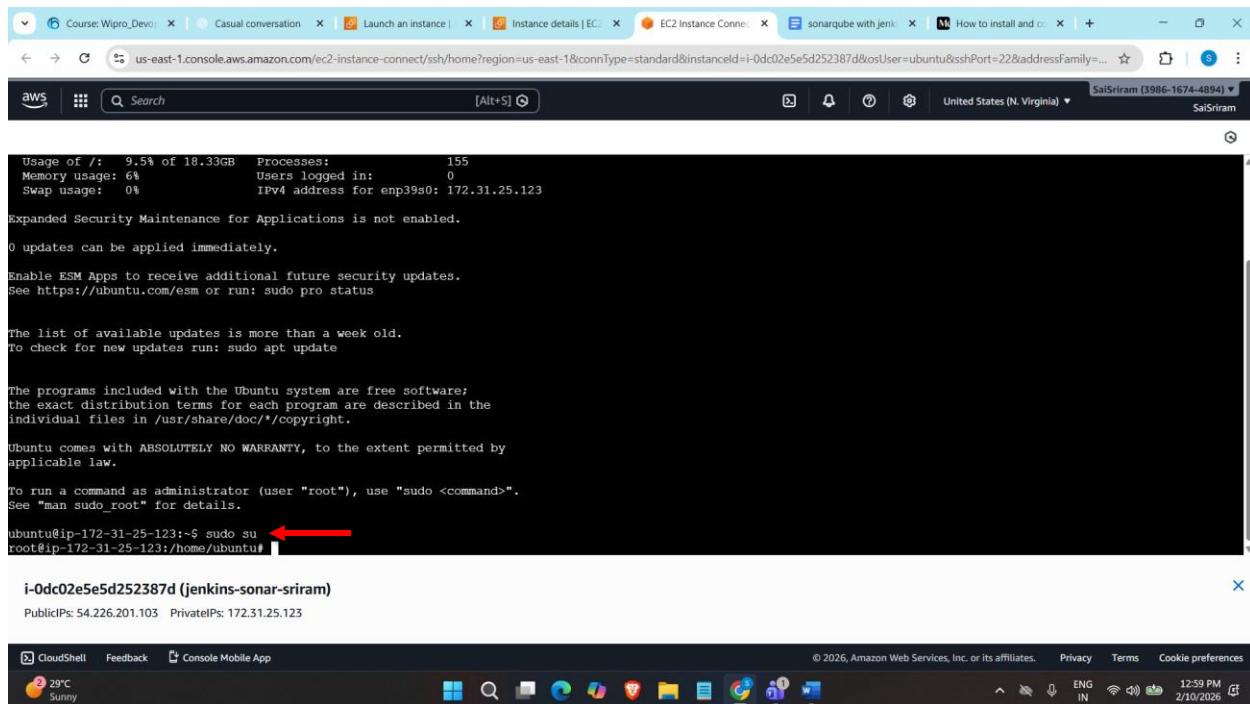
11. Connect using a Public IP and start connecting

The screenshot shows the 'Connect to instance' dialog box. At the top, there are tabs for EC2 Instance Connect, SSM Session Manager, SSH client, and EC2 serial console. The EC2 Instance Connect tab is selected. The 'Instance ID' field shows i-0dc02e5e5d252387d (jenkins-sonar-sriram). The 'Connection type' section has two options: 'Connect using a Public IP' (selected) and 'Connect using a Private IP'. Below that, there are two radio buttons: 'Public IPv4 address' (selected, showing 54.226.201.103) and 'IPv6 address' (unchecked). The 'Username' field contains 'ubuntu'. A note at the bottom states: 'Note: In most cases, the default username, ubuntu, is correct. However, read your AMI usage instructions to check if the AMI owner has changed the default AMI username.' At the bottom right, there are 'Cancel' and 'Connect' buttons, with the 'Connect' button circled in red.

Let's start installing SonarQube and configure things.

12. Let's rejuvenate our Ubuntu

server Use Command: sudo su



```
Usage of /: 9.5% of 18.33GB Processes: 155
Memory usage: 6% Users logged in: 0
Swap usage: 0% IPv4 address for emp39s0: 172.31.25.123

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

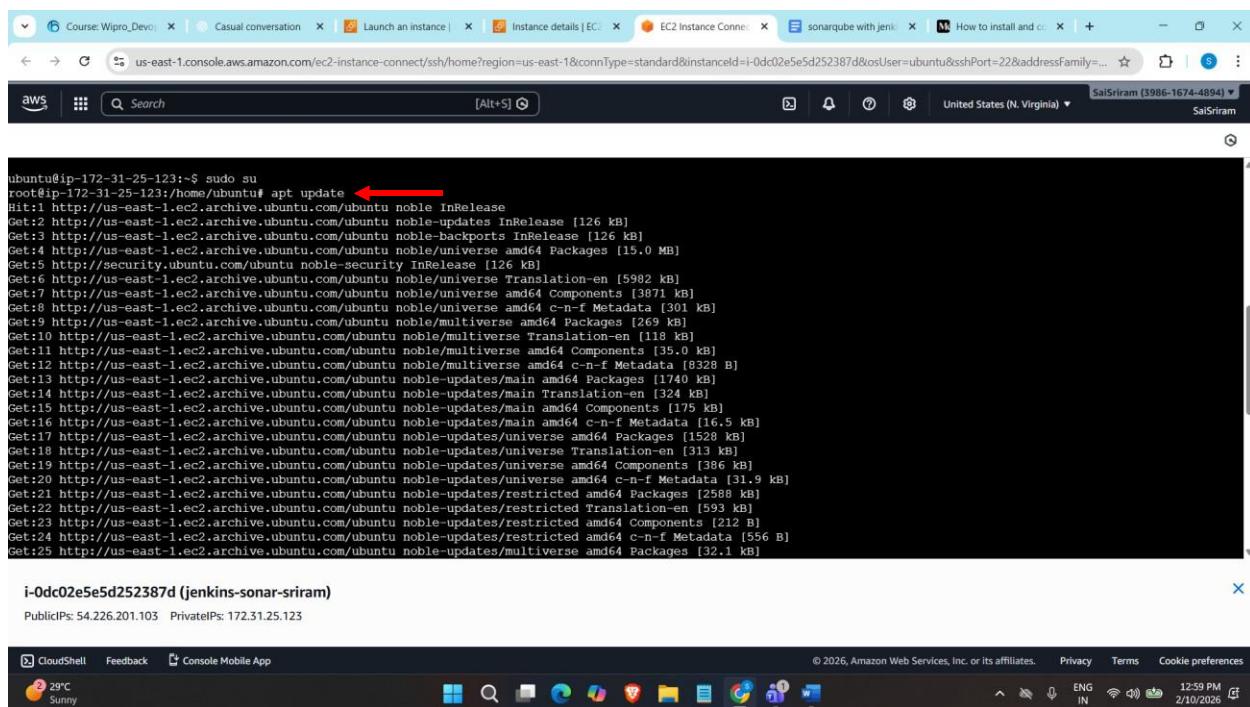
The programs included with the Ubuntu system are free software;
the exact distribution terms for each program are described in the
individual files in /usr/share/doc/*copyright.

Ubuntu comes with ABSOLUTELY NO WARRANTY, to the extent permitted by
applicable law.

To run a command as administrator (user "root"), use "sudo <command>".
See "man sudo_root" for details.

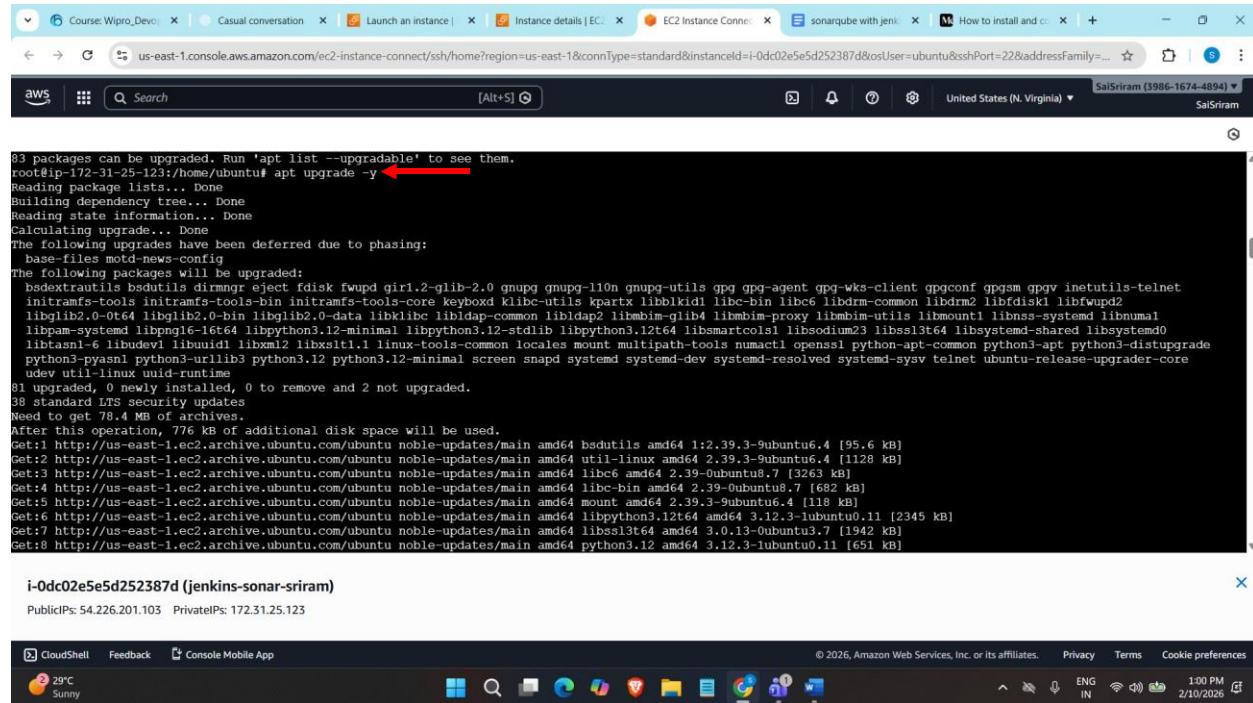
ubuntu@ip-172-31-25-123:~$ sudo su
root@ip-172-31-25-123:/home/ubuntu#
```

Use command: apt update or sudo apt update



```
ubuntu@ip-172-31-25-123:~$ sudo apt update
root@ip-172-31-25-123:/home/ubuntu# apt update
Hit:1 http://us-east-1.ec2.archive.ubuntu.com/ubuntu noble InRelease
Get:2 http://us-east-1.ec2.archive.ubuntu.com/ubuntu noble-updates InRelease [126 kB]
Get:3 http://us-east-1.ec2.archive.ubuntu.com/ubuntu noble-backports InRelease [126 kB]
Get:4 http://us-east-1.ec2.archive.ubuntu.com/ubuntu noble/universe amd64 Packages [15.0 MB]
Get:5 http://security.ubuntu.com/ubuntu noble-security InRelease [126 kB]
Get:6 http://us-east-1.ec2.archive.ubuntu.com/ubuntu noble/universe Translation-en [5982 kB]
Get:7 http://us-east-1.ec2.archive.ubuntu.com/ubuntu noble/universe amd64 Components [3871 kB]
Get:8 http://us-east-1.ec2.archive.ubuntu.com/ubuntu noble/universe amd64 c-n-f Metadata [301 kB]
Get:9 http://us-east-1.ec2.archive.ubuntu.com/ubuntu noble/multiverse amd64 Packages [269 kB]
Get:10 http://us-east-1.ec2.archive.ubuntu.com/ubuntu noble/multiverse Translation-en [118 kB]
Get:11 http://us-east-1.ec2.archive.ubuntu.com/ubuntu noble/multiverse amd64 Components [35.0 kB]
Get:12 http://us-east-1.ec2.archive.ubuntu.com/ubuntu noble/multiverse amd64 c-n-f Metadata [8328 B]
Get:13 http://us-east-1.ec2.archive.ubuntu.com/ubuntu noble-updates/main amd64 Packages [1740 kB]
Get:14 http://us-east-1.ec2.archive.ubuntu.com/ubuntu noble-updates/main Translation-en [324 kB]
Get:15 http://us-east-1.ec2.archive.ubuntu.com/ubuntu noble-updates/main amd64 Components [175 kB]
Get:16 http://us-east-1.ec2.archive.ubuntu.com/ubuntu noble-updates/main amd64 c-n-f Metadata [16.5 kB]
Get:17 http://us-east-1.ec2.archive.ubuntu.com/ubuntu noble-updates/universe amd64 Packages [1528 kB]
Get:18 http://us-east-1.ec2.archive.ubuntu.com/ubuntu noble-updates/universe Translation-en [313 kB]
Get:19 http://us-east-1.ec2.archive.ubuntu.com/ubuntu noble-updates/universe amd64 Components [386 kB]
Get:20 http://us-east-1.ec2.archive.ubuntu.com/ubuntu noble-updates/universe amd64 c-n-f Metadata [31.9 kB]
Get:21 http://us-east-1.ec2.archive.ubuntu.com/ubuntu noble-updates/restricted amd64 Packages [2588 kB]
Get:22 http://us-east-1.ec2.archive.ubuntu.com/ubuntu noble-updates/restricted Translation-en [593 kB]
Get:23 http://us-east-1.ec2.archive.ubuntu.com/ubuntu noble-updates/restricted amd64 Components [212 kB]
Get:24 http://us-east-1.ec2.archive.ubuntu.com/ubuntu noble-updates/restricted amd64 c-n-f Metadata [556 B]
Get:25 http://us-east-1.ec2.archive.ubuntu.com/ubuntu noble-updates/multiverse amd64 Packages [32.1 kB]
```

