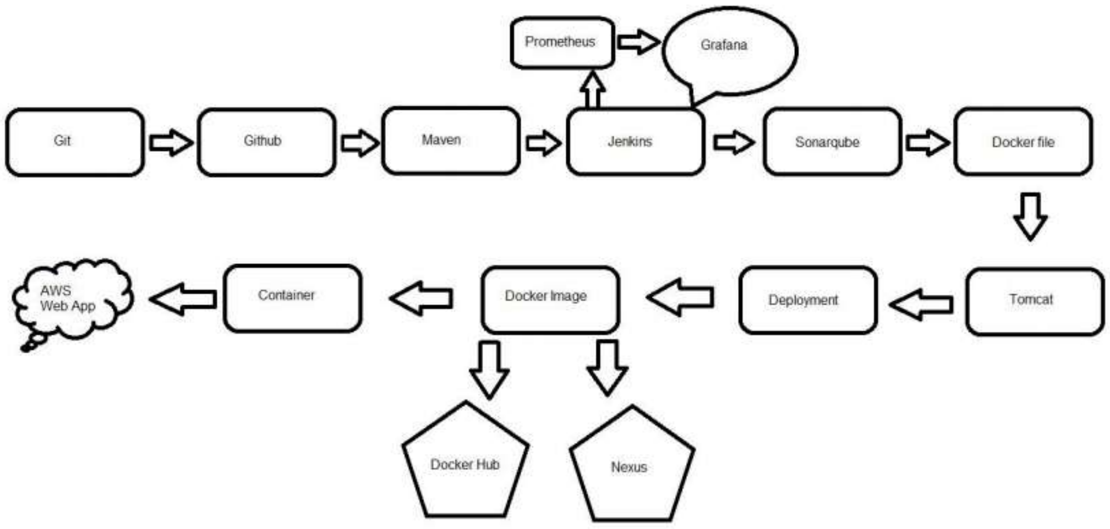
DevOps Project

Continuous Integration and Continuous Deployment/Delivery

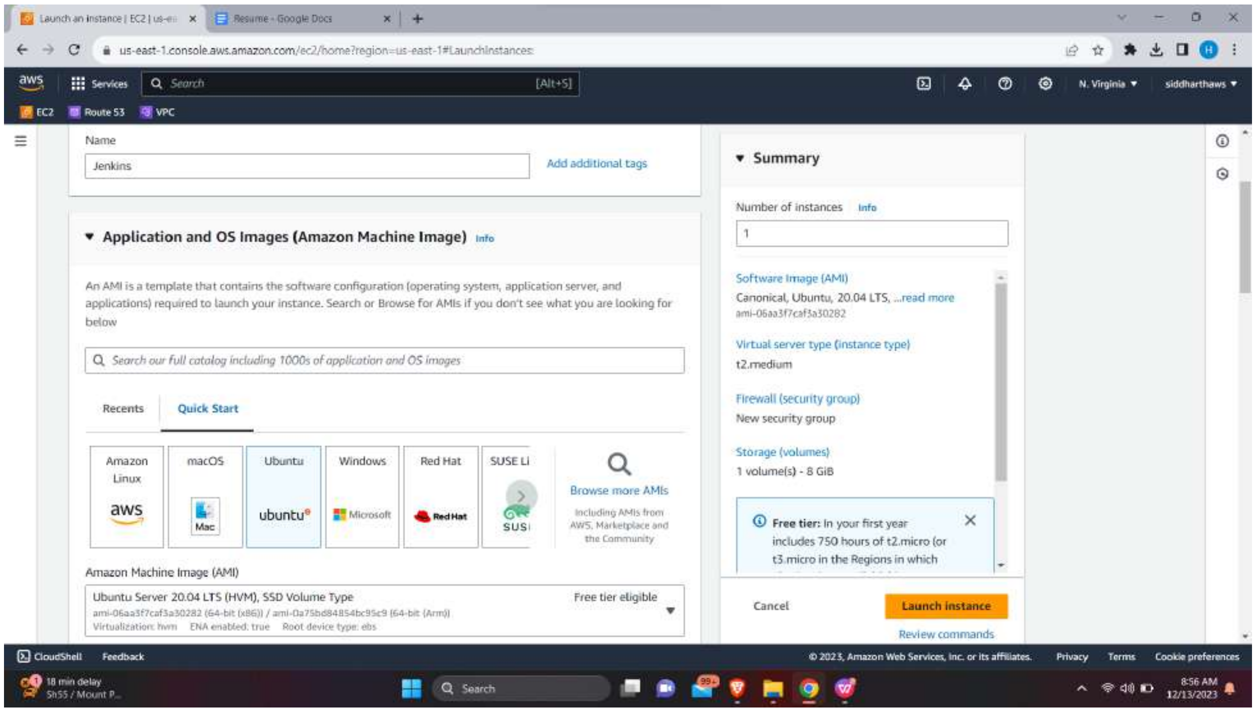
Managed and built a web application image pushed to Docker hub and Nexus Private repository. Deployed in Tomcat Server using Jenkins.

Tools used in DevOps:



Steps to Create CICD Project:

Create an EC2 instance for jenkins.
Launch an EC2 instance – Ubuntu 20.04 – RAM t2.medium – Security group (All Traffic) – Storage 30 gib



us-east-1.console.aws.amazon.com/ec2/home?region=us-east-1#LaunchInstances:

Name: Jenkins

Application and OS Images (Amazon Machine Image)

An AMI is a template that contains the software configuration (operating system, application server, and applications) required to launch your instance. Search or Browse for AMIs if you don't see what you are looking for below

Quick Start: Ubuntu

Amazon Machine Image (AMI): Ubuntu Server 20.04 LTS (HVM), SSD Volume Type — Free tier eligible
ami-06aa3f7caf3a30282 (64-bit (x86)) / ami-0a75bd84854bc95c9 (64-bit (Arm))
Virtualization: hvm ENA enabled: true Root device type: ebs

Summary

Number of instances: 1

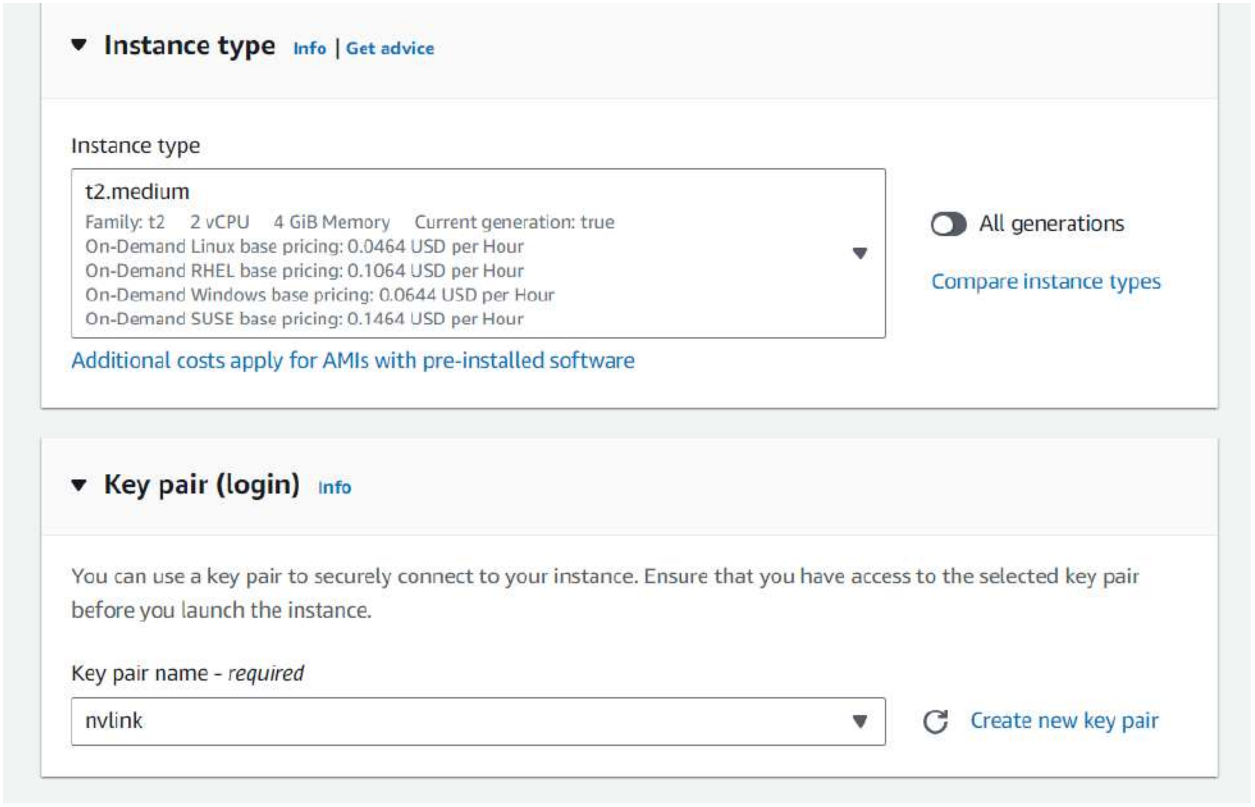
Software Image (AMI): Canonical, Ubuntu, 20.04 LTS, ...read more
ami-06aa3f7caf3a30282

Virtual server type (instance type): t2.medium

Firewall (security group): New security group

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

Free tier: In your first year includes 750 hours of t2.micro (or t3.micro in the Regions in which



Instance type

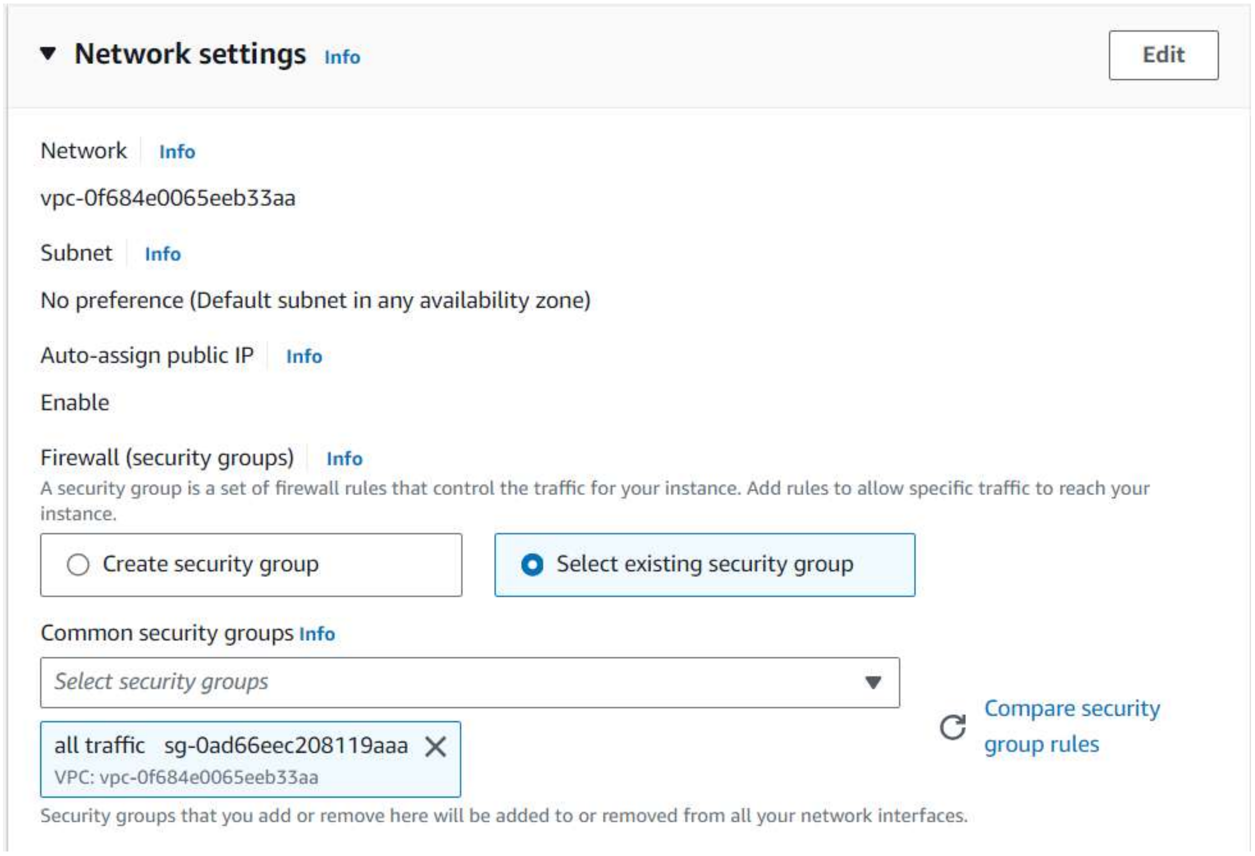
Instance type: t2.medium
Family: t2 2 vCPU 4 GiB Memory Current generation: true
On-Demand Linux base pricing: 0.0464 USD per Hour
On-Demand RHEL base pricing: 0.1064 USD per Hour
On-Demand Windows base pricing: 0.0644 USD per Hour
On-Demand SUSE base pricing: 0.1464 USD per Hour

Additional costs apply for AMIs with pre-installed software

Key pair (login)

You can use a key pair to securely connect to your instance. Ensure that you have access to the selected key pair before you launch the instance.

Key pair name - *required*: nvlink


▼ Network settings Info

Edit

Network Info

vpc-0f684e0065eeb33aa

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]

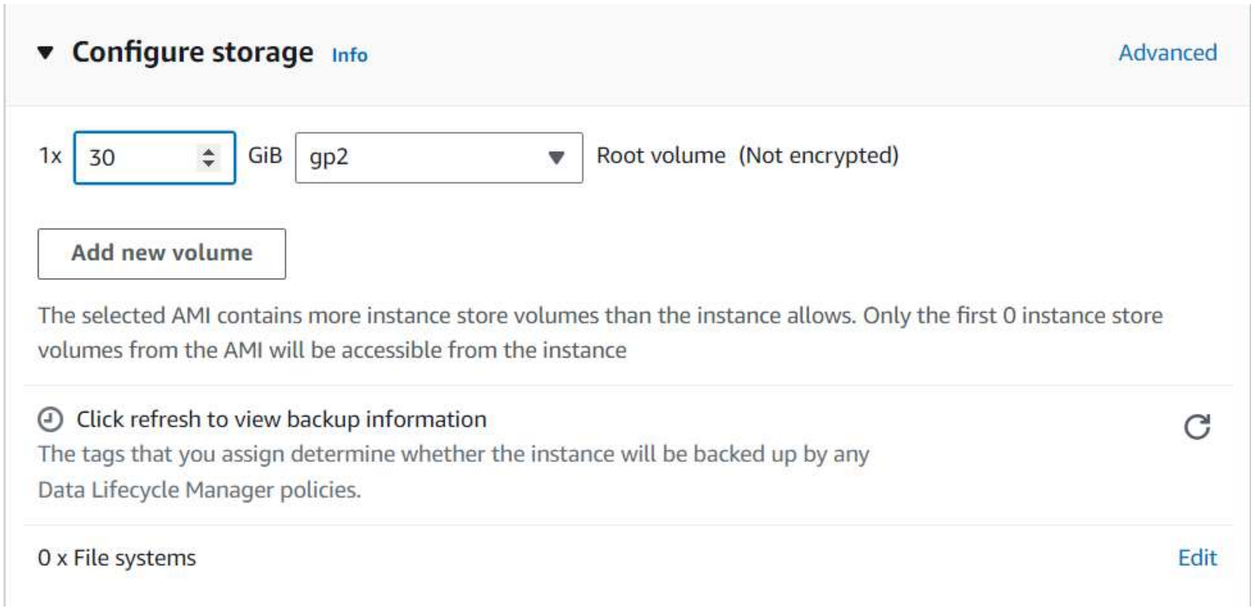
Common security groups Info

Select security groups

all traffic sg-0ad66eec208119aaa ✕
VPC: vpc-0f684e0065eeb33aa

Compare security group rules

Security groups that you add or remove here will be added to or removed from all your network interfaces.


▼ Configure storage Info

Advanced

1x 30 GiB gp2 Root volume (Not encrypted)

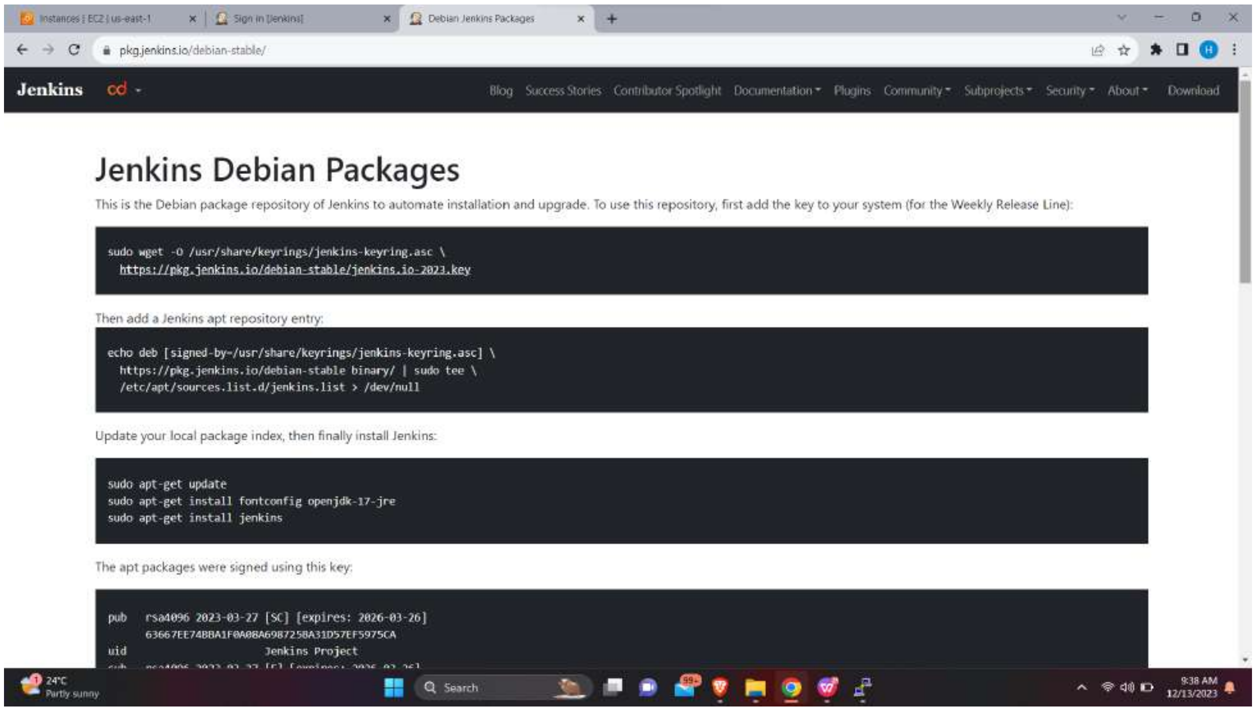
Add new volume

The selected AMI contains more instance store volumes than the instance allows. Only the first 0 instance store volumes from the AMI will be accessible from the instance

Click refresh to view backup information
The tags that you assign determine whether the instance will be backed up by any Data Lifecycle Manager policies.

0 x File systems Edit

Connect the Jenkins Ec2 server in putty
Steps to Install Java and Jenkins.
Follow these commands to install jenkins (install java 11)



Jenkins Debian Packages

This is the Debian package repository of Jenkins to automate installation and upgrade. To use this repository, first add the key to your system (for the Weekly Release Line):

```
sudo wget -O /usr/share/keyrings/jenkins-keyring.asc \
  https://pkg.jenkins.io/debian-stable/jenkins.io-2023.key
```

Then add a Jenkins apt repository entry:

```
echo deb [signed-by=/usr/share/keyrings/jenkins-keyring.asc] \
  https://pkg.jenkins.io/debian-stable binary/ | sudo tee \
  /etc/apt/sources.list.d/jenkins.list > /dev/null
```

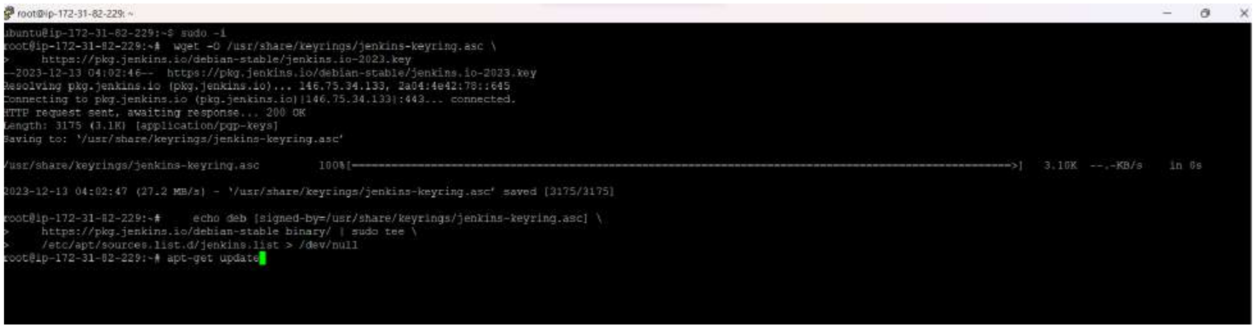
Update your local package index, then finally install Jenkins:

```
sudo apt-get update
sudo apt-get install fontconfig openjdk-17-jre
sudo apt-get install jenkins
```

The apt packages were signed using this key:

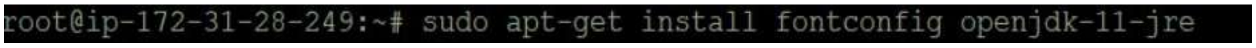
```
pub   rsa4096 2023-03-27 [SC] [expires: 2026-03-26]
      63667EE74BBA1F0A08A698725BA31D57EF5975CA
uid                      Jenkins Project
```

Adding Jenkins key to repository



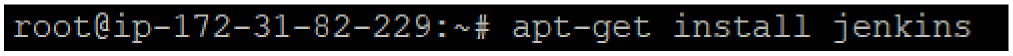
```
ubuntu@ip-172-31-82-229:~$ sudo -i
root@ip-172-31-82-229:~#  wget -O /usr/share/keyrings/jenkins-keyring.asc \
>     https://pkg.jenkins.io/debian-stable/jenkins.io-2023.key
--2023-12-13 04:02:46--  https://pkg.jenkins.io/debian-stable/jenkins.io-2023.key
Resolving pkg.jenkins.io (pkg.jenkins.io)... 146.75.34.133, 2a04:4e42:78::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: '/usr/share/keyrings/jenkins-keyring.asc'

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

2023-12-13 04:02:47 (27.2 MB/s) - '/usr/share/keyrings/jenkins-keyring.asc' saved [3175/3175]

root@ip-172-31-82-229:~#     echo deb [signed-by=/usr/share/keyrings/jenkins-keyring.asc] \
>     https://pkg.jenkins.io/debian-stable binary/ | sudo tee \
>     /etc/apt/sources.list.d/jenkins.list > /dev/null
root@ip-172-31-82-229:~# apt-get update
```

Install Java package.



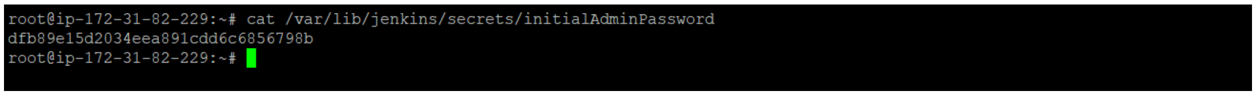
```
root@ip-172-31-28-249:~# sudo apt-get install fontconfig openjdk-11-jre
```

Now, Install Jenkins package



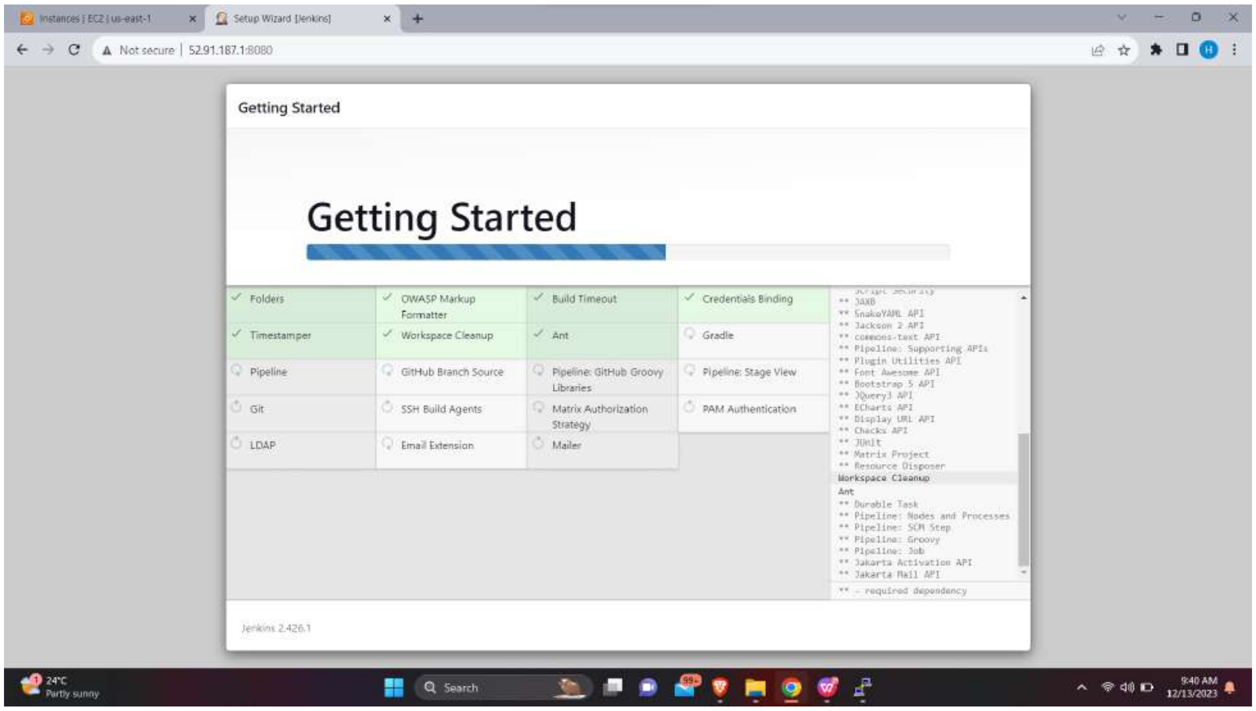
```
root@ip-172-31-82-229:~# apt-get install jenkins
```

Copy Jenkins Ec2 Server Ipv4 and hit in browser with its port number (8080)
Get the admin password from the following directory



```
root@ip-172-31-82-229:~# cat /var/lib/jenkins/secrets/initialAdminPassword
dfb89e15d2034eea891cdd6c6856798b
root@ip-172-31-82-229:~#
```

Install suggested plugins


Getting Started

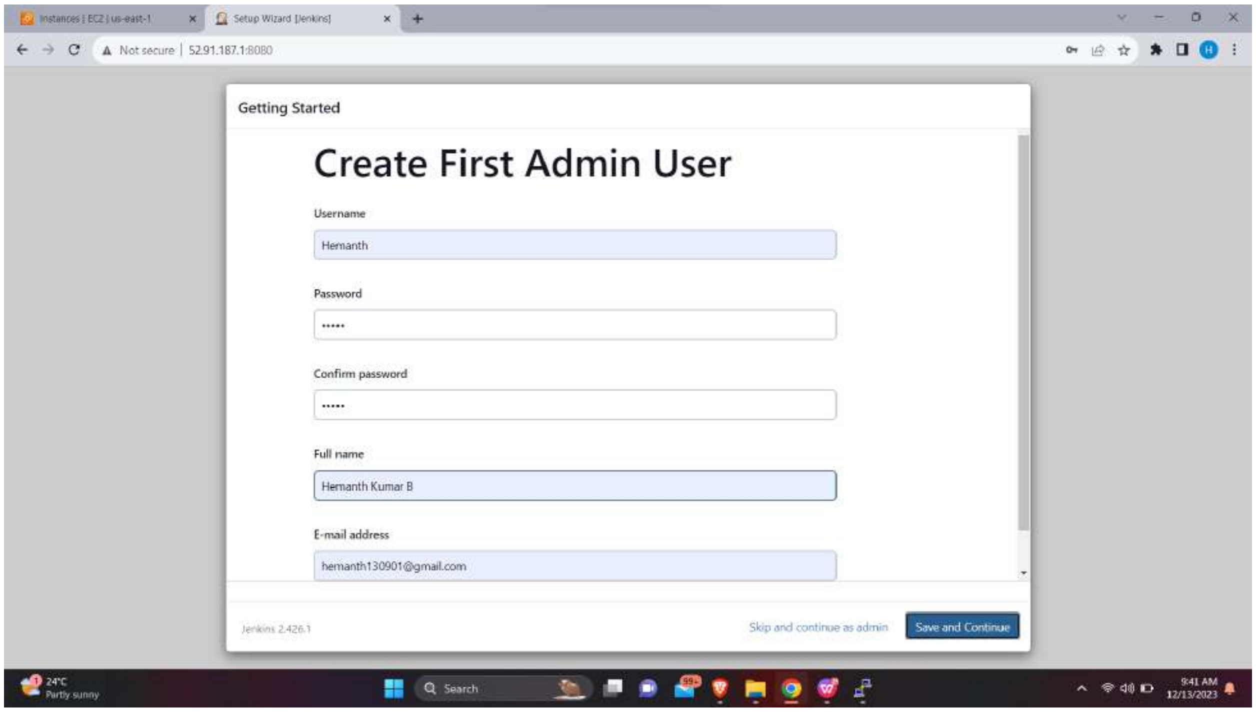
Getting Started

✓ Folders	✓ OWASP Markup Formatter	✓ Build Timeout	✓ Credentials Binding
✓ Timestamper	✓ Workspace Cleanup	✓ Ant	Gradle
Pipeline	GitHub Branch Source	Pipeline: GitHub Groovy Libraries	Pipeline: Stage View
Git	SSH Build Agents	Matrix Authorization Strategy	PAM Authentication
LDAP	Email Extension	Mailer	

```
   Script Security
** JAXB
** SnakeYAML API
** Jackson 2 API
** commons-text API
** Pipeline: Supporting APIs
** Plugin Utilities API
** Font Awesome API
** Bootstrap 5 API
** JQuery3 API
** ECharts API
** Display URL API
** Checks API
** JUnit
** Matrix Project
** Resource Disposer
Workspace Cleanup
Ant
** Durable Task
** Pipeline: Nodes and Processes
** Pipeline: SCM Step
** Pipeline: Groovy
** Pipeline: Job
** Jakarta Activation API
** Jakarta Mail API
** - required dependency
```

Jenkins 2.426.1

Create admin user credentials.


Getting Started

Create First Admin User

Username: Hemanth

Password: •••••

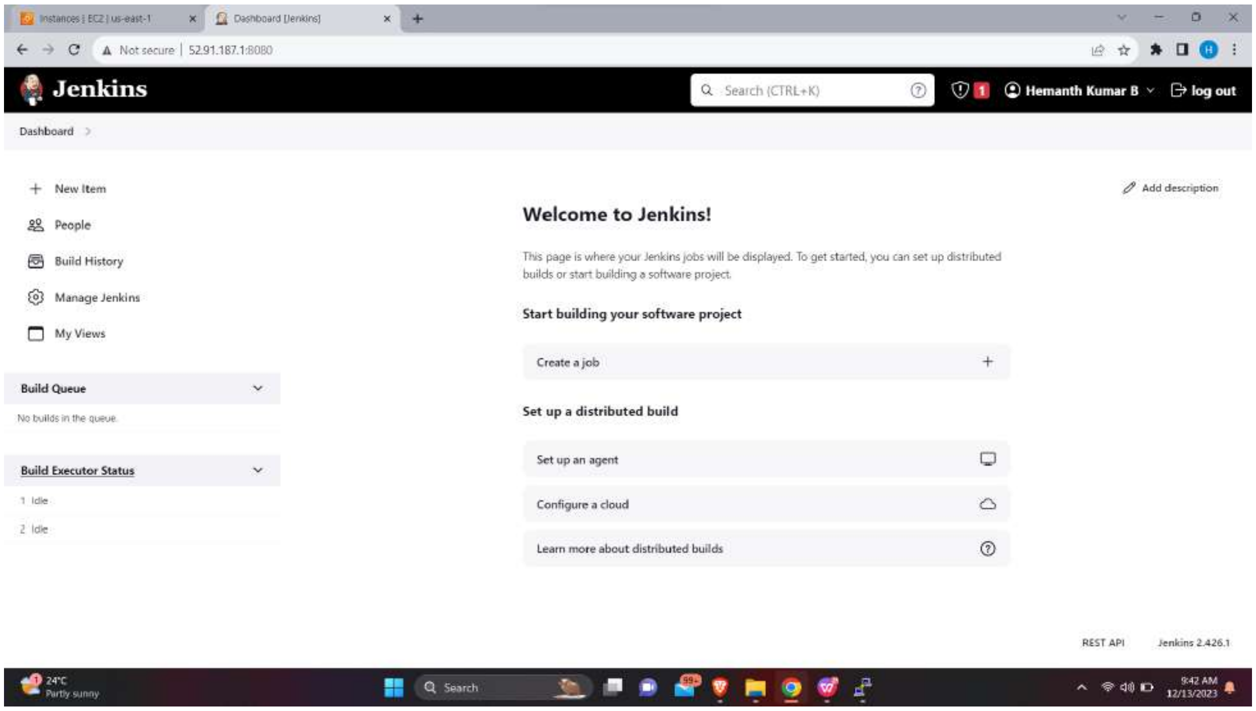
Confirm password: •••••

Full name: Hemanth Kumar B

E-mail address: hemanth130901@gmail.com

Jenkins 2.426.1

Jenkins Dashboard is Successfully Hosted.