Use Command: apt upgrade -y

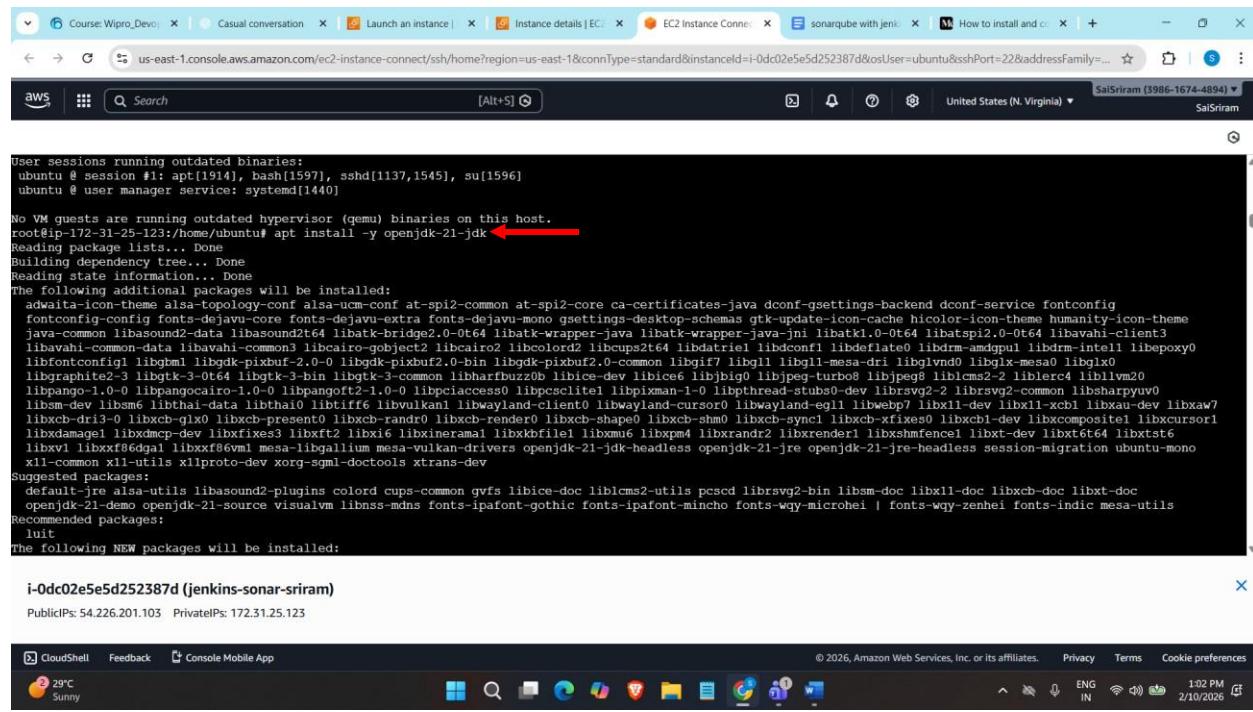


```
83 packages can be upgraded. Run 'apt list --upgradable' to see them.  
root@ip-172-31-25-123:/home/ubuntu# apt upgrade -y  
Reading package lists... Done  
Building dependency tree... Done  
Reading state information... Done  
Calculating upgrade... Done  
The following upgrades have been deferred due to phasing:  
  base-files mtd-news-config  
The following packages will be upgraded:  
  bsdextradefs bsduutils dirmngr ejcet fdisk fwupd gir1.2-glib-2.0 gnugp gnugp-110n gnugp-utils gpg gpg-agent gpg-wks-client gpgconf gpgsm gpgv inetutils-telnet  
  initramfs-tools initramfs-tools-bin initramfs-tools-core keyboxd kpartx libblkid1 libc-bin libdrm libdrm-common libdrm2 libfdisk1 libfwupd2  
  libglib2.0-0 libglib2.0-bin libglib2.0-common libglapd libglapd2 libgbm libgbm-proxy libmount1 libnss-systemd libnuma  
  libpam-systemd libpng16-16 libpython3.12-minimal libpython3.12-stdlib libpython3.12t64 libsmartcols libodium23 libssl3t64 libsystemd-shared libsystemd0  
  libtasn1-6 libudev libubuid1 libxml2 libxslt1.1 linux-tools-common locales mount multipath-tools numactl openssl python-apt-common python3-apt python3-distupgrade  
  python3-pyasn1 python3-urllib3 python3.12 python3.12-minimal screen snapd systemd dev systemd-resolved systemd-sysv telnet ubuntu-release-upgrader-core  
  udev util-linux uid-runtime  
81 upgraded, 0 newly installed, 0 to remove and 2 not upgraded.  
38 standard LTS security updates  
Need to get 78.4 MB of archives.  
After this operation, 778 kB of additional disk space will be used.  
Get:1 http://us-east-1.ec2.archive.ubuntu.com/ubuntu noble-updates/main amd64 bsduutils amd64 1:2.39.3-9ubuntu6.4 [95.6 kB]  
Get:2 http://us-east-1.ec2.archive.ubuntu.com/ubuntu noble-updates/main amd64 util-linux amd64 2.39.3-9ubuntu6.4 [1128 kB]  
Get:3 http://us-east-1.ec2.archive.ubuntu.com/ubuntu noble-updates/main amd64 libc6 amd64 2.39-9ubuntu8.7 [3263 kB]  
Get:4 http://us-east-1.ec2.archive.ubuntu.com/ubuntu noble-updates/main amd64 libc-bin amd64 2.39-9ubuntu8.7 [682 kB]  
Get:5 http://us-east-1.ec2.archive.ubuntu.com/ubuntu noble-updates/main amd64 mount amd64 3.29.3-9ubuntu6.4 [118 kB]  
Get:6 http://us-east-1.ec2.archive.ubuntu.com/ubuntu noble-updates/main amd64 libpython3.12t64 amd64 3.12.3-1ubuntu0.11 [2345 kB]  
Get:7 http://us-east-1.ec2.archive.ubuntu.com/ubuntu noble-updates/main amd64 libssl3t64 amd64 3.0.13-9ubuntu3.7 [1942 kB]  
Get:8 http://us-east-1.ec2.archive.ubuntu.com/ubuntu noble-updates/main amd64 python3.12 amd64 3.12.3-1ubuntu0.11 [651 kB]  
  
i-0dc02e5e5d252387d (jenkins-sonar-sriram)  
Public IPs: 54.226.201.103 Private IPs: 172.31.25.123
```

1. Install Java development kit

1. Install the latest OpenJDK 21

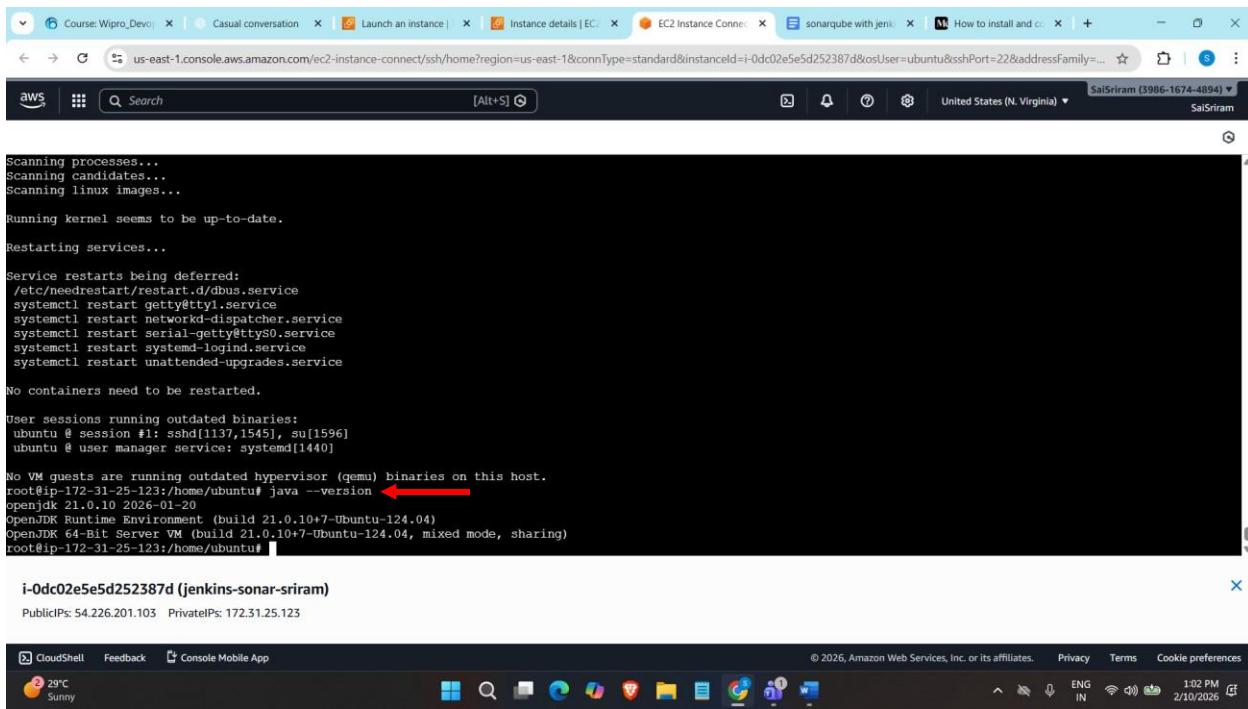
Use Command: apt install -y openjdk-21-jdk



```
User sessions running outdated binaries:  
ubuntu @ session #1: apt[1914], bash[1597], sshd[1137,1545], su[1596]  
ubuntu @ user manager service: systemd[1440]  
  
No VM guests are running outdated hypervisor (qemu) binaries on this host.  
root@ip-172-31-25-123:/home/ubuntu# apt install -y openjdk-21-jdk  
Reading package lists... Done  
Building dependency tree... Done  
Reading state information... Done  
The following additional packages will be installed:  
  adwaita-icon-theme alsacore-topology-conf alsavcm-conf at-spi2-common at-spi2-core ca-certificates-java dconf-gsettings-backend dconf-service fontconfig  
  fontconfig-config fonts-dejavu-common fonts-dejavu-extra fonts-dejavu-mono gsettings-desktop-schemas gtk-update-icon-cache hicolor-icon-theme humanity-icon-theme  
  java-common libalsacore2 libaudio2 libatk-bridge2.0-0 libatk-wrapper2 libatk-wrapper2-jni libatk1.0-0 libatspi2.0-0 libavahi-client3  
  libavahi-common-data libavahi-common3 libcairo-gobject2 libcairo2 libcolor2 libcurl2 libcupsc2 libdavfs2 libdeconf1 libdeflate0 libdrm-amdgpu libdrm-intel libepoxy0  
  libfontconfig1 libgl1 libglx1 libglx-pixbuf2.0-0 libglpk libgd-pixbuf2.0-bin libgdk-pixbuf2.0-common libglf7 libgl1 libgl1-mesa-dri libgl1-mesa libglx-mesa0 libglx0  
  libgraphite2-3 libgtk-3-0 libgtk-3-0 libgtk-3-common libharfbuzz0a libice-dev libice6 libjbig0 libjpeg-turbo8 libjpeg8 libjcms3-2 liblerc4 liblvm20  
  liblpmng0 liblpmngairo-1.0-0 liblpmngof2-1.0-0 liblpmngos0 libpcaplite libpixman-1-0 libpthread-stubs0-dev librsvg2-2 librsvg2-common libsharpuyuv0  
  libsm-dev libtomee libthai-data libthai-libtiff6 libvulkan libwayland-client0 libwayland-cursor0 libwayland-egl libwebp7 libx11-dev libx11-xcb1 libxau-dev libxaw7  
  libxcb-0 libxcb-glx0 libxcb-render libxcb-render libxcb-renderer libxcb-renderer libxcb-shape0 libxcb-sm0 libxcb-sync1 libxcb-xlibx86 libxcb1-dev libcomposite1 libcursor1  
  libxdamage1 libxdamage1-dev libxf86-fixes libxkb2 libxlibxkbfile1 libxmu6 libxpm4 libxrandr2 libxrender1 libxshmfence1 libxt-dev libxt6t64 libxtst6  
  libxv1 libxxf86dg1 libxxf86gv1 mesa-lib��ium mesa-lib��ium drivers openjdk-21-jdk-headless openjdk-21-jre openjdk-21-jre-headless session-migration ubuntu-mon0  
  x11-common x11-utils x11proto-dev xorg-sgml-doctools xtrans-dev  
Suggested packages:  
  default-jre alsavcm libaudio2-plugins colord cups-common gvfs libice-doc liblcm2-utils pcscd librsvg2-bin libsm-doc libx11-doc libxcb-doc libxdt-doc  
  openjdk-21-demo openjdk-21-source visualvm libnss-mdns fonts-ipafont-gothic fonts-ipafont-mincho fonts-wqy-microhei1 fonts-wqy-zenhei fonts-indic mesa-utils  
Recommended packages:  
  iuit  
The following NEW packages will be installed:  
  
i-0dc02e5e5d252387d (jenkins-sonar-sriram)  
Public IPs: 54.226.201.103 Private IPs: 172.31.25.123
```

2 . Let's check the installed version of Java. VALIDATION IS IMPORTANT. Use

Command: Java --version



```
Scanning processes...
Scanning candidates...
Scanning linux images...

Running kernel seems to be up-to-date.

Restarting services...

Service restarts being deferred:
/etc/needrestart/restart.d/dbus.service
systemctl restart getty@tty1.service
systemctl restart networkd-dispatcher.service
systemctl restart serial-getty@ttyS0.service
systemctl restart systemd-logind.service
systemctl restart unattended-upgrades.service

No containers need to be restarted.

User sessions running outdated binaries:
ubuntu @ session #1: sshd[1137,1545], su[1596]
ubuntu @ user manager service: systemd[1440]

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

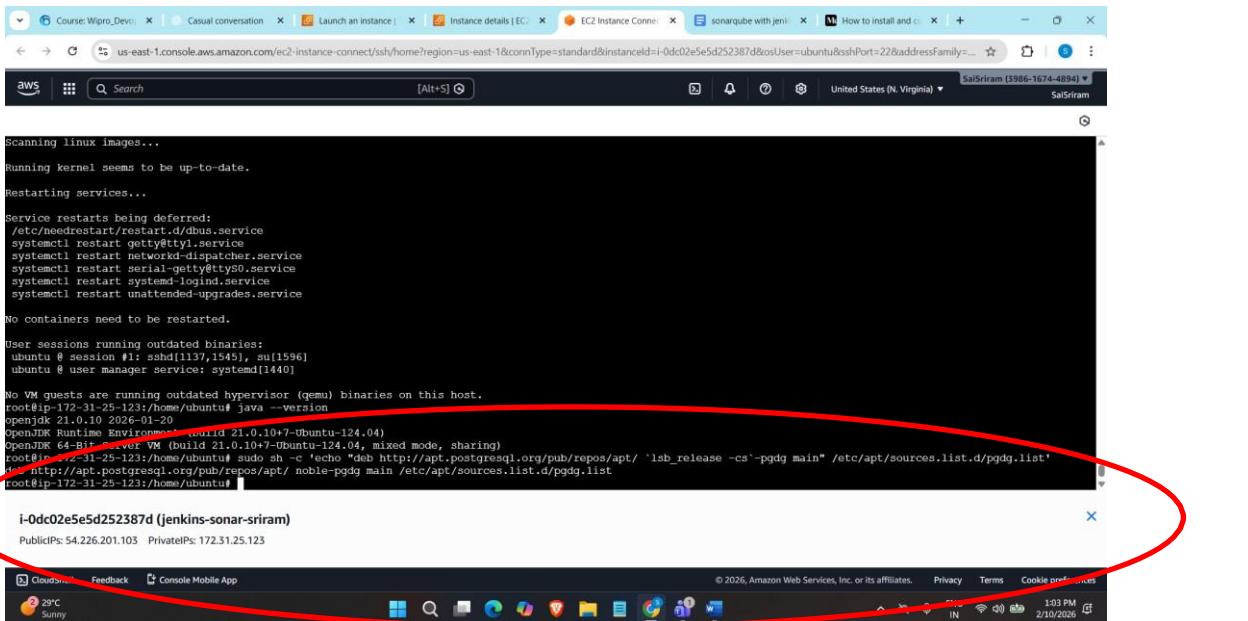
root@ip-172-31-25-123:/home/ubuntu# java --version
openjdk 21.0.10 2026-01-20
OpenJDK Runtime Environment (build 21.0.10+7-Ubuntu-124.04)
OpenJDK 64-Bit Server VM (build 21.0.10+7-Ubuntu-124.04, mixed mode, sharing)
root@ip-172-31-25-123:/home/ubuntu#
```

i-0dc02e5e5d252387d (jenkins-sonar-sriram)
PublicIPs: 54.226.201.103 PrivateIPs: 172.31.25.123

1. Install and Configure PostgreSQL

1.Add the PostgreSQL repository.

Use Command: sudo sh -c 'echo "deb http://apt.postgresql.org/pub/repos/apt/`lsb_release -cs`-pgdg main" /etc/apt/sources.list.d/pgdg.list'



```
Scanning linux images...
Running kernel seems to be up-to-date.

Restarting services...

Service restarts being deferred:
/etc/needrestart/restart.d/dbus.service
systemctl restart getty@tty1.service
systemctl restart networkd-dispatcher.service
systemctl restart serial-getty@ttyS0.service
systemctl restart systemd-logind.service
systemctl restart unattended-upgrades.service

No containers need to be restarted.

User sessions running outdated binaries:
ubuntu @ session #1: sshd[1137,1545], su[1596]
ubuntu @ user manager service: systemd[1440]

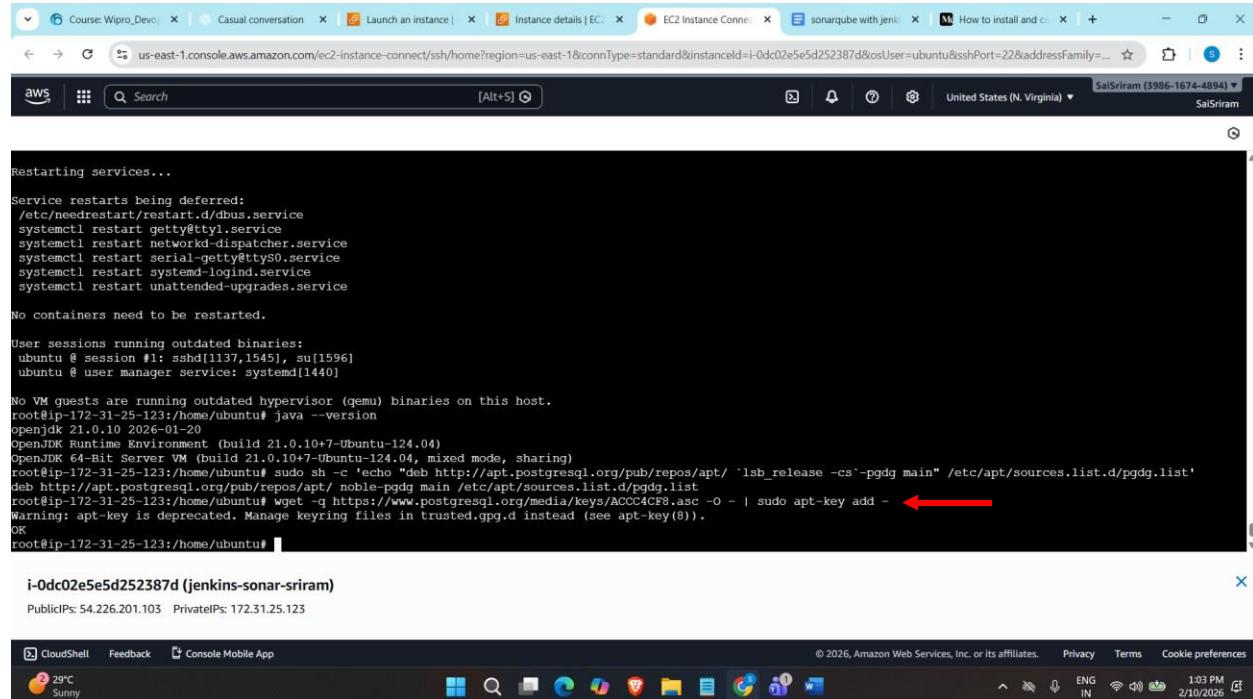
No VM guests are running outdated hypervisor (qemu) binaries on this host.

root@ip-172-31-25-123:/home/ubuntu# java --version
openjdk 21.0.10 2026-01-20
OpenJDK Runtime Environment (build 21.0.10+7-Ubuntu-124.04)
OpenJDK 64-Bit Server VM (build 21.0.10+7-Ubuntu-124.04, mixed mode, sharing)
root@ip-172-31-25-123:/home/ubuntu# sudo sh -c 'echo "deb http://apt.postgresql.org/pub/repos/apt/`lsb_release -cs`-pgdg main" /etc/apt/sources.list.d/pgdg.list'
root@ip-172-31-25-123:/home/ubuntu#
```

i-0dc02e5e5d252387d (jenkins-sonar-sriram)
PublicIPs: 54.226.201.103 PrivateIPs: 172.31.25.123

2. Add the PostgreSQL signing key.

Use Command: wget -q https://www.postgresql.org/media/keys/ACCC4CF8.asc
-O - | sudo apt-key add -



```
aws Course:Wipro_Dev... Casual conversation Launch an instance Instance details | EC2 sonarqube with jen... How to install and... Search [Alt+S] United States (N. Virginia) SalSriram (3986-1674-4894) SalSriram

Restarting services...
Service restarts being deferred:
/etc/needrestart/restart.d/dbus.service
systemctl restart getty@tty1.service
systemctl restart networkd-dispatcher.service
systemctl restart serial-getty@ttyS0.service
systemctl restart systemd-logind.service
systemctl restart unattended-upgrades.service

No containers need to be restarted.

User sessions running outdated binaries:
ubuntu @ session #1: sshd[1137,1545], su[1596]
ubuntu @ user manager service: systemd[1440]

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

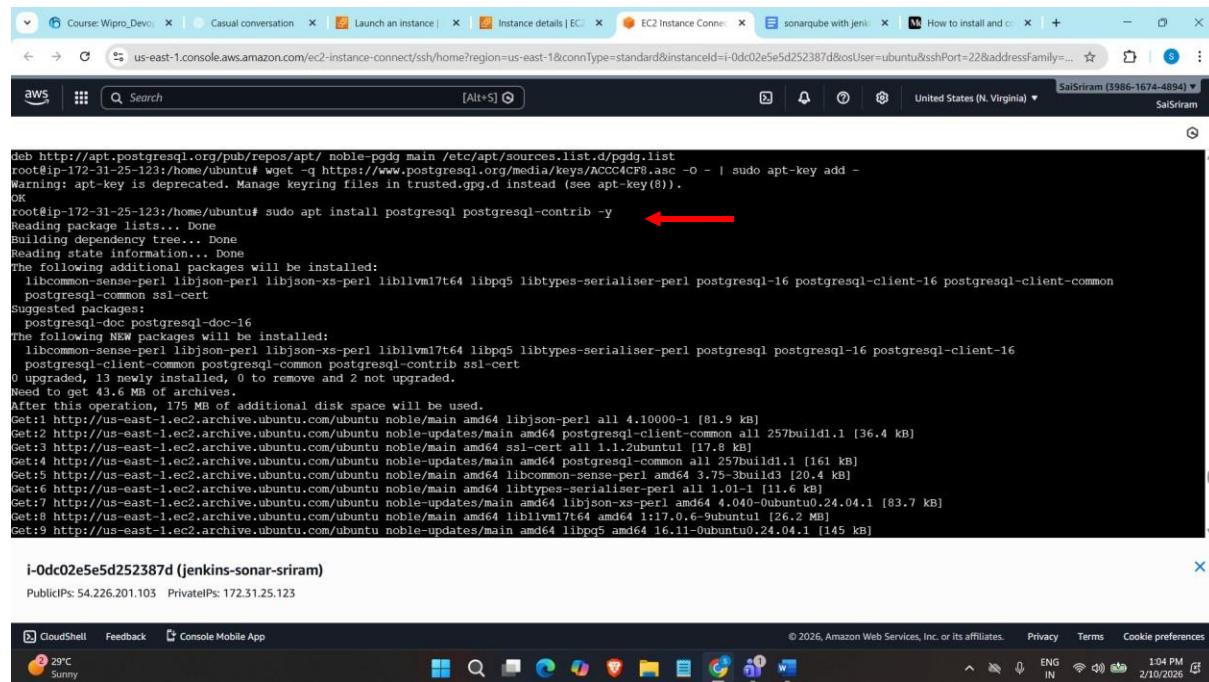
root@ip-172-31-25-123:/home/ubuntu# java --version
openjdk 21.0.10 2026-01-20
OpenJDK Runtime Environment (build 21.0.10+7-Ubuntu-124.04)
OpenJDK 64-Bit Server VM (build 21.0.10+7-Ubuntu-124.04, mixed mode, sharing)
root@ip-172-31-25-123:/home/ubuntu# sudo sh -c 'echo "deb http://apt.postgresql.org/pub/repos/apt/ `lsb_release -cs`-pgdg main" /etc/apt/sources.list.d/pgdg.list'
deb http://apt.postgresql.org/pub/repos/apt/ noble-pgdg main /etc/apt/sources.list.d/pgdg.list
root@ip-172-31-25-123:/home/ubuntu# wget -q https://www.postgresql.org/media/keys/ACCC4CF8.asc -O - | sudo apt-key add - ←
Warning: apt-key is deprecated. Manage keyring files in trusted.gpg.d instead (see apt-key(8)).
OK
root@ip-172-31-25-123:/home/ubuntu#
```

i-0dc02e5e5d252387d (jenkins-sonar-sriram)

Public IPs: 54.226.201.103 Private IPs: 172.31.25.123

3. Install PostgreSQL.

Use Command: sudo apt install postgresql postgresql-contrib -y



```
aws Course:Wipro_Dev... Casual conversation Launch an instance Instance details | EC2 sonarqube with jen... How to install and... Search [Alt+S] United States (N. Virginia) SalSriram (3986-1674-4894) SalSriram

deb http://apt.postgresql.org/pub/repos/apt/ noble-pgdg main /etc/apt/sources.list.d/pgdg.list
root@ip-172-31-25-123:/home/ubuntu# wget -q https://www.postgresql.org/media/keys/ACCC4CF8.asc -O - | sudo apt-key add - ←
Warning: apt-key is deprecated. Manage keyring files in trusted.gpg.d instead (see apt-key(8)).
OK
root@ip-172-31-25-123:/home/ubuntu# sudo apt install postgresql postgresql-contrib -y ←
Reading package lists... Done
Building dependency tree... Done
Reading state information... Done
The following additional packages will be installed:
  libcommon-sense-perl libjson-perl libjson-xs-perl libl10n17t64 libpq5 libtypes-serialiser-perl postgresql-16 postgresql-client-16 postgresql-client-common
  postgresql-common ssl-cert
Suggested packages:
  postgresql-doc postgresql-doc-16
The following NEW packages will be installed:
  libcommon-sense-perl libjson-perl libjson-xs-perl libl10n17t64 libpq5 libtypes-serialiser-perl postgresql postgresql-16 postgresql-client-16
  postgresql-client-common postgresql-common postgresql-contrib ssl-cert
0 upgraded, 13 newly installed, 0 to remove and 2 not upgraded.
Need to get 43.6 MB of archives.
After this operation, 179 MB of additional disk space will be used.
Get:1 http://us-east-1.ec2.archive.ubuntu.com/ubuntu noble/main amd64 libjson-perl all 4.10000-1 [81.9 kB]
Get:2 http://us-east-1.ec2.archive.ubuntu.com/ubuntu noble-updates/main amd64 postgresql-client-common all 257build1.1 [36.4 kB]
Get:3 http://us-east-1.ec2.archive.ubuntu.com/ubuntu noble/main amd64 ssl-cert all 1.1.2ubuntu1 [17.8 kB]
Get:4 http://us-east-1.ec2.archive.ubuntu.com/ubuntu noble/main amd64 postgresql-common all 2.057build1.1 [161 kB]
Get:5 http://us-east-1.ec2.archive.ubuntu.com/ubuntu noble/main amd64 libcommon-sense-perl amd64 3.75-3build3 [20.4 kB]
Get:6 http://us-east-1.ec2.archive.ubuntu.com/ubuntu noble/main amd64 libtypes-serialiser-perl all 1.01-1 [11.6 kB]
Get:7 http://us-east-1.ec2.archive.ubuntu.com/ubuntu noble-updates/main amd64 libjson-xs-perl amd64 4.040-0ubuntu0.24.04.1 [83.7 kB]
Get:8 http://us-east-1.ec2.archive.ubuntu.com/ubuntu noble/main amd64 libl10n17t64 amd64 1:17.0.6-9ubuntu1 [26.2 kB]
Get:9 http://us-east-1.ec2.archive.ubuntu.com/ubuntu noble-updates/main amd64 libpq5 amd64 16.11-0ubuntu0.24.04.1 [145 kB]

i-0dc02e5e5d252387d (jenkins-sonar-sriram)
Public IPs: 54.226.201.103 Private IPs: 172.31.25.123
```

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4. Enable the database server to start automatically on reboot, start the database, check status.

To enable use Command: sudo systemctl enable postgresql

To start use Command: sudo systemctl start postgresql

To check status: sudo systemctl status postgresql

```
/etc/needrestart/restart.d/dbus.service
systemctl restart getty@tty1.service
systemctl restart networkd-dispatcher.service
systemctl restart serial-getty@tts0.service
systemctl restart systemd-logind.service
systemctl restart unattended-upgrades.service

No containers need to be restarted.

User sessions running outdated binaries:
ubuntu # session #1: sshd[1137,1545], su[1596]
ubuntu # user manager service: systemd[1440]

No VM guests are running outdated hypervisor (qemu) binaries on this host.
root@ip-172-31-25-123:/home/ubuntu# systemctl enable postgresql
Synchronizing state of postgresql.service with sysv service script with /usr/lib/systemd/systemd-sysv-install.
Executing: /usr/lib/systemd/systemd-sysv-install enable postgresql
root@ip-172-31-25-123:/home/ubuntu# systemctl start postgresql
root@ip-172-31-25-123:/home/ubuntu# systemctl status postgresql
● postgresql.service - PostgreSQL RDBMS
   Loaded: loaded (/usr/lib/systemd/system/postgresql.service; enabled; preset: enabled)
   Active: active (exited) since Tue 2026-02-10 07:34:21 UTC; 1min 34s ago
     Main PID: 12912 (code-exited, status=0/SUCCESS)
       CPU: 962us

Feb 10 07:34:21 ip-172-31-25-123 systemd[1]: Starting postgresql.service - PostgreSQL RDBMS...
Feb 10 07:34:21 ip-172-31-25-123 systemd[1]: Finished postgresql.service - PostgreSQL RDBMS.
root@ip-172-31-25-123:/home/ubuntu# [REDACTED]
```

i-0dc02e5e5d252387d (jenkins-sonar-sriram)

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5. Let's check the installed version of the install Postgres DB. VALIDATION IS IMPORTANT. Use

Command: psql --version

```
CPU: 962us

Feb 10 07:34:21 ip-172-31-25-123 systemd[1]: Starting postgresql.service - PostgreSQL RDBMS...
Feb 10 07:34:21 ip-172-31-25-123 systemd[1]: Finished postgresql.service - PostgreSQL RDBMS.
root@ip-172-31-25-123:/home/ubuntu# psql --version
psql (PostgreSQL) 16.11 (Ubuntu 16.11-0ubuntu0.24.04.1)
root@ip-172-31-25-123:/home/ubuntu# [REDACTED]
```

i-0dc02e5e5d252387d (jenkins-sonar-sriram)

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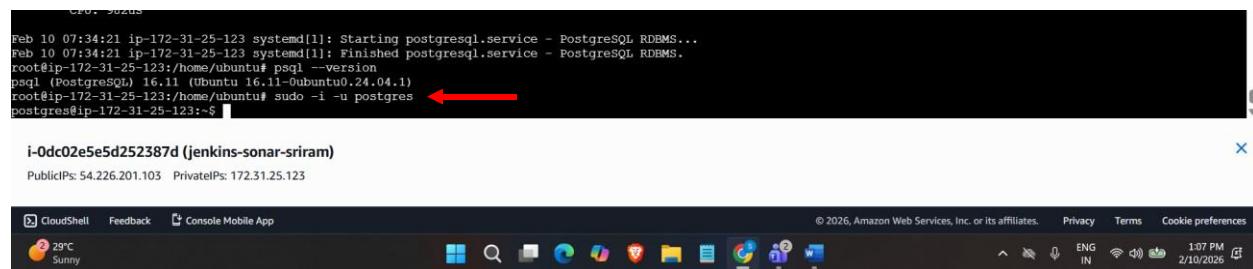
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6. Switch to the Postgres user.