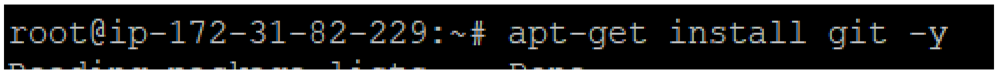
Welcome to Jenkins!

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

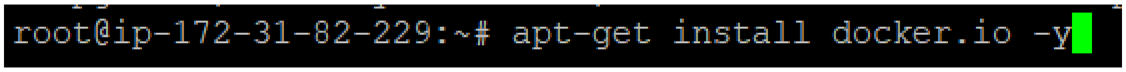
Set up a distributed build

In Jenkins Ec2 Server, install the git package.



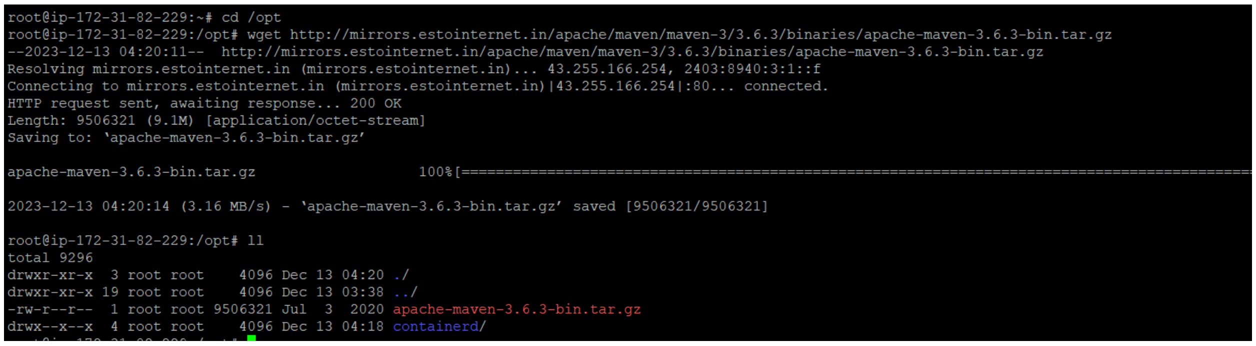
```
root@ip-172-31-82-229:~# apt-get install git -y
```

Install docker package



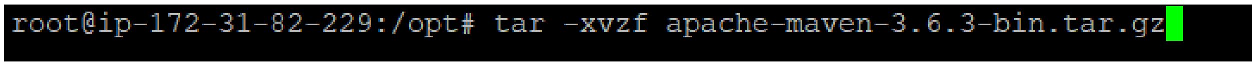
```
root@ip-172-31-82-229:~# apt-get install docker.io -y
```

Download Maven tar file using wget command



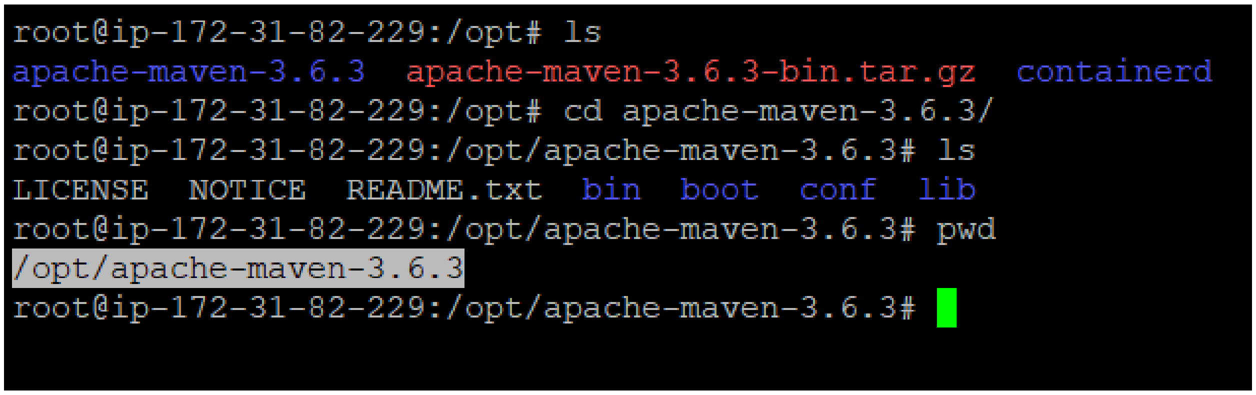
```
root@ip-172-31-82-229:~# cd /opt
root@ip-172-31-82-229:/opt# wget http://mirrors.estointernet.in/apache/maven/maven-3/3.6.3/binaries/apache-maven-3.6.3-bin.tar.gz
--2023-12-13 04:20:11--  http://mirrors.estointernet.in/apache/maven/maven-3/3.6.3/binaries/apache-maven-3.6.3-bin.tar.gz
Resolving mirrors.estointernet.in (mirrors.estointernet.in)... 43.255.166.254, 2403:8940:3:1::f
Connecting to mirrors.estointernet.in (mirrors.estointernet.in)|43.255.166.254|:80... connected.
HTTP request sent, awaiting response... 200 OK
Length: 9506321 (9.1M) [application/octet-stream]
Saving to: 'apache-maven-3.6.3-bin.tar.gz'

apache-maven-3.6.3-bin.tar.gz                  100%[==========================================================================================

2023-12-13 04:20:14 (3.16 MB/s) - 'apache-maven-3.6.3-bin.tar.gz' saved [9506321/9506321]

root@ip-172-31-82-229:/opt# ll
total 9296
drwxr-xr-x  3 root root    4096 Dec 13 04:20 ./
drwxr-xr-x 19 root root    4096 Dec 13 03:38 ../
-rw-r--r--  1 root root 9506321 Jul  3  2020 apache-maven-3.6.3-bin.tar.gz
drwx--x--x  4 root root    4096 Dec 13 04:18 containerd/
```

Un-tar the maven tar file package using tar cmnd



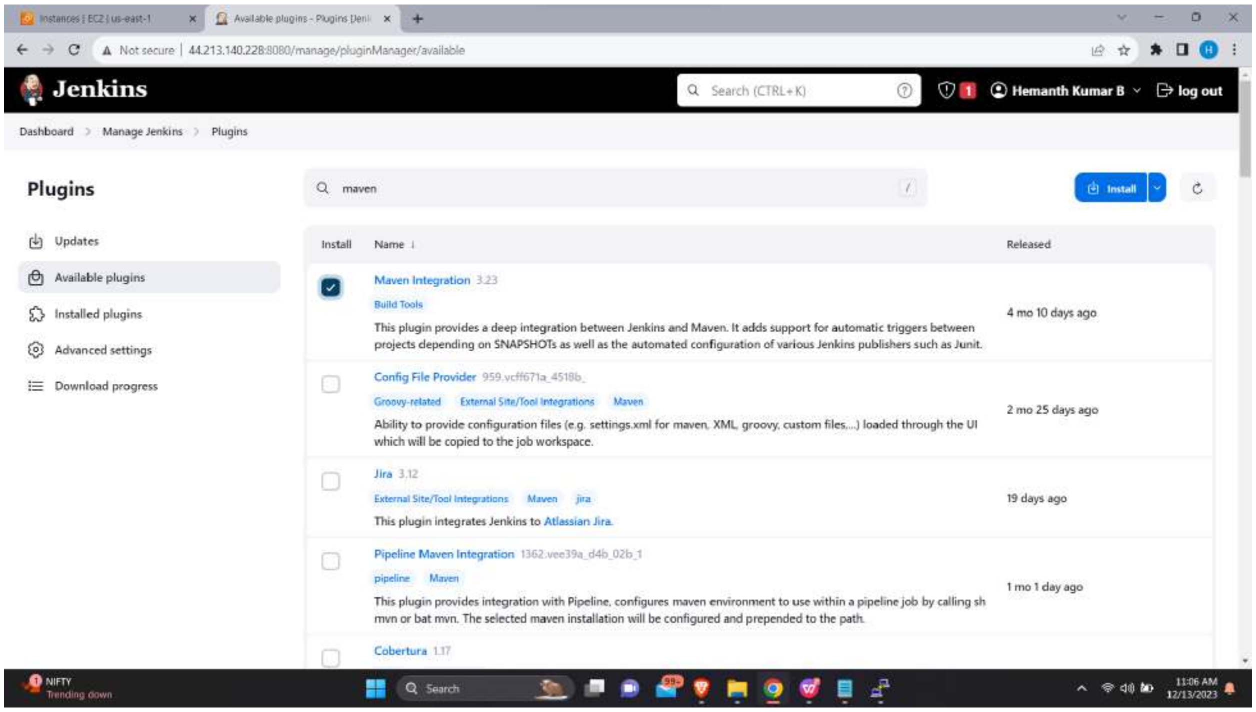
```
root@ip-172-31-82-229:/opt# tar -xvzf apache-maven-3.6.3-bin.tar.gz
```

Copy the maven file path.



```
root@ip-172-31-82-229:/opt# ls
apache-maven-3.6.3  apache-maven-3.6.3-bin.tar.gz  containerd
root@ip-172-31-82-229:/opt# cd apache-maven-3.6.3/
root@ip-172-31-82-229:/opt/apache-maven-3.6.3# ls
LICENSE  NOTICE  README.txt  bin  boot  conf  lib
root@ip-172-31-82-229:/opt/apache-maven-3.6.3# pwd
/opt/apache-maven-3.6.3
root@ip-172-31-82-229:/opt/apache-maven-3.6.3#
```

In Jenkins Dashboard, install the Maven Plugin.
Dashboard – Manage Jenkins – Plugin – search Maven integration in Available plugins – Install without restart.



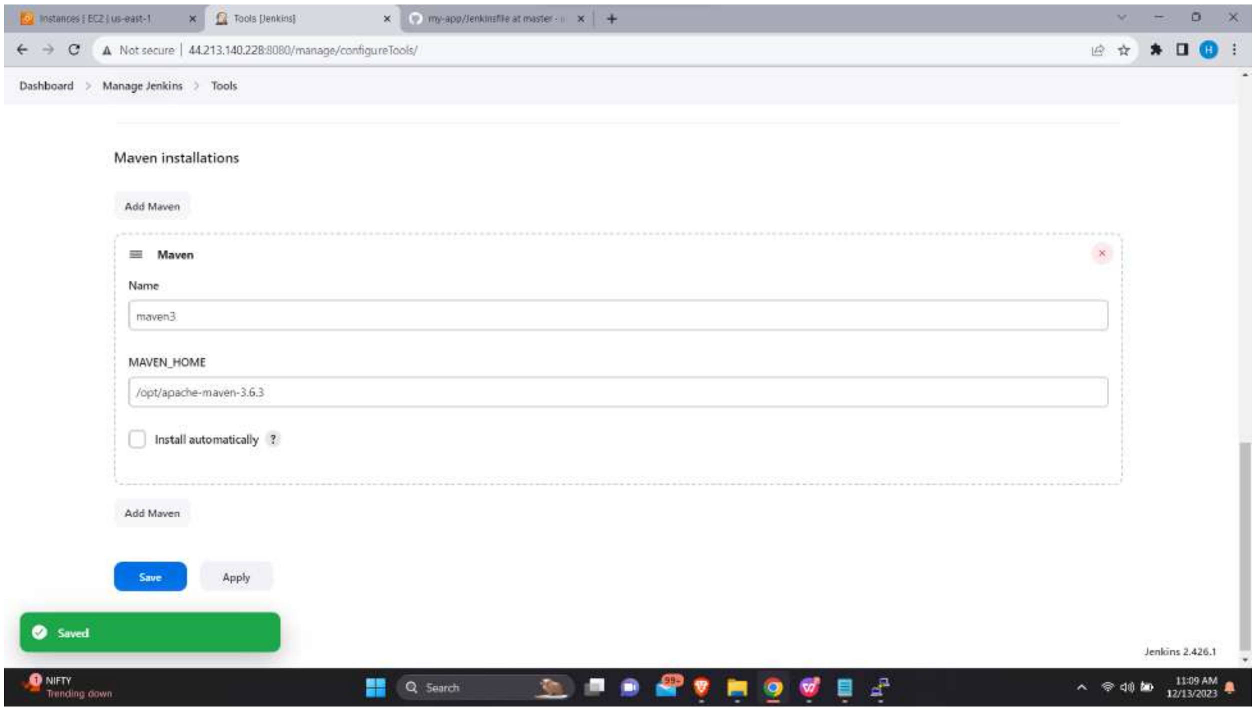
Dashboard > Manage Jenkins > Plugins

Plugins

maven

Install	Name ↓	Released
✓	Maven Integration 3.23 Build Tools This plugin provides a deep integration between Jenkins and Maven. It adds support for automatic triggers between projects depending on SNAPSHOTs as well as the automated configuration of various Jenkins publishers such as Junit.	4 mo 10 days ago
	Config File Provider 959.vcff671a_4518b_ Groovy-related External Site/Tool Integrations Maven Ability to provide configuration files (e.g. settings.xml for maven, XML, groovy, custom files,...) loaded through the UI which will be copied to the job workspace.	2 mo 25 days ago
	Jira 3.12 External Site/Tool Integrations Maven jira This plugin integrates Jenkins to Atlassian Jira.	19 days ago
	Pipeline Maven Integration 1362.vee39a_d4b_02b_1 pipeline Maven This plugin provides integration with Pipeline, configures maven environment to use within a pipeline job by calling sh mvn or bat mvn. The selected maven installation will be configured and prepended to the path.	1 mo 1 day ago
	Cobertura 1.17	

Config the maven plugin path in Jenkins dashboard.
Dashboard – manage Jenkins – Tools.
Mention the maven name same as given in groovy script


Dashboard > Manage Jenkins > Tools

Maven installations

Add Maven

Maven

Name: maven3

MAVEN_HOME: /opt/apache-maven-3.6.3

Install automatically

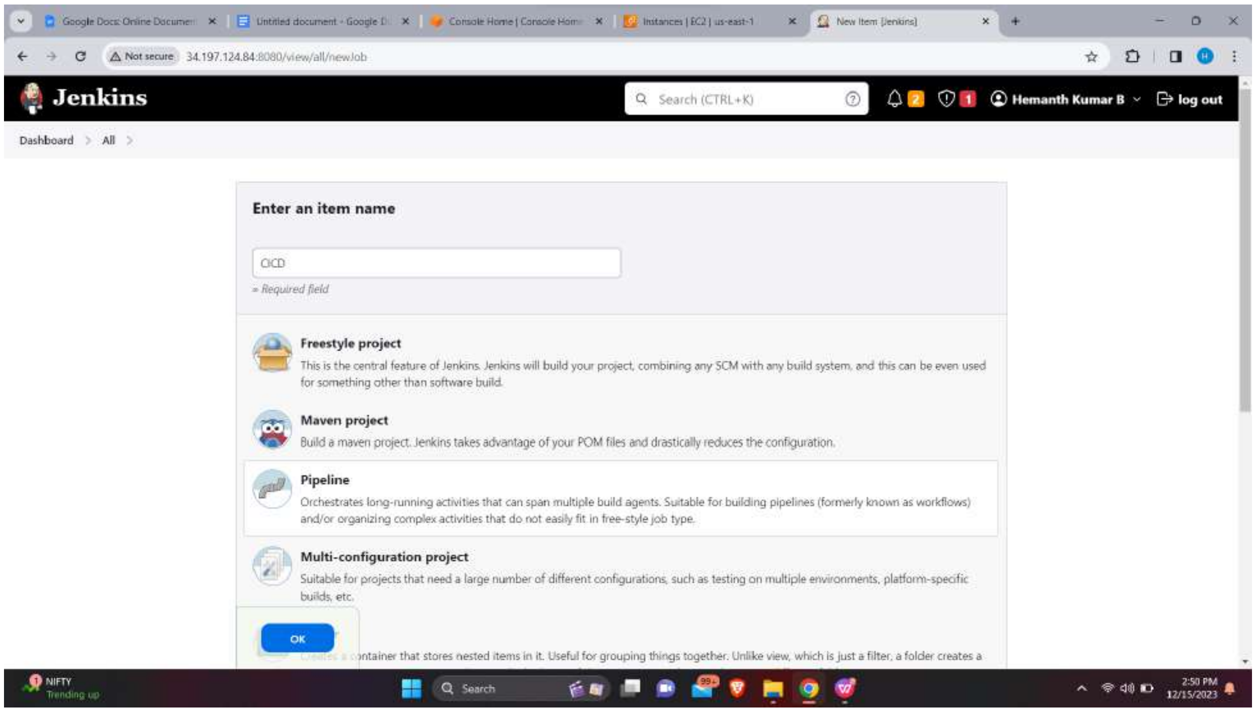
Add Maven

Save Apply

Saved

Jenkins 2.426.1

Now create a pipeline project.


Dashboard > All >

Enter an item name

CICD

» Required field

Freestyle project
This is the central feature of Jenkins. Jenkins will build your project, combining any SCM with any build system, and this can be even used for something other than software build.

Maven project
Build a maven project. Jenkins takes advantage of your POM files and drastically reduces the configuration.

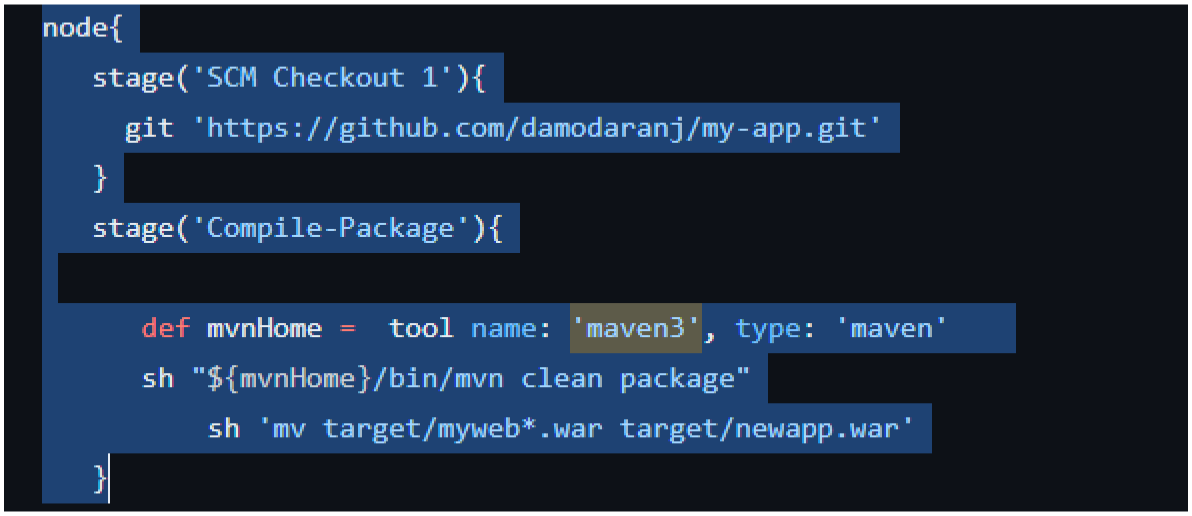
Pipeline
Orchestrates long-running activities that can span multiple build agents. Suitable for building pipelines (formerly known as workflows) and/or organizing complex activities that do not easily fit in free-style job type.

Multi-configuration project
Suitable for projects that need a large number of different configurations, such as testing on multiple environments, platform-specific builds, etc.

OK

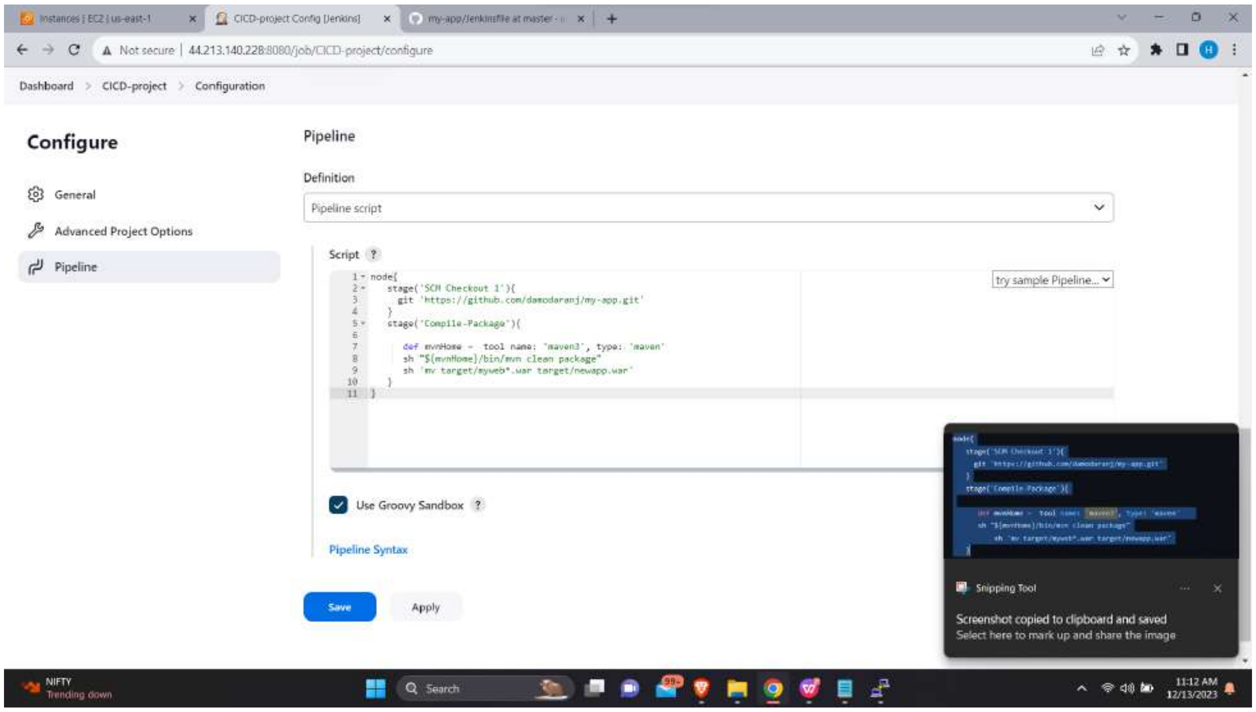
I have a groovy script file saved in github.
Github link: https://github.com/udhayakumar2507/my-app
Which I've used for deploying a respective step by step groovy script stages in Jenkins.

Copying Checkout stage and Maven stage.



```
node{
   stage('SCM Checkout 1'){
     git 'https://github.com/damodaranj/my-app.git'
   }
   stage('Compile-Package'){

      def mvnHome =  tool name: 'maven3', type: 'maven'
      sh "${mvnHome}/bin/mvn clean package"
          sh 'mv target/myweb*.war target/newapp.war'
   }
```

In the pipeline script field, paste the checkout and maven stages – Ensure closing (}) is given correctly – apply and save.



Instances | EC2 | us-east-1 — CICD-project Config [Jenkins] — my-app/Jenkinsfile at master

Not secure | 44.213.140.228:8080/job/CICD-project/configure

Dashboard > CICD-project > Configuration

Configure

General
Advanced Project Options
Pipeline

Pipeline

Definition

Pipeline script

Script

try sample Pipeline...

```
node{
   stage('SCM Checkout 1'){
     git 'https://github.com/damodaranj/my-app.git'
   }
   stage('Compile-Package'){

      def mvnHome =  tool name: 'maven3', type: 'maven'
      sh "${mvnHome}/bin/mvn clean package"
      sh 'mv target/myweb*.war target/newapp.war'
   }
}
```

Use Groovy Sandbox [✓]

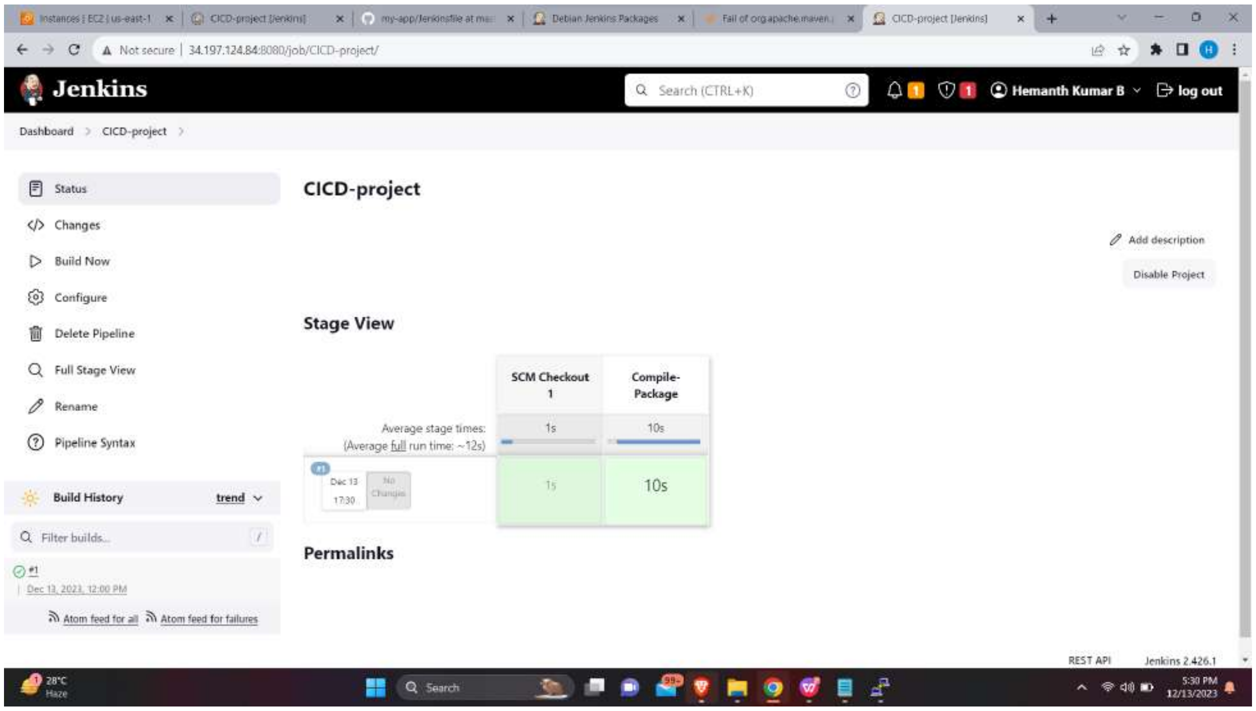
Pipeline Syntax

Save   Apply

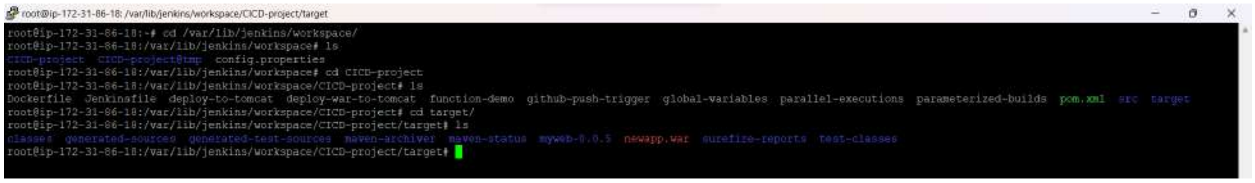
Snipping Tool
Screenshot copied to clipboard and saved
Select here to mark up and share the image

NIFTY Trending down   Search   11:12 AM 12/13/2023

Build the pipeline project, In below image can we see the stages have been deployed successfully.

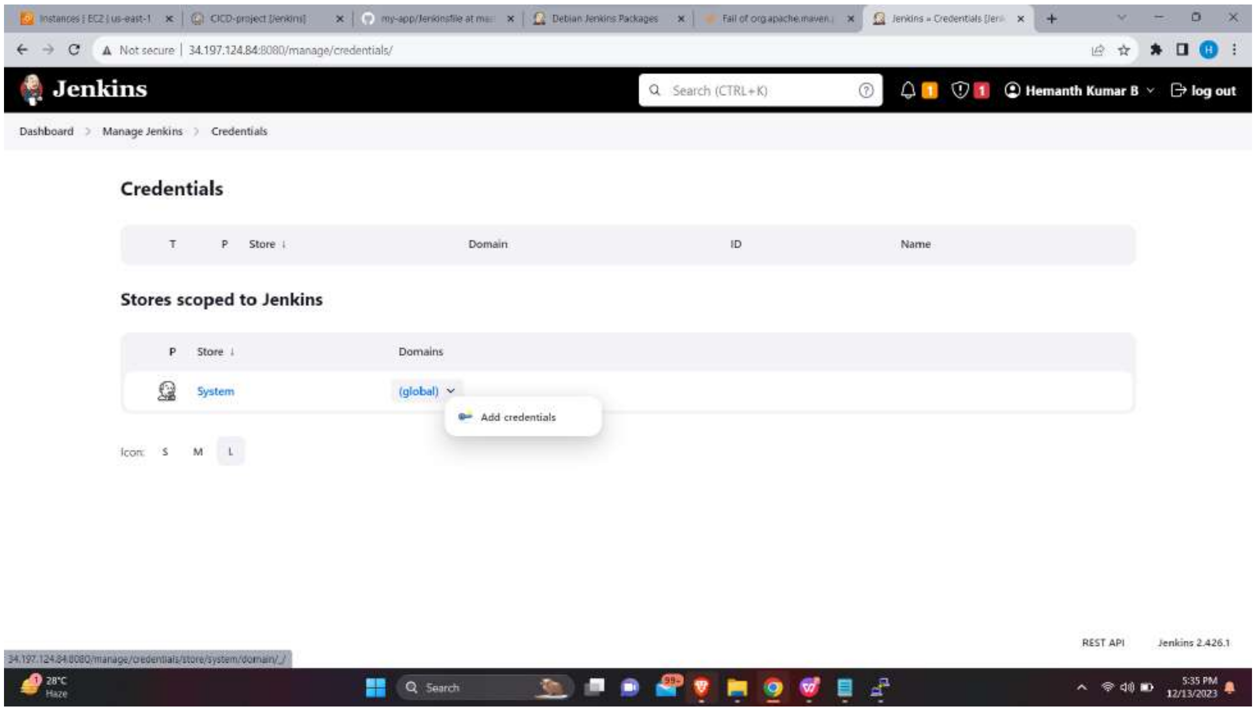


In Jenkins Ec2 server, go the Jenkins workspace default path and ensure all the files have been moved to Jenkins server from github and also successfully created a newapp.war file using maven.



```
root@ip-172-31-86-18:~# cd /var/lib/jenkins/workspace/
root@ip-172-31-86-18:/var/lib/jenkins/workspace# ls
CICD-project  CICD-project@tmp  config.properties
root@ip-172-31-86-18:/var/lib/jenkins/workspace# cd CICD-project
root@ip-172-31-86-18:/var/lib/jenkins/workspace/CICD-project# ls
Dockerfile  Jenkinsfile  deploy-to-tomcat  deploy-war-to-tomcat  function-demo  github-push-trigger  global-variables  parallel-executions  parameterized-builds  pom.xml  src  target
root@ip-172-31-86-18:/var/lib/jenkins/workspace/CICD-project# cd target/
root@ip-172-31-86-18:/var/lib/jenkins/workspace/CICD-project/target# ls
classes  generated-sources  generated-test-sources  maven-archiver  maven-status  myweb-0.0.5  newapp.war  surefire-reports  test-classes
root@ip-172-31-86-18:/var/lib/jenkins/workspace/CICD-project/target#
```

Now create a password variable for docker hub login in Jenkins dashboard.
Dashboard – manage Jenkins – credentials – global Add credentials.

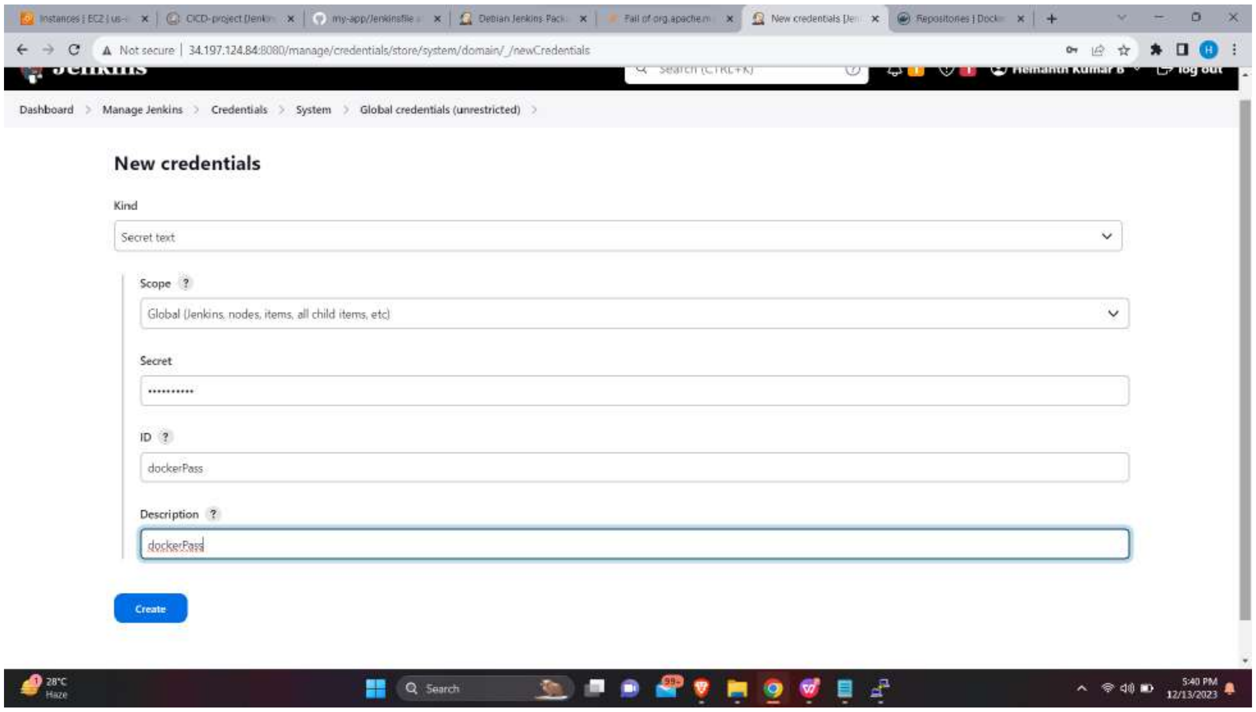

Credentials

T	P	Store ↓	Domain	ID	Name

Stores scoped to Jenkins

P	Store ↓	Domains
	System	(global)

Copy the same variable name mentioned in groovy script.
Create a new credentials
Choose Script text
In secret: Enter the docker hub login password.
Id and Description: Paste the variable name. (dockerPass) – Create.