To Switch use Command: `sudo -i -u postgres`



```
Feb 10 07:34:21 ip-172-31-25-123 systemd[1]: Starting postgresql.service - PostgreSQL RDBMS...
Feb 10 07:34:21 ip-172-31-25-123 systemd[1]: Finished postgresql.service - PostgreSQL RDBMS.
root@ip-172-31-25-123:/home/ubuntu# psql --version
psql (PostgreSQL) 16.11 (Ubuntu 16.11-0ubuntu0.24.04.1)
root@ip-172-31-25-123:/home/ubuntu# sudo -i -u postgres
postgres@ip-172-31-25-123:~$ [REDACTED]
```

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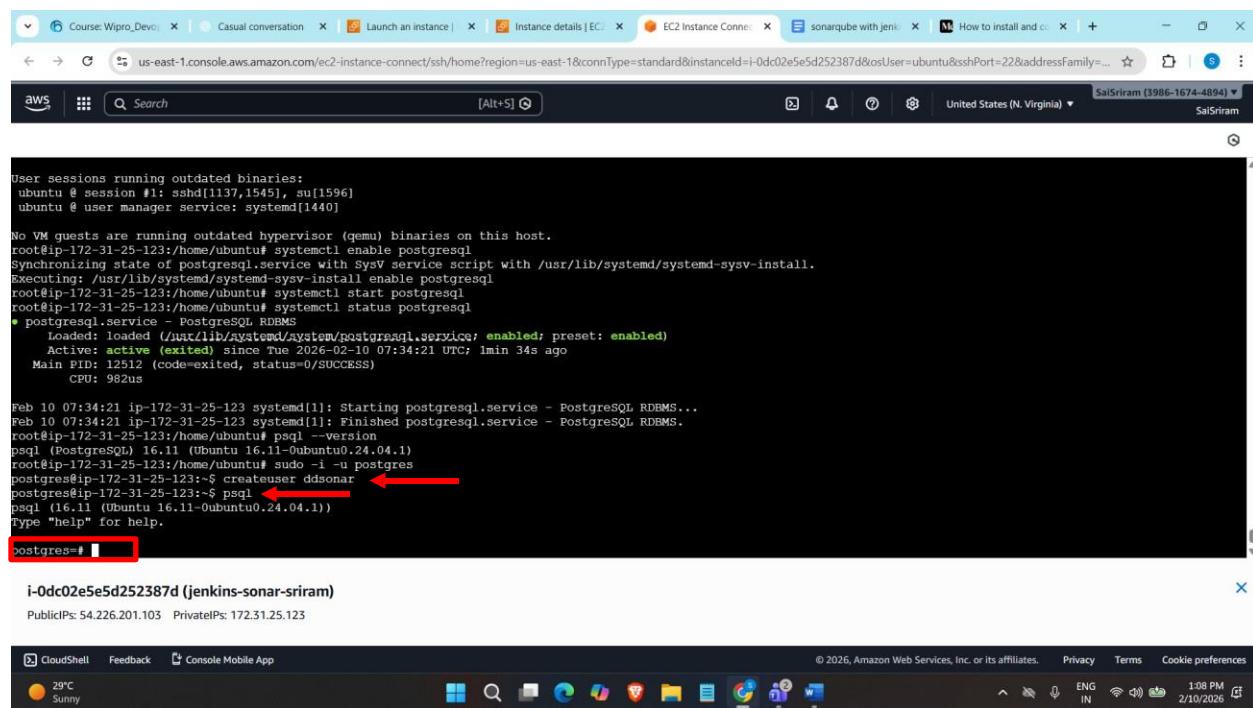
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7. Create a database user named ddsonar and login to postgresSQL

Note: You can provide the name of your own but make a note of it, as we will be needing this name in further steps.

To Create database user use Command: `createuser ddsonar`

To login to PostgreSQL use Command: `psql`



```
User sessions running outdated binaries:
ubuntu # session #1: sshd[1137,1545], su[1596]
ubuntu # user manager service: systemd[1440]

No VM guests are running outdated hypervisor (qemu) binaries on this host.
root@ip-172-31-25-123:/home/ubuntu# systemctl enable postgresql
Synchronizing state of postgresql.service with SysV service script with /usr/lib/systemd/systemd-sysv-install.
Executing: /usr/lib/systemd/systemd-sysv-install enable postgresql
root@ip-172-31-25-123:/home/ubuntu# systemctl start postgresql
root@ip-172-31-25-123:/home/ubuntu# systemctl status postgresql
● postgresql.service - PostgreSQL RDBMS
    Loaded: loaded (/usr/lib/systemd/system/postgresql.service; enabled; preset: enabled)
      Active: active (exited) since Tue 2026-02-10 07:34:21 UTC; 1min 34s ago
        Main PID: 12512 (code=exited, status=0/SUCCESS)
       CPU: 962us

Feb 10 07:34:21 ip-172-31-25-123 systemd[1]: Starting postgresql.service - PostgreSQL RDBMS...
Feb 10 07:34:21 ip-172-31-25-123 systemd[1]: Finished postgresql.service - PostgreSQL RDBMS.
root@ip-172-31-25-123:/home/ubuntu# psql --version
psql (PostgreSQL) 16.11 (Ubuntu 16.11-0ubuntu0.24.04.1)
root@ip-172-31-25-123:/home/ubuntu# sudo -i -u postgres
postgres@ip-172-31-25-123:~$ psql
psql (16.11 (Ubuntu 16.11-0ubuntu0.24.04.1))
Type "help" for help.

postgres# [REDACTED]
```

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8. Set a password for the ddsonar user, Create a SonarQube database and set the owner to ddsonar, Grant all the privileges on the ddsonarqube database to the ddsonar user.

1. To set password:

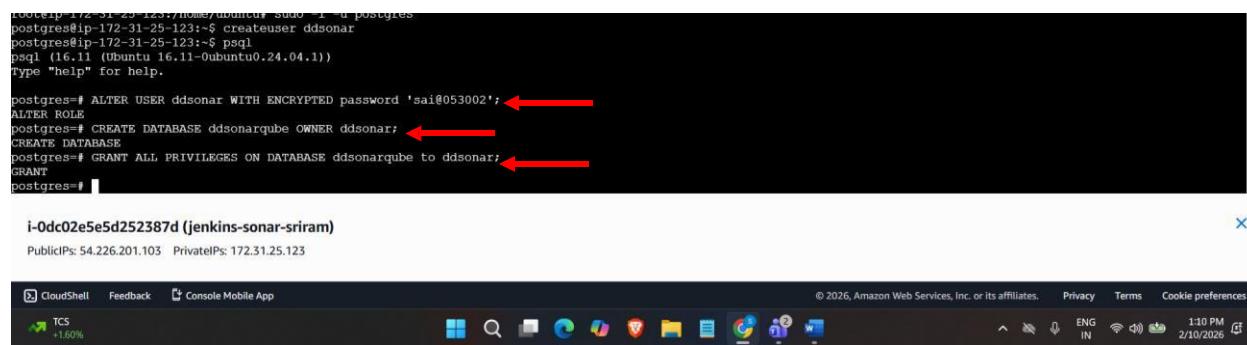
```
ALTER USER ddsonar WITH ENCRYPTED password 'sai@123456';
```

2. To create database:

```
CREATE DATABASE ddsonarqube OWNER ddsonar;
```

3. To grant all privileges:

```
GRANT ALL PRIVILEGES ON DATABASE ddsonarqube to ddsonar;
```



```
root@ip-172-31-25-123:/home/ubuntu# sudo -i -u postgres
postgres@ip-172-31-25-123:~$ createdbuser ddsonar
postgres@ip-172-31-25-123:~$ psql
psql (16.11 (Ubuntu 16.11-0ubuntu0.24.04.1))
Type "help" for help.

postgres=# ALTER USER ddsonar WITH ENCRYPTED password 'sai@053002'; ←
ALTER ROLE
postgres=# CREATE DATABASE ddsonarqube OWNER ddsonar; ←
CREATE DATABASE
postgres=# GRANT ALL PRIVILEGES ON DATABASE ddsonarqube to ddsonar; ←
GRANT
postgres#
```

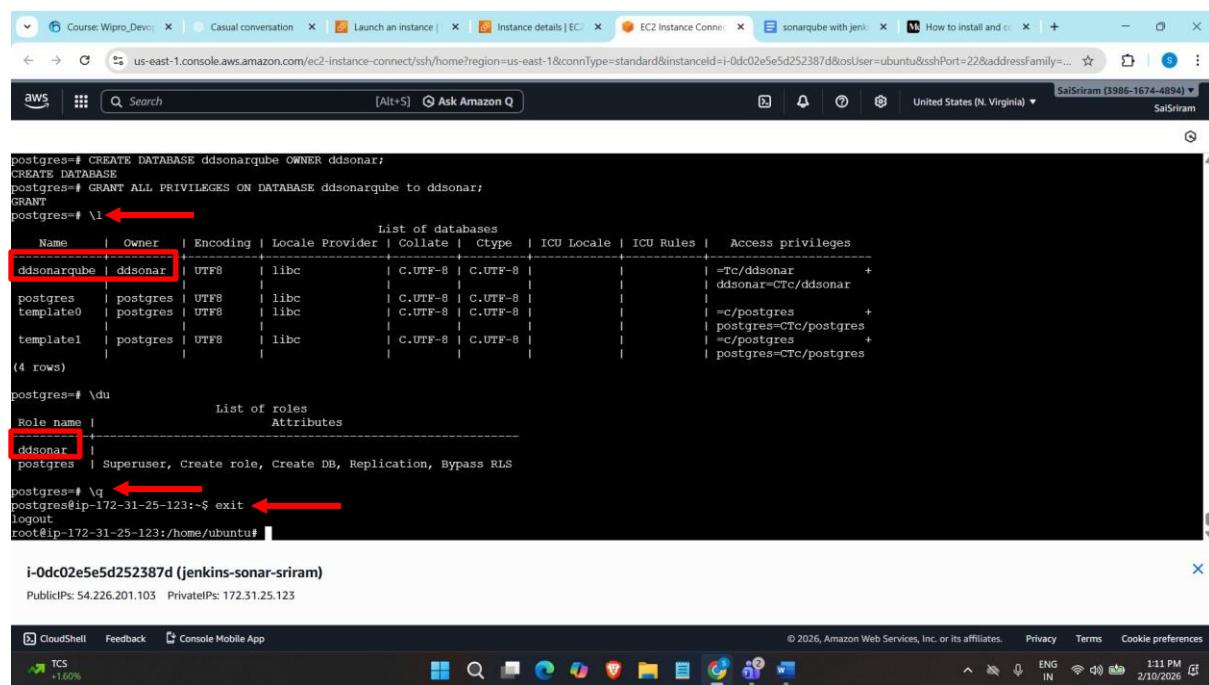
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9. Let's check the created user and the database.

1. To check created database use command: \l, to check the created database user: \du,

to exit postgresql: q, to return non root sudo user: exit



```
Course: Wipro_DevOps | Casual conversation | Launch an instance | Instance details | EC2 Instance Connect | sonarqube with jenkins | How to install and configure | ... | SaiSriram [3986-1674-4894] | SaiSriram

aws | Search [Alt+S] Ask Amazon Q | United States (N. Virginia) | SaiSriram

postgres=# CREATE DATABASE ddsonarqube OWNER ddsonar;
CREATE DATABASE
postgres=# GRANT ALL PRIVILEGES ON DATABASE ddsonarqube to ddsonar;
GRANT
postgres# \l
List of databases
Name | Owner | Encoding | Locale Provider | Collate | Ctype | ICU Locale | ICU Rules | Access privileges
ddsonarqube | ddsonar | UTF8 | libc | C.UTF-8 | C.UTF-8 | | | +TC/ddsonar +  
ddsonar=CTC/ddsonar
postgres | postgres | UTF8 | libc | C.UTF-8 | C.UTF-8 | | | +C/postgres +
tempdate0 | postgres | UTF8 | libc | C.UTF-8 | C.UTF-8 | | | +C/postgres +
tempdate1 | postgres | UTF8 | libc | C.UTF-8 | C.UTF-8 | | | +C/postgres +
(4 rows)

postgres# \du
List of roles
Role name | Attributes
ddsonar | Superuser, Create role, Create DB, Replication, Bypass RLS
postgres | Superuser, Create role, Create DB, Replication, Bypass RLS
postgres# \q
postgres@ip-172-31-25-123:~$ exit
logout
root@ip-172-31-25-123:/home/ubuntu#
```

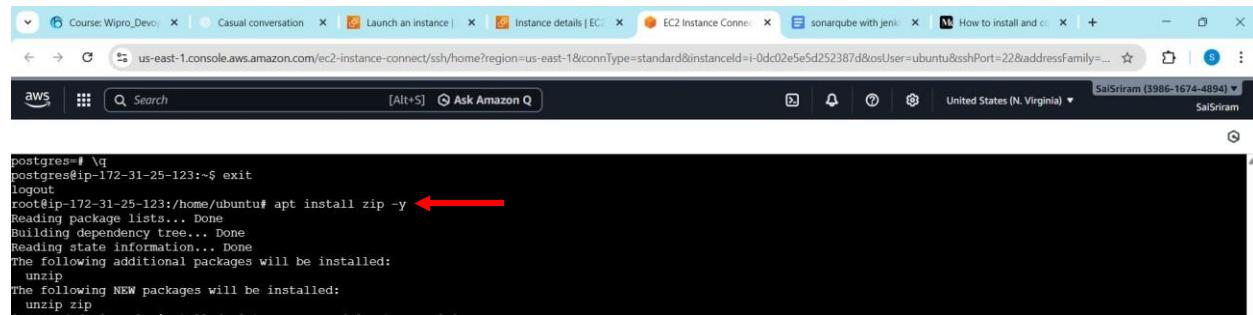
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2. Download and Install SonarQube

1. Install the zip utility, which is needed to unzip the SonarQube files.

Use command: `apt install zip -y`



```
postgres=# \q
postgres@ip-172-31-25-123:~$ exit
logout
root@ip-172-31-25-123:/home/ubuntu# apt install zip -y ←
Reading package lists... Done
Building dependency tree... Done
Reading state information... Done
The following additional packages will be installed:
  unzip
The following NEW packages will be installed:
  unzip zip
0 upgraded, 2 newly installed, 0 to remove and 0 not upgraded.
```

2. Locate the latest download URL from the SonarQube official download page.

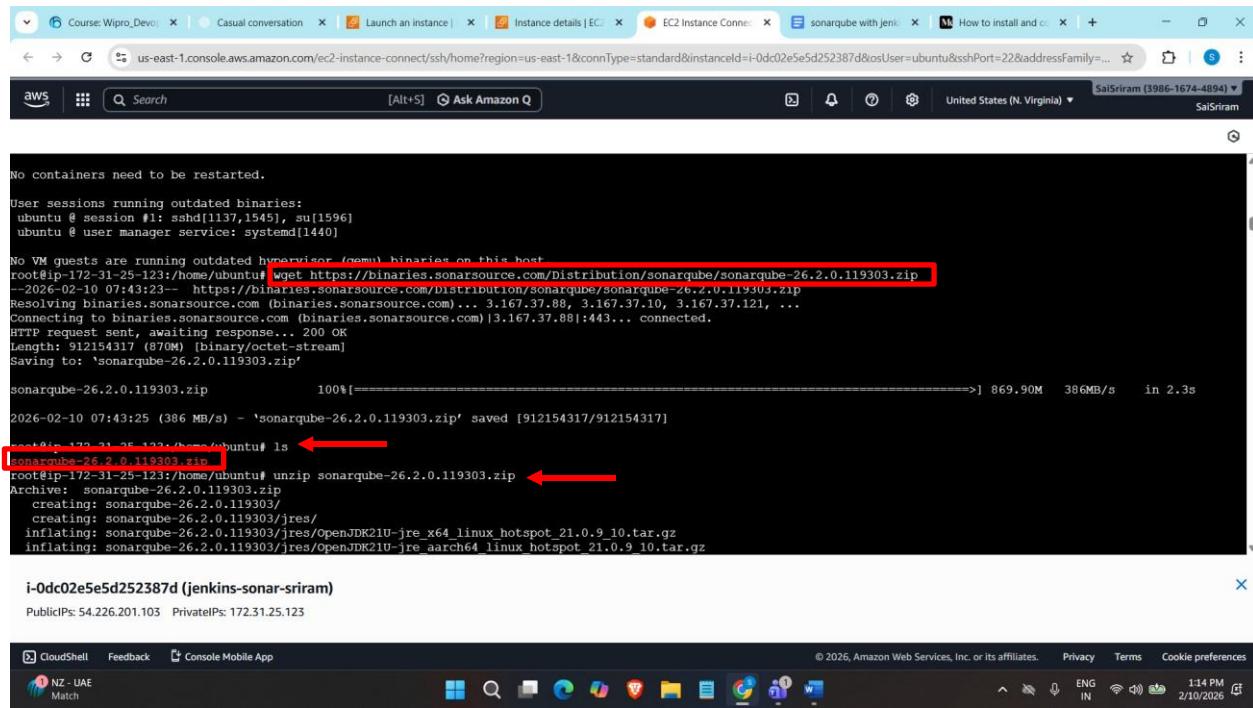
URL: <https://binaries.sonarsource.com/Distribution/sonarqube/sonarqube-26.2.0.119303.zip>

Use command:

```
wget https://binaries.sonarsource.com/Distribution/sonarqube/sonarqube-26.2.0.119303.zip
```

to List use command: `ls`

to unzip use command: `unzip sonarqube-26.2.0.11903`



```
No containers need to be restarted.

User sessions running outdated binaries:
  ubuntu # session #1: sshd[1137,1545], su[1596]
  ubuntu # user manager service: systemd[1440]

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

root@ip-172-31-25-123:/home/ubuntu# wget https://binaries.sonarsource.com/Distribution/sonarqube/sonarqube-26.2.0.119303.zip
--2026-02-10 07:43:23-- https://binaries.sonarsource.com/Distribution/sonarqube/sonarqube-26.2.0.119303.zip
Resolving binaries.sonarsource.com (binaries.sonarsource.com)... 3.167.37.88, 3.167.37.10, 3.167.37.121, ...
Connecting to binaries.sonarsource.com (binaries.sonarsource.com)|3.167.37.88|:443... connected.
HTTP request sent, awaiting response... 200 OK
Length: 912154317 (870M) [binary/octet-stream]
Saving to: 'sonarqube-26.2.0.0.119303.zip'

sonarqube-26.2.0.0.119303.zip          100%[=====] 869.90M   386MB/s    in 2.3s

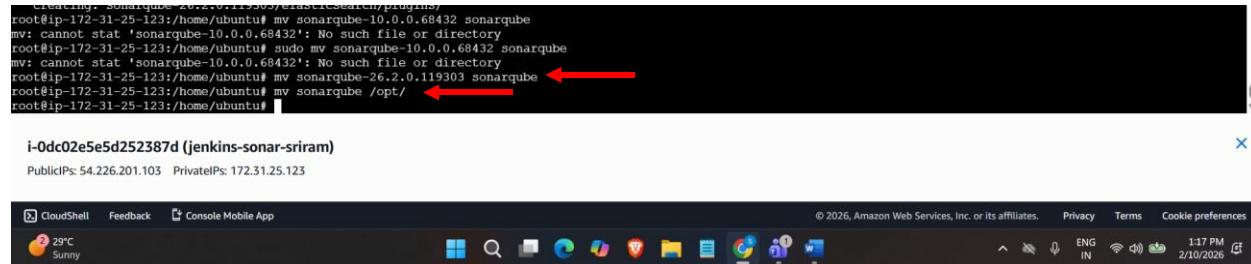
2026-02-10 07:43:25 (386 MB/s) - 'sonarqube-26.2.0.0.119303.zip' saved [912154317/912154317]

root@ip-172-31-25-123:/home/ubuntu# ls ←
sonarqube-26.2.0.0.119303.zip ←
root@ip-172-31-25-123:/home/ubuntu# unzip sonarqube-26.2.0.0.119303.zip ←
Archive: sonarqube-26.2.0.0.119303.zip
  creating: sonarqube-26.2.0.0.119303/
  creating: sonarqube-26.2.0.0.119303/jres/
  inflating: sonarqube-26.2.0.0.119303/jres/OpenJDK21U-jre_x64_linux_hotspot_21.0.9_10.tar.gz
  inflating: sonarqube-26.2.0.0.119303/jres/OpenJDK21U-jre_aarch64_linux_hotspot_21.0.9_10.tar.gz
```

3. Move the unzipped files to /opt/sonarqube directory

Use Command: sudo mv sonarqube-26.2.0.11903 sonarqube

Use command: sudo mv sonarqube /opt/



```
root@ip-172-31-25-123:/home/ubuntu# mv sonarqube-10.0.0.68432 sonarqube
mv: cannot stat 'sonarqube-10.0.0.68432': No such file or directory
root@ip-172-31-25-123:/home/ubuntu# sudo mv sonarqube-10.0.0.68432 sonarqube
mv: cannot stat 'sonarqube-10.0.0.68432': No such file or directory
root@ip-172-31-25-123:/home/ubuntu# mv sonarqube-26.2.0.11903 sonarqube
root@ip-172-31-25-123:/home/ubuntu# mv sonarqube /opt/ [red arrow]
root@ip-172-31-25-123:/home/ubuntu# [red arrow]
```

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3. Add SonarQube Group and User

Create a dedicated user and group for SonarQube, which can not run as the root user.

1. Create a sonar group

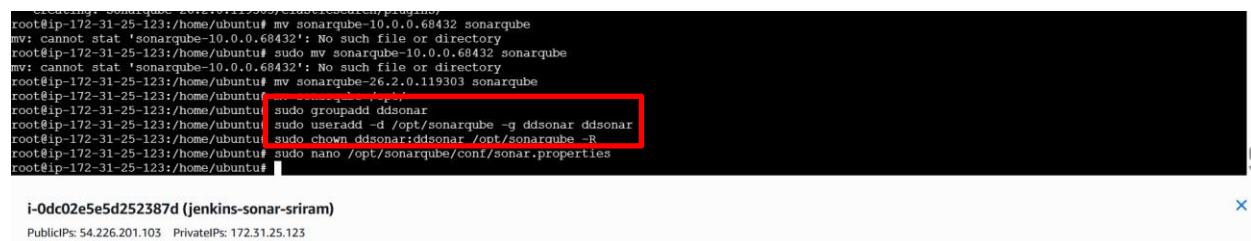
sudo groupadd ddsonar

2. Create a sonar user and set /opt/sonarqube as the home directory.

sudo useradd -d /opt/sonarqube -g ddsonar ddsonar

3. Grant the sonar user access to the /opt/sonarqube directory.

sudo chown ddsonar:ddsonar /opt/sonarqube -R



```
root@ip-172-31-25-123:/home/ubuntu# mv sonarqube-10.0.0.68432 sonarqube
mv: cannot stat 'sonarqube-10.0.0.68432': No such file or directory
root@ip-172-31-25-123:/home/ubuntu# sudo mv sonarqube-10.0.0.68432 sonarqube
mv: cannot stat 'sonarqube-10.0.0.68432': No such file or directory
root@ip-172-31-25-123:/home/ubuntu# mv sonarqube-26.2.0.11903 sonarqube
root@ip-172-31-25-123:/home/ubuntu# sudo groupadd ddsonar [red box]
root@ip-172-31-25-123:/home/ubuntu# sudo useradd -d /opt/sonarqube -g ddsonar ddsonar [red box]
root@ip-172-31-25-123:/home/ubuntu# sudo chown ddsonar:ddsonar /opt/sonarqube -R [red box]
root@ip-172-31-25-123:/home/ubuntu# sudo nano /opt/sonarqube/conf/sonar.properties
```

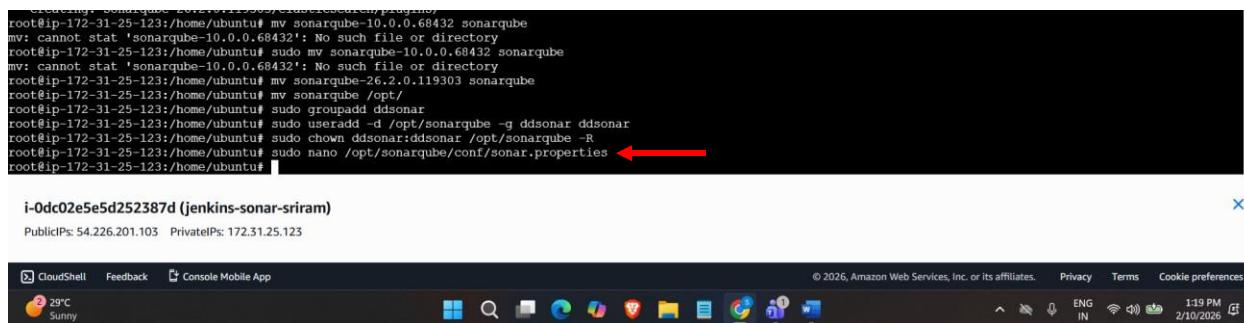
i-0dc02e5e5d252387d (jenkins-sonar-sriram)
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4. Configure SonarQube:

1. Edit the SonarQube configuration file use command:

```
sudo nano /opt/sonarqube/conf/sonar.properties
```



```
root@ip-172-31-25-123:/home/ubuntu# mv sonarqube-10.0.0.68432 sonarqube
mv: cannot stat 'sonarqube-10.0.0.68432': No such file or directory
root@ip-172-31-25-123:/home/ubuntu# sudo mv sonarqube-10.0.0.68432 sonarqube
mv: cannot stat 'sonarqube-10.0.0.68432': No such file or directory
root@ip-172-31-25-123:/home/ubuntu# mv sonarqube-26.2.0.119303 sonarqube
root@ip-172-31-25-123:/home/ubuntu# mv sonarqube /opt/
root@ip-172-31-25-123:/home/ubuntu# sudo groupadd ddsonar
root@ip-172-31-25-123:/home/ubuntu# sudo useradd -d /opt/sonarqube -g ddsonar ddsonar
root@ip-172-31-25-123:/home/ubuntu# sudo chown ddsonar:ddsonar /opt/sonarqube -R
root@ip-172-31-25-123:/home/ubuntu# sudo nano /opt/sonarqube/conf/sonar.properties
root@ip-172-31-25-123:/home/ubuntu#
```

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1. Find the following lines:

```
#sonar.jdbc.username=
```

```
#sonar.jdbc.password=
```

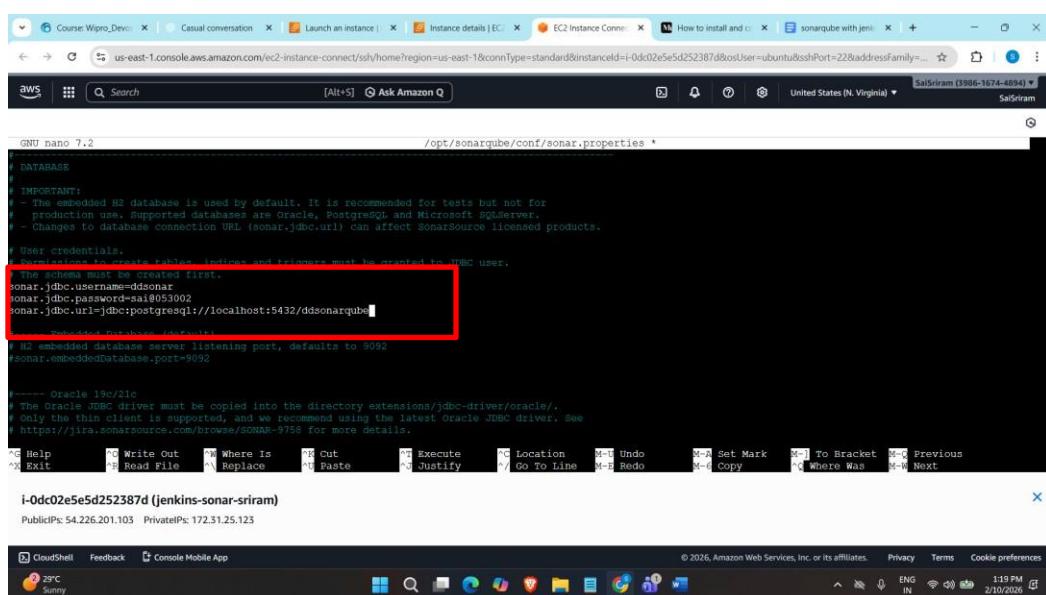
2. Uncomment the lines, and add the database user and Database password you created in Step 4 (xi and xii). For me, it's:

```
sonar.jdbc.username=ddsonar
```

```
sonar.jdbc.password=sai@123456
```

3. Below these two lines, add the following line of code.

```
sonar.jdbc.url=jdbc:postgresql://localhost:5432/ddsonarqube Save and exit the file.
```



```
GRU nano 7.2 /opt/sonarqube/conf/sonar.properties *
DATABASE
  IMPORTANT!
  - The embedded H2 database is used by default. It is recommended for tests but not for production use. Supported databases are Oracle, PostgreSQL and Microsoft SQLServer.
  - Changes to database connection URL (sonar.jdbc.url) can affect SonarSource licensed products.

User credentials.
  Permissions to create tables, indices and triggers must be granted to JDBC user.
  The schema must be created first.
sonar.jdbc.username=ddsonar
sonar.jdbc.password=sai053002
sonar.jdbc.url=jdbc:postgresql://localhost:5432/ddsonarqube

  Embedded Database (ddSqlite)
  No embedded database server listening port, defaults to 9092
sonar.embeddedDatabase.port=9092

  Oracle JDBC driver
  The Oracle JDBC driver must be copied into the directory extensions/jdbc-driver/oracle/.
  Only the thin client is supported, and we recommend using the latest Oracle JDBC driver. See
  https://jira.sonarsource.com/browse/SONAR-9758 for more details.

^G Help      ^C Write Out   ^W Where Is    ^X Cut        ^E Execute     ^L Location    M-U Undo      M-A Set Mark  M-] To Bracket M-C Previous
^M Exit      ^R Read File   ^V Replace    ^Y Paste       ^B Justify     ^I Go To Line  M-T Redo      M-C Copy     M-D Where Was  M-W Next
i-0dc02e5e5d252387d (jenkins-sonar-sriram)
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```

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1. Edit the sonar script file.