New credentials

Kind: Secret text

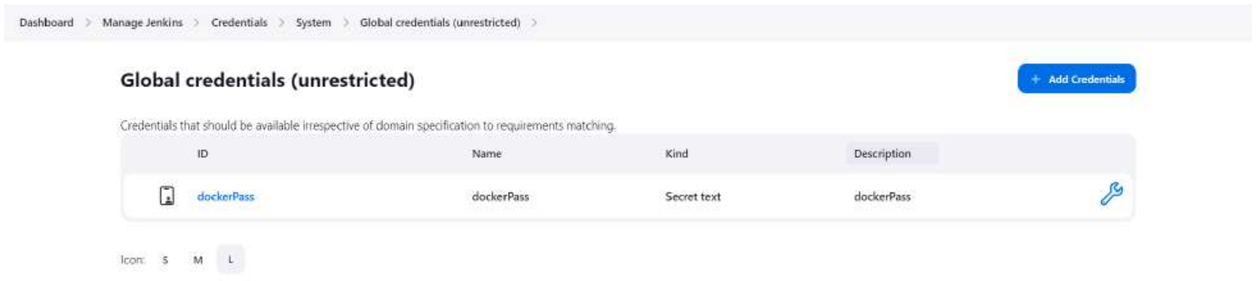
Scope: Global (Jenkins, nodes, items, all child items, etc)

Secret: ••••••••••

ID: dockerPass

Description: dockerPass

Successfully created a variable name for docker hub login password.



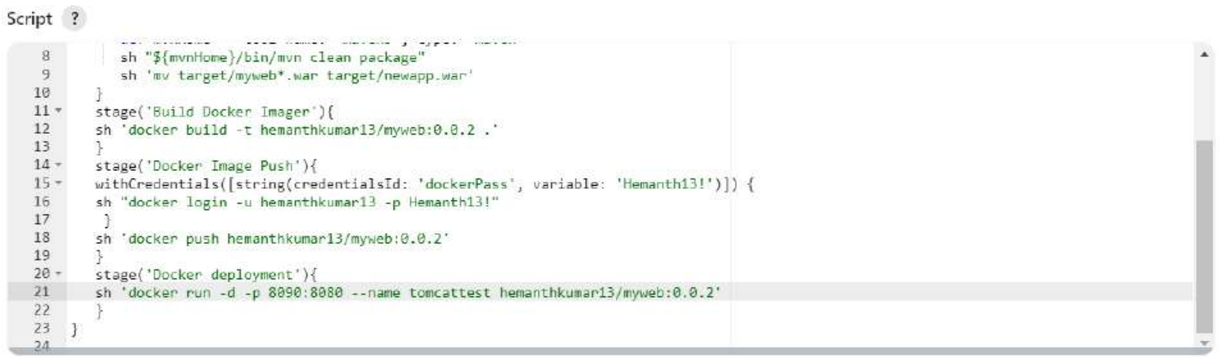
Dashboard > Manage Jenkins > Credentials > System > Global credentials (unrestricted) >

Global credentials (unrestricted)

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

ID	Name	Kind	Description
dockerPass	dockerPass	Secret text	dockerPass

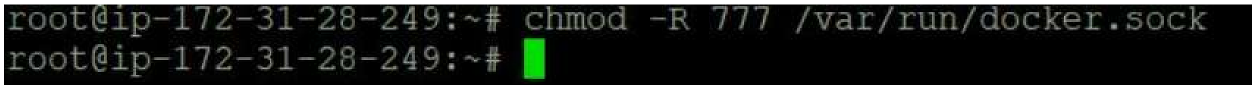
Copy the Build docker Image,Docker image push, Docker deployment stage from groovy script.
Paste the groovy script under the maven stage.
Ensure the (}) is mentioned properly.
Ensure the login username name is given correctly
I’ve changed the docker image name to my own name. (optional) – apply & save.



Script

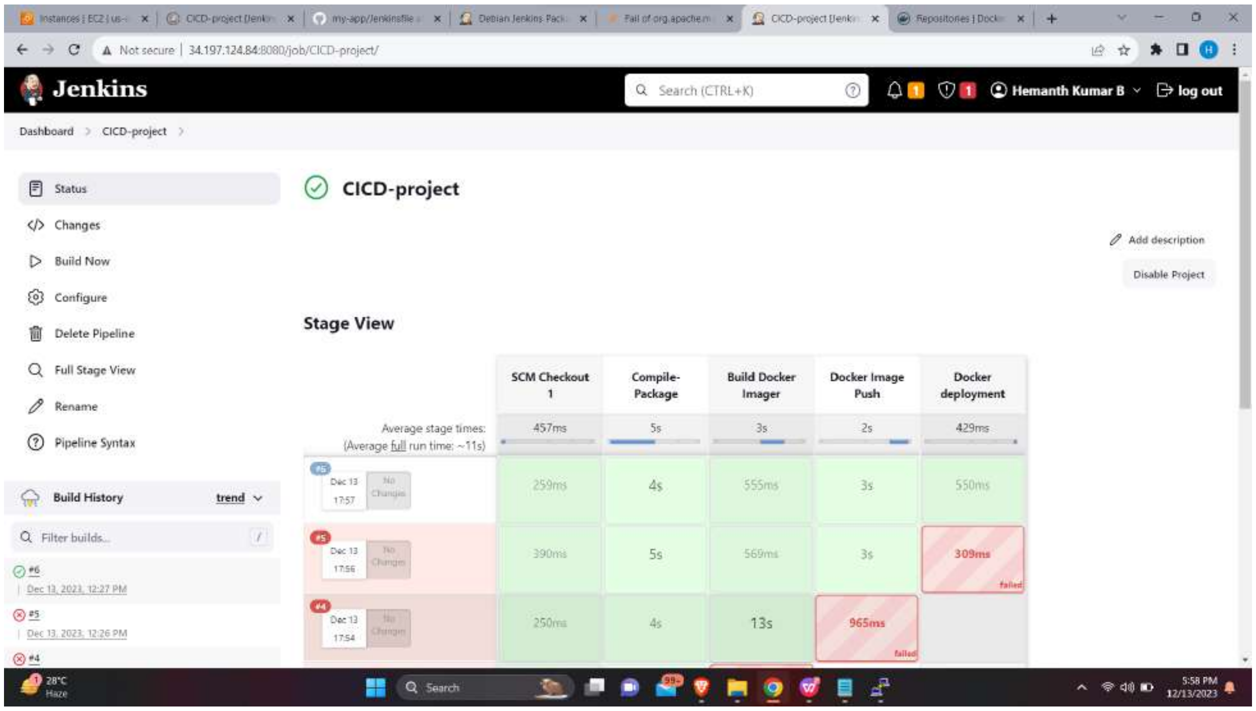
```
        sh "${mvnHome}/bin/mvn clean package"
        sh 'mv target/myweb*.war target/newapp.war'
    }
    stage('Build Docker Imager'){
    sh 'docker build -t hemanthkumar13/myweb:0.0.2 .'
    }
    stage('Docker Image Push'){
    withCredentials([string(credentialsId: 'dockerPass', variable: 'Hemanth13!')]) {
    sh "docker login -u hemanthkumar13 -p Hemanth13!"
     }
    sh 'docker push hemanthkumar13/myweb:0.0.2'
    }
    stage('Docker deployment'){
    sh 'docker run -d -p 8090:8080 --name tomcattest hemanthkumar13/myweb:0.0.2'
    }
}
```

In Jenkins ec2 server, change the permission to default docker dir path to execute the script.



```
root@ip-172-31-28-249:~# chmod -R 777 /var/run/docker.sock
root@ip-172-31-28-249:~# 
```

Now Build the Pipeline project,In the below image can we see that the stages have been deployed successfully.


34.197.124.84:8080/job/CICD-project/

Jenkins

Dashboard > CICD-project >

Status
Changes
Build Now
Configure
Delete Pipeline
Full Stage View
Rename
Pipeline Syntax

Build History trend

Filter builds...

#6 Dec 13, 2023, 12:27 PM
#5 Dec 13, 2023, 12:26 PM
#4

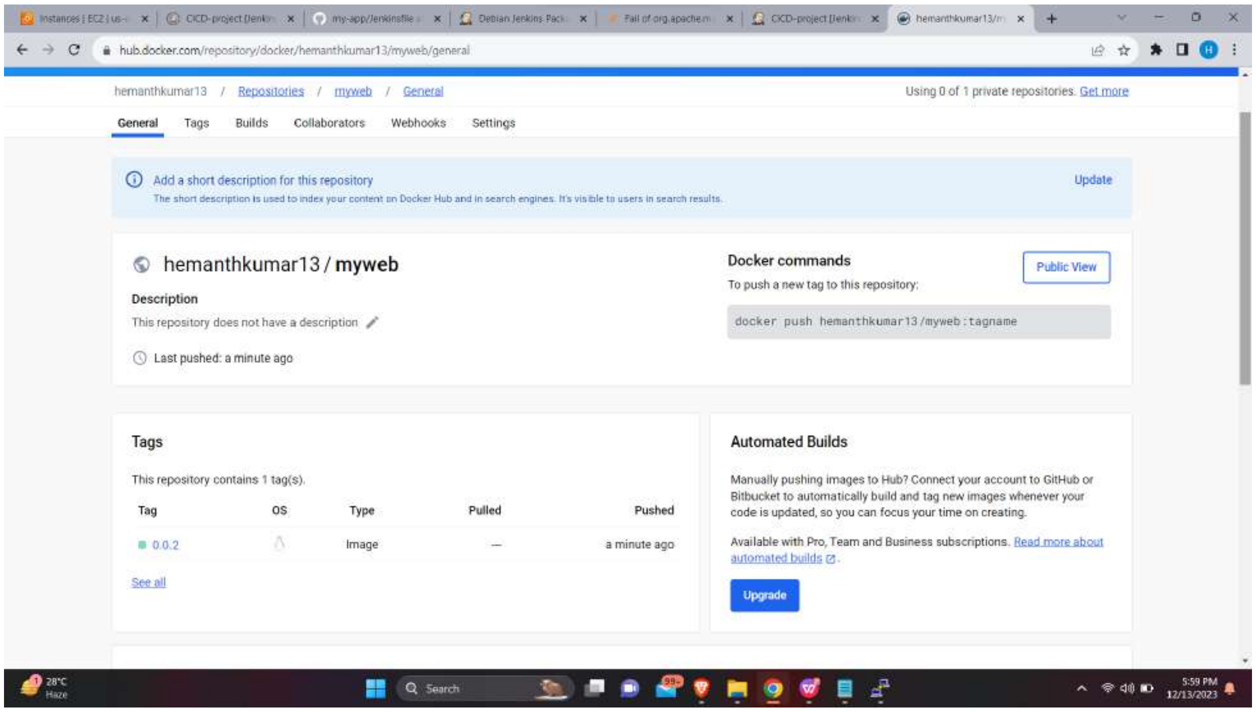
CICD-project

Add description
Disable Project

Stage View

	SCM Checkout 1	Compile-Package	Build Docker Imager	Docker Image Push	Docker deployment
Average stage times: (Average full run time: ~11s)	457ms	5s	3s	2s	429ms
#6 Dec 13 17:57 No Changes	259ms	4s	555ms	3s	550ms
#5 Dec 13 17:56 No Changes	390ms	5s	569ms	3s	309ms failed
#4 Dec 13 17:54 No Changes	250ms	4s	13s	965ms failed	

Successfully pushed docker image in dockerhub.


hub.docker.com/repository/docker/hemanthkumar13/myweb/general

hemanthkumar13 / Repositories / myweb / General

Using 0 of 1 private repositories. Get more

General Tags Builds Collaborators Webhooks Settings

Add a short description for this repository
The short description is used to index your content on Docker Hub and in search engines. It's visible to users in search results.
Update

hemanthkumar13 / myweb

Description
This repository does not have a description

Last pushed: a minute ago

Docker commands
To push a new tag to this repository:

```
docker push hemanthkumar13/myweb:tagname
```

Public View

Tags

This repository contains 1 tag(s).

Tag	OS	Type	Pulled	Pushed
0.0.2		Image	—	a minute ago

See all

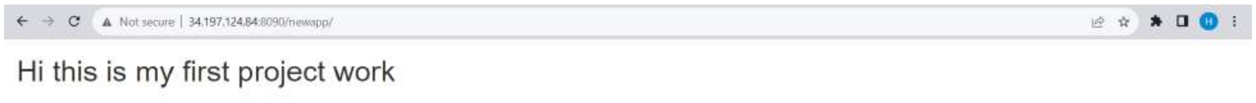
Automated Builds

Manually pushing images to Hub? Connect your account to GitHub or Bitbucket to automatically build and tag new images whenever your code is updated, so you can focus your time on creating.

Available with Pro, Team and Business subscriptions. Read more about automated builds.

Upgrade

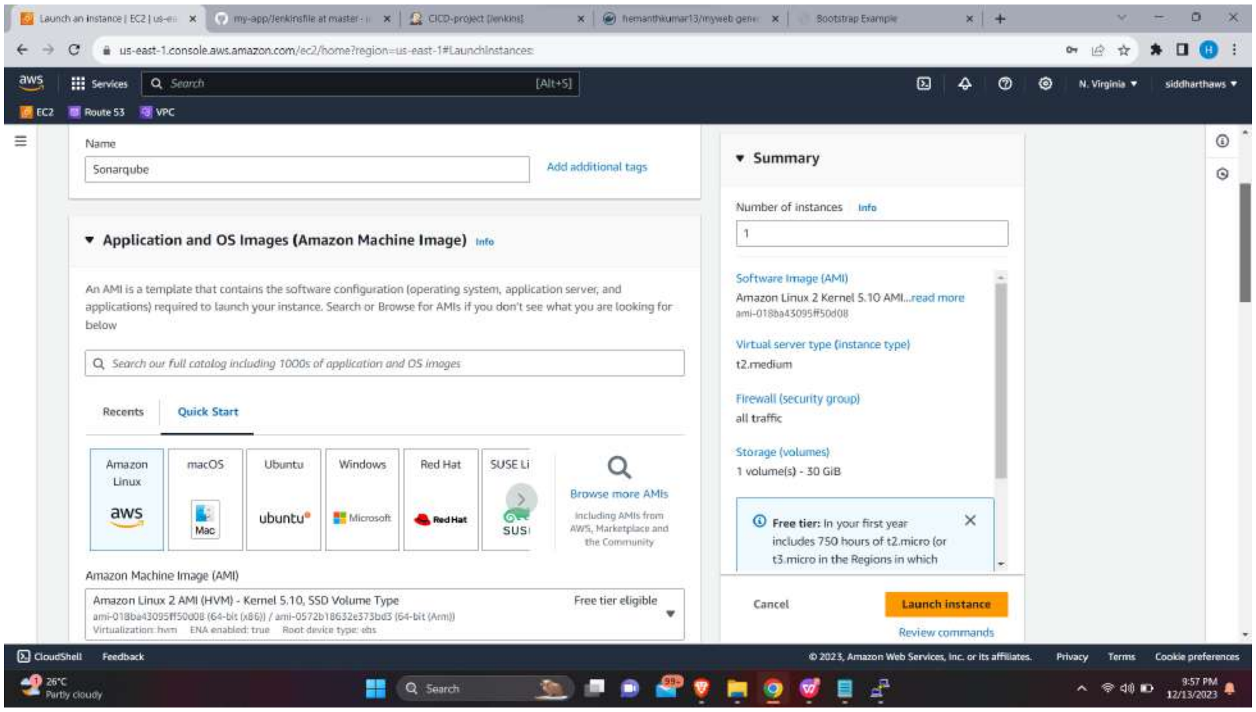
Successfully deployed a war file in tomcat server. (testdemo)


Not secure | 34.197.124.84:8090/newapp/

Hi this is my first project work

Steps to install Sonarqube and deploy in Jenkins pipeline to analyze the SCM for clean code delivery.

Launch an Ec2 Instances for Sonarqube.
Amazon Linux 2 – RAM t2.medium – SG (All Traffic) – Storage 30 gib – Launch an instance.


us-east-1.console.aws.amazon.com/ec2/home?region=us-east-1#LaunchInstances:

Name: Sonarqube

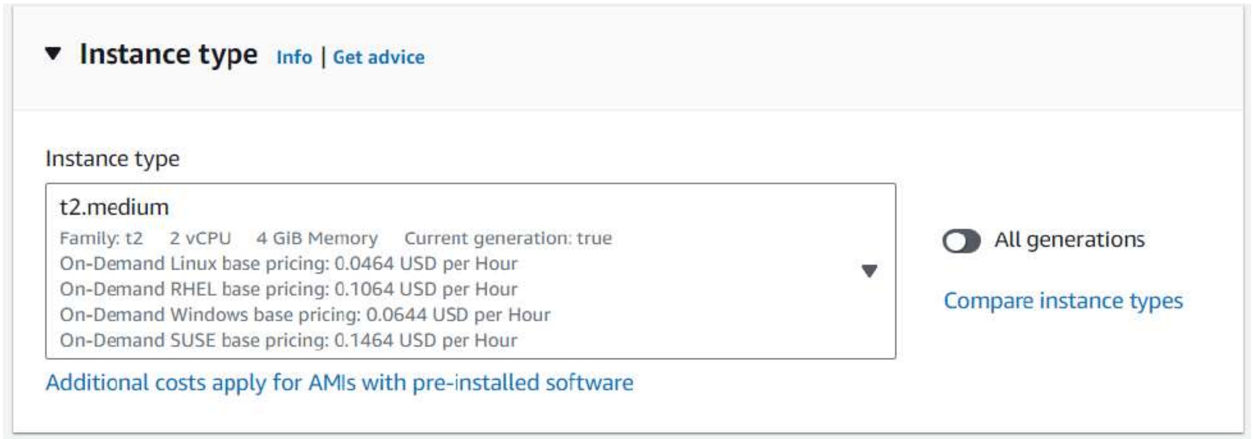
Application and OS Images (Amazon Machine Image)

An AMI is a template that contains the software configuration (operating system, application server, and applications) required to launch your instance. Search or Browse for AMIs if you don't see what you are looking for below

Amazon Machine Image (AMI)
Amazon Linux 2 AMI (HVM) - Kernel 5.10, SSD Volume Type — Free tier eligible
ami-018ba43095ff50d08 (64-bit (x86)) / ami-0572b18632e373bd3 (64-bit (Arm))
Virtualization: hvm ENA enabled: true Root device type: ebs

Summary
Number of instances: 1
Software Image (AMI): Amazon Linux 2 Kernel 5.10 AMI...read more ami-018ba43095ff50d08
Virtual server type (instance type): t2.medium
Firewall (security group): all traffic
Storage (volumes): 1 volume(s) - 30 GiB

Free tier: In your first year includes 750 hours of t2.micro (or t3.micro in the Regions in which



Instance type Info | Get advice

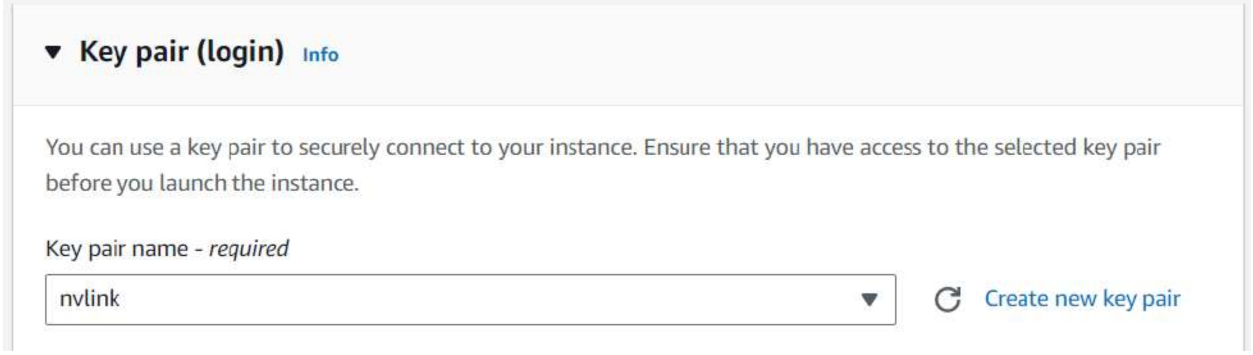
Instance type

t2.medium
Family: t2 2 vCPU 4 GiB Memory Current generation: true
On-Demand Linux base pricing: 0.0464 USD per Hour
On-Demand RHEL base pricing: 0.1064 USD per Hour
On-Demand Windows base pricing: 0.0644 USD per Hour
On-Demand SUSE base pricing: 0.1464 USD per Hour

All generations

Compare instance types

Additional costs apply for AMIs with pre-installed software



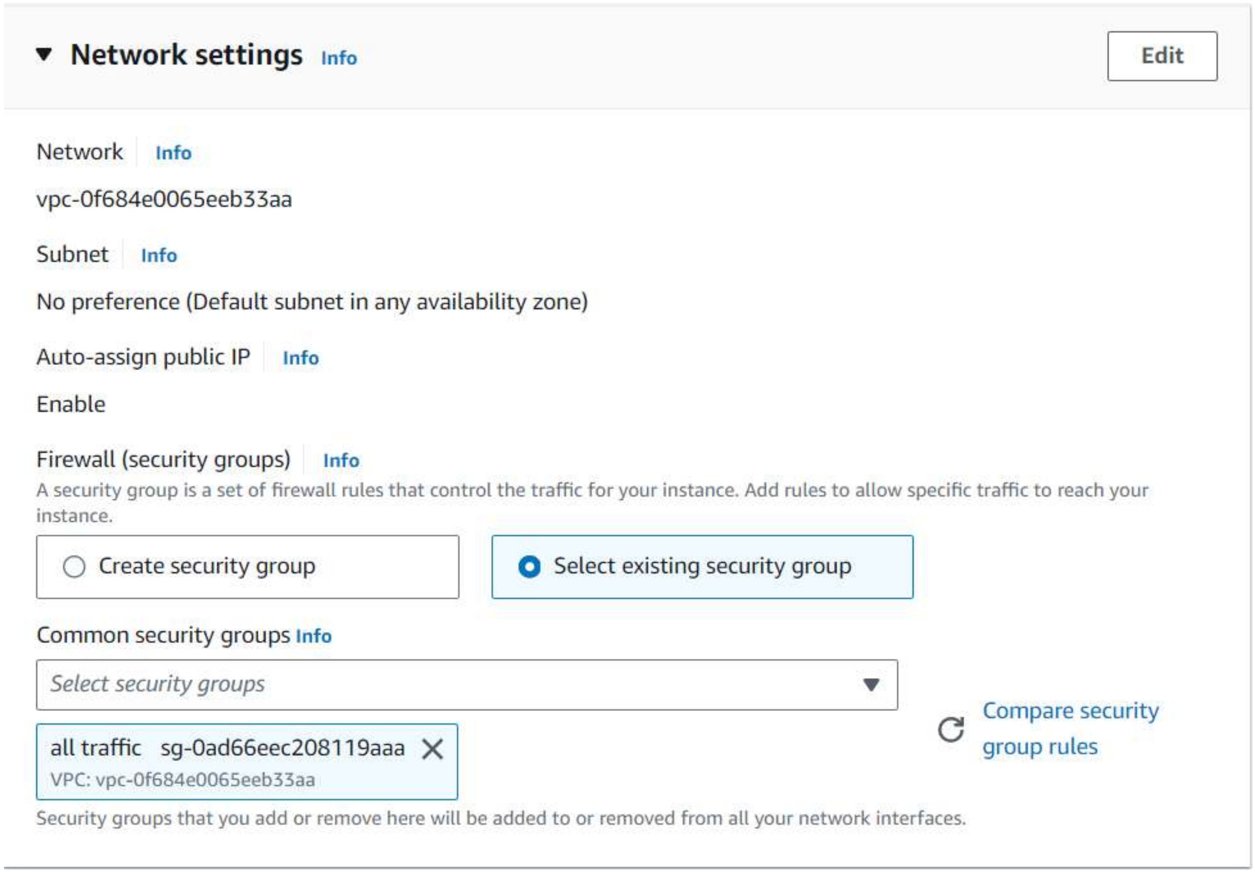
Key pair (login) Info

You can use a key pair to securely connect to your instance. Ensure that you have access to the selected key pair before you launch the instance.

Key pair name - *required*

nvlink

Create new key pair



Network settings Info

Edit

Network Info

vpc-0f684e0065eeb33aa

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]

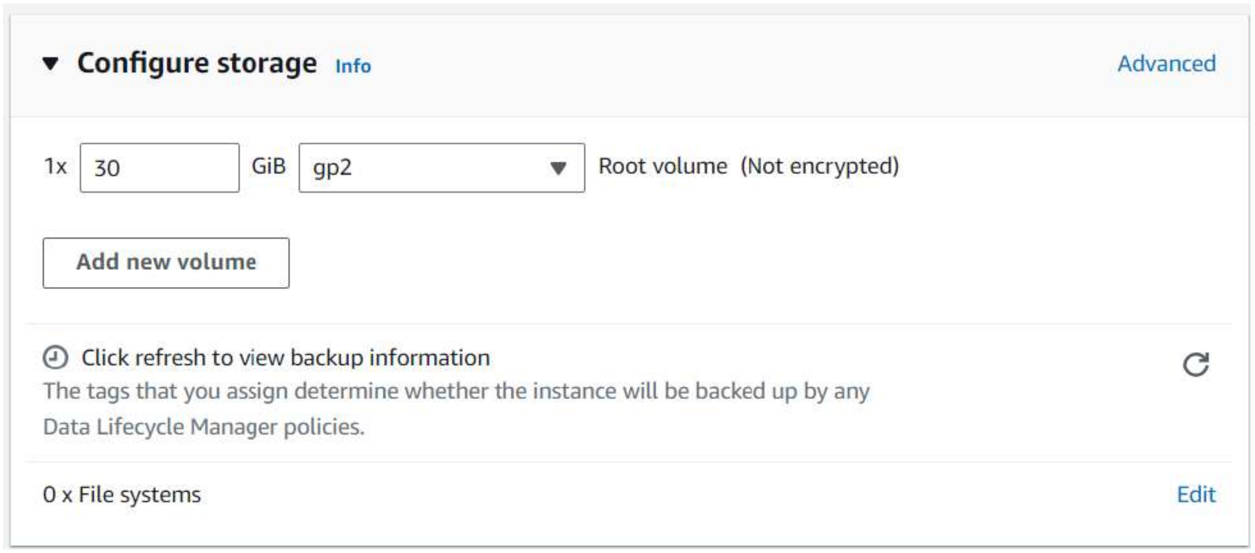
Common security groups Info

Select security groups

all traffic sg-0ad66eec208119aaa
VPC: vpc-0f684e0065eeb33aa

Compare security group rules

Security groups that you add or remove here will be added to or removed from all your network interfaces.


Configure storage Info

Advanced

1x 30 GiB gp2 Root volume (Not encrypted)

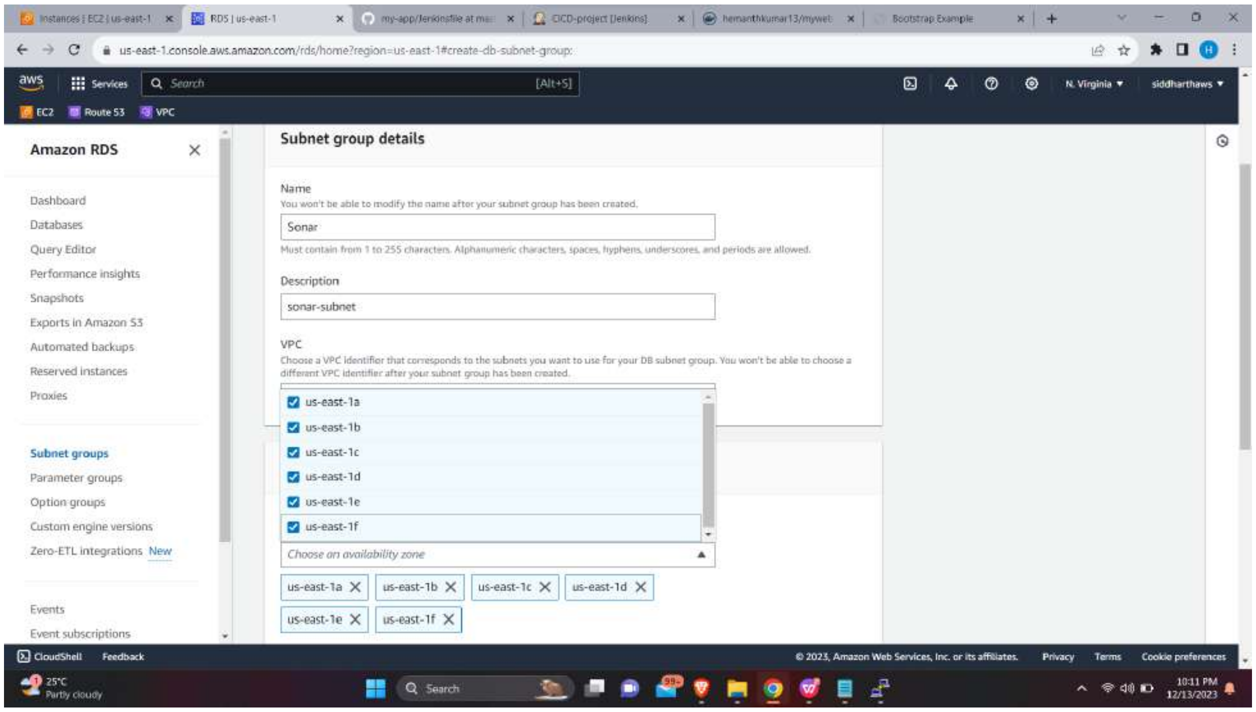
Add new volume

Click refresh to view backup information
The tags that you assign determine whether the instance will be backed up by any Data Lifecycle Manager policies.

0 x File systems

Edit

In RDS create a Mysql database.
Create a subnet group


Subnet group details

Name
You won't be able to modify the name after your subnet group has been created.
Sonar
Must contain from 1 to 255 characters. Alphanumeric characters, spaces, hyphens, underscores, and periods are allowed.

Description
sonar-subnet

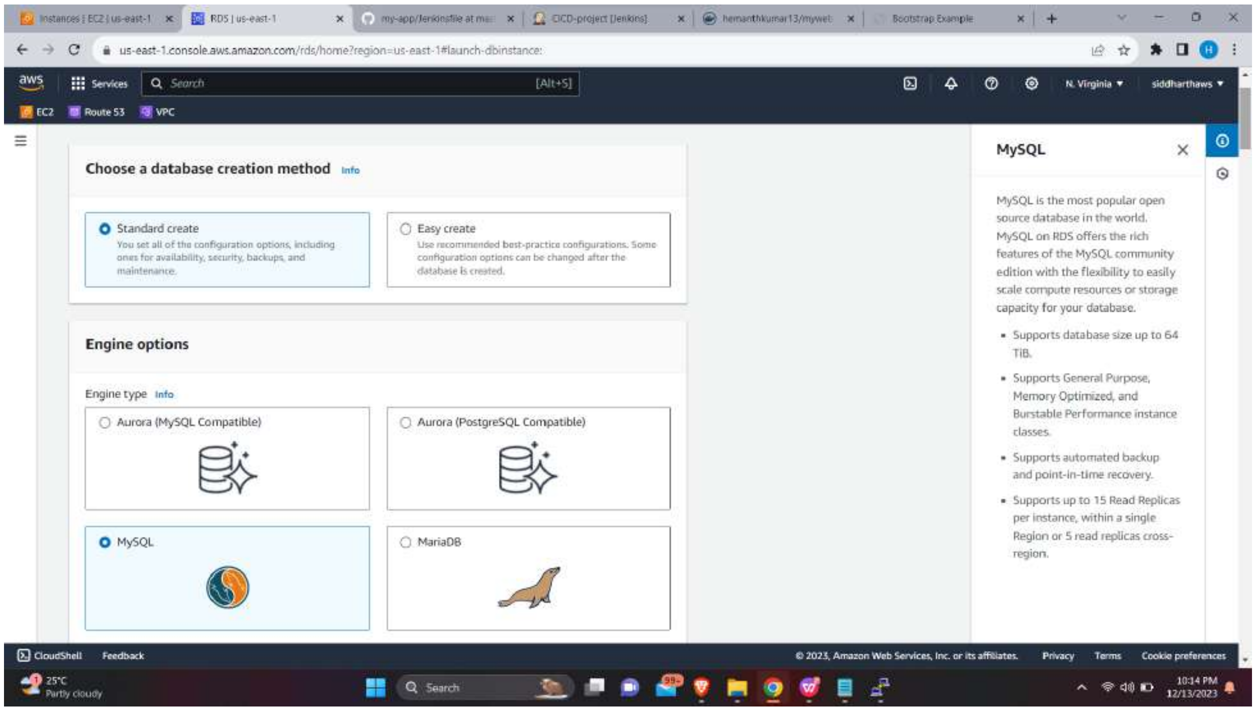
VPC
Choose a VPC identifier that corresponds to the subnets you want to use for your DB subnet group. You won't be able to choose a different VPC identifier after your subnet group has been created.

- [x] us-east-1a
- [x] us-east-1b
- [x] us-east-1c
- [x] us-east-1d
- [x] us-east-1e
- [x] us-east-1f

Choose an availability zone

us-east-1a us-east-1b us-east-1c us-east-1d us-east-1e us-east-1f

Create a database - Standard create - Choose MySQL DB engine.