```
sudo nano /opt/sonargube/bin/linux-x86-64/sonar.sh
```

1. Add the following line

RUN AS USER=ddsonar

Here, ddsonar is the name of the user that we have created in step number 6 (ii).

2. Save and exit the file

```
GNU nano 7.2
#!/bin/sh
# /opt/sonarqube/bin/linux-x86-64/sonar.sh *

RUN_AS_USER=ddsonar
APP_NAME="SonarQube"

# Location of the pid file.
PIDDIR="${PIDDIR:-.}"

# By default, java from the PATH is used, except if SONAR_JAVA_PATH env variable is set
findJava() {
    if [ -z "${SONAR_JAVA_PATH}" ]; then
        if ! command -v java 2>&1; then
            echo "Java not found. Please make sure that the environmental variable SONAR_JAVA_PATH points to a Java executable"
            exit 1
        fi
        JAVA_CMD=java
    else
        if [ ! -x "${SONAR_JAVA_PATH}" ] || [ ! -f "${SONAR_JAVA_PATH}" ]; then
            echo "File '$(SONAR_JAVA_PATH)' is not executable. Please make sure that the environmental variable SONAR_JAVA_PATH points to a Java executable"
            exit 1
        fi
        JAVA_CMD="${SONAR_JAVA_PATH}"
    fi
}

^G Help          ^C Write Out      ^W Where Is      ^K Cut           ^T Execute       ^C Location      M-1 Undo       M-2 Set Mark     M-1 To Bracket M-Q Previous
^X Exit          ^R Read File      ^V Replace       ^P Paste         ^J Justify       ^Y Go To Line    M-2 Redo       M-6 Copy        ^Q Where Was     M-M Next

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```

3. Setup Systemd service

1. Create a systemd service file to start SonarQube at system boot.

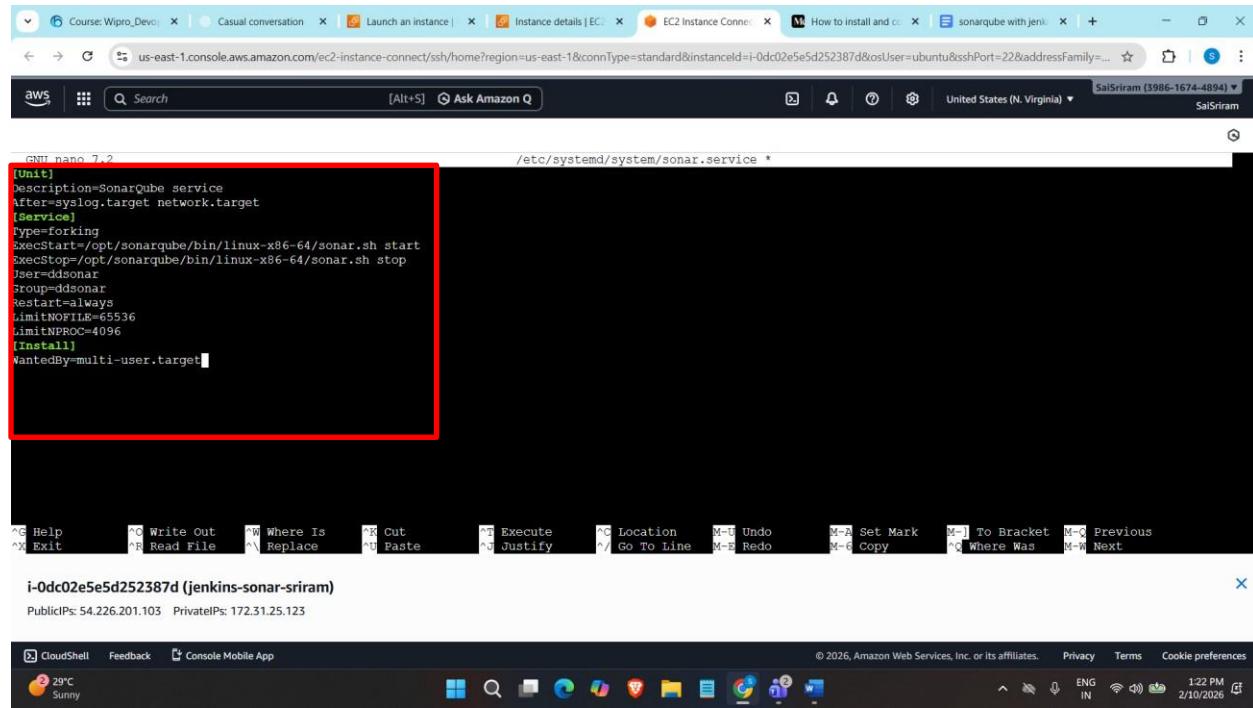
```
sudo nano /etc/systemd/system/sonar.service
```

2. Paste the following lines to the file.

```
[Unit]
Description=SonarQube service
After=syslog.target network.target
[Service]
Type=forking
ExecStart=/opt/sonarqube/bin/linux-x86-64/sonar.sh start
ExecStop=/opt/sonarqube/bin/linux-x86-64/sonar.sh stop
User=ddsonar
Group=ddsonar
```

```
Restart=always
LimitNOFILE=65536
LimitNPROC=4096
[Install]
WantedBy=multi-user.target
```

3. Save and exit the file



```
GNU nano 7.2
[Unit]
description=SonarQube service
after=syslog.target network.target
[Service]
type=forking
execStart=/opt/sonarqube/bin/linux-x86-64/sonar.sh start
execStop=/opt/sonarqube/bin/linux-x86-64/sonar.sh stop
User=ddsonar
Group=ddsonar
Restart=always
LimitNOFILE=65536
LimitNPROC=4096
[Install]
WantedBy=multi-user.target
```

4. Enable the SonarQube service to run at system startup.

```
sudo systemctl enable sonar
```

5. Start the SonarQube service.

```
sudo systemctl start sonar
```

6. Check the service status.

```
sudo systemctl status sonar
```

```

root@ip-172-31-25-123:/home/ubuntu# sudo chown ddsonar:ddsonar /opt/sonarqube -R
root@ip-172-31-25-123:/home/ubuntu# sudo nano /opt/sonarqube/conf/sonar.properties
root@ip-172-31-25-123:/home/ubuntu# sudo nano /opt/sonarqube/bin/linux-x86-64/sonar.sh
root@ip-172-31-25-123:/home/ubuntu# sudo nano /etc/systemd/system/sonar.service
root@ip-172-31-25-123:/home/ubuntu# sudo systemctl enable sonar
Created symlink /etc/systemd/system/multi-user.target.wants/sonar.service → /etc/systemd/system/sonar.service.
root@ip-172-31-25-123:/home/ubuntu# sudo systemctl start sonar
root@ip-172-31-25-123:/home/ubuntu# sudo systemctl status sonar
● sonar.service - SonarQube Service
    Loaded: loaded (/etc/systemd/system/sonar.service; enabled; preset: enabled)
    Active: active (running) since Tue 2026-02-10 07:53:31 UTC; 14s ago
      Process: 13952 ExecStart=/opt/sonarqube/bin/linux-x86-64/sonar.sh start (code=exited, status=0/SUCCESS)
     Main PID: 13975 (java)
        Tasks: 106 (limit: 4526)
       Memory: 993.5M (peak: 993.7M)
          CPU: 27.756s
         CGrou...
Feb 10 07:53:31 ip-172-31-25-123 systemd[1]: Starting sonar.service - SonarQube service...
Feb 10 07:53:31 ip-172-31-25-123 sonar.sh[13952]: /usr/bin/java
Feb 10 07:53:31 ip-172-31-25-123 sonar.sh[13952]: Starting SonarQube...
Feb 10 07:53:31 ip-172-31-25-123 sonar.sh[13952]: Started SonarQube.
Feb 10 07:53:31 ip-172-31-25-123 systemd[1]: Started sonar.service - SonarQube service.
lines 1-19/19 (END)

```

i-Odc02e5e5d252387d (jenkins-sonar-sriram)
Public IPs: 54.226.201.103 Private IPs: 172.31.25.123

4. Modify Kernel System Limits

SonarQube uses Elasticsearch to store its indices in an MMap FS directory. It

requires some changes to the system defaults.

1. Edit the sysctl configuration file.

`sudo nano /etc/sysctl.conf`

```

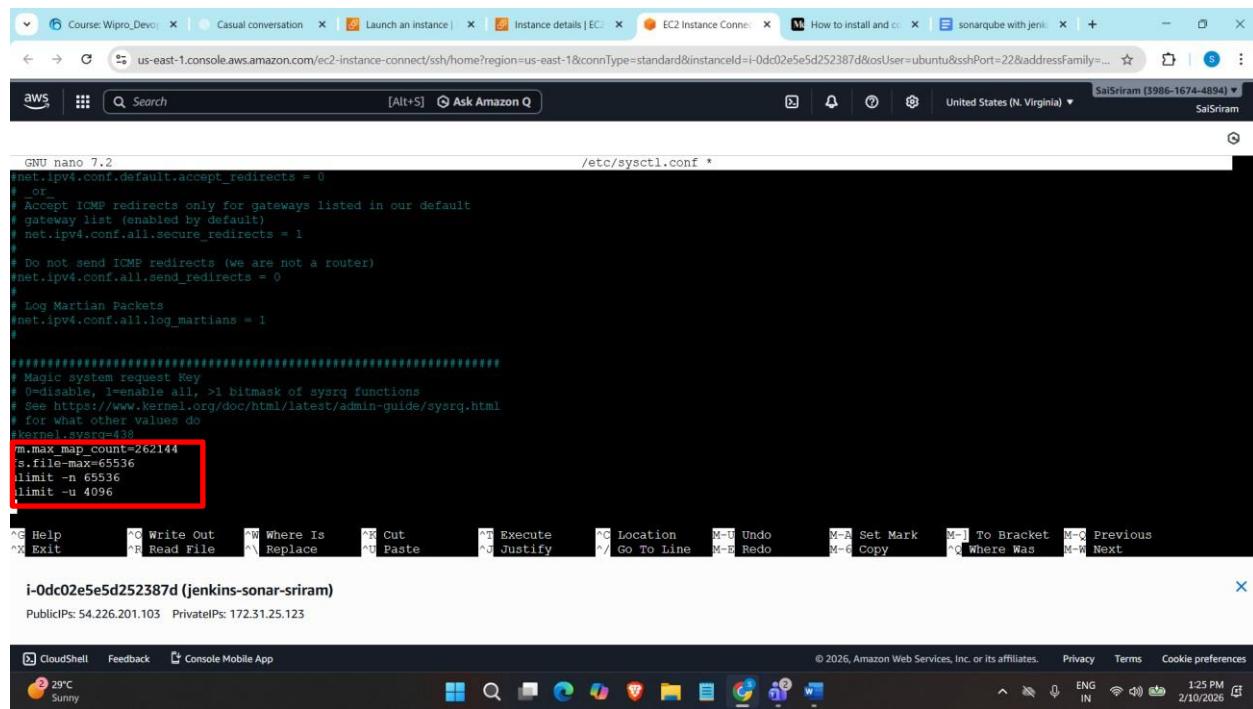
Tasks: 106 (limit: 4526)
Memory: 993.5M (peak: 993.7M)
CPU: 27.756s
CGrou...
Feb 10 07:53:31 ip-172-31-25-123 systemd[1]: Starting sonar.service - SonarQube service...
Feb 10 07:53:31 ip-172-31-25-123 sonar.sh[13952]: /usr/bin/java
Feb 10 07:53:31 ip-172-31-25-123 sonar.sh[13952]: Starting SonarQube...
Feb 10 07:53:31 ip-172-31-25-123 sonar.sh[13952]: Started SonarQube.
Feb 10 07:53:31 ip-172-31-25-123 systemd[1]: Started sonar.service - SonarQube service.
root@ip-172-31-25-123:/home/ubuntu# sudo nano /etc/sysctl.conf ←
root@ip-172-31-25-123:/home/ubuntu# sudo reboot

Broadcast message from root@ip-172-31-25-123 on pts/2 (Tue 2026-02-10 07:55:41 UTC):
The system will reboot now!

```

2. Add the following lines.

```
vm.max_map_count=262144  
fs.file-max=65536  
ulimit -n 65536  
ulimit -u 4096
```

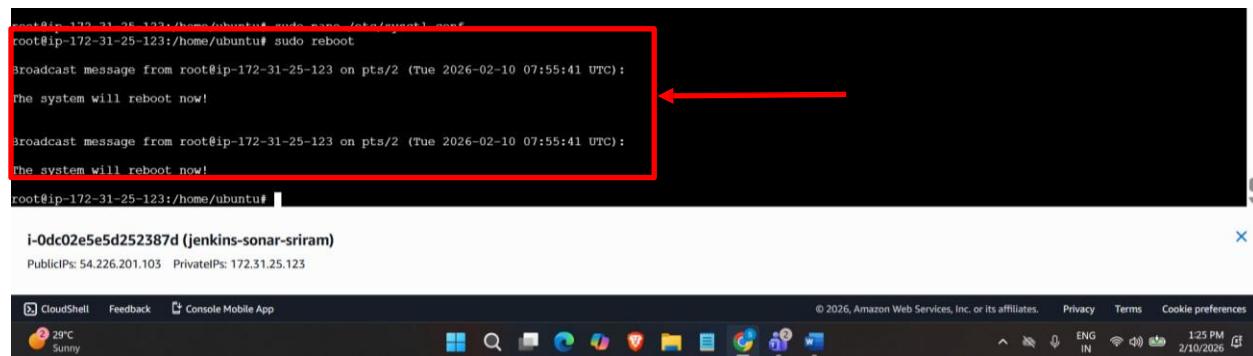


```
GNU nano 7.2                               /etc/sysctl.conf *  
net.ipv4.conf.default.accept_redirects = 0  
..._on  
Accept ICMP redirects only for gateways listed in our default  
gateway list (enabled by default)  
net.ipv4.conf.all.secure_redirects = 1  
Do not send ICMP redirects (we are not a router)  
net.ipv4.conf.all.send_redirects = 0  
Log Martian Packets  
net.ipv4.conf.all.log_martians = 1  
*****  
Magic system request Key  
0=disable, 1=enable all, >1 bitmask of sysrq functions  
See https://www.kernel.org/doc/html/latest/admin-guide/sysrq.html  
for what other values do  
kernel.sysrq=43  
vm.max_map_count=262144  
fs.file-max=65536  
ulimit -n 65536  
ulimit -u 4096
```