Choose a database creation method Info

Standard create [✓]
You set all of the configuration options, including ones for availability, security, backups, and maintenance.

Easy create
Use recommended best-practice configurations. Some configuration options can be changed after the database is created.

Engine options

Engine type Info

Aurora (MySQL Compatible)

Aurora (PostgreSQL Compatible)

MySQL [✓]

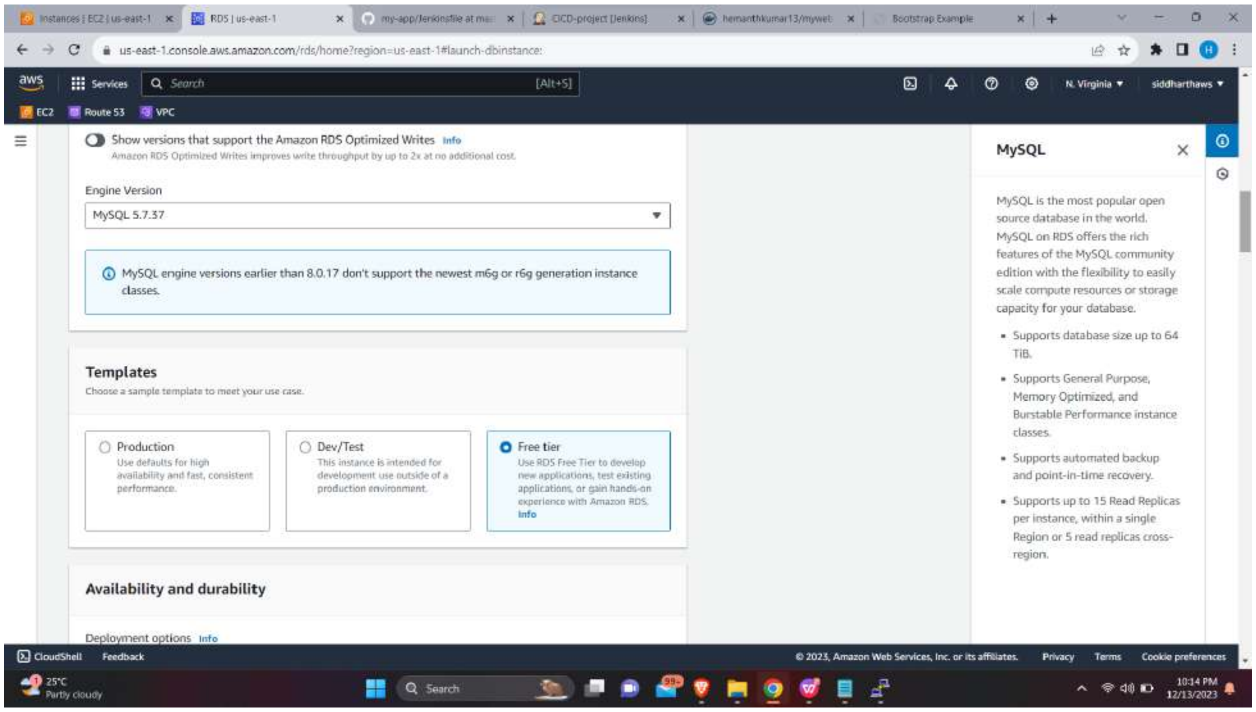
MariaDB

MySQL

MySQL is the most popular open source database in the world. MySQL on RDS offers the rich features of the MySQL community edition with the flexibility to easily scale compute resources or storage capacity for your database.

- Supports database size up to 64 TiB.
- Supports General Purpose, Memory Optimized, and Burstable Performance instance classes.
- Supports automated backup and point-in-time recovery.
- Supports up to 15 Read Replicas per instance, within a single Region or 5 read replicas cross-region.

Choose MySQL version (5.7.37) - Free tier Templates.


Show versions that support the Amazon RDS Optimized Writes Info
Amazon RDS Optimized Writes improves write throughput by up to 2x at no additional cost.

Engine Version
MySQL 5.7.37

MySQL engine versions earlier than 8.0.17 don't support the newest m6g or r6g generation instance classes.

Templates
Choose a sample template to meet your use case.

Production
Use defaults for high availability and fast, consistent performance.

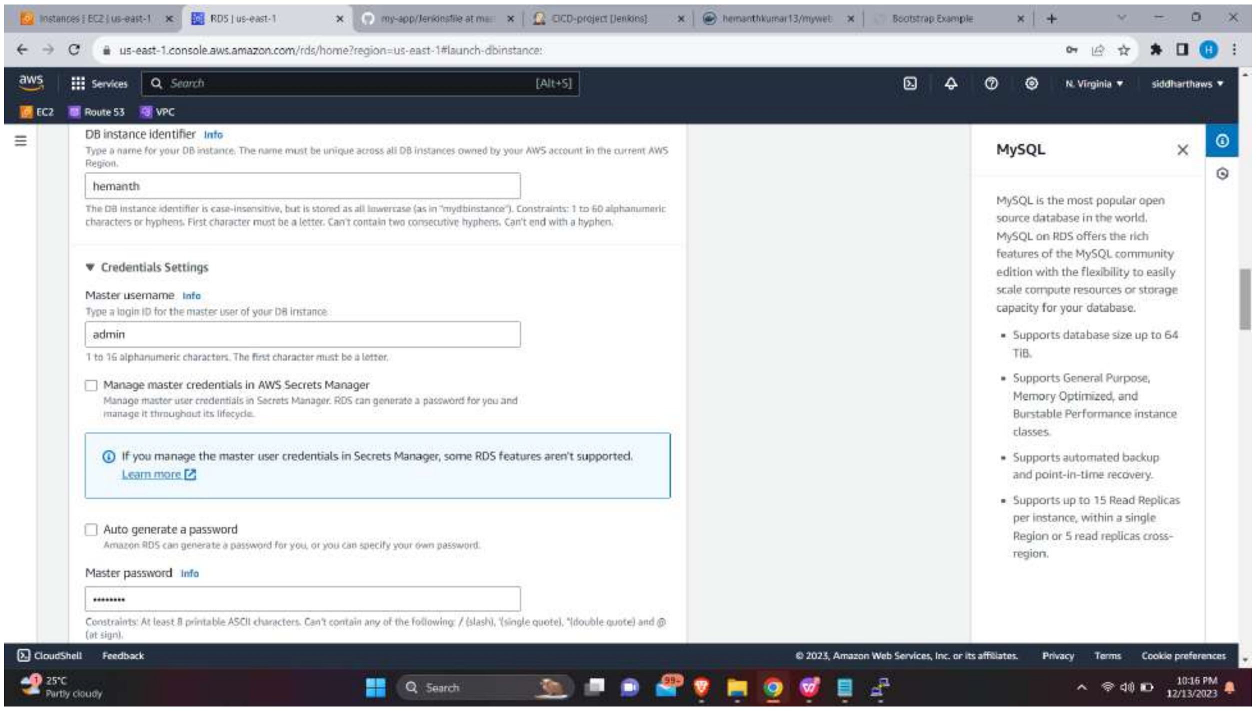
Dev/Test
This instance is intended for development use outside of a production environment.

Free tier [✓]
Use RDS Free Tier to develop new applications, test existing applications, or gain hands-on experience with Amazon RDS. Info

Availability and durability

Deployment options Info

In the settings tab, create a DB ID Eg : hemanth - Username (admin) – Master Password – Confirm Master Password.


us-east-1.console.aws.amazon.com/rds/home?region=us-east-1#launch-dbinstance:
Services
Search
[Alt+S]
N. Virginia
siddharthaws
EC2
Route 53
VPC
CloudShell
Feedback
© 2023, Amazon Web Services, Inc. or its affiliates.
Privacy
Terms
Cookie preferences
10:16 PM
12/13/2023

DB instance identifier Info
Type a name for your DB instance. The name must be unique across all DB instances owned by your AWS account in the current AWS Region.

hemanth

The DB instance identifier is case-insensitive, but is stored as all lowercase (as in "mydbinstance"). Constraints: 1 to 60 alphanumeric characters or hyphens. First character must be a letter. Can't contain two consecutive hyphens. Can't end with a hyphen.

▼ Credentials Settings

Master username Info
Type a login ID for the master user of your DB instance.

admin

1 to 16 alphanumeric characters. The first character must be a letter.

☐ Manage master credentials in AWS Secrets Manager
Manage master user credentials in Secrets Manager. RDS can generate a password for you and manage it throughout its lifecycle.

If you manage the master user credentials in Secrets Manager, some RDS features aren't supported.
Learn more

☐ Auto generate a password
Amazon RDS can generate a password for you, or you can specify your own password.

Master password Info

••••••••

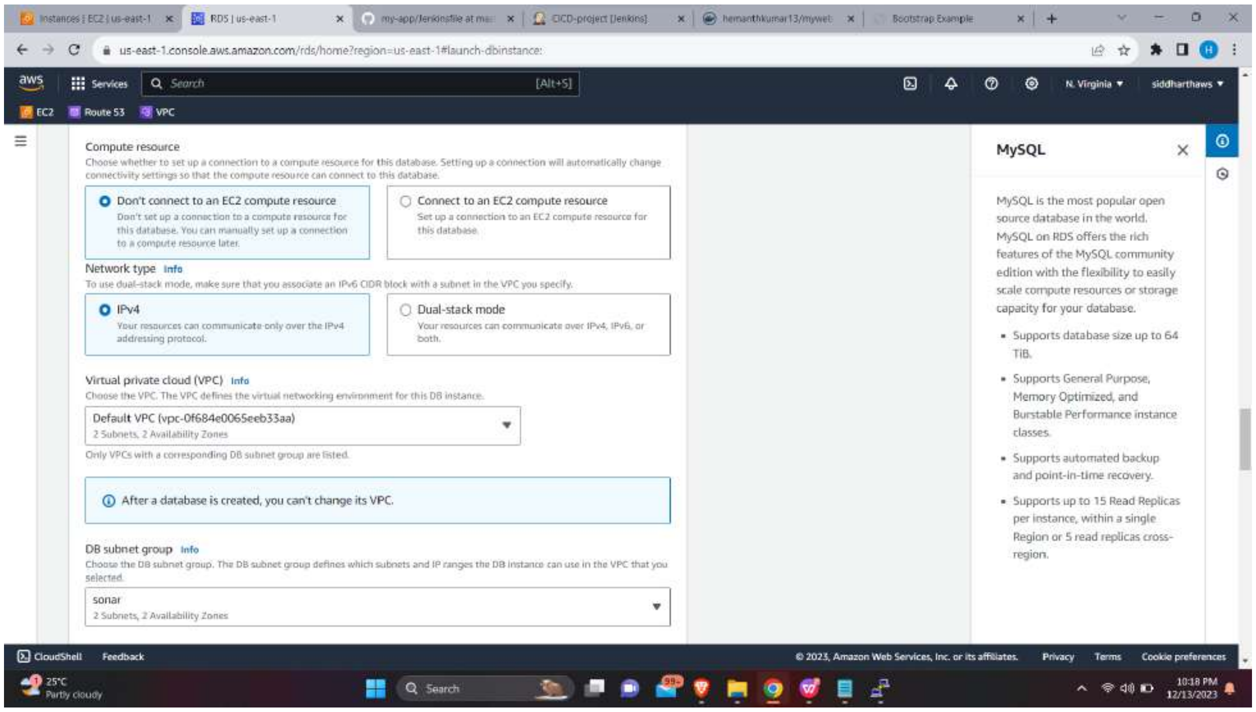
Constraints: At least 8 printable ASCII characters. Can't contain any of the following: / (slash), '(single quote), "(double quote) and @ (at sign).

MySQL

MySQL is the most popular open source database in the world. MySQL on RDS offers the rich features of the MySQL community edition with the flexibility to easily scale compute resources or storage capacity for your database.

- Supports database size up to 64 TiB.
- Supports General Purpose, Memory Optimized, and Burstable Performance instance classes.
- Supports automated backup and point-in-time recovery.
- Supports up to 15 Read Replicas per instance, within a single Region or 5 read replicas cross-region.

In Instance Configuration, choose db.t2.micro.
Leave the storage as default.
In connectivity, choose the created Subnet Group.


us-east-1.console.aws.amazon.com/rds/home?region=us-east-1#launch-dbinstance:
Services
Search
[Alt+S]
N. Virginia
siddharthaws
EC2
Route 53
VPC
CloudShell
Feedback
© 2023, Amazon Web Services, Inc. or its affiliates.
Privacy
Terms
Cookie preferences
10:18 PM
12/13/2023

Compute resource
Choose whether to set up a connection to a compute resource for this database. Setting up a connection will automatically change connectivity settings so that the compute resource can connect to this database.

● Don't connect to an EC2 compute resource
Don't set up a connection to a compute resource for this database. You can manually set up a connection to a compute resource later.

○ Connect to an EC2 compute resource
Set up a connection to an EC2 compute resource for this database.

Network type Info
To use dual-stack mode, make sure that you associate an IPv6 CIDR block with a subnet in the VPC you specify.

● IPv4
Your resources can communicate only over the IPv4 addressing protocol.

○ Dual-stack mode
Your resources can communicate over IPv4, IPv6, or both.

Virtual private cloud (VPC) Info
Choose the VPC. The VPC defines the virtual networking environment for this DB instance.

Default VPC (vpc-0f684e0065eeb33aa)
2 Subnets, 2 Availability Zones

Only VPCs with a corresponding DB subnet group are listed.

After a database is created, you can't change its VPC.

DB subnet group Info
Choose the DB subnet group. The DB subnet group defines which subnets and IP ranges the DB instance can use in the VPC that you selected.

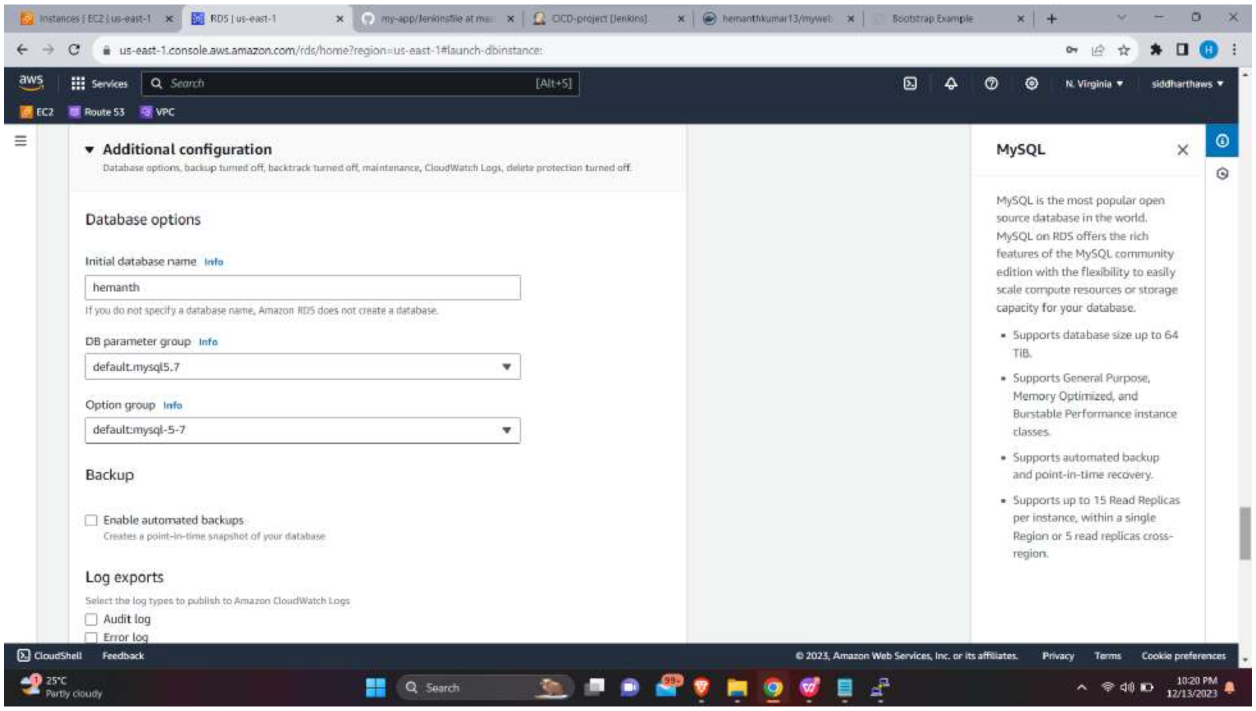
sonar
2 Subnets, 2 Availability Zones

MySQL

MySQL is the most popular open source database in the world. MySQL on RDS offers the rich features of the MySQL community edition with the flexibility to easily scale compute resources or storage capacity for your database.

- Supports database size up to 64 TiB.
- Supports General Purpose, Memory Optimized, and Burstable Performance instance classes.
- Supports automated backup and point-in-time recovery.
- Supports up to 15 Read Replicas per instance, within a single Region or 5 read replicas cross-region.

In Additional configuration, enter the Initial Database name
Uncheck Backup.


Additional configuration

Database options, backup turned off, backtrack turned off, maintenance, CloudWatch Logs, delete protection turned off.

Database options

Initial database name: hemanth

If you do not specify a database name, Amazon RDS does not create a database.

DB parameter group: default.mysql5.7

Option group: default:mysql-5-7

Backup

☐ Enable automated backups
Creates a point-in-time snapshot of your database

Log exports

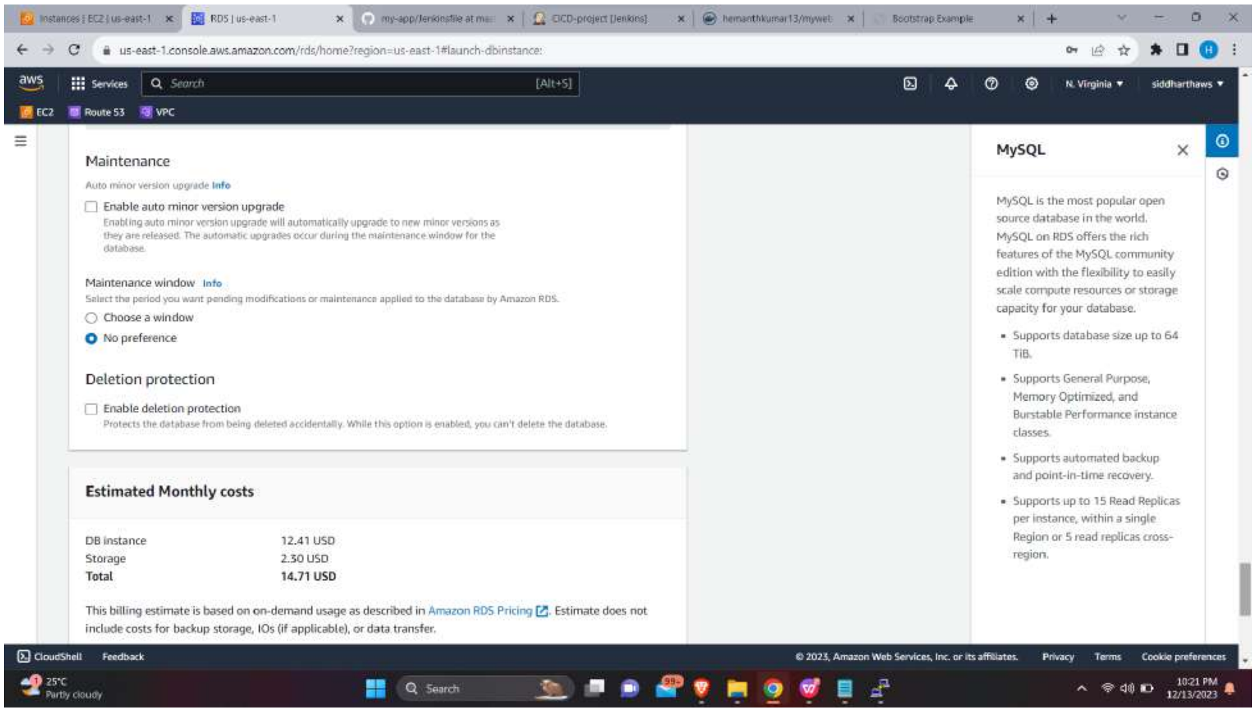
Select the log types to publish to Amazon CloudWatch Logs
☐ Audit log
☐ Error log

MySQL

MySQL is the most popular open source database in the world. MySQL on RDS offers the rich features of the MySQL community edition with the flexibility to easily scale compute resources or storage capacity for your database.

- Supports database size up to 64 TiB.
- Supports General Purpose, Memory Optimized, and Burstable Performance instance classes.
- Supports automated backup and point-in-time recovery.
- Supports up to 15 Read Replicas per instance, within a single Region or 5 read replicas cross-region.

In the maintenance, uncheck auto minor version upgrade.
Disable deletion protection – Create database.


Maintenance

Auto minor version upgrade

☐ Enable auto minor version upgrade
Enabling auto minor version upgrade will automatically upgrade to new minor versions as they are released. The automatic upgrades occur during the maintenance window for the database.

Maintenance window

Select the period you want pending modifications or maintenance applied to the database by Amazon RDS.
○ Choose a window
● No preference

Deletion protection

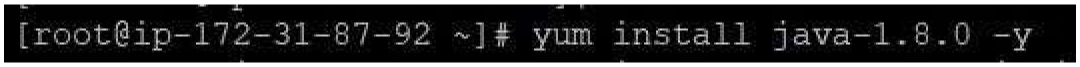
☐ Enable deletion protection
Protects the database from being deleted accidentally. While this option is enabled, you can't delete the database.

Estimated Monthly costs

DB instance	12.41 USD
Storage	2.30 USD
Total	**14.71 USD**

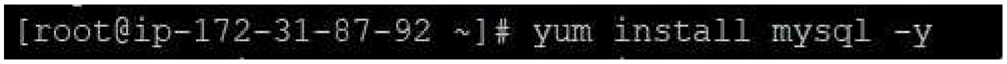
This billing estimate is based on on-demand usage as described in Amazon RDS Pricing. Estimate does not include costs for backup storage, IOs (if applicable), or data transfer.

Connect the Sonarqube Ec2 Server in putty.
Install Java



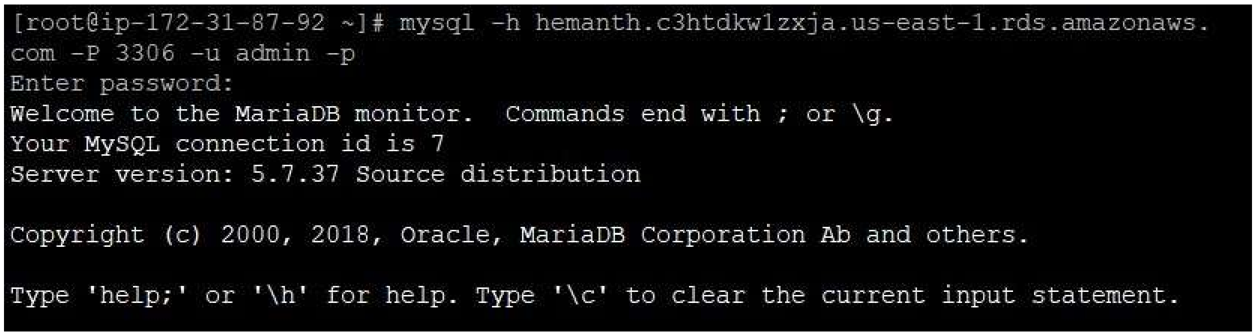
```
[root@ip-172-31-87-92 ~]# yum install java-1.8.0 -y
```

Install MySQL



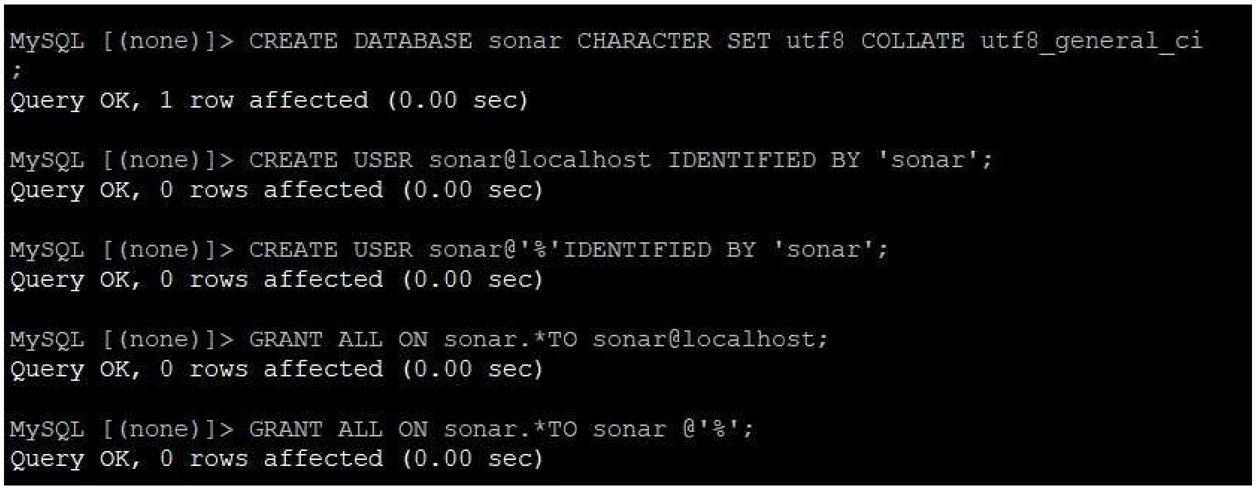
```
[root@ip-172-31-87-92 ~]# yum install mysql -y
```

Connect to the Mysql database in putty
  #mysql -h <endpoint> -P 3306 -u admin -p (enter)
Connected to MySQL database.



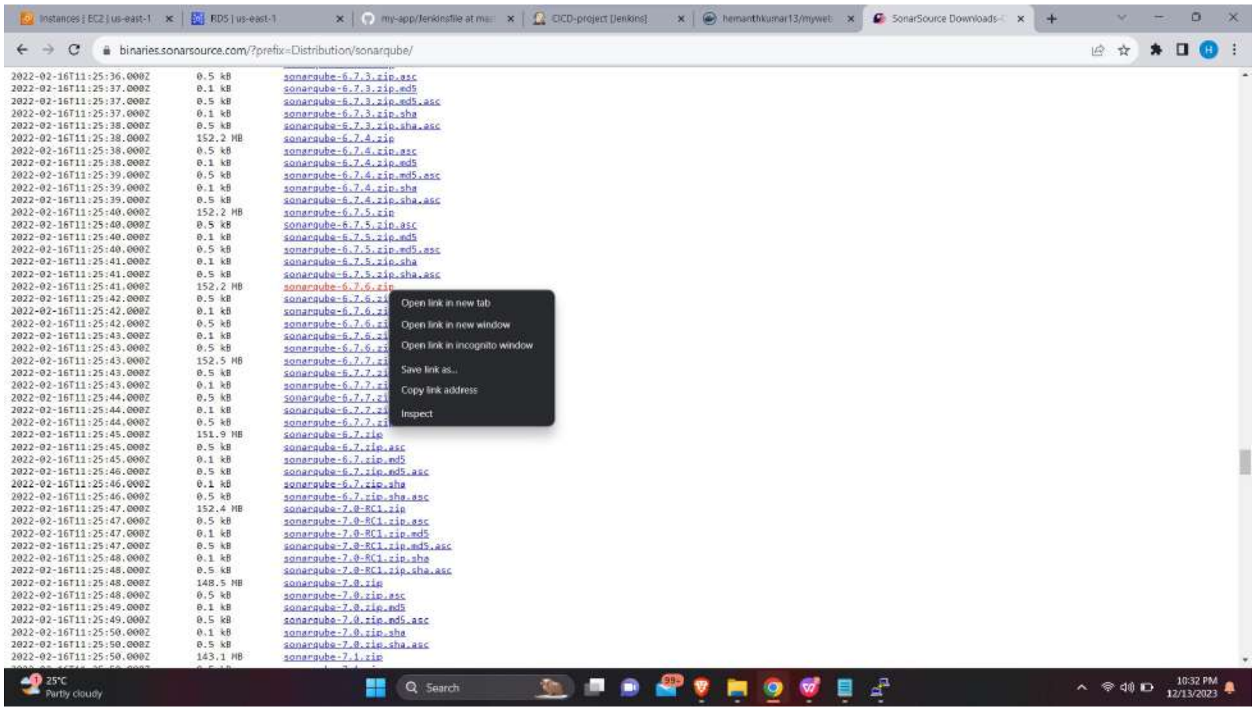
```
[root@ip-172-31-87-92 ~]# mysql -h hemanth.c3htdkw1zxja.us-east-1.rds.amazonaws.
com -P 3306 -u admin -p
Enter password:
Welcome to the MariaDB monitor.  Commands end with ; or \g.
Your MySQL connection id is 7
Server version: 5.7.37 Source distribution

Copyright (c) 2000, 2018, Oracle, MariaDB Corporation Ab and others.

Type 'help;' or '\h' for help. Type '\c' to clear the current input statement.
```

Now create a Database user for sonar in MySQL and Given all permission.



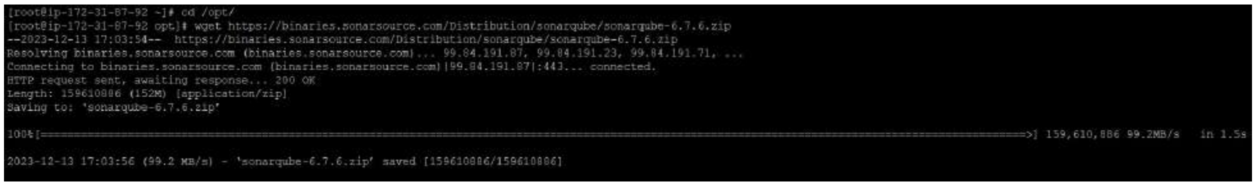
```
MySQL [(none)]> CREATE DATABASE sonar CHARACTER SET utf8 COLLATE utf8_general_ci
;
Query OK, 1 row affected (0.00 sec)

MySQL [(none)]> CREATE USER sonar@localhost IDENTIFIED BY 'sonar';
Query OK, 0 rows affected (0.00 sec)

MySQL [(none)]> CREATE USER sonar@'%'IDENTIFIED BY 'sonar';
Query OK, 0 rows affected (0.00 sec)

MySQL [(none)]> GRANT ALL ON sonar.*TO sonar@localhost;
Query OK, 0 rows affected (0.00 sec)

MySQL [(none)]> GRANT ALL ON sonar.*TO sonar @'%';
Query OK, 0 rows affected (0.00 sec)
```

Download Sonarqube zip file (6.7.6 version)



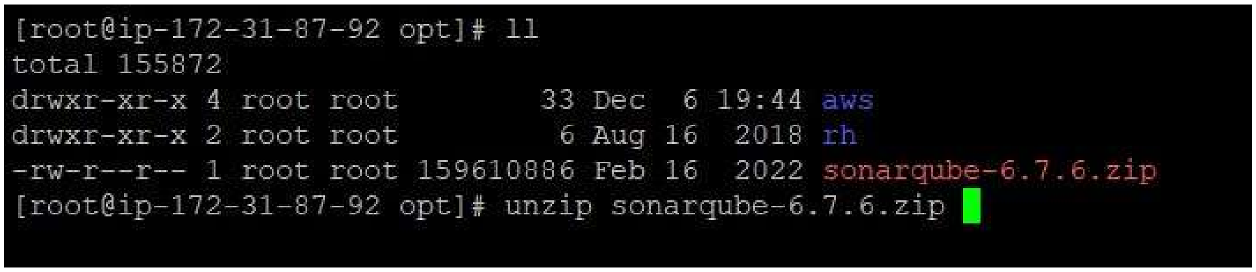
```
2022-02-16T11:25:36.000Z      0.5 kB      sonarqube-6.7.3.zip.asc
2022-02-16T11:25:37.000Z      0.1 kB      sonarqube-6.7.3.zip.md5
2022-02-16T11:25:37.000Z      0.5 kB      sonarqube-6.7.3.zip.md5.asc
2022-02-16T11:25:37.000Z      0.1 kB      sonarqube-6.7.3.zip.sha
2022-02-16T11:25:38.000Z      0.5 kB      sonarqube-6.7.3.zip.sha.asc
2022-02-16T11:25:38.000Z      152.2 MB    sonarqube-6.7.4.zip
2022-02-16T11:25:38.000Z      0.5 kB      sonarqube-6.7.4.zip.asc
2022-02-16T11:25:38.000Z      0.1 kB      sonarqube-6.7.4.zip.md5
2022-02-16T11:25:39.000Z      0.5 kB      sonarqube-6.7.4.zip.md5.asc
2022-02-16T11:25:39.000Z      0.1 kB      sonarqube-6.7.4.zip.sha
2022-02-16T11:25:39.000Z      0.5 kB      sonarqube-6.7.4.zip.sha.asc
2022-02-16T11:25:40.000Z      152.2 MB    sonarqube-6.7.5.zip
2022-02-16T11:25:40.000Z      0.5 kB      sonarqube-6.7.5.zip.asc
2022-02-16T11:25:40.000Z      0.1 kB      sonarqube-6.7.5.zip.md5
2022-02-16T11:25:40.000Z      0.5 kB      sonarqube-6.7.5.zip.md5.asc
2022-02-16T11:25:41.000Z      0.1 kB      sonarqube-6.7.5.zip.sha
2022-02-16T11:25:41.000Z      0.5 kB      sonarqube-6.7.5.zip.sha.asc
2022-02-16T11:25:41.000Z      152.2 MB    sonarqube-6.7.6.zip
2022-02-16T11:25:42.000Z      0.5 kB      sonarqube-6.7.6.zi
2022-02-16T11:25:42.000Z      0.1 kB      sonarqube-6.7.6.zi
2022-02-16T11:25:42.000Z      0.5 kB      sonarqube-6.7.6.zi
2022-02-16T11:25:43.000Z      0.1 kB      sonarqube-6.7.6.zi
2022-02-16T11:25:43.000Z      0.5 kB      sonarqube-6.7.6.zi
2022-02-16T11:25:43.000Z      152.5 MB    sonarqube-6.7.7.zi
2022-02-16T11:25:43.000Z      0.5 kB      sonarqube-6.7.7.zi
2022-02-16T11:25:43.000Z      0.1 kB      sonarqube-6.7.7.zi
2022-02-16T11:25:44.000Z      0.5 kB      sonarqube-6.7.7.zi
2022-02-16T11:25:44.000Z      0.1 kB      sonarqube-6.7.7.zi
2022-02-16T11:25:44.000Z      0.5 kB      sonarqube-6.7.7.zi
2022-02-16T11:25:45.000Z      151.9 MB    sonarqube-6.7.zip
2022-02-16T11:25:45.000Z      0.5 kB      sonarqube-6.7.zip.asc
2022-02-16T11:25:45.000Z      0.1 kB      sonarqube-6.7.zip.md5
2022-02-16T11:25:46.000Z      0.5 kB      sonarqube-6.7.zip.md5.asc
2022-02-16T11:25:46.000Z      0.1 kB      sonarqube-6.7.zip.sha
2022-02-16T11:25:46.000Z      0.5 kB      sonarqube-6.7.zip.sha.asc
2022-02-16T11:25:47.000Z      152.4 MB    sonarqube-7.0-RC1.zip
2022-02-16T11:25:47.000Z      0.5 kB      sonarqube-7.0-RC1.zip.asc
2022-02-16T11:25:47.000Z      0.1 kB      sonarqube-7.0-RC1.zip.md5
2022-02-16T11:25:47.000Z      0.5 kB      sonarqube-7.0-RC1.zip.md5.asc
2022-02-16T11:25:48.000Z      0.1 kB      sonarqube-7.0-RC1.zip.sha
2022-02-16T11:25:48.000Z      0.5 kB      sonarqube-7.0-RC1.zip.sha.asc
2022-02-16T11:25:48.000Z      148.5 MB    sonarqube-7.0.zip
2022-02-16T11:25:48.000Z      0.5 kB      sonarqube-7.0.zip.asc
2022-02-16T11:25:49.000Z      0.1 kB      sonarqube-7.0.zip.md5
2022-02-16T11:25:49.000Z      0.5 kB      sonarqube-7.0.zip.md5.asc
2022-02-16T11:25:50.000Z      0.1 kB      sonarqube-7.0.zip.sha
2022-02-16T11:25:50.000Z      0.5 kB      sonarqube-7.0.zip.sha.asc
2022-02-16T11:25:50.000Z      143.1 MB    sonarqube-7.1.zip
```

Download sonarqube using wget command in /opt directory



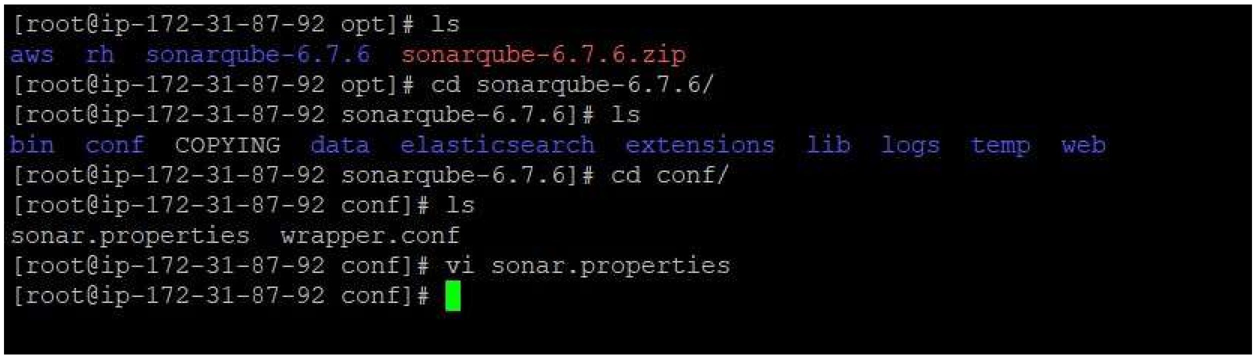
```
[root@ip-172-31-87-92 ~]# cd /opt/
[root@ip-172-31-87-92 opt]# wget https://binaries.sonarsource.com/Distribution/sonarqube/sonarqube-6.7.6.zip
--2023-12-13 17:03:54--  https://binaries.sonarsource.com/Distribution/sonarqube/sonarqube-6.7.6.zip
Resolving binaries.sonarsource.com (binaries.sonarsource.com)... 99.84.191.87, 99.84.191.23, 99.84.191.71, ...
Connecting to binaries.sonarsource.com (binaries.sonarsource.com)|99.84.191.87|:443... connected.
HTTP request sent, awaiting response... 200 OK
Length: 159610886 (152M) [application/zip]
Saving to: 'sonarqube-6.7.6.zip'

100%[==============================================================================================>] 159,610,886 99.2MB/s   in 1.5s

2023-12-13 17:03:56 (99.2 MB/s) - 'sonarqube-6.7.6.zip' saved [159610886/159610886]
```

Unzip the sonarqube zip file.



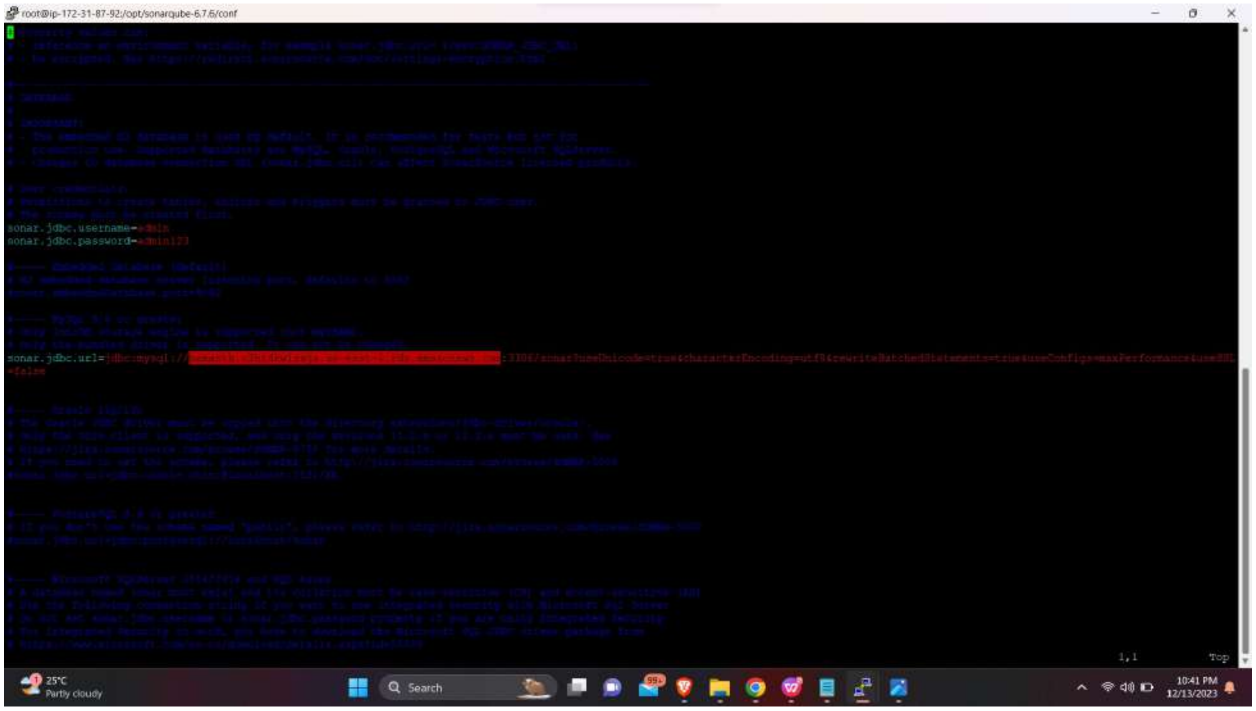
```
[root@ip-172-31-87-92 opt]# ll
total 155872
drwxr-xr-x 4 root root        33 Dec  6 19:44 aws
drwxr-xr-x 2 root root         6 Aug 16  2018 rh
-rw-r--r-- 1 root root 159610886 Feb 16  2022 sonarqube-6.7.6.zip
[root@ip-172-31-87-92 opt]# unzip sonarqube-6.7.6.zip
```

Open and edit the sonar.properties file.



```
[root@ip-172-31-87-92 opt]# ls
aws  rh  sonarqube-6.7.6  sonarqube-6.7.6.zip
[root@ip-172-31-87-92 opt]# cd sonarqube-6.7.6/
[root@ip-172-31-87-92 sonarqube-6.7.6]# ls
bin  conf  COPYING  data  elasticsearch  extensions  lib  logs  temp  web
[root@ip-172-31-87-92 sonarqube-6.7.6]# cd conf/
[root@ip-172-31-87-92 conf]# ls
sonar.properties  wrapper.conf
[root@ip-172-31-87-92 conf]# vi sonar.properties
[root@ip-172-31-87-92 conf]# 
```

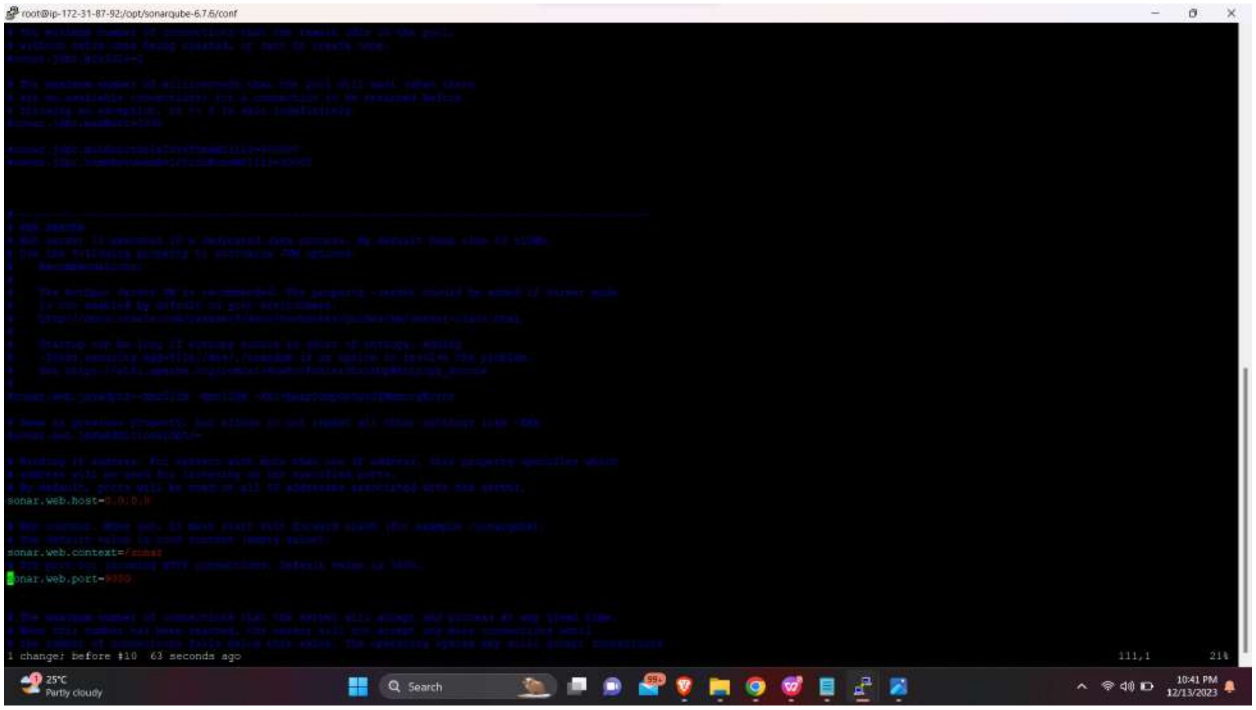
In sonar.properties file
Enter the sonar username=admin
Sonar password=admin123
Sonar url: Paste the database endpoint URL



root@ip-172-31-87-92:/opt/sonarqube-6.7.6/conf

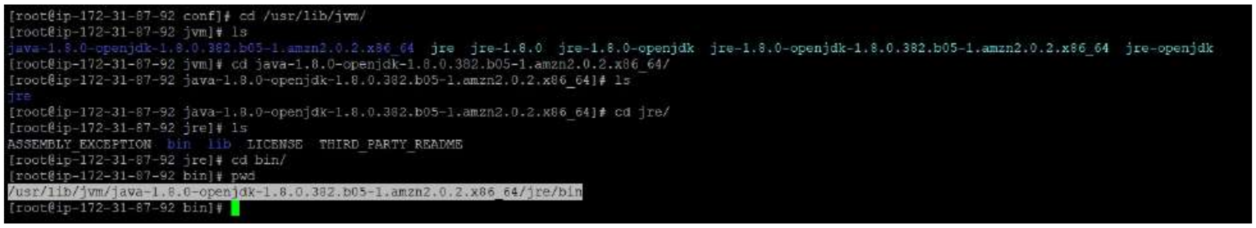
```
sonar.jdbc.username=admin
sonar.jdbc.password=admin123

sonar.jdbc.url=jdbc:mysql://[illegible]:3306/sonar?useUnicode=true&characterEncoding=utf8&rewriteBatchedStatements=true&useConfigs=maxPerformance&useSSL
=false
```

Remove the (#) sonar.web.host=0.0.0.0
Mention the sonar.web.context=/sonar
Remove # in sonar.web.port=9000



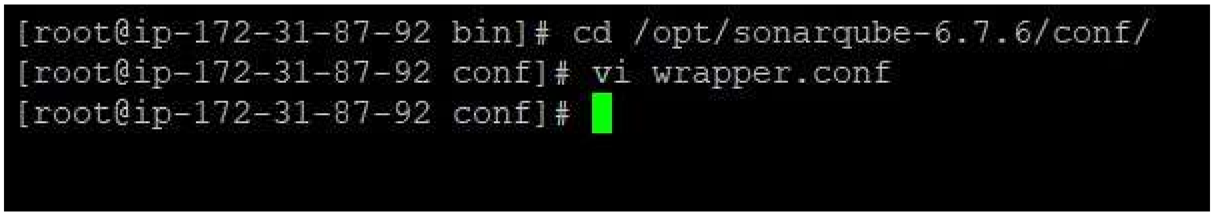
```
[illegible]
sonar.web.host=0.0.0.0

[illegible]
sonar.web.context=/sonar
[illegible]
sonar.web.port=9000

[illegible]
1 change; before #10  63 seconds ago                                          111,1         21%
```

Copy the java script path.



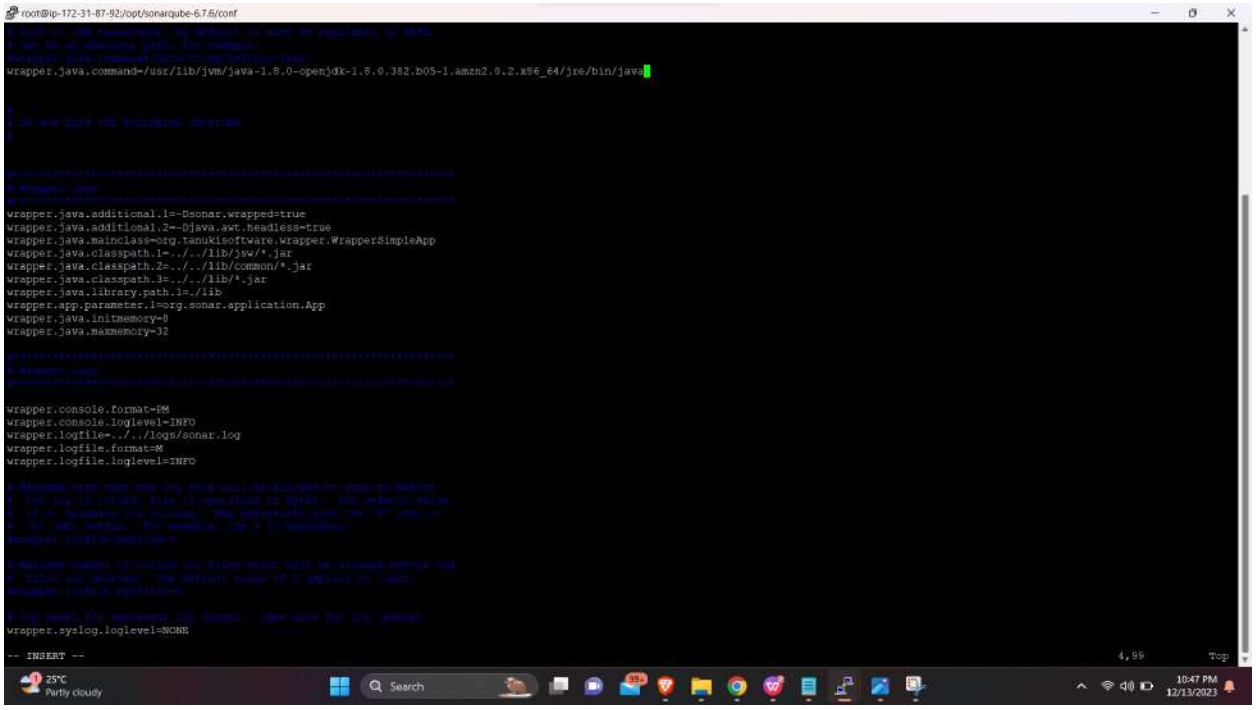
```
[root@ip-172-31-87-92 conf]# cd /usr/lib/jvm/
[root@ip-172-31-87-92 jvm]# ls
java-1.8.0-openjdk-1.8.0.382.b05-1.amzn2.0.2.x86_64  jre  jre-1.8.0  jre-1.8.0-openjdk  jre-1.8.0-openjdk-1.8.0.382.b05-1.amzn2.0.2.x86_64  jre-openjdk
[root@ip-172-31-87-92 jvm]# cd java-1.8.0-openjdk-1.8.0.382.b05-1.amzn2.0.2.x86_64/
[root@ip-172-31-87-92 java-1.8.0-openjdk-1.8.0.382.b05-1.amzn2.0.2.x86_64]# ls
jre
[root@ip-172-31-87-92 java-1.8.0-openjdk-1.8.0.382.b05-1.amzn2.0.2.x86_64]# cd jre/
[root@ip-172-31-87-92 jre]# ls
ASSEMBLY_EXCEPTION  bin  lib  LICENSE  THIRD_PARTY_README
[root@ip-172-31-87-92 jre]# cd bin/
[root@ip-172-31-87-92 bin]# pwd
/usr/lib/jvm/java-1.8.0-openjdk-1.8.0.382.b05-1.amzn2.0.2.x86_64/jre/bin
[root@ip-172-31-87-92 bin]#
```

Open wrapper.conf in sonarqube.



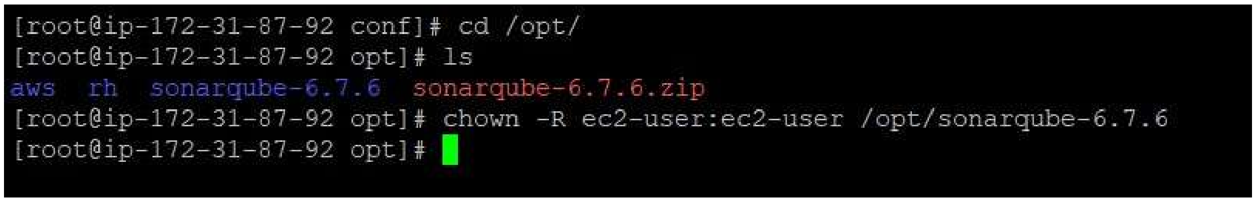
```
[root@ip-172-31-87-92 bin]# cd /opt/sonarqube-6.7.6/conf/
[root@ip-172-31-87-92 conf]# vi wrapper.conf
[root@ip-172-31-87-92 conf]#
```

Paste the java script path in wrapper.conf file.
In wrapper.conf file, wrapper.java.command=Paste the java script path/java



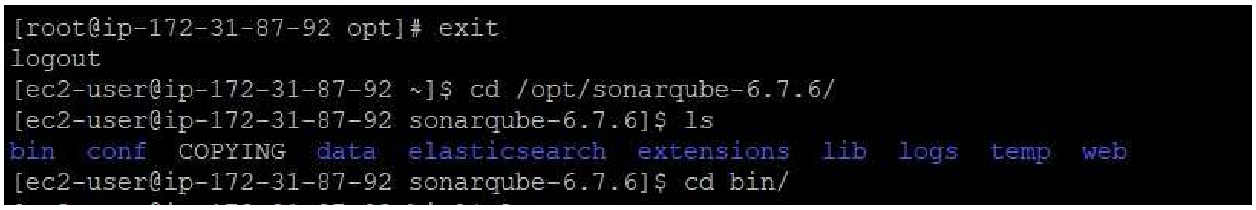
```
root@ip-172-31-87-92:/opt/sonarqube-6.7.6/conf
[illegible]
wrapper.java.command=/usr/lib/jvm/java-1.8.0-openjdk-1.8.0.382.b05-1.amzn2.0.2.x86_64/jre/bin/java


[illegible]


[illegible]
wrapper.java.additional.1=-Dsonar.wrapped=true
wrapper.java.additional.2=-Djava.awt.headless=true
wrapper.java.mainclass=org.tanukisoftware.wrapper.WrapperSimpleApp
wrapper.java.classpath.1=../../lib/jsw/*.jar
wrapper.java.classpath.2=../../lib/common/*.jar
wrapper.java.classpath.3=../../lib/*.jar
wrapper.java.library.path.1=./lib
wrapper.app.parameter.1=org.sonar.application.App
wrapper.java.initmemory=8
wrapper.java.maxmemory=32

[illegible]

wrapper.console.format=PM
wrapper.console.loglevel=INFO
wrapper.logfile=../../logs/sonar.log
wrapper.logfile.format=M
wrapper.logfile.loglevel=INFO

[illegible]

[illegible]

[illegible]
wrapper.syslog.loglevel=NONE

-- INSERT --                                                          4,99          Top
```

Give the ec2-user access to the sonarqube-6.7.6 package files.



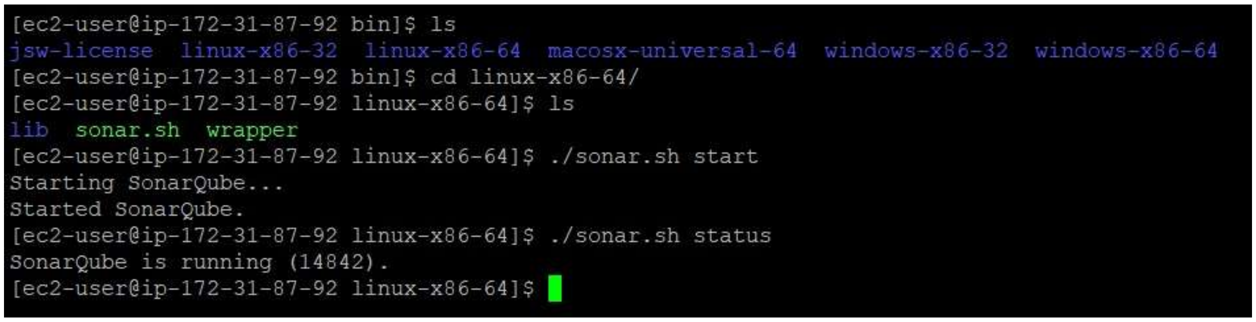
```
[root@ip-172-31-87-92 conf]# cd /opt/
[root@ip-172-31-87-92 opt]# ls
aws  rh  sonarqube-6.7.6  sonarqube-6.7.6.zip
[root@ip-172-31-87-92 opt]# chown -R ec2-user:ec2-user /opt/sonarqube-6.7.6
[root@ip-172-31-87-92 opt]#
```

Logout from the server as a root user.



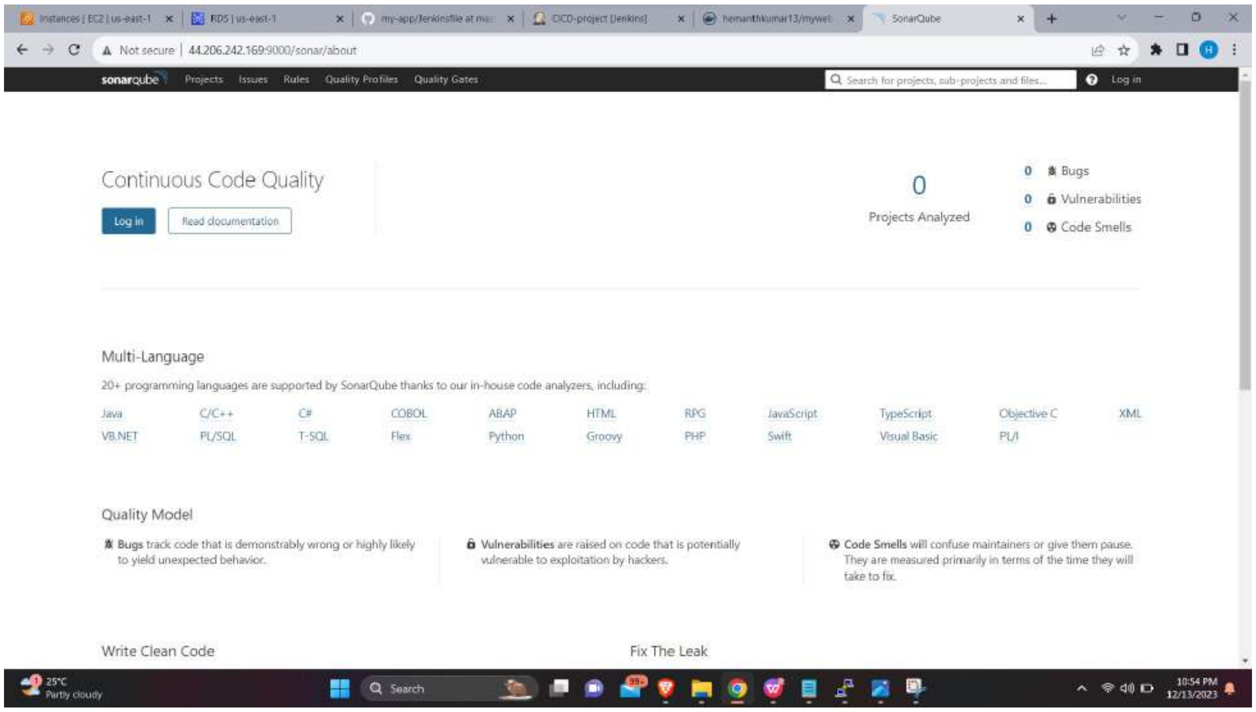
```
[root@ip-172-31-87-92 opt]# exit
logout
[ec2-user@ip-172-31-87-92 ~]$ cd /opt/sonarqube-6.7.6/
[ec2-user@ip-172-31-87-92 sonarqube-6.7.6]$ ls
bin  conf  COPYING  data  elasticsearch  extensions  lib  logs  temp  web
[ec2-user@ip-172-31-87-92 sonarqube-6.7.6]$ cd bin/
```

And start the sonarqube service.



```
[ec2-user@ip-172-31-87-92 bin]$ ls
jsw-license  linux-x86-32  linux-x86-64  macosx-universal-64  windows-x86-32  windows-x86-64
[ec2-user@ip-172-31-87-92 bin]$ cd linux-x86-64/
[ec2-user@ip-172-31-87-92 linux-x86-64]$ ls
lib  sonar.sh  wrapper
[ec2-user@ip-172-31-87-92 linux-x86-64]$ ./sonar.sh start
Starting SonarQube...
Started SonarQube.
[ec2-user@ip-172-31-87-92 linux-x86-64]$ ./sonar.sh status
SonarQube is running (14842).
[ec2-user@ip-172-31-87-92 linux-x86-64]$
```

Copy sonarqube Ec2 server Ipv4 – Hit in browser with its port number (9000/sonar)

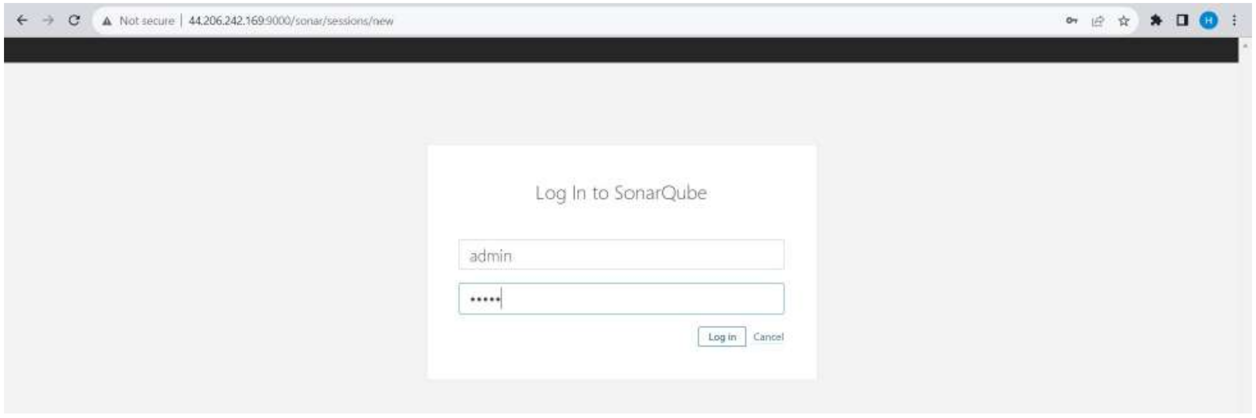


Sonarqube dashboard is hosted.

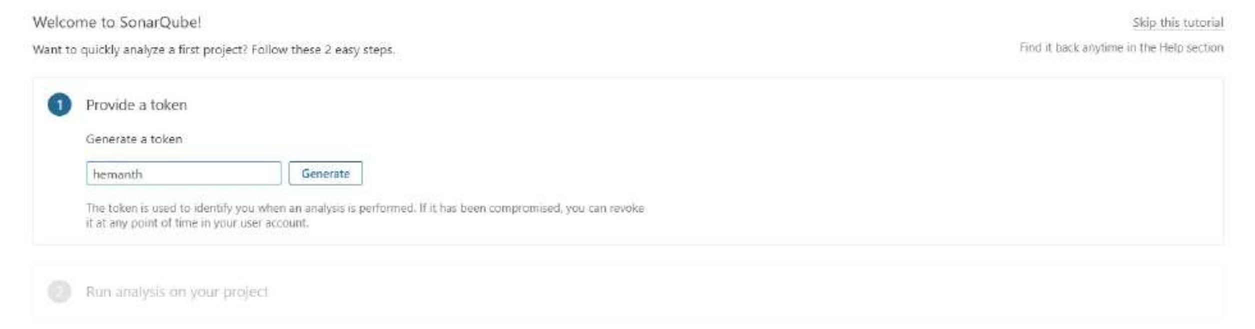
Login to the sonarqube account.

Username: admin

Password: admin



In security, generate a token and copy the token.



Welcome to SonarQube!

Want to quickly analyze a first project? Follow these 2 easy steps.

Skip this tutorial

Find it back anytime in the Help section

1 Provide a token

Generate a token

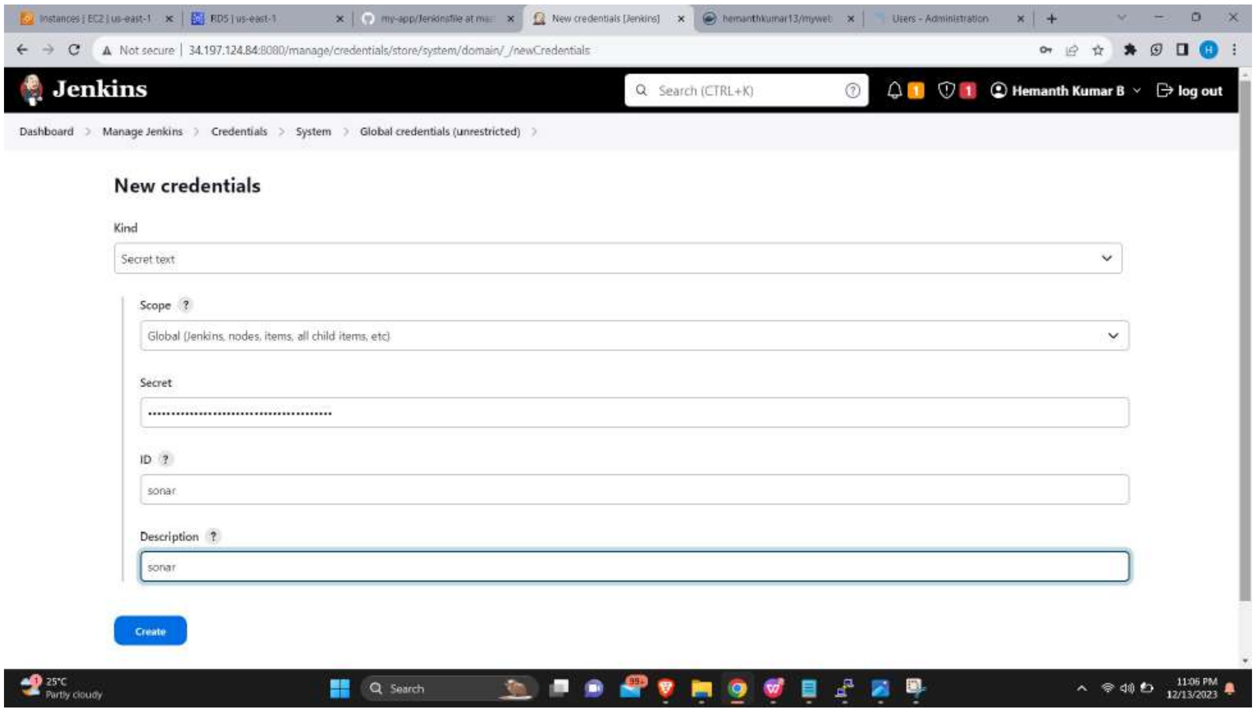
hemanth

Generate

The token is used to identify you when an analysis is performed. If it has been compromised, you can revoke it at any point of time in your user account.