3. Save and exit the file

4. Reboot the system to apply the changes.

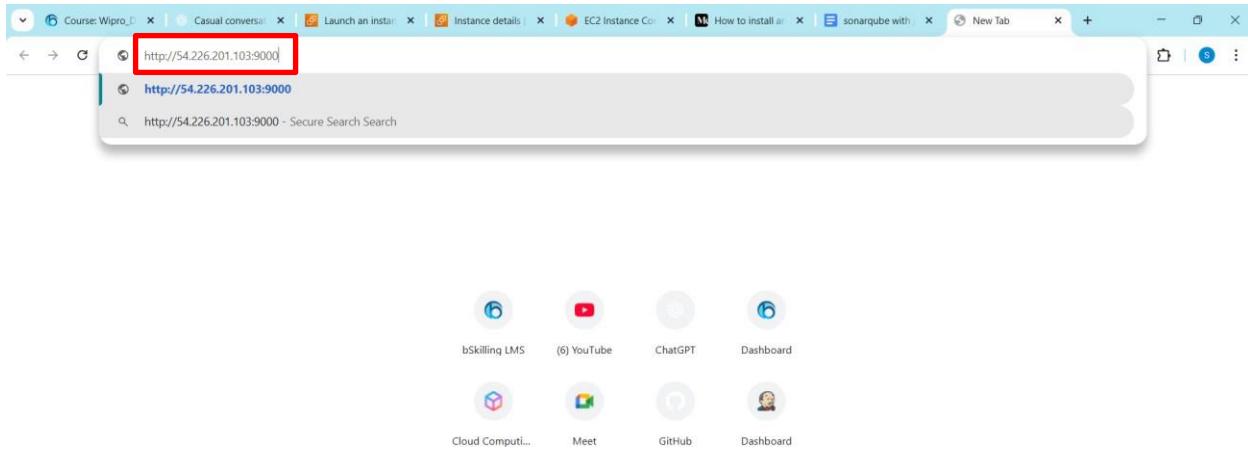
```
sudo reboot
```



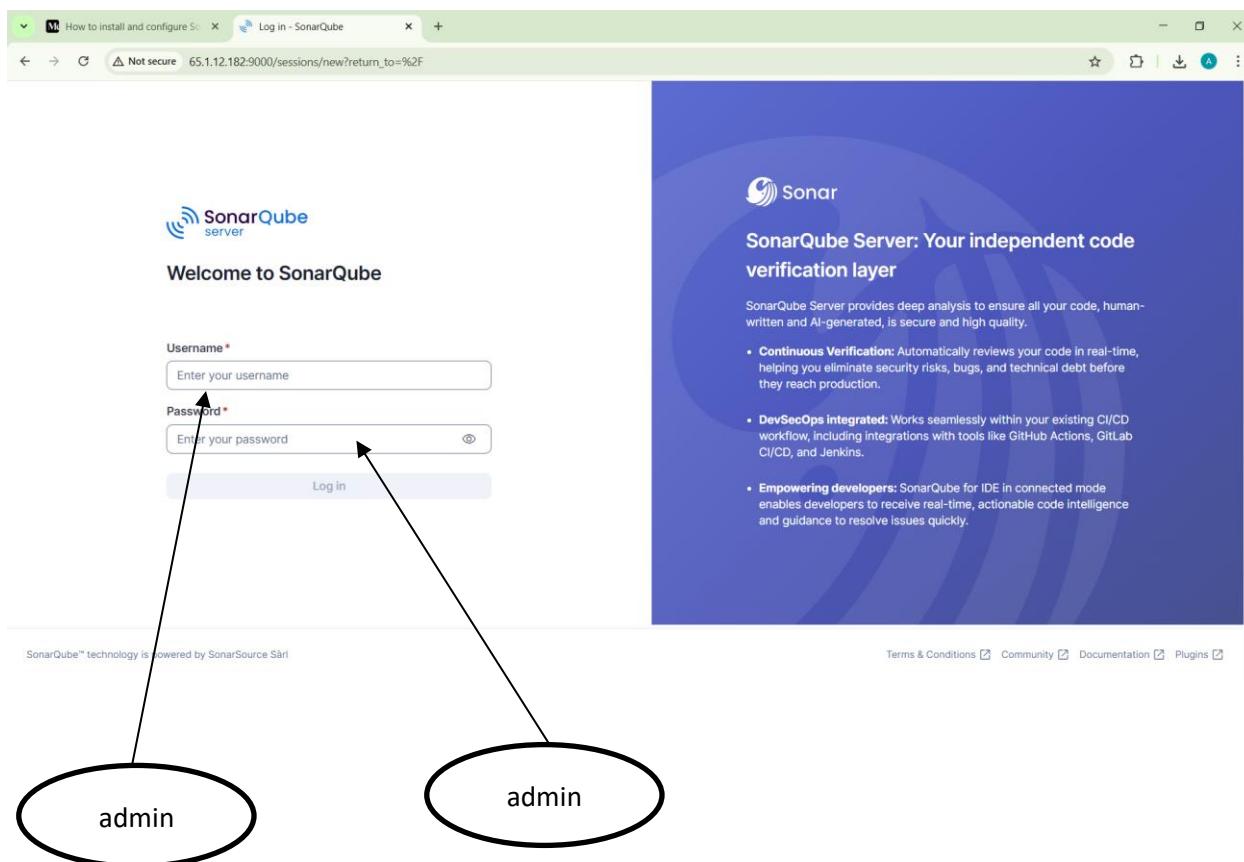
```
root@ip-172-31-25-123:/home/ubuntu# sudo reboot  
broadcast message from root@ip-172-31-25-123 on pts/2 (Tue 2026-02-10 07:55:41 UTC):  
The system will reboot now!  
broadcast message from root@ip-172-31-25-123 on pts/2 (Tue 2026-02-10 07:55:41 UTC):  
The system will reboot now!  
root@ip-172-31-25-123:/home/ubuntu#
```

SonarQube Tool and configuration With Jenkins

1. Open the browser and navigate to <http://public:9000>
2. Log in to sonarqube server with System Administrator credentials (admin/admin)

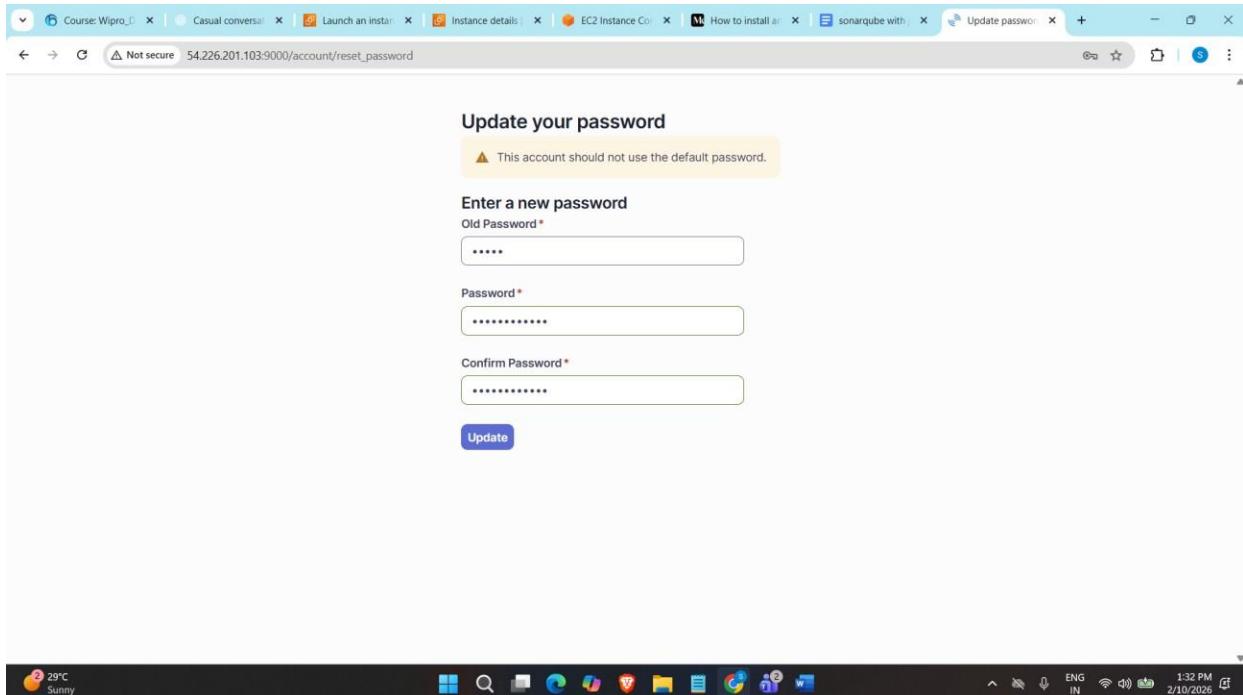


- Note: the default username and password are admin and admin respectively.

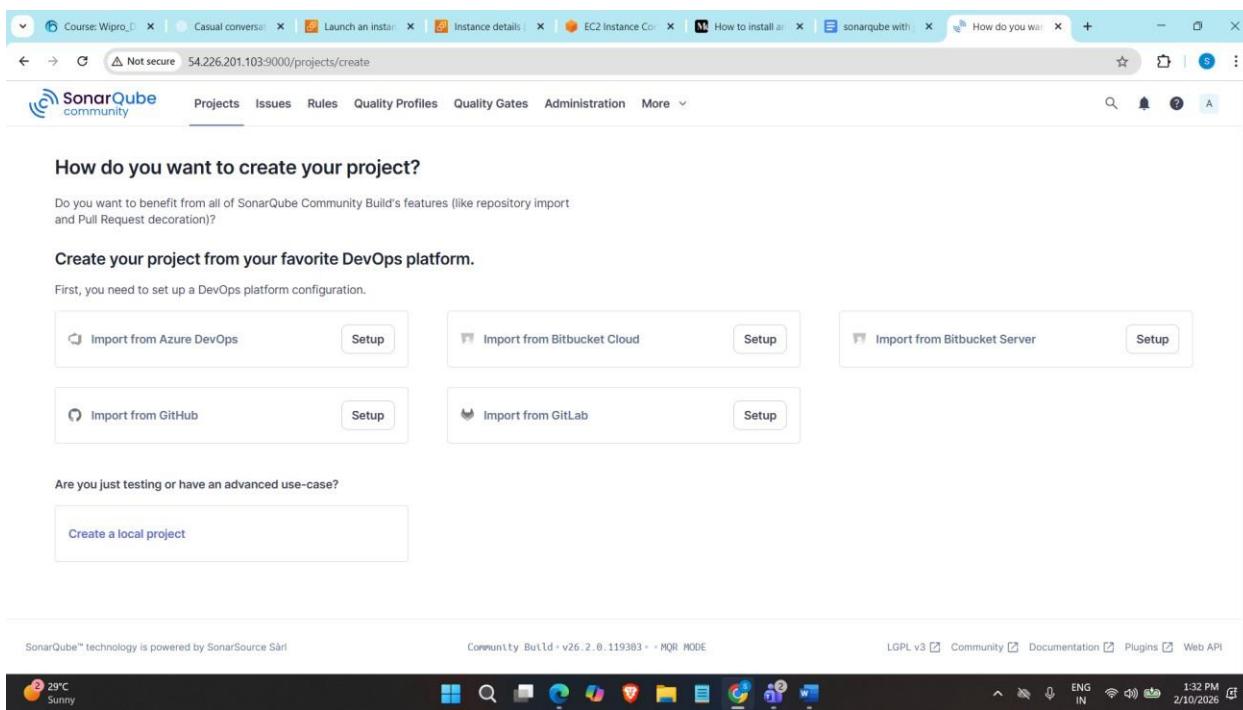


1. Change the Old password with a New one.

Log in with username admin and password admin. In the next step, SonarQube will prompt you to change your password. CHANGE THE PASSWORD.



- Finally landing page of SonarQube:



- Go to Administration → Security → Users → Tokens

How do you want to create your project?

Do you want to benefit from all of SonarQube Community Build's features (like repository import and Pull Request decoration)?

Create your project from your favorite DevOps platform.

First, you need to set up a DevOps platform configuration.

Import from Azure DevOps Setup
 Import from Bitbucket Cloud Setup
 Import from Bitbucket Server Setup
 Import from GitHub Setup
 Import from GitLab Setup

Are you just testing or have an advanced use-case?

Create a local project

Not secure 3.110.180.8:9000/admin/users

SonarQube community Projects Issues Rules Quality Profiles Quality Gates Administration More

Administration Configuration Security Projects System Marketplace

Administration / Users

Users

Create and a

Search by login or name... Filter by All users

- Click on token and generate a token with name: Jenkins as shown below:

Not secure 3.110.180.8:9000/admin/users

SonarQube community Projects Issues Rules Quality Profiles Quality Gates Administration More

Administration Configuration Security Projects System Marketplace

Administration / Users

Users

Create and administer individual users.

Search by login or name... Filter by All users

Name	SCM Accounts	Last connection	Last SonarQube for IDE connection ?	Groups	Tokens	Actions
A Administrator admin		< 1 hour ago	Never	2	0	<input type="button"/> Update tokens

1 of 1 shown

SonarQube™ technology is powered by SonarSource Sàrl Community Build - v26.2.0.119303 - MQR MODE LGPL v3 Community Documentation Plugins Web API

The screenshot shows the 'Tokens of Administrator' dialog box in SonarQube. At the top, it says 'Generate Tokens'. Below that, there are fields for 'Name' (set to 'Sonarqube') and 'Expires in' (set to '30 days'). A 'Generate' button is next to these fields. A callout arrow points from the text 'click here to generate token' to the 'Generate' button. Below the form, a table header is shown with columns: Name, Type, Project, Last use, Created, and Expiration. The table body below it displays the message 'No tokens'. In the bottom right corner of the dialog box is a 'Close' button.

- **Copy the generated token and note it down. It will be used in Jenkins for Sonar authentication**

This screenshot is identical to the one above, but it includes a success message in a green box: 'New token "Sonarqube" has been created. Make sure you copy it now, you won't be able to see it again!'. Below this message is a text input field containing the token value 'squ_2f98bd9636e9d52f79f875a59a904f9564120fde'. A callout arrow points from the text 'copy paste token in notepad' to this token value. The rest of the dialog box and interface are the same as the first screenshot.

Step 2: Installing and configuring SonarQube plugin in Jenkins

- Go to Manage Jenkins → Manage Plugins → Available → search for SonarQube Scanner → Click on install without restart

The screenshot shows the Jenkins home page at 3.110.180.8:8080. The top navigation bar includes links for Jenkins, New Item, Build History, and Manage Jenkins. A search bar and a 'Create a job' button are also present. The main content area features a 'Welcome to Jenkins!' message, a 'Start building your software project' button, and sections for 'Set up a distributed build' (including 'Set up an agent', 'Configure a cloud', and a link to learn more). At the bottom right, there are links for 'REST API' and 'Jenkins 2.541.1'.

The screenshot shows the 'Manage Jenkins' page at 3.110.180.8:8080/manage/. It displays the 'System Configuration' section with links for System, Tools, Nodes, Clouds, Security, Credentials, and Credential Providers. A callout arrow points to the 'Plugins' link, which is described as 'Add, remove, disable or enable plugins that can extend the functionality of Jenkins'. The 'Manage Jenkins' header also includes a 'Search settings' bar.

Not secure 3.110.180.8:8080/manage/pluginManager/available

Jenkins / Manage Jenkins / Plugins

Click on Available plugins Step 1

Search for Sonar Step 2

Install Name 1 Released Health Step 4

Available plugins

Updates Installed plugins Advanced settings

SonarQube Scanner 2.18.2 External Site/Tool Integrations Build Reports Released 2 mo 0 days ago Health 84 Click on Install

Sonar Quality Gates 364.v67a_f255f340f Library plugins (for use by other plugins) analysis Other Post-Build Actions Released 1 mo 24 days ago Health 100

Quality Gates 2.5 Fails the build whenever the Quality Gates criteria in the Sonar 5.6+ analysis aren't met (the project Quality Gates status is different than "Passed") Warning: This plugin version may not be safe to use. Please review the following security notices: • Credentials transmitted in plain text Released 9 yr 9 mo ago Health 42

Sonargraph Integration 5.0.3-rc316.005b_0ed72e5b_ External Site/Tool Integrations Build Reports Other Post-Build Actions Released 3 mo 19 days ago Health 100

CodeSonar 2.6.0

This screenshot shows the Jenkins plugin manager interface. A search bar at the top right contains the text 'sonar'. Below it, a table lists several available plugins. The first plugin, 'SonarQube Scanner 2.18.2', has its 'Install' button highlighted with a blue border and a checkmark icon. A large black arrow labeled 'Step 4' points to this button. Another arrow labeled 'Step 3' points to the checkbox next to the plugin name. A third arrow labeled 'Step 1' points to the 'Available plugins' link in the sidebar.

Not secure 3.110.180.8:8080

Jenkins

+ New Item

Build History

Build Queue No builds in the queue.

Build Executor Status 0/2

Welcome to Jenkins!

This page is where your Jenkins jobs will be displayed. To get started, you can set up distributed builds or start building a software project.

Start building your software project

Create a job +

Set up a distributed build

Set up an agent

Configure a cloud

Learn more about distributed builds

Add description

Click on manage Jenkins

REST API Jenkins 2.541.1

This screenshot shows the Jenkins dashboard. At the top, there's a 'Welcome to Jenkins!' message with a brief description of what users can do. Below this, there are sections for 'Start building your software project' and 'Set up a distributed build'. On the left side, there are navigation links for 'New Item', 'Build History', 'Build Queue', and 'Build Executor Status'. On the right side, there are links for 'Add description' and 'manage Jenkins'. At the bottom right, there are links for 'REST API' and 'Jenkins 2.541.1'.

- Go to Jenkins dashboard → Manage Jenkins → Manage Credentials

Jenkins / Manage Jenkins

Manage Jenkins

System Configuration

- System**: Configure global settings and paths.
- Tools**: Configure tools, their locations and automatic installers.
- Nodes**: Add, remove, control and monitor the various nodes that Jenkins runs jobs on.
- Clouds**: Add, remove, and configure cloud instances to provision agents on-demand.
- Plugins**: Add, remove, disable or enable plugins that can extend the functionality of Jenkins.
- Appearance**: Configure the look and feel of Jenkins.

Security

- Security**: Secure Jenkins; define who is allowed to access/use the system.
- Credentials**: Configure credentials
- Users**: Create/delete/modify users that can log in to this Jenkins.
- Credential Providers**: Configure the credential providers and types

Click here for to Setup Sonarqube

- Click on Adding Some Credentials

Jenkins / Manage Jenkins / Credentials / System / Global credentials (unrestricted)

Global credentials (unrestricted)

Credentials that should be available irrespective of domain specification to requirements matching.

This credentials domain is empty
How about [adding some credentials?](#)

Click on Adding Some Credentials

- In Dropdown click on Secret Text

Jenkins / Manage Jenkins / Credentials / System / Global credentials (unrestricted)

New credentials

Kind

- Username with password
- Username with password**
- GitHub App
- SSH Username with private key
- Secret file
- Secret text**
- Certificate

click on Secret text

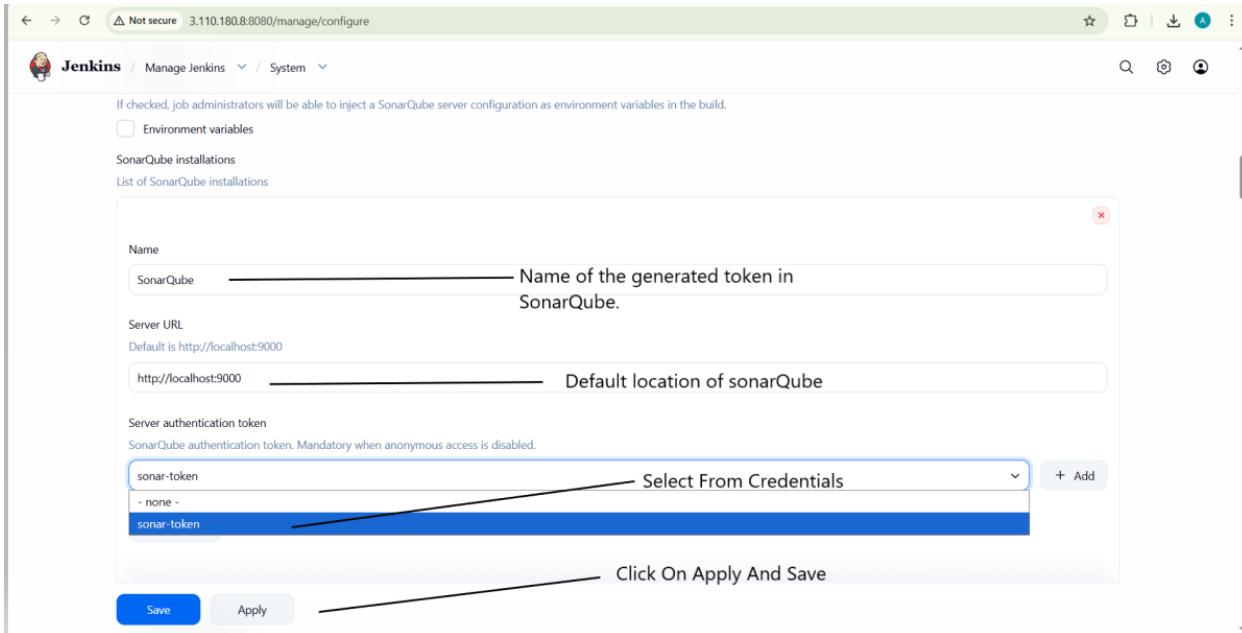
- Add Paste the generated token → name the variable → Add Some description.

The screenshot shows the Jenkins 'New credentials' configuration page. The 'Kind' dropdown is set to 'Secret text' (Selected Secret Text). The 'Scope' dropdown is set to 'Global (Jenkins, nodes, items, all child items, etc)'. The 'Secret' field contains a placeholder 'Paste the generated SonarQube token.' The 'ID' field is set to 'sonar-token' (Add Variable Name). The 'Description' field is set to 'sonar-token' (Add Description). A blue 'Create' button is at the bottom left, with the text 'Click on Create' pointing to it.

- Click on System on Manage Jenkins

The screenshot shows the Jenkins 'Manage Jenkins' page. The 'System Configuration' section is highlighted with a callout pointing to the 'System' icon. Other sections visible include 'Tools', 'Nodes', 'Clouds', 'Plugins', 'Appearance', 'Security', 'Credentials', and 'Credential Providers'. A 'Status Information' section is also present at the bottom.

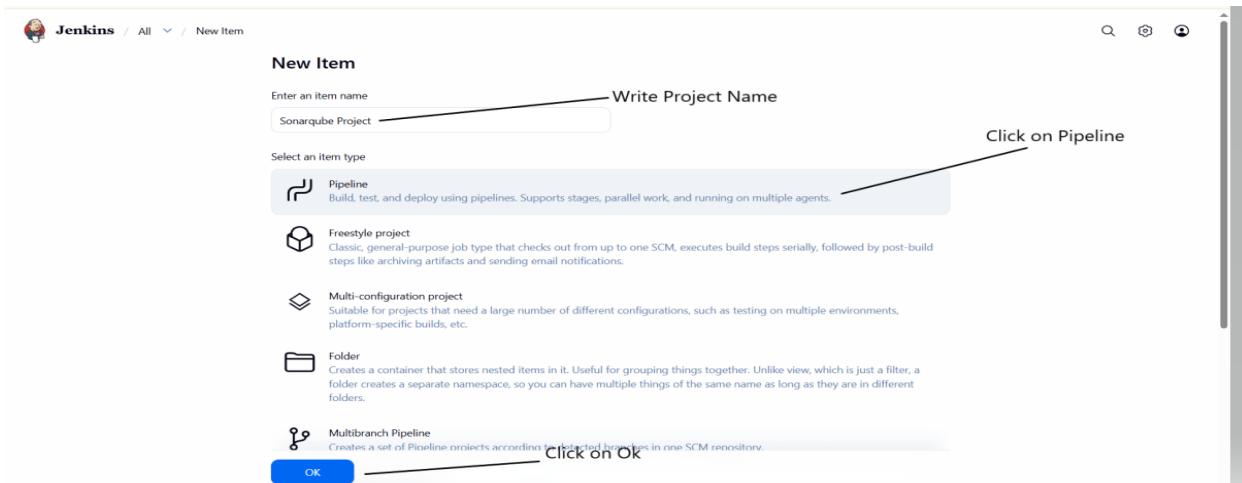
- Add Generated Token Name → give default location of SonarQube → select the SonarQube Authentication from dropdown → Apply → Save



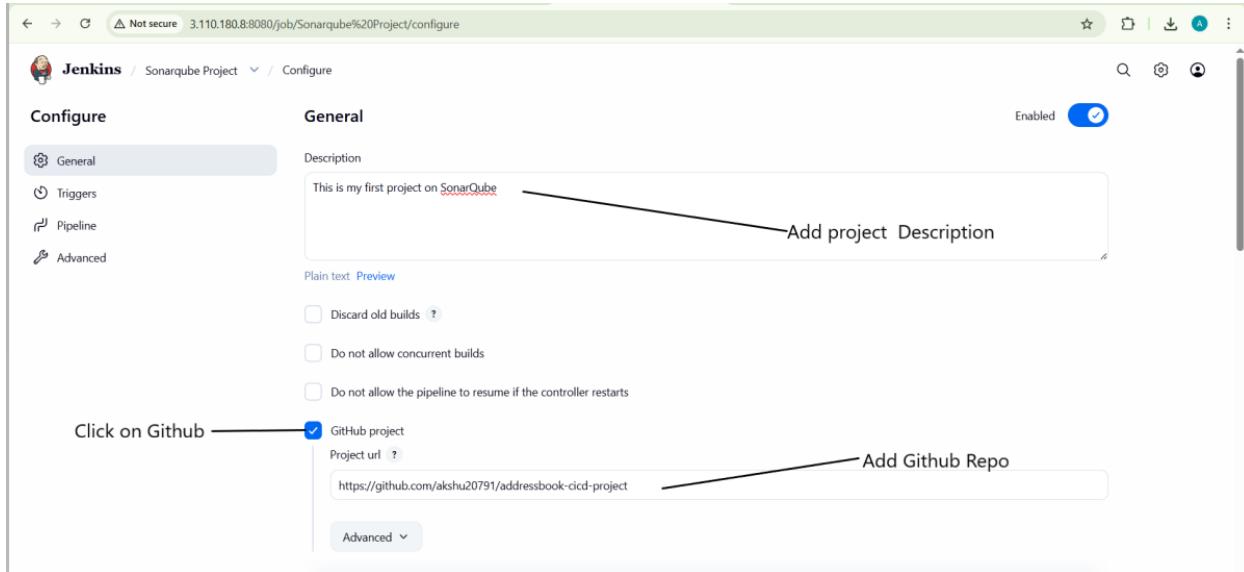
- Create a New Pipeline for project
-



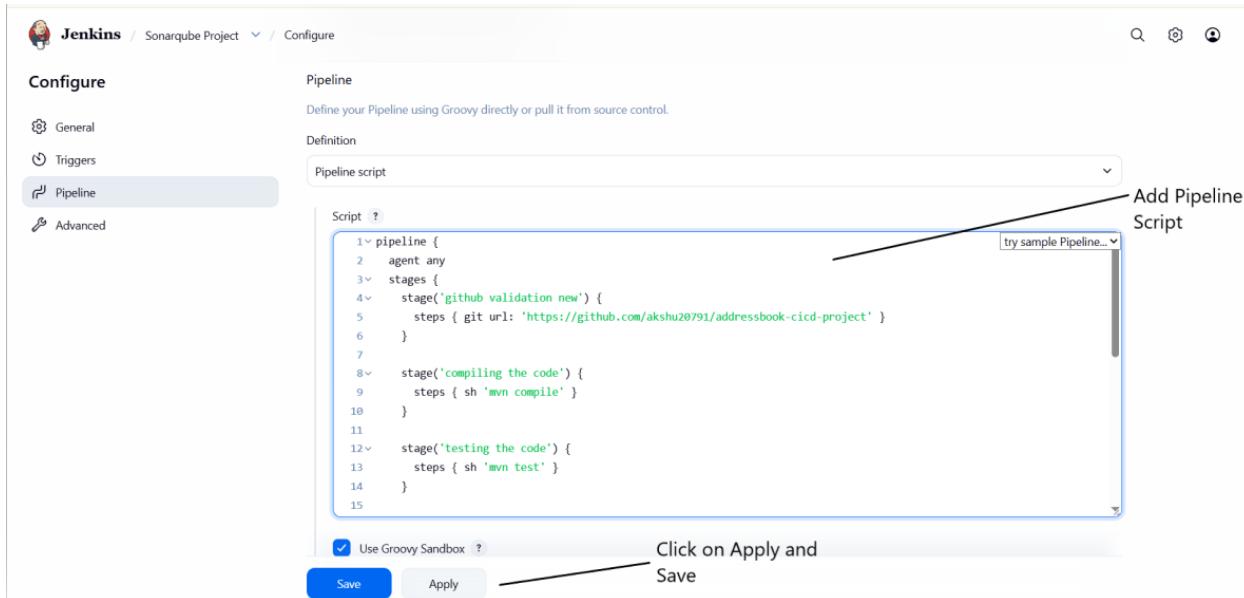
- Name the project → Click on pipeline to be get added → click on ok



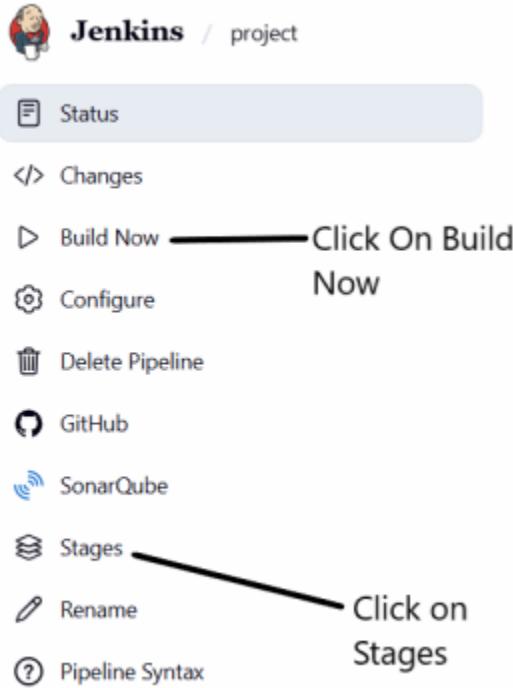
- Add Project Description → click on checkbox on GitHub → Add GitHub Repository



- Write a pipeline script for the project → click on Apply and save



- Click on Apply and Save
- Build the job
- On successful completion of the build from the console output you can see the project in the sonarqube server by clicking the link as shown in the output



Jenkins / project / Stages

Stages

February 10, 2026

#8 16:26 - 24s #7 15:59 - 26s

○ - ✓ - ✓ - ✓ - ✓ - ○ All Stages are completed and refresh the SonarQube

○ - ✓ - ✓ - ✓ - ✓ - ○

- Refresh SonarQube → click on Project

The way in which security, reliability, and maintainability counts and ratings are calculated has changed. [Learn more in SonarQube documentation](#)

SonarQube community

Projects Issues Rules Quality Profiles Quality Gates Administration More

My Favorites All

Search projects (minimum 2 characters)

Perspective Overall Status Sort by Name 1 project(s)

Create Project

Vaadin Addressbook example Public

Last analysis: 7 minutes ago • 1.3k Lines of Code • Java, XML

Passed

0 info issues 16 low issue 125 medium issue 0.0% high issue 3.3% blocker issue

Security Reliability Maintainability Hotspots Reviewed Coverage Duplications

1 of 1 shown