2 Run analysis on your project

In Jenkins dashboard – Credential -create a variable for sonarqube login token password. Choose secret text – Secret (paste the token password) – set ID and Description name as (sonar) – Create.



34.197.124.84:8080/manage/credentials/store/system/domain/_/newCredentials

Dashboard > Manage Jenkins > Credentials > System > Global credentials (unrestricted) >

New credentials

Kind: Secret text

Scope: Global (Jenkins, nodes, items, all child items, etc)

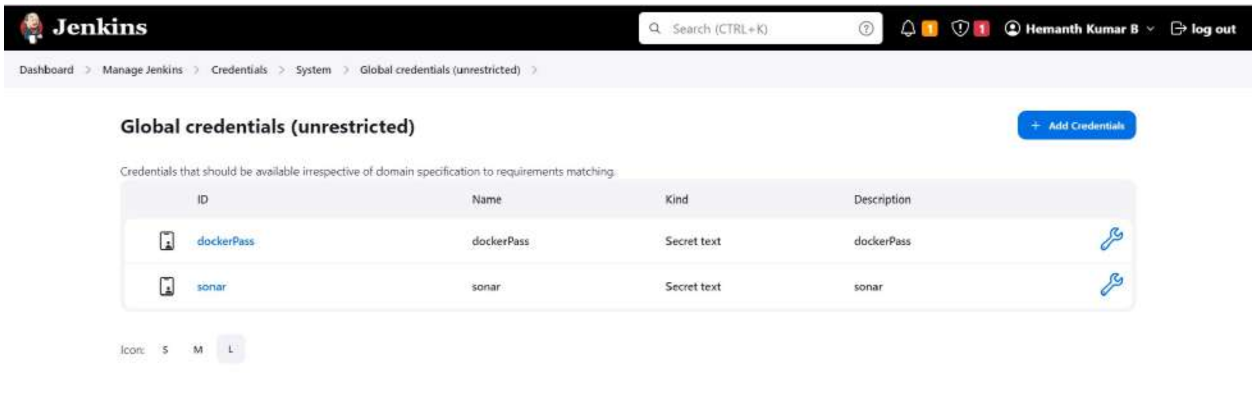
Secret: ••

ID: sonar

Description: sonar

Create

Successfully created a variable for sonarqube login password.

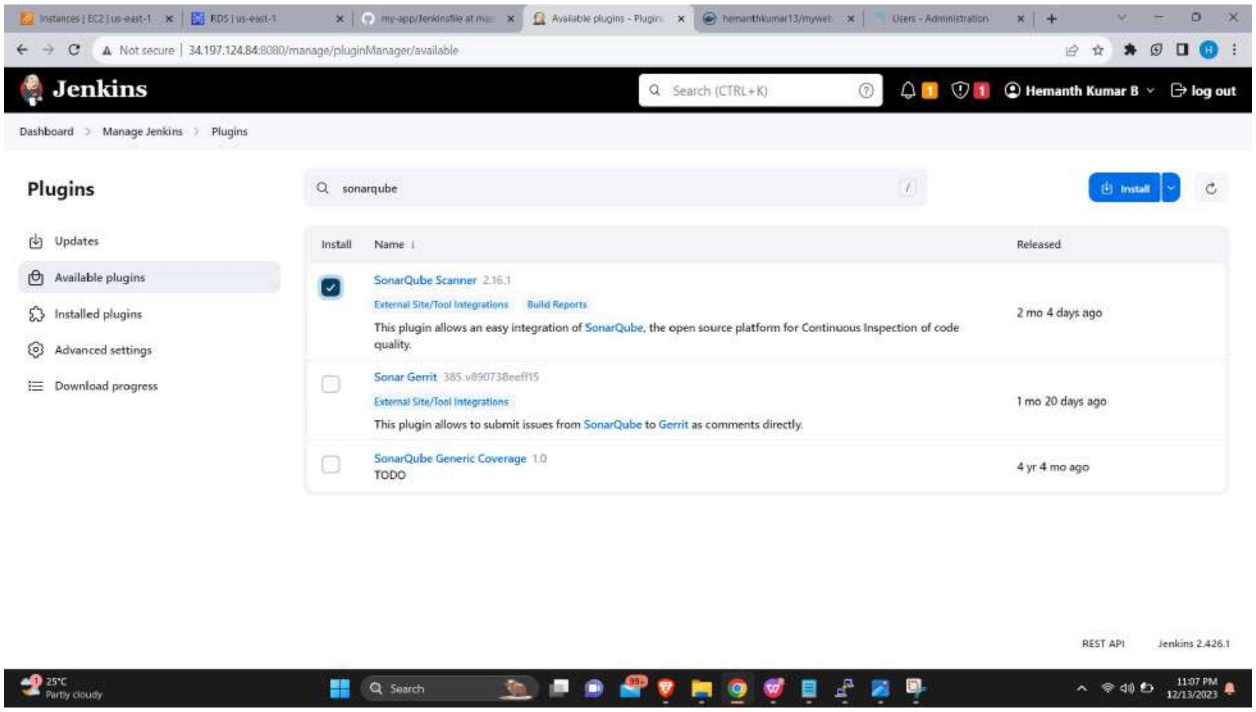

Dashboard > Manage Jenkins > Credentials > System > Global credentials (unrestricted)

Global credentials (unrestricted)

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

ID	Name	Kind	Description
dockerPass	dockerPass	Secret text	dockerPass
sonar	sonar	Secret text	sonar

Install a plugin for sonarqube.
Search (SonarQube Scanner) - Install

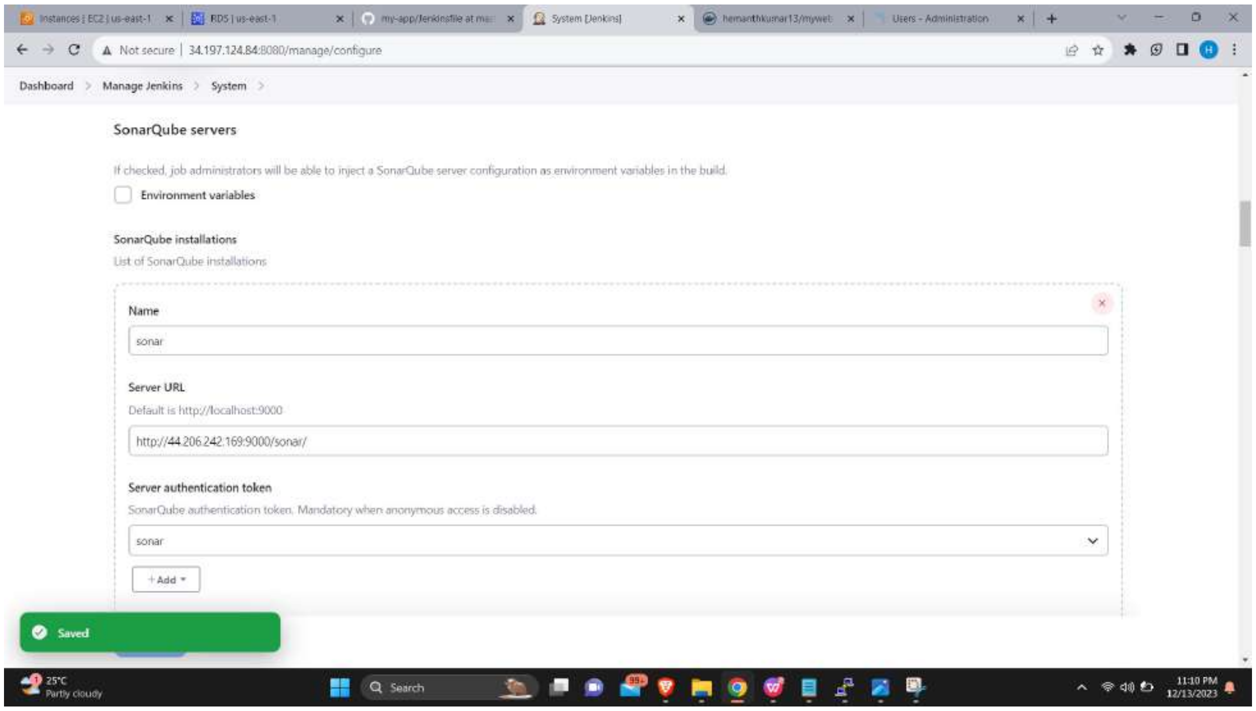

Dashboard > Manage Jenkins > Plugins

Plugins

Search: sonarqube

Install	Name	Released
✓	SonarQube Scanner 2.16.1 — External Site/Tool Integrations, Build Reports — This plugin allows an easy integration of SonarQube, the open source platform for Continuous Inspection of code quality.	2 mo 4 days ago
	Sonar Gerrit 385.v890738eeff15 — External Site/Tool Integrations — This plugin allows to submit issues from SonarQube to Gerrit as comments directly.	1 mo 20 days ago
	SonarQube Generic Coverage 1.0 — TODO	4 yr 4 mo ago

Dashboard – Manage Jenkins – System
SonarQube servers
Name: sonar
Server URI: paste the sonar URL
Save.



SonarQube servers

If checked, job administrators will be able to inject a SonarQube server configuration as environment variables in the build.

Environment variables

SonarQube installations

List of SonarQube installations

Name: sonar

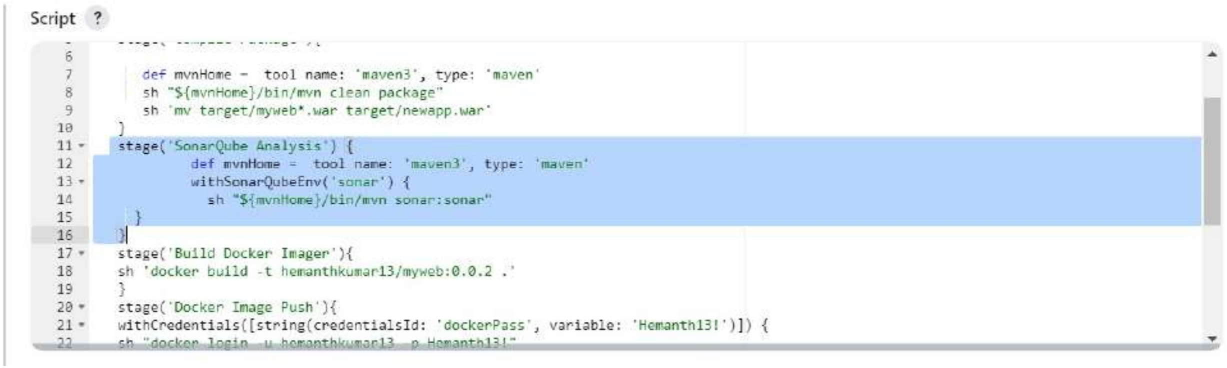
Server URL: Default is http://localhost:9000

http://44.206.242.169:9000/sonar/

Server authentication token: SonarQube authentication token. Mandatory when anonymous access is disabled.

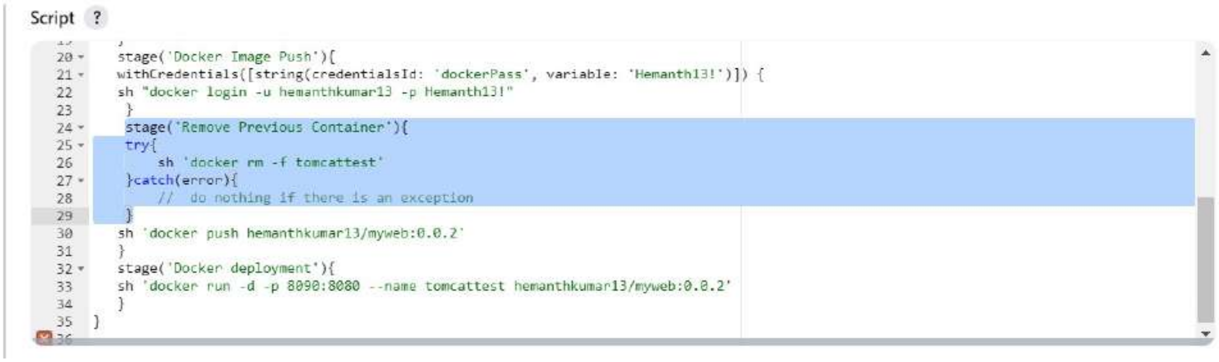
sonar

Go back to the already created pipeline project script field & paste the sonarqube groovy script under the maven stage.



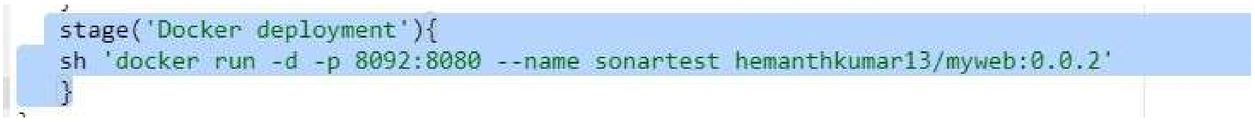
```

    def mvnHome -  tool name: 'maven3', type: 'maven'
    sh "${mvnHome}/bin/mvn clean package"
    sh 'mv target/myweb*.war target/newapp.war'
 }
 stage('SonarQube Analysis') {
          def mvnHome =  tool name: 'maven3', type: 'maven'
          withSonarQubeEnv('sonar') {
            sh "${mvnHome}/bin/mvn sonar:sonar"
    }
 }
 stage('Build Docker Imager'){
 sh 'docker build -t hemanthkumar13/myweb:0.0.2 .'
 }
 stage('Docker Image Push'){
 withCredentials([string(credentialsId: 'dockerPass', variable: 'Hemanth13!')]) {
 sh "docker login -u hemanthkumar13 -p Hemanth13!"
```

And also add the remove container stage groovy script under the docker image push stage.



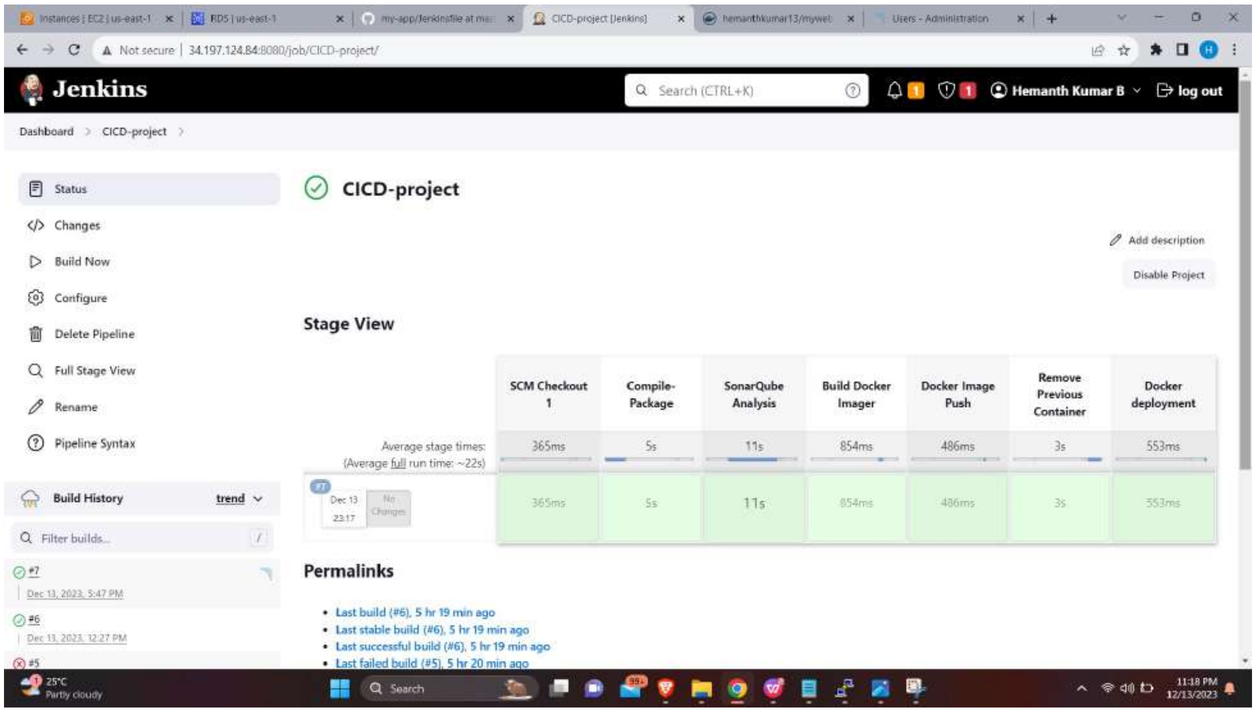
```
 stage('Docker Image Push'){
 withCredentials([string(credentialsId: 'dockerPass', variable: 'Hemanth13!')]) {
 sh "docker login -u hemanthkumar13 -p Hemanth13!"
  }
  stage('Remove Previous Container'){
  try{
      sh 'docker rm -f tomcattest'
  }catch(error){
      //  do nothing if there is an exception
  }
 sh 'docker push hemanthkumar13/myweb:0.0.2'
 }
 stage('Docker deployment'){
 sh 'docker run -d -p 8090:8080 --name tomcattest hemanthkumar13/myweb:0.0.2'
 }
}
```

Change the container port number and container name (optional) – apply & save.



```
stage('Docker deployment'){
sh 'docker run -d -p 8092:8080 --name sonartest hemanthkumar13/myweb:0.0.2'
}
```

Build the project, In the below image we can see the stages are deployed successfully.



Dashboard > CICD-project >

CICD-project

Stage View

	SCM Checkout 1	Compile-Package	SonarQube Analysis	Build Docker Imager	Docker Image Push	Remove Previous Container	Docker deployment
Average stage times: (Average full run time: ~22s)	365ms	5s	11s	854ms	486ms	3s	553ms
#7 Dec 13 23:17 No Changes	365ms	5s	11s	854ms	486ms	3s	553ms

Build History

- #7 Dec 13, 2023, 5:47 PM
- #6 Dec 13, 2023, 12:27 PM
- #5

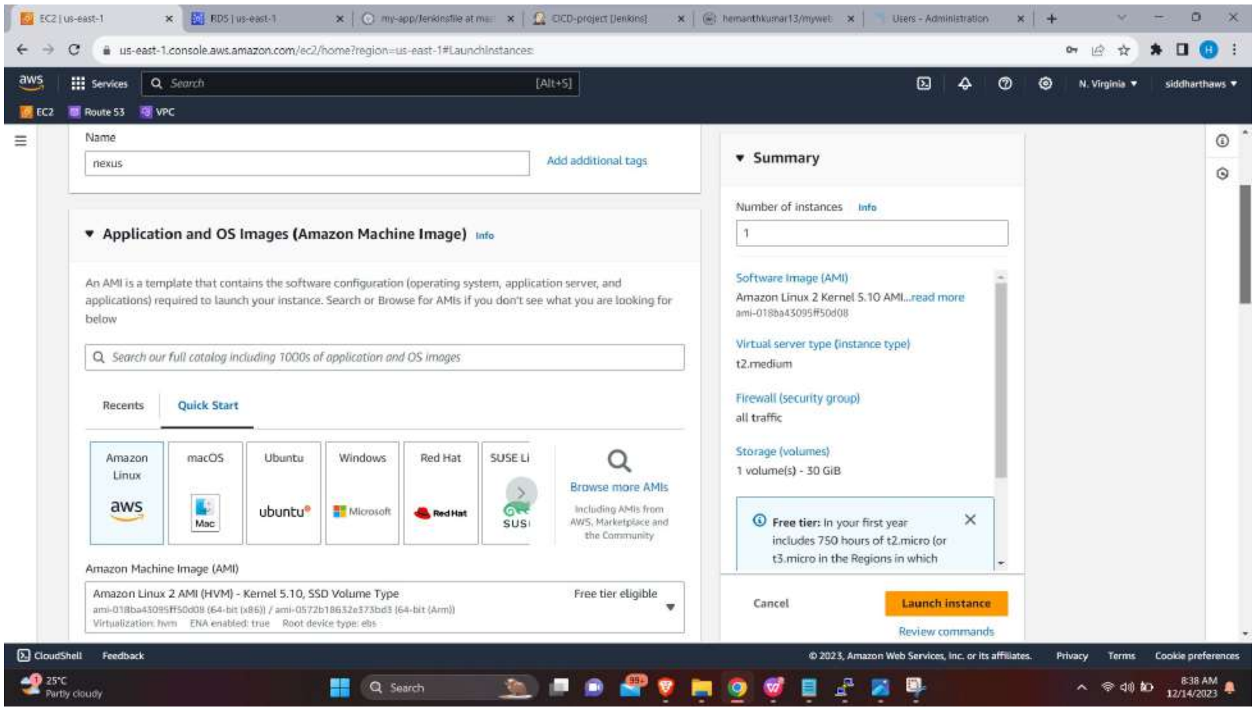
Permalinks

- Last build (#6), 5 hr 19 min ago
- Last stable build (#6), 5 hr 19 min ago
- Last successful build (#6), 5 hr 19 min ago
- Last failed build (#5), 5 hr 20 min ago

From here the SCM has been compiled in war file – war.file code have been reviewed in sonarqube – war file have been build into docker image using dockerfile and pushed to docker hub – deployed the newapp war file in tomcat server as a container using Jenkins pipeline.

Steps to Create a Nexus repo and push the docker image into it.

Launch an Ec2 instance for the nexus server.
AMI amazon linux 2 – t2.medium – SG (All traffic) – Storage 30 gib – launch.



Name
nexus
Add additional tags

Application and OS Images (Amazon Machine Image) Info

An AMI is a template that contains the software configuration (operating system, application server, and applications) required to launch your instance. Search or Browse for AMIs if you don't see what you are looking for below

Search our full catalog including 1000s of application and OS images

Recents | Quick Start

Amazon Linux | macOS | Ubuntu | Windows | Red Hat | SUSE Li

Browse more AMIs
Including AMIs from AWS, Marketplace and the Community

Amazon Machine Image (AMI)
Amazon Linux 2 AMI (HVM) - Kernel 5.10, SSD Volume Type — Free tier eligible
ami-018ba43095ff50d08 (64-bit (x86)) / ami-0572b18632e373bd3 (64-bit (Arm))
Virtualization: hvm ENA enabled: true Root device type: ebs

Summary

Number of instances Info
1

Software Image (AMI)
Amazon Linux 2 Kernel 5.10 AMI...read more
ami-018ba43095ff50d08

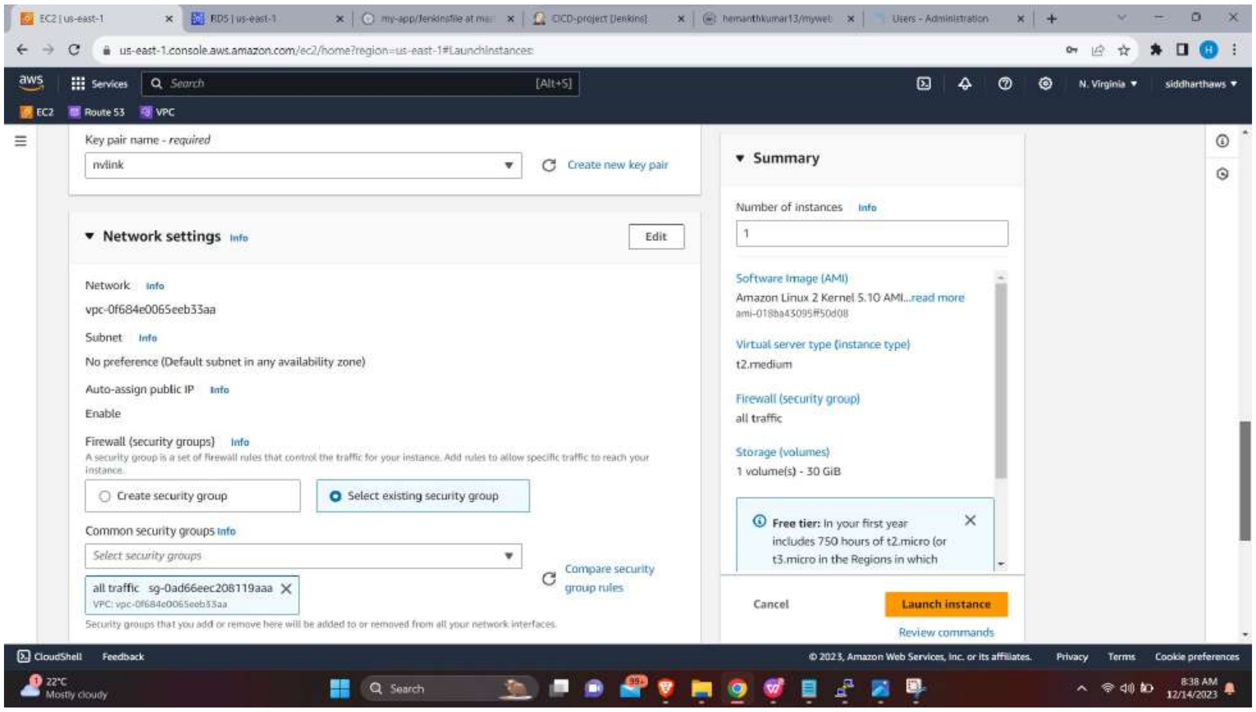
Virtual server type (instance type)
t2.medium

Firewall (security group)
all traffic

Storage (volumes)
1 volume(s) - 30 GiB

Free tier: In your first year includes 750 hours of t2.micro (or t3.micro in the Regions in which

Cancel | Launch instance
Review commands



Key pair name - *required*
nvlink
Create new key pair

Network settings Info
Edit

Network Info
vpc-0f684e0065eeb33aa

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]

Common security groups Info
Select security groups

all traffic sg-0ad66eec208119aaa
VPC: vpc-0f684e0065eeb33aa

Compare security group rules

Security groups that you add or remove here will be added to or removed from all your network interfaces.

Summary

Number of instances Info
1

Software Image (AMI)
Amazon Linux 2 Kernel 5.10 AMI...read more
ami-018ba43095ff50d08

Virtual server type (instance type)
t2.medium

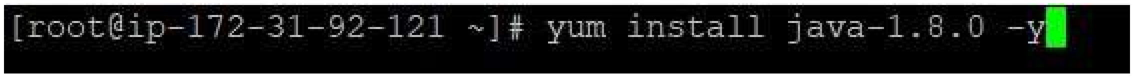
Firewall (security group)
all traffic

Storage (volumes)
1 volume(s) - 30 GiB

Free tier: In your first year includes 750 hours of t2.micro (or t3.micro in the Regions in which

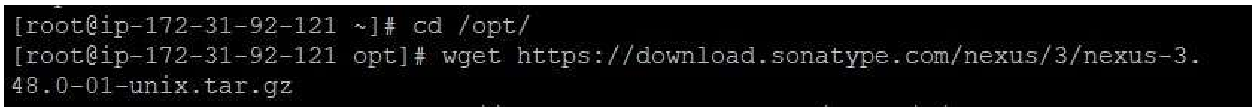
Cancel | Launch instance
Review commands

Connect with putty.
Install java.

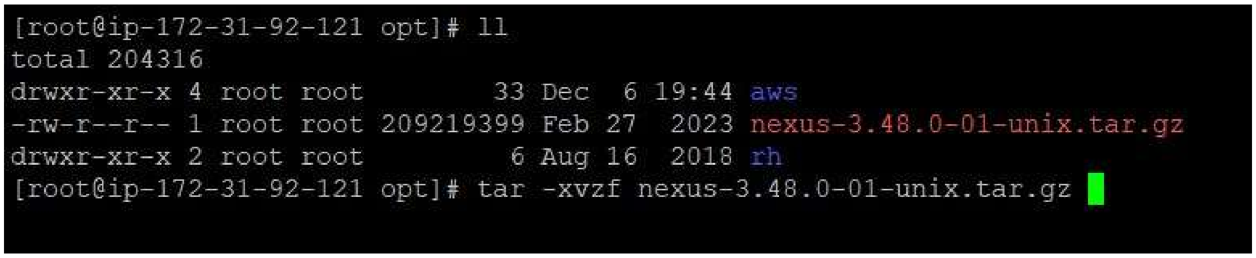


```
[root@ip-172-31-92-121 ~]# yum install java-1.8.0 -y
```

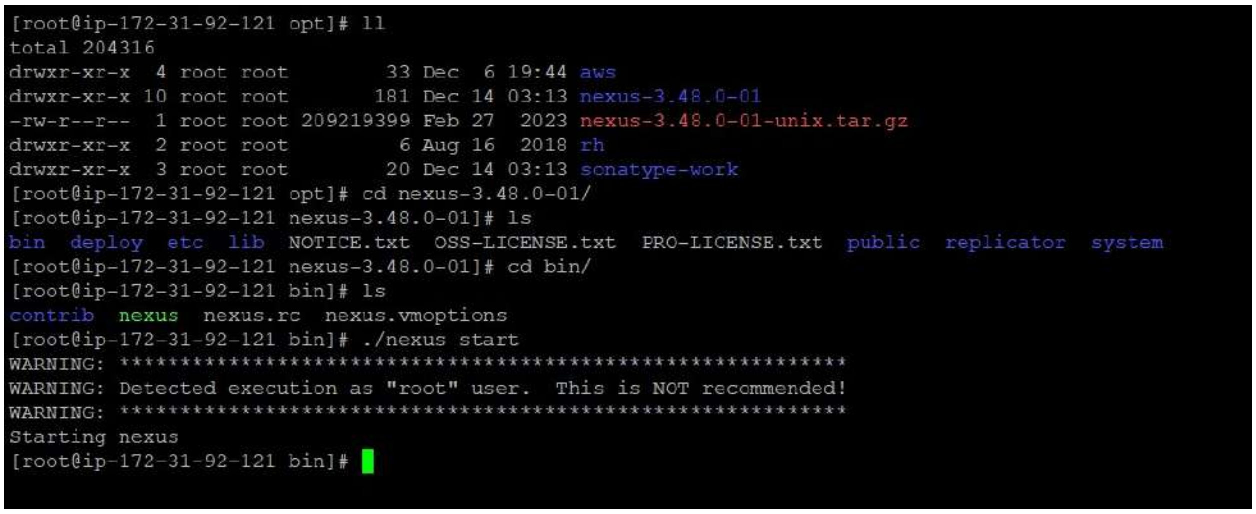
Download nexus using wget command in /opt repository.


```
[root@ip-172-31-92-121 ~]# cd /opt/
[root@ip-172-31-92-121 opt]# wget https://download.sonatype.com/nexus/3/nexus-3.
48.0-01-unix.tar.gz
```

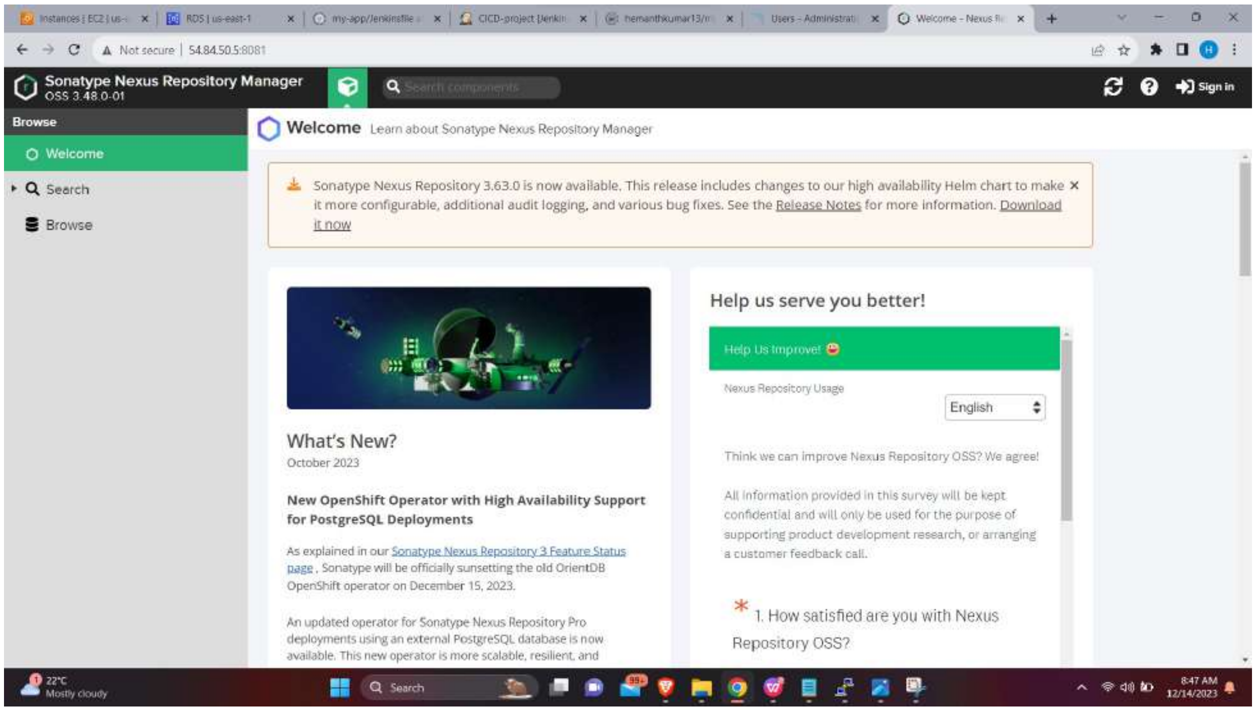
Untar the tar file.


```
[root@ip-172-31-92-121 opt]# ll
total 204316
drwxr-xr-x 4 root root        33 Dec  6 19:44 aws
-rw-r--r-- 1 root root 209219399 Feb 27  2023 nexus-3.48.0-01-unix.tar.gz
drwxr-xr-x 2 root root         6 Aug 16  2018 rh
[root@ip-172-31-92-121 opt]# tar -xvzf nexus-3.48.0-01-unix.tar.gz
```

Go to the bin directory and start the service.


```
[root@ip-172-31-92-121 opt]# ll
total 204316
drwxr-xr-x  4 root root        33 Dec  6 19:44 aws
drwxr-xr-x 10 root root       181 Dec 14 03:13 nexus-3.48.0-01
-rw-r--r--  1 root root 209219399 Feb 27  2023 nexus-3.48.0-01-unix.tar.gz
drwxr-xr-x  2 root root         6 Aug 16  2018 rh
drwxr-xr-x  3 root root        20 Dec 14 03:13 sonatype-work
[root@ip-172-31-92-121 opt]# cd nexus-3.48.0-01/
[root@ip-172-31-92-121 nexus-3.48.0-01]# ls
bin  deploy  etc  lib  NOTICE.txt  OSS-LICENSE.txt  PRO-LICENSE.txt  public  replicator  system
[root@ip-172-31-92-121 nexus-3.48.0-01]# cd bin/
[root@ip-172-31-92-121 bin]# ls
contrib  nexus  nexus.rc  nexus.vmoptions
[root@ip-172-31-92-121 bin]# ./nexus start
WARNING: ************************************************************
WARNING: Detected execution as "root" user.  This is NOT recommended!
WARNING: ************************************************************
Starting nexus
[root@ip-172-31-92-121 bin]#
```

Copy Ipv4 address – Paste Ipv4:8081 in browser.



Welcome Learn about Sonatype Nexus Repository Manager

Sonatype Nexus Repository 3.63.0 is now available. This release includes changes to our high availability Helm chart to make it more configurable, additional audit logging, and various bug fixes. See the Release Notes for more information. Download it now

What's New?
October 2023

New OpenShift Operator with High Availability Support for PostgreSQL Deployments

As explained in our Sonatype Nexus Repository 3 Feature Status page, Sonatype will be officially sunsetting the old OrientDB OpenShift operator on December 15, 2023.

An updated operator for Sonatype Nexus Repository Pro deployments using an external PostgreSQL database is now available. This new operator is more scalable, resilient, and

Help us serve you better!

Help Us Improve!

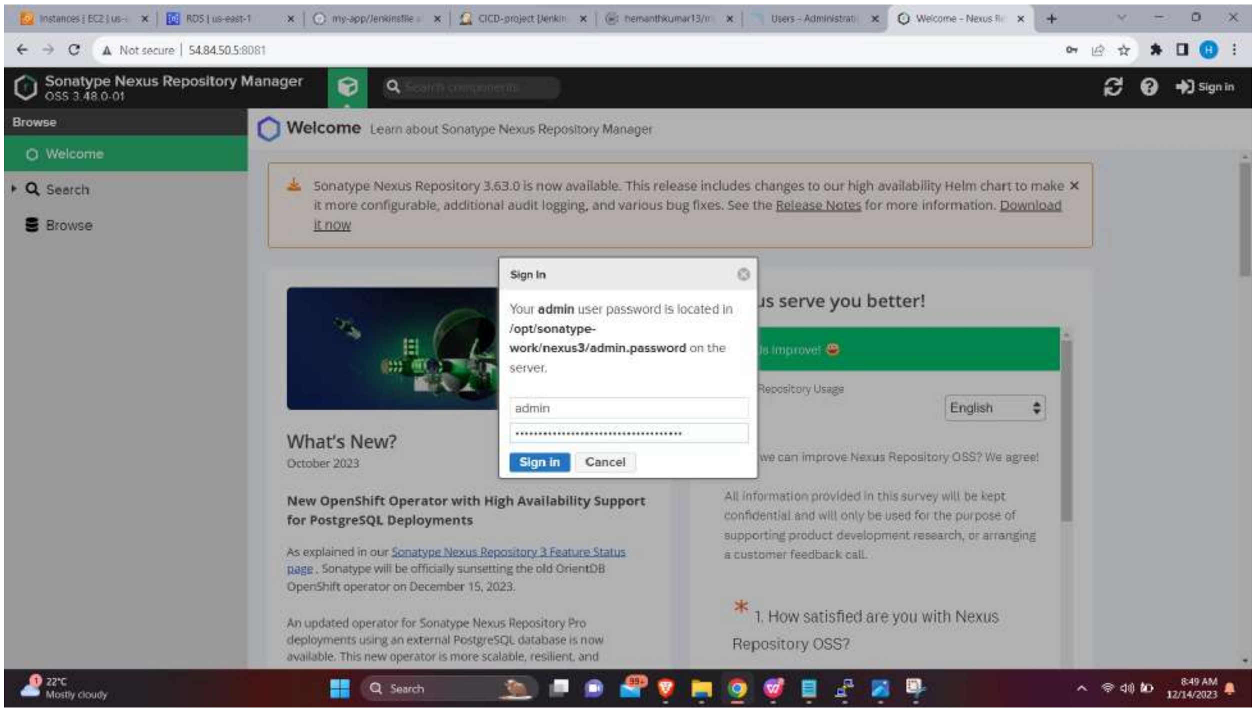
Nexus Repository Usage

Think we can improve Nexus Repository OSS? We agree!

All information provided in this survey will be kept confidential and will only be used for the purpose of supporting product development research, or arranging a customer feedback call.

1. How satisfied are you with Nexus Repository OSS?

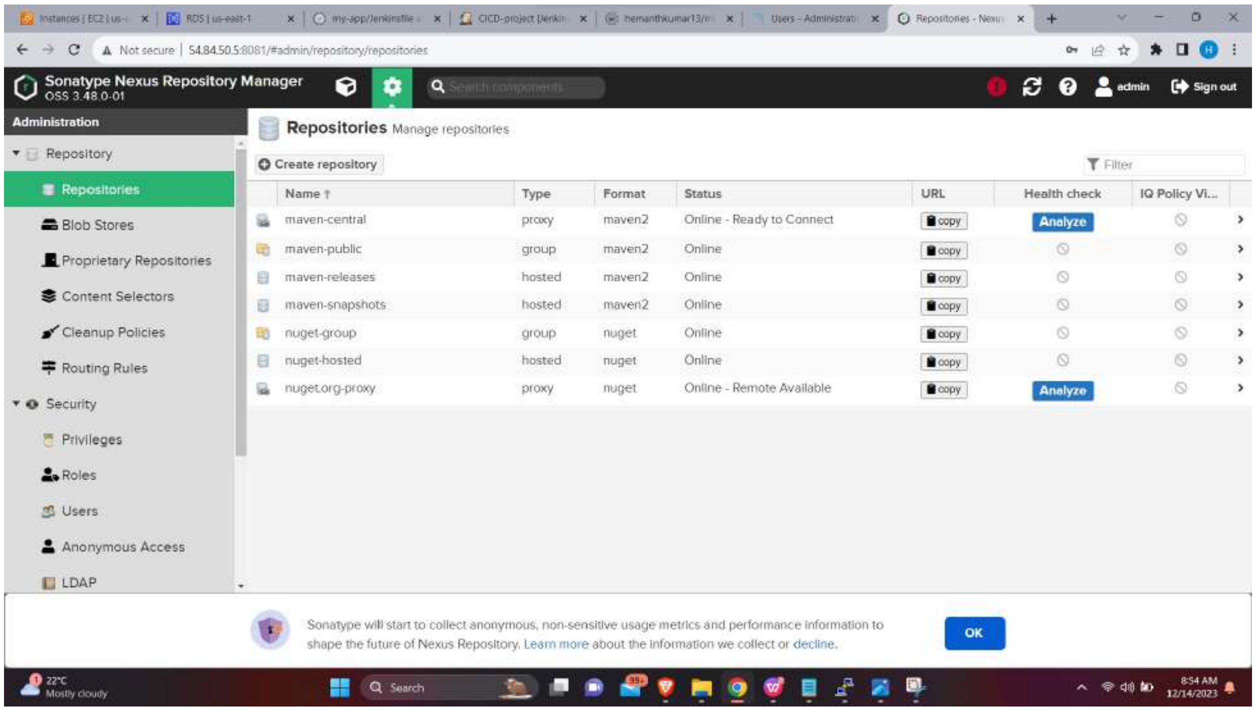
Sign In.



Sign In

Your admin user password is located in /opt/sonatype-work/nexus3/admin.password on the server.

In repositories, create a Repository.

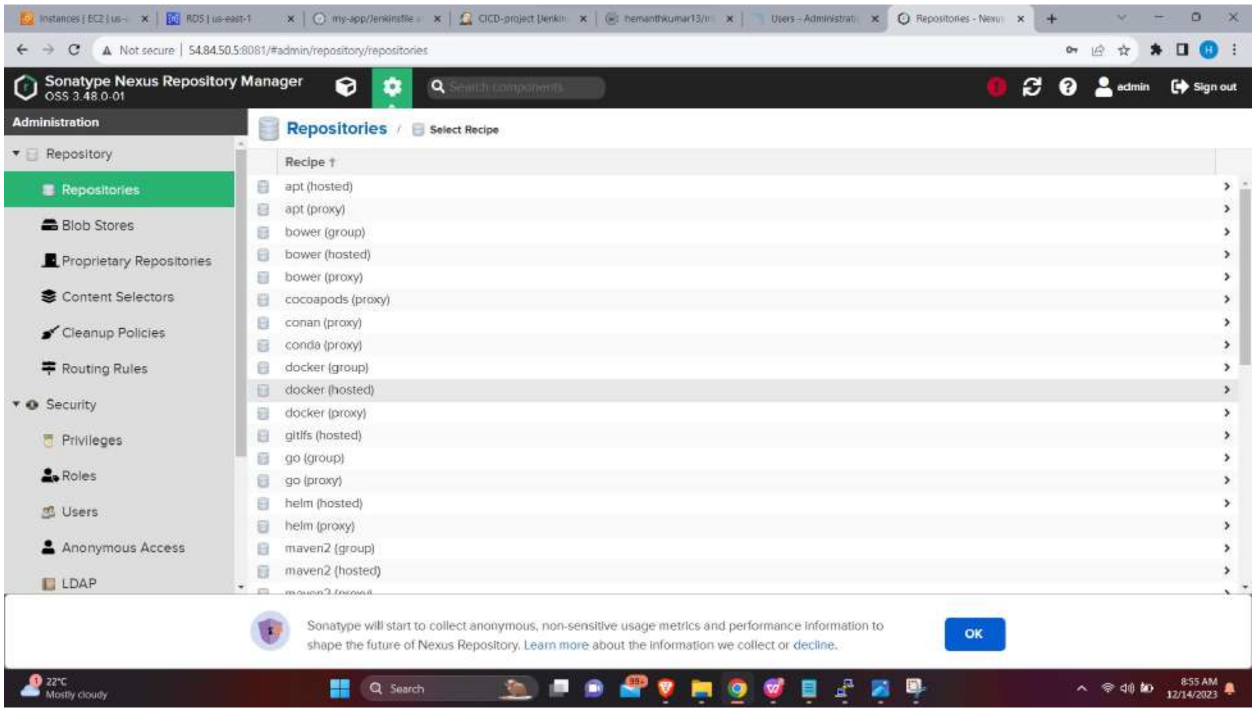


Repositories Manage repositories

Name	Type	Format	Status	URL	Health check	IQ Policy Vi...
maven-central	proxy	maven2	Online - Ready to Connect	copy	Analyze	
maven-public	group	maven2	Online	copy		
maven-releases	hosted	maven2	Online	copy		
maven-snapshots	hosted	maven2	Online	copy		
nuget-group	group	nuget	Online	copy		
nuget-hosted	hosted	nuget	Online	copy		
nuget.org-proxy	proxy	nuget	Online - Remote Available	copy	Analyze	

Sonatype will start to collect anonymous, non-sensitive usage metrics and performance information to shape the future of Nexus Repository. Learn more about the information we collect or decline. OK

Select docker (hosted).

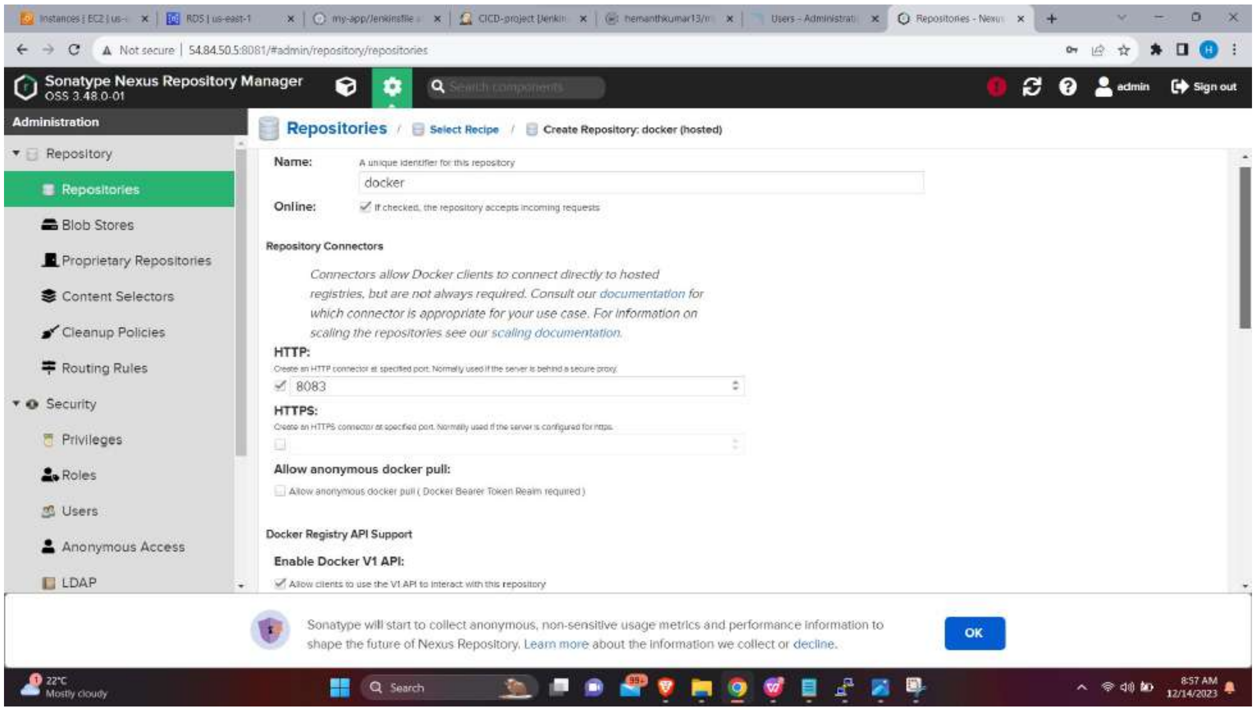


Repositories / Select Recipe

Recipe
apt (hosted)
apt (proxy)
bower (group)
bower (hosted)
bower (proxy)
cocoapods (proxy)
conan (proxy)
conda (proxy)
docker (group)
docker (hosted)
docker (proxy)
gitlfs (hosted)
go (group)
go (proxy)
helm (hosted)
helm (proxy)
maven2 (group)
maven2 (hosted)

Sonatype will start to collect anonymous, non-sensitive usage metrics and performance information to shape the future of Nexus Repository. Learn more about the information we collect or decline. OK

Set a Name: Docker
Repo HTTP: 8083 < - (repository port)
Enable Docker V1 API – Create Repository.



Repositories / Select Recipe / Create Repository: docker (hosted)

Name: A unique identifier for this repository
docker

Online: ✓ If checked, the repository accepts incoming requests

Repository Connectors

Connectors allow Docker clients to connect directly to hosted registries, but are not always required. Consult our documentation for which connector is appropriate for your use case. For information on scaling the repositories see our scaling documentation.

HTTP:
Create an HTTP connector at specified port. Normally used if the server is behind a secure proxy.
✓ 8083

HTTPS:
Create an HTTPS connector at specified port. Normally used if the server is configured for https.

Allow anonymous docker pull:
Allow anonymous docker pull (Docker Bearer Token Realm required)

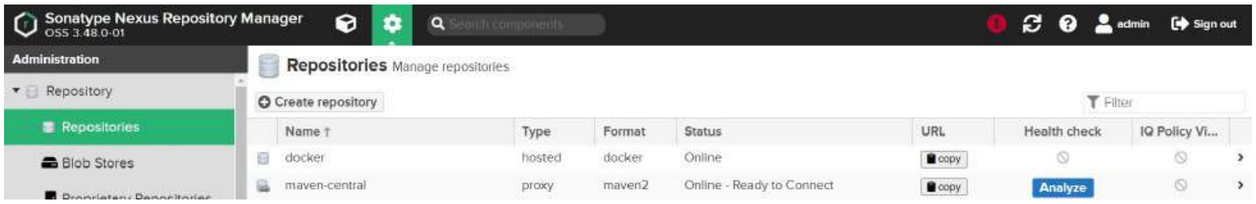
Docker Registry API Support

Enable Docker V1 API:
✓ Allow clients to use the V1 API to interact with this repository

Sonatype will start to collect anonymous, non-sensitive usage metrics and performance information to shape the future of Nexus Repository. Learn more about the information we collect or decline.

OK

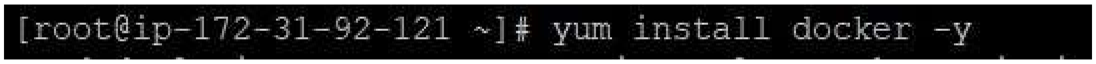
Docker repository has been created in nexus.



Repositories Manage repositories

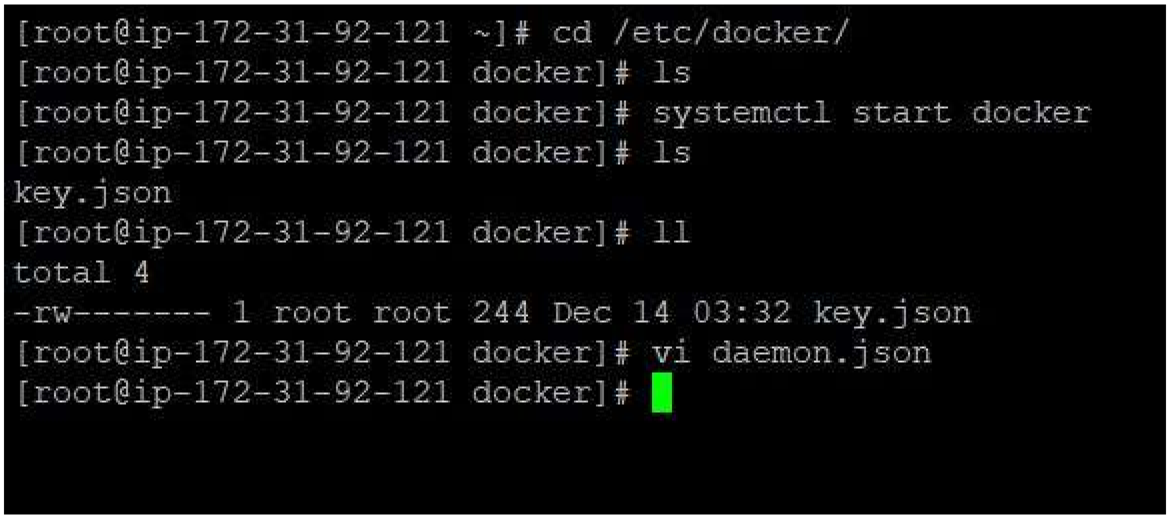
Name	Type	Format	Status	URL	Health check	IQ Policy Vi...
docker	hosted	docker	Online	copy		
maven-central	proxy	maven2	Online - Ready to Connect	copy	Analyze	

Install docker in nexus Ec2 Server.

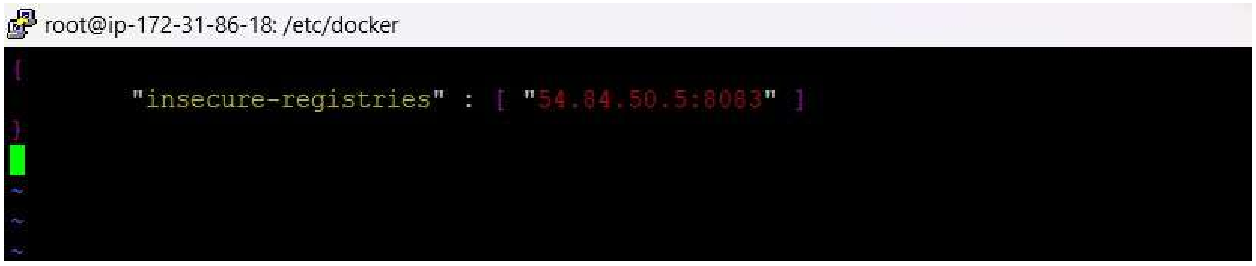


```
[root@ip-172-31-92-121 ~]# yum install docker -y
```

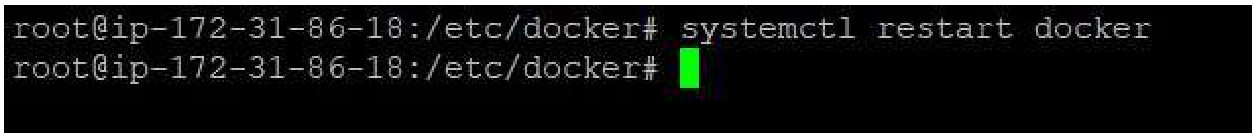
Start the docker service & create a daemon.json file.


```
[root@ip-172-31-92-121 ~]# cd /etc/docker/
[root@ip-172-31-92-121 docker]# ls
[root@ip-172-31-92-121 docker]# systemctl start docker
[root@ip-172-31-92-121 docker]# ls
key.json
[root@ip-172-31-92-121 docker]# ll
total 4
-rw------- 1 root root 244 Dec 14 03:32 key.json
[root@ip-172-31-92-121 docker]# vi daemon.json
[root@ip-172-31-92-121 docker]#
```

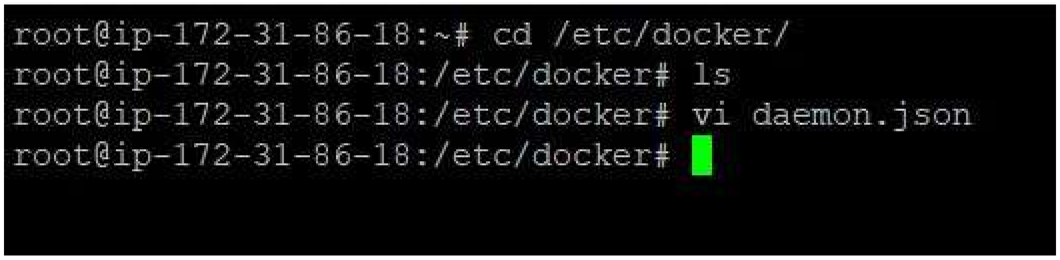
Add this content inside the daemon.json file.
{
“insecure-registries” : [“nexus Server IPv4:Repo Portno”]
}

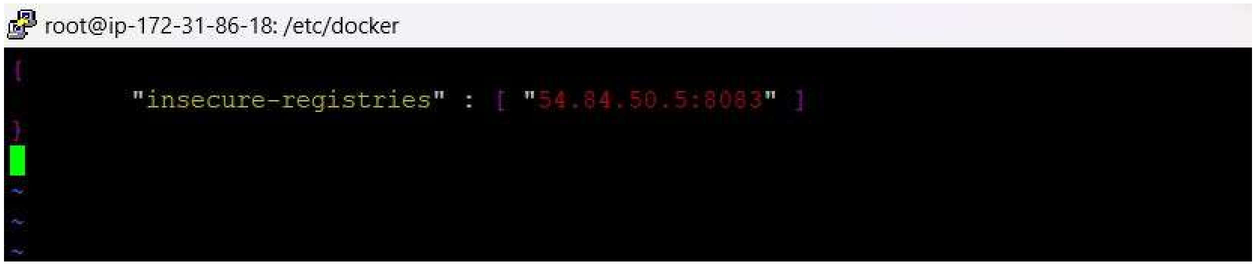

```
root@ip-172-31-86-18: /etc/docker
{
        "insecure-registries" : [ "54.84.50.5:8083" ]
}

~
~
~
```

Then restart the docker service.


```
root@ip-172-31-86-18:/etc/docker# systemctl restart docker
root@ip-172-31-86-18:/etc/docker#
```

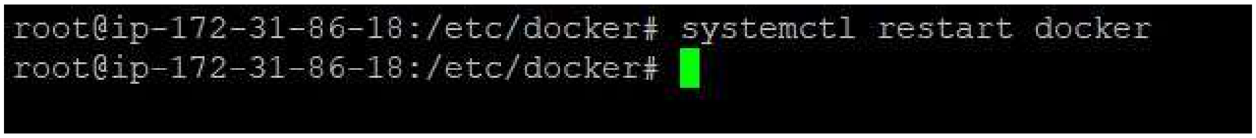
Connect to the Jenkins Ec2 server.
And follow the same steps. Create a daemon.json file - add the same content - restart the service.


```
root@ip-172-31-86-18:~# cd /etc/docker/
root@ip-172-31-86-18:/etc/docker# ls
root@ip-172-31-86-18:/etc/docker# vi daemon.json
root@ip-172-31-86-18:/etc/docker#
```



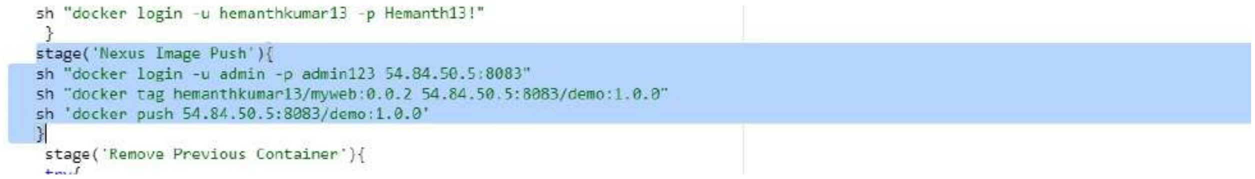
root@ip-172-31-86-18: /etc/docker

```
{
        "insecure-registries" : [ "54.84.50.5:8083" ]
}
~
~
~
```



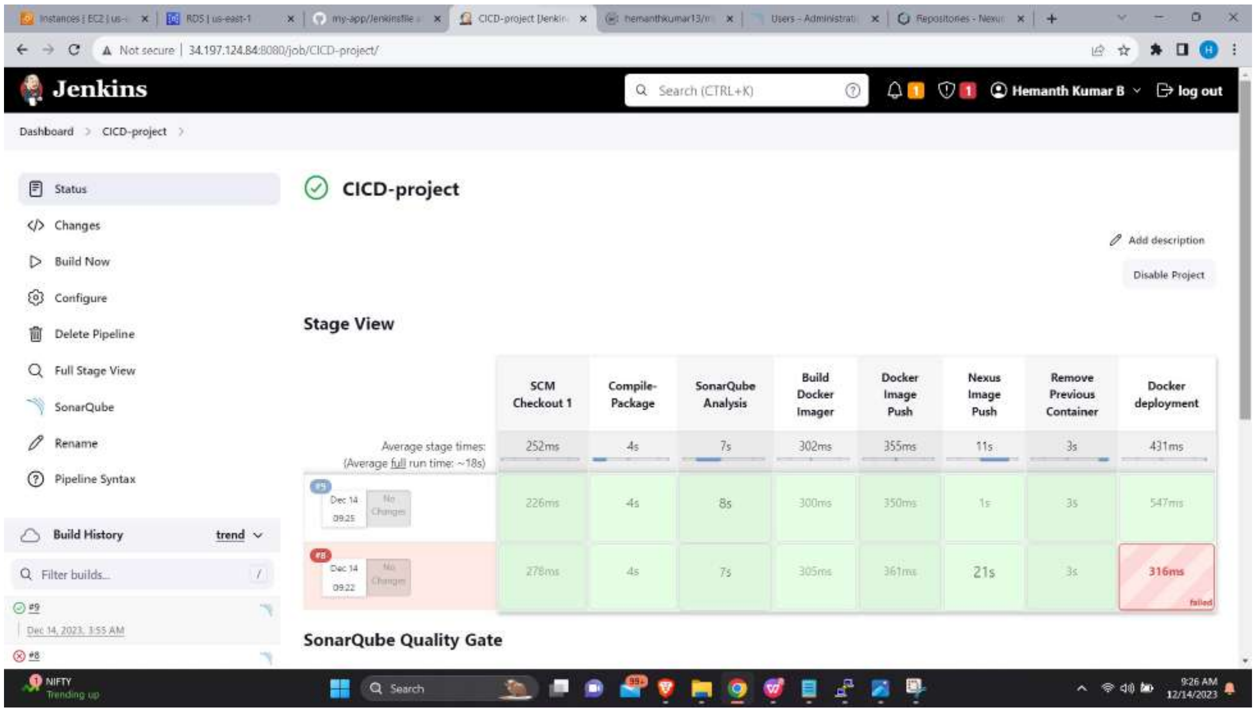
```
root@ip-172-31-86-18:/etc/docker# systemctl restart docker
root@ip-172-31-86-18:/etc/docker#
```

Copy the nexus groovy script stage.
In the pipeline script, paste the nexus stage under docker image push stage – apply and save.



```
   sh "docker login -u hemanthkumar13 -p Hemanth13!"
    }
   stage('Nexus Image Push'){
   sh "docker login -u admin -p admin123 54.84.50.5:8083"
   sh "docker tag hemanthkumar13/myweb:0.0.2 54.84.50.5:8083/demo:1.0.0"
   sh 'docker push 54.84.50.5:8083/demo:1.0.0'
   }
    stage('Remove Previous Container'){
```

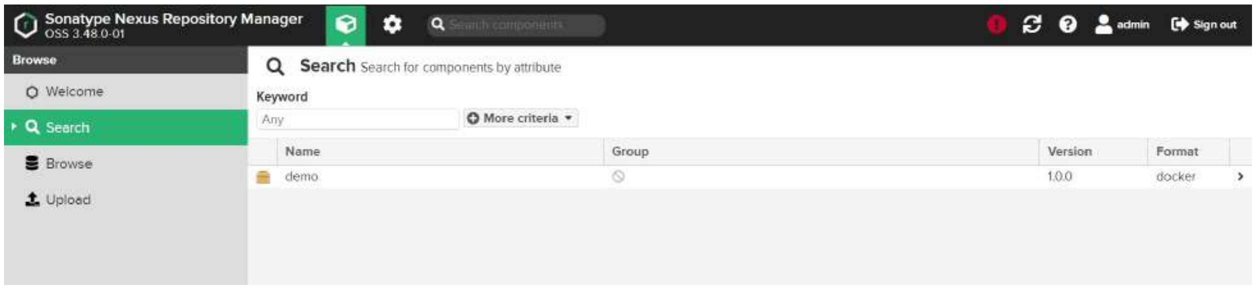
Build the Jenkins pipeline project.



Stage View

	SCM Checkout 1	Compile-Package	SonarQube Analysis	Build Docker Imager	Docker Image Push	Nexus Image Push	Remove Previous Container	Docker deployment
Average stage times: (Average full run time: ~18s)	252ms	4s	7s	302ms	355ms	11s	3s	431ms
#9 Dec 14 09:25 No Changes	226ms	4s	8s	300ms	350ms	1s	3s	547ms
#8 Dec 14 09:22 No Changes	278ms	4s	7s	305ms	361ms	21s	3s	316ms failed

Now go to the nexus hub and check the image has been pushed successfully in the nexus repository.

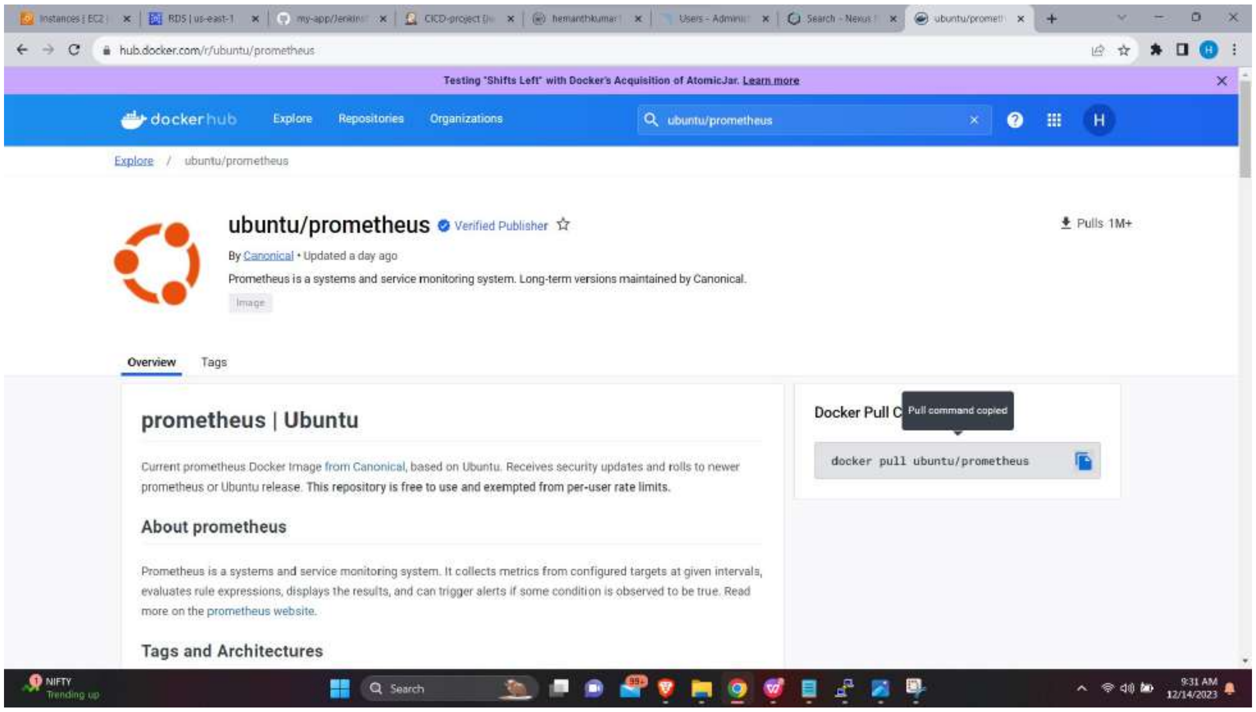


Name	Group	Version	Format
demo		1.0.0	docker

From here the SCM has been compiled in war file – war.file code have been reviewed in sonarqube – war file have been build into docker image using dockerfile and pushed to docker hub and nexus repo – deploy the newapp war file in tomcat server as a container using Jenkins pipeline.

Steps to add monitoring tools with Jenkins to view the metrics of Jenkins pipeline project

In docker hub, Search ubuntu/prometheus & copy the pull command.


hub.docker.com/r/ubuntu/prometheus
Testing "Shifts Left" with Docker's Acquisition of AtomicJar. Learn more
dockerhub
Explore
Repositories
Organizations
ubuntu/prometheus
Explore / ubuntu/prometheus
ubuntu/prometheus
Verified Publisher
Pulls 1M+
By Canonical • Updated a day ago
Image
Overview
Tags
Docker Pull C
Pull command copied

Prometheus is a systems and service monitoring system. Long-term versions maintained by Canonical.

```
docker pull ubuntu/prometheus
```

prometheus | Ubuntu

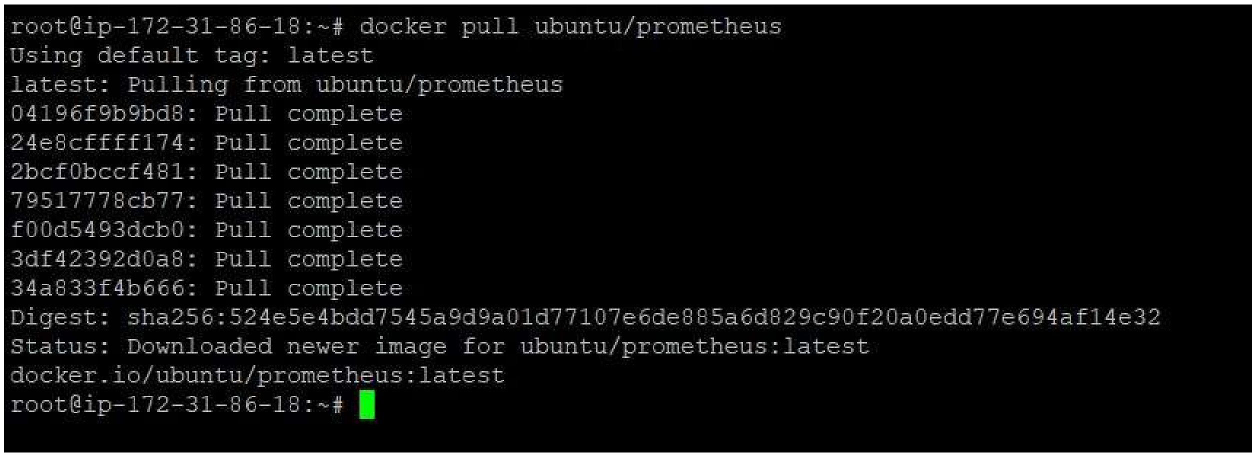
Current prometheus Docker Image from Canonical, based on Ubuntu. Receives security updates and rolls to newer prometheus or Ubuntu release. This repository is free to use and exempted from per-user rate limits.

About prometheus

Prometheus is a systems and service monitoring system. It collects metrics from configured targets at given intervals, evaluates rule expressions, displays the results, and can trigger alerts if some condition is observed to be true. Read more on the prometheus website.

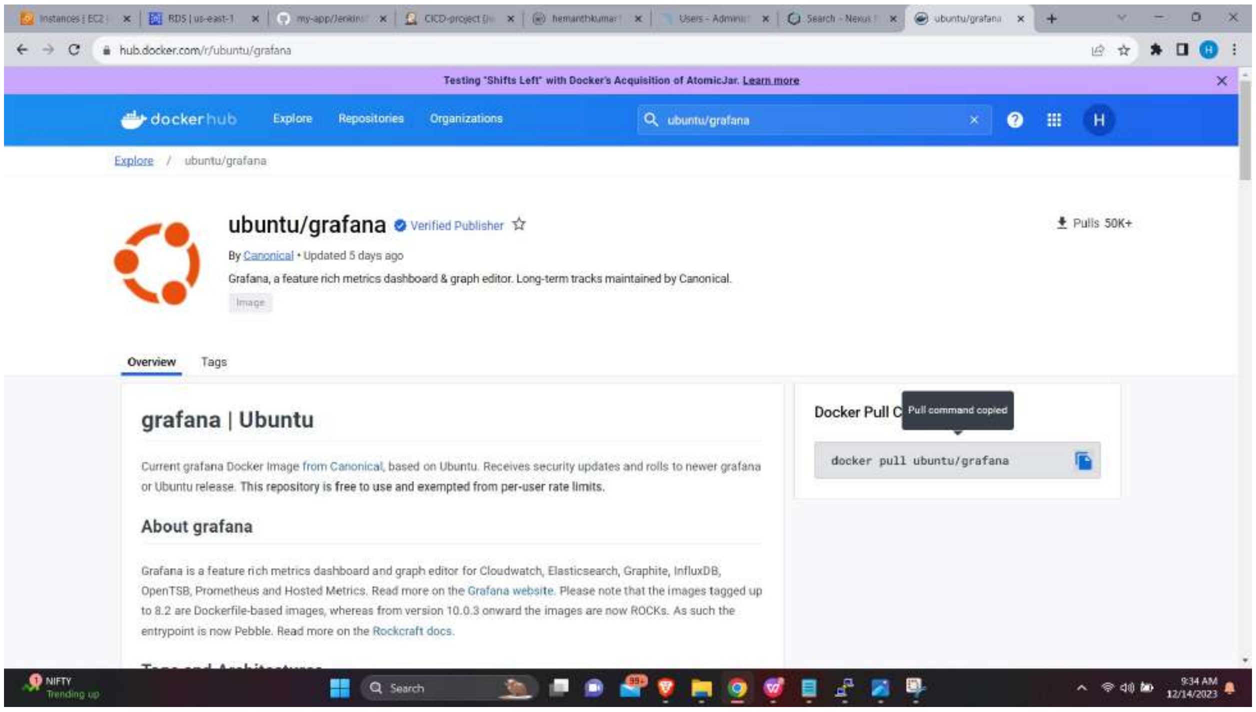
Tags and Architectures

Connect the Jenkins ec2 server.
Pull the Prometheus Docker Image.



```
root@ip-172-31-86-18:~# docker pull ubuntu/prometheus
Using default tag: latest
latest: Pulling from ubuntu/prometheus
04196f9b9bd8: Pull complete
24e8cffff174: Pull complete
2bcf0bccf481: Pull complete
79517778cb77: Pull complete
f00d5493dcb0: Pull complete
3df42392d0a8: Pull complete
34a833f4b666: Pull complete
Digest: sha256:524e5e4bdd7545a9d9a01d77107e6de885a6d829c90f20a0edd77e694af14e32
Status: Downloaded newer image for ubuntu/prometheus:latest
docker.io/ubuntu/prometheus:latest
root@ip-172-31-86-18:~#
```

In Docker hub, search ubuntu/Grafana & copy the pull command.



hub.docker.com/r/ubuntu/grafana

Testing "Shifts Left" with Docker's Acquisition of AtomicJar. Learn more

Explore / ubuntu/grafana

ubuntu/grafana Verified Publisher

By Canonical • Updated 5 days ago

Grafana, a feature rich metrics dashboard & graph editor. Long-term tracks maintained by Canonical.

Pulls 50K+

Overview Tags

grafana | Ubuntu

Current grafana Docker Image from Canonical, based on Ubuntu. Receives security updates and rolls to newer grafana or Ubuntu release. This repository is free to use and exempted from per-user rate limits.

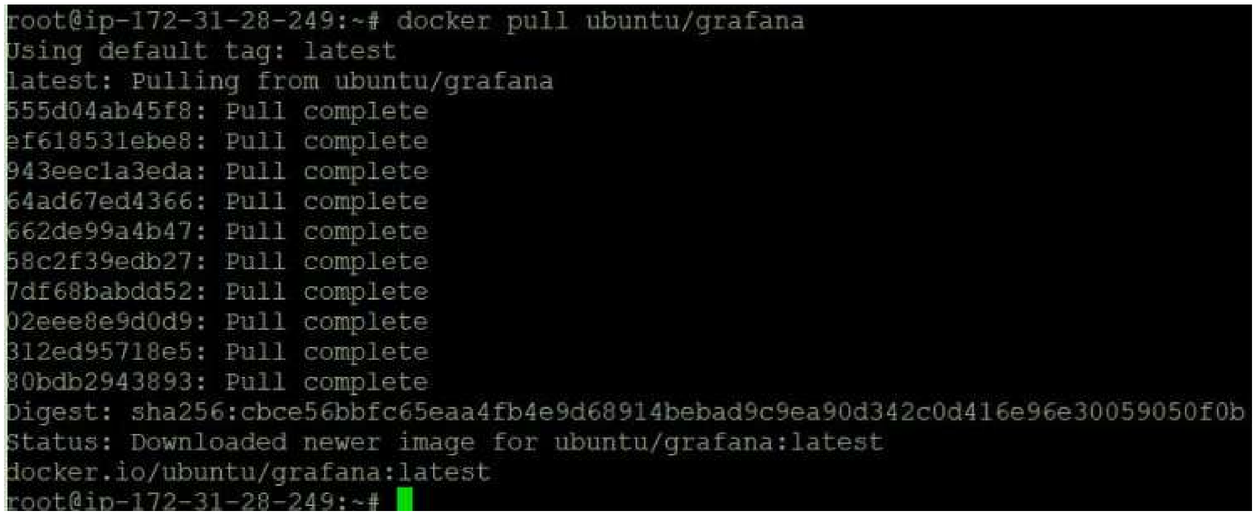
About grafana

Grafana is a feature rich metrics dashboard and graph editor for Cloudwatch, Elasticsearch, Graphite, InfluxDB, OpenTSB, Prometheus and Hosted Metrics. Read more on the Grafana website. Please note that the images tagged up to 8.2 are Dockerfile-based images, whereas from version 10.0.3 onward the images are now ROCKs. As such the entrypoint is now Pebble. Read more on the Rockcraft docs.

Docker Pull C Pull command copied

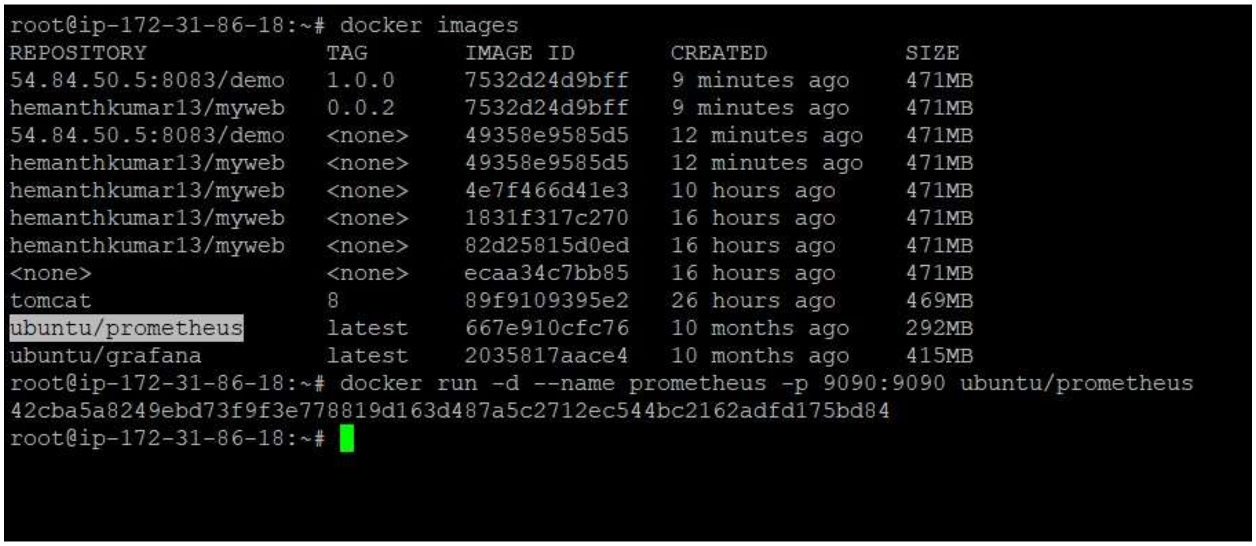
```
docker pull ubuntu/grafana
```

Pull the grafana docker image.



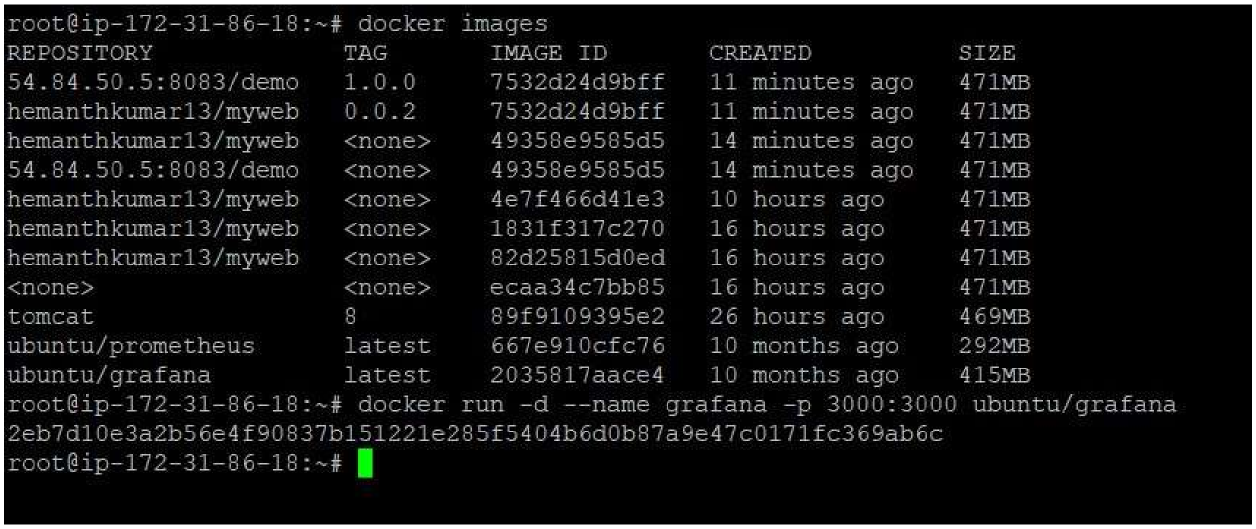
```
root@ip-172-31-28-249:~# docker pull ubuntu/grafana
Using default tag: latest
latest: Pulling from ubuntu/grafana
555d04ab45f8: Pull complete
ef618531ebe8: Pull complete
943eec1a3eda: Pull complete
64ad67ed4366: Pull complete
662de99a4b47: Pull complete
58c2f39edb27: Pull complete
7df68babdd52: Pull complete
02eee8e9d0d9: Pull complete
312ed95718e5: Pull complete
80bdb2943893: Pull complete
Digest: sha256:cbce56bbfc65eaa4fb4e9d68914bebad9c9ea90d342c0d416e96e30059050f0b
Status: Downloaded newer image for ubuntu/grafana:latest
docker.io/ubuntu/grafana:latest
root@ip-172-31-28-249:~#
```

Create and run a container for prometheus.



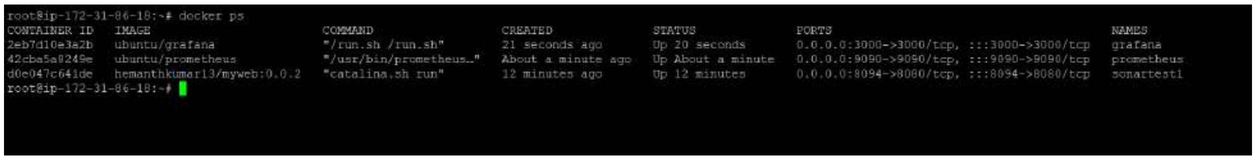
```
root@ip-172-31-86-18:~# docker images
REPOSITORY              TAG       IMAGE ID       CREATED          SIZE
54.84.50.5:8083/demo    1.0.0     7532d24d9bff   9 minutes ago    471MB
hemanthkumar13/myweb   0.0.2     7532d24d9bff   9 minutes ago    471MB
54.84.50.5:8083/demo    <none>    49358e9585d5   12 minutes ago   471MB
hemanthkumar13/myweb   <none>    49358e9585d5   12 minutes ago   471MB
hemanthkumar13/myweb   <none>    4e7f466d41e3   10 hours ago     471MB
hemanthkumar13/myweb   <none>    1831f317c270   16 hours ago     471MB
hemanthkumar13/myweb   <none>    82d25815d0ed   16 hours ago     471MB
<none>                  <none>    ecaa34c7bb85   16 hours ago     471MB
tomcat                  8         89f9109395e2   26 hours ago     469MB
ubuntu/prometheus       latest    667e910cfc76   10 months ago    292MB
ubuntu/grafana          latest    2035817aace4   10 months ago    415MB
root@ip-172-31-86-18:~# docker run -d --name prometheus -p 9090:9090 ubuntu/prometheus
42cba5a8249ebd73f9f3e778819d163d487a5c2712ec544bc2162adfd175bd84
root@ip-172-31-86-18:~#
```

Create a Grafana container using docker image.



```
root@ip-172-31-86-18:~# docker images
REPOSITORY              TAG       IMAGE ID       CREATED          SIZE
54.84.50.5:8083/demo    1.0.0     7532d24d9bff   11 minutes ago   471MB
hemanthkumar13/myweb    0.0.2     7532d24d9bff   11 minutes ago   471MB
hemanthkumar13/myweb    <none>    49358e9585d5   14 minutes ago   471MB
54.84.50.5:8083/demo    <none>    49358e9585d5   14 minutes ago   471MB
hemanthkumar13/myweb    <none>    4e7f466d41e3   10 hours ago     471MB
hemanthkumar13/myweb    <none>    1831f317c270   16 hours ago     471MB
hemanthkumar13/myweb    <none>    82d25815d0ed   16 hours ago     471MB
<none>                  <none>    ecaa34c7bb85   16 hours ago     471MB
tomcat                  8         89f9109395e2   26 hours ago     469MB
ubuntu/prometheus       latest    667e910cfc76   10 months ago    292MB
ubuntu/grafana          latest    2035817aace4   10 months ago    415MB
root@ip-172-31-86-18:~# docker run -d --name grafana -p 3000:3000 ubuntu/grafana
2eb7d10e3a2b56e4f90837b151221e285f5404b6d0b87a9e47c0171fc369ab6c
root@ip-172-31-86-18:~# 
```

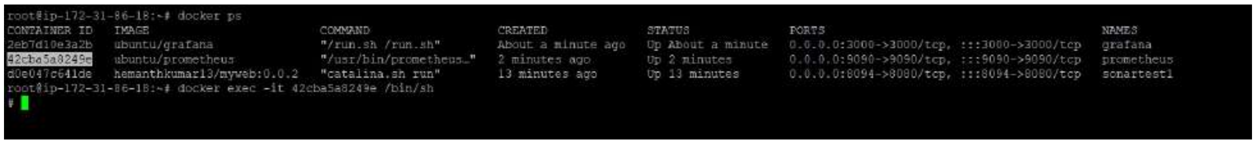
Using docker ps command, we can see that prometheus and grafana containers are running.



```
root@ip-172-31-86-18:~# docker ps
CONTAINER ID   IMAGE                        COMMAND                  CREATED              STATUS              PORTS                                       NAMES
2eb7d10e3a2b   ubuntu/grafana               "/run.sh /run.sh"        21 seconds ago       Up 20 seconds       0.0.0.0:3000->3000/tcp, :::3000->3000/tcp   grafana
42cba5a8249e   ubuntu/prometheus            "/usr/bin/prometheus…"   About a minute ago   Up About a minute   0.0.0.0:9090->9090/tcp, :::9090->9090/tcp   prometheus
d0e047c641de   hemanthkumar13/myweb:0.0.2   "catalina.sh run"        12 minutes ago       Up 12 minutes       0.0.0.0:8094->8080/tcp, :::8094->8080/tcp   sonartest1
root@ip-172-31-86-18:~# 
```

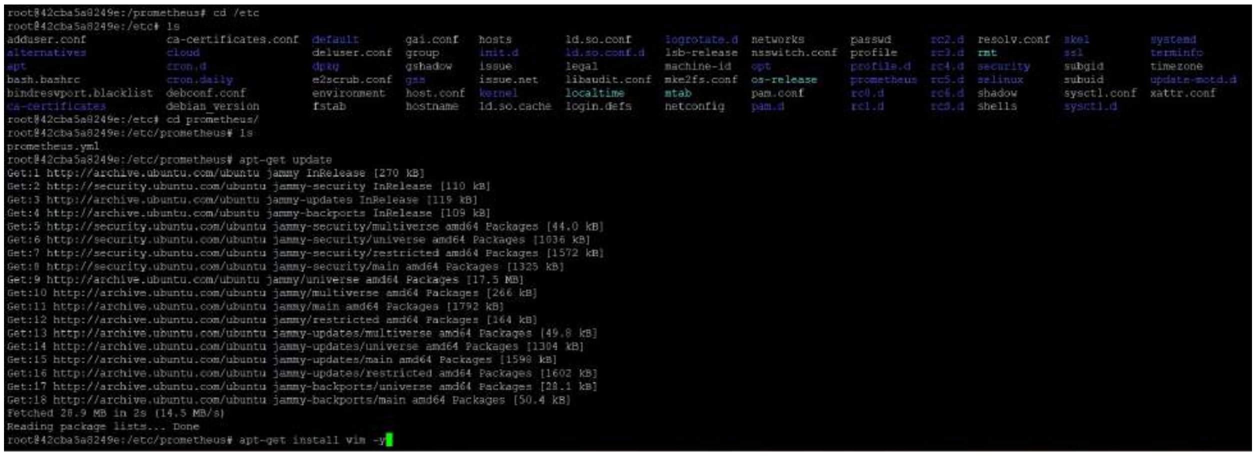
To access the container

#docker exec -it <containerID> /bin/sh



```
root@ip-172-31-86-18:~# docker ps
CONTAINER ID   IMAGE                        COMMAND                  CREATED              STATUS              PORTS                                       NAMES
2eb7d10e3a2b   ubuntu/grafana               "/run.sh /run.sh"        About a minute ago   Up About a minute   0.0.0.0:3000->3000/tcp, :::3000->3000/tcp   grafana
42cba5a8249e   ubuntu/prometheus            "/usr/bin/prometheus…"   2 minutes ago        Up 2 minutes        0.0.0.0:9090->9090/tcp, :::9090->9090/tcp   prometheus
d0e047c641de   hemanthkumar13/myweb:0.0.2   "catalina.sh run"        13 minutes ago       Up 13 minutes       0.0.0.0:8094->8080/tcp, :::8094->8080/tcp   sonartest1
root@ip-172-31-86-18:~# docker exec -it 42cba5a8249e /bin/sh
# 
```

Install vim editor in the container.

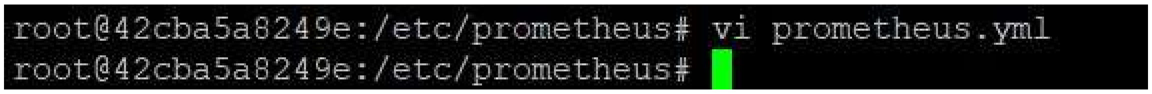


```
root@42cba5a8249e:/prometheus# cd /etc
root@42cba5a8249e:/etc# ls
adduser.conf             ca-certificates.conf  default        gai.conf   hosts         ld.so.conf      logrotate.d  networks       passwd       rc2.d  resolv.conf  skel         systemd
alternatives             cloud                 deluser.conf   group      init.d        ld.so.conf.d    lsb-release  nsswitch.conf  profile      rc3.d  rmt          ssl          terminfo
apt                      cron.d                dpkg           gshadow    issue         legal           machine-id   opt            profile.d    rc4.d  security     subgid       timezone
bash.bashrc              cron.daily            e2scrub.conf   gss        issue.net     libaudit.conf   mke2fs.conf  os-release     prometheus   rc5.d  selinux      subuid       update-motd.d
bindresvport.blacklist   debconf.conf          environment    host.conf  kernel        localtime       mtab         pam.conf       rc0.d        rc6.d  shadow       sysctl.conf  xattr.conf
ca-certificates          debian_version        fstab          hostname   ld.so.cache   login.defs      netconfig    pam.d          rc1.d        rcS.d  shells       sysctl.d
root@42cba5a8249e:/etc# cd prometheus/
root@42cba5a8249e:/etc/prometheus# ls
prometheus.yml
root@42cba5a8249e:/etc/prometheus# apt-get update
Get:1 http://archive.ubuntu.com/ubuntu jammy InRelease [270 kB]
Get:2 http://security.ubuntu.com/ubuntu jammy-security InRelease [110 kB]
Get:3 http://archive.ubuntu.com/ubuntu jammy-updates InRelease [119 kB]
Get:4 http://archive.ubuntu.com/ubuntu jammy-backports InRelease [109 kB]
Get:5 http://security.ubuntu.com/ubuntu jammy-security/multiverse amd64 Packages [44.0 kB]
Get:6 http://security.ubuntu.com/ubuntu jammy-security/universe amd64 Packages [1036 kB]
Get:7 http://security.ubuntu.com/ubuntu jammy-security/restricted amd64 Packages [1572 kB]
Get:8 http://security.ubuntu.com/ubuntu jammy-security/main amd64 Packages [1325 kB]
Get:9 http://archive.ubuntu.com/ubuntu jammy/universe amd64 Packages [17.5 MB]
Get:10 http://archive.ubuntu.com/ubuntu jammy/multiverse amd64 Packages [266 kB]
Get:11 http://archive.ubuntu.com/ubuntu jammy/main amd64 Packages [1792 kB]
Get:12 http://archive.ubuntu.com/ubuntu jammy/restricted amd64 Packages [164 kB]
Get:13 http://archive.ubuntu.com/ubuntu jammy-updates/multiverse amd64 Packages [49.8 kB]
Get:14 http://archive.ubuntu.com/ubuntu jammy-updates/universe amd64 Packages [1304 kB]
Get:15 http://archive.ubuntu.com/ubuntu jammy-updates/main amd64 Packages [1598 kB]
Get:16 http://archive.ubuntu.com/ubuntu jammy-updates/restricted amd64 Packages [1602 kB]
Get:17 http://archive.ubuntu.com/ubuntu jammy-backports/universe amd64 Packages [28.1 kB]
Get:18 http://archive.ubuntu.com/ubuntu jammy-backports/main amd64 Packages [50.4 kB]
Fetched 28.9 MB in 2s (14.5 MB/s)
Reading package lists... Done
root@42cba5a8249e:/etc/prometheus# apt-get install vim -y
```

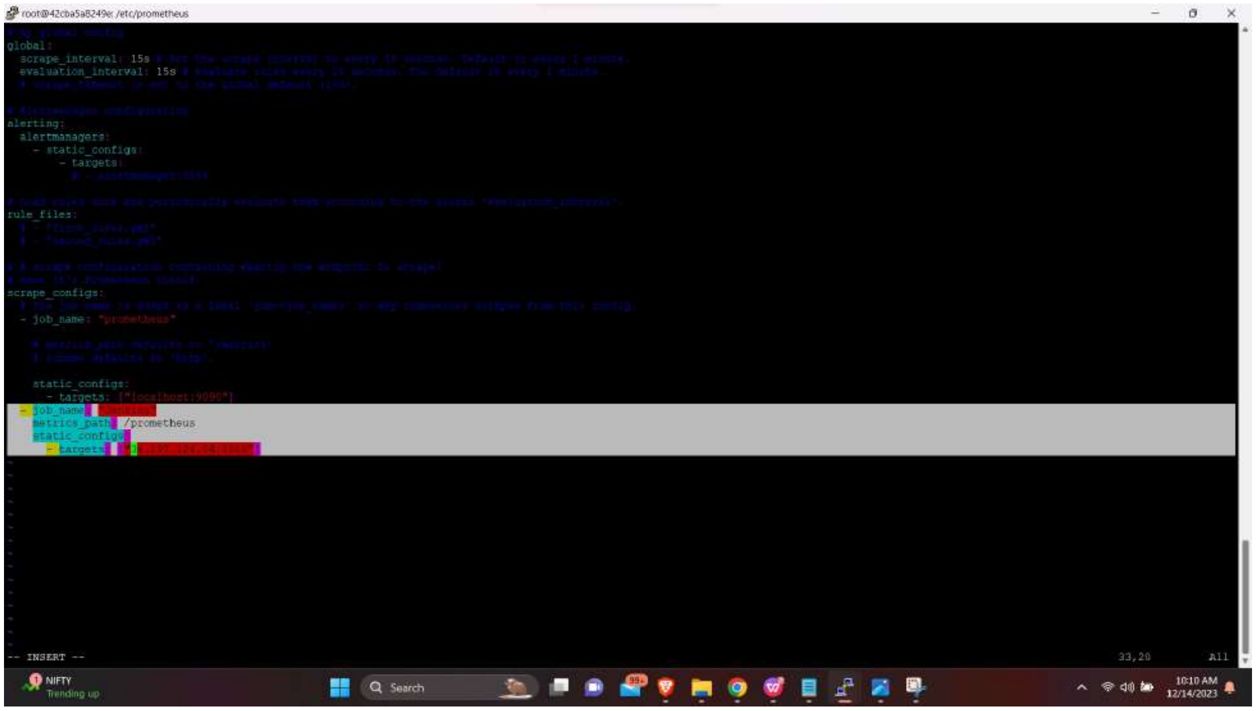
Then edit the prometheus.yml file by adding the following content.

- job_name: “Jenkins”

```
metrics_path: /prometheus
Static_configs:
- targets: [“Jenkins server IPv4:8080”]
```

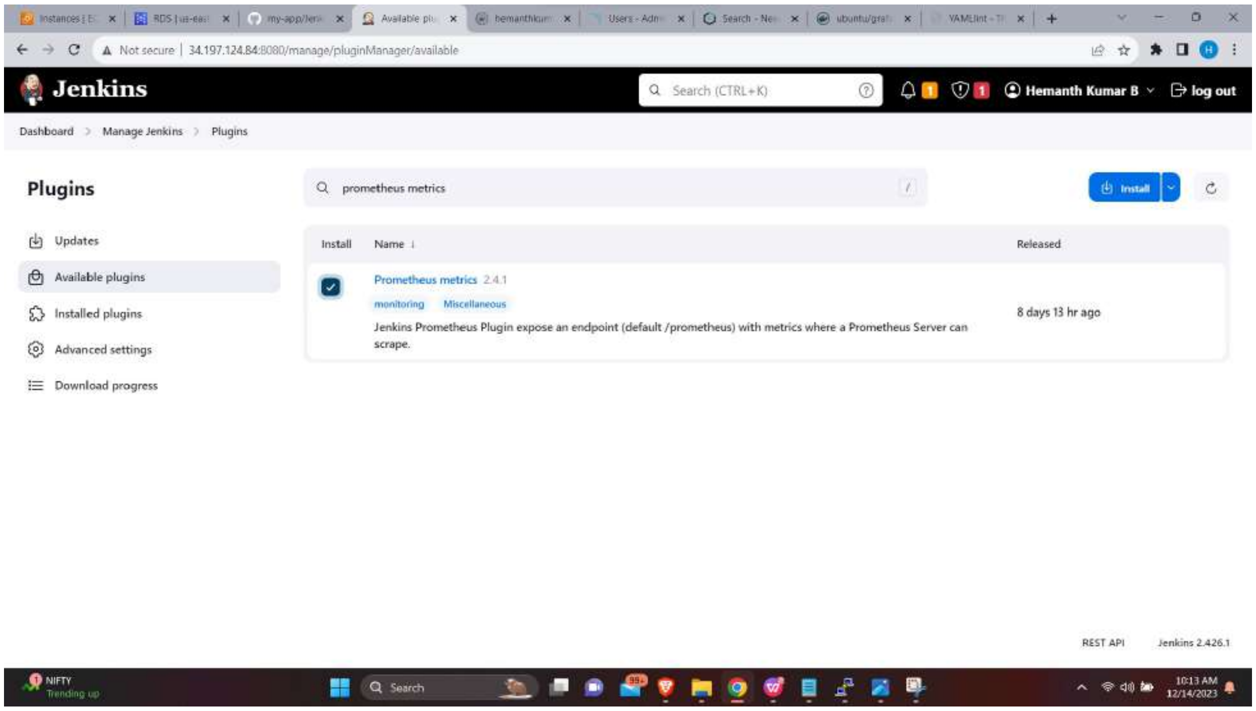


```
root@42cba5a8249e:/etc/prometheus# vi prometheus.yml
root@42cba5a8249e:/etc/prometheus#
```



```
[illegible]
global:
  scrape_interval: 15s [illegible]
  evaluation_interval: 15s [illegible]
  [illegible]

[illegible]
alerting:
  alertmanagers:
    - static_configs:
        - targets:
          [illegible]

[illegible]
rule_files:
  [illegible]
  [illegible]

[illegible]
[illegible]
scrape_configs:
  [illegible]
  - job_name: "prometheus"

    [illegible]
    [illegible]

    static_configs:
      - targets: ["localhost:9090"]
  - job_name: [illegible]
    metrics_path: /prometheus
    static_configs:
      - targets: [illegible]
~
~
~
~
~
~
~
~
~
~
~
~
~
~
-- INSERT --                                                                    33,20         All
```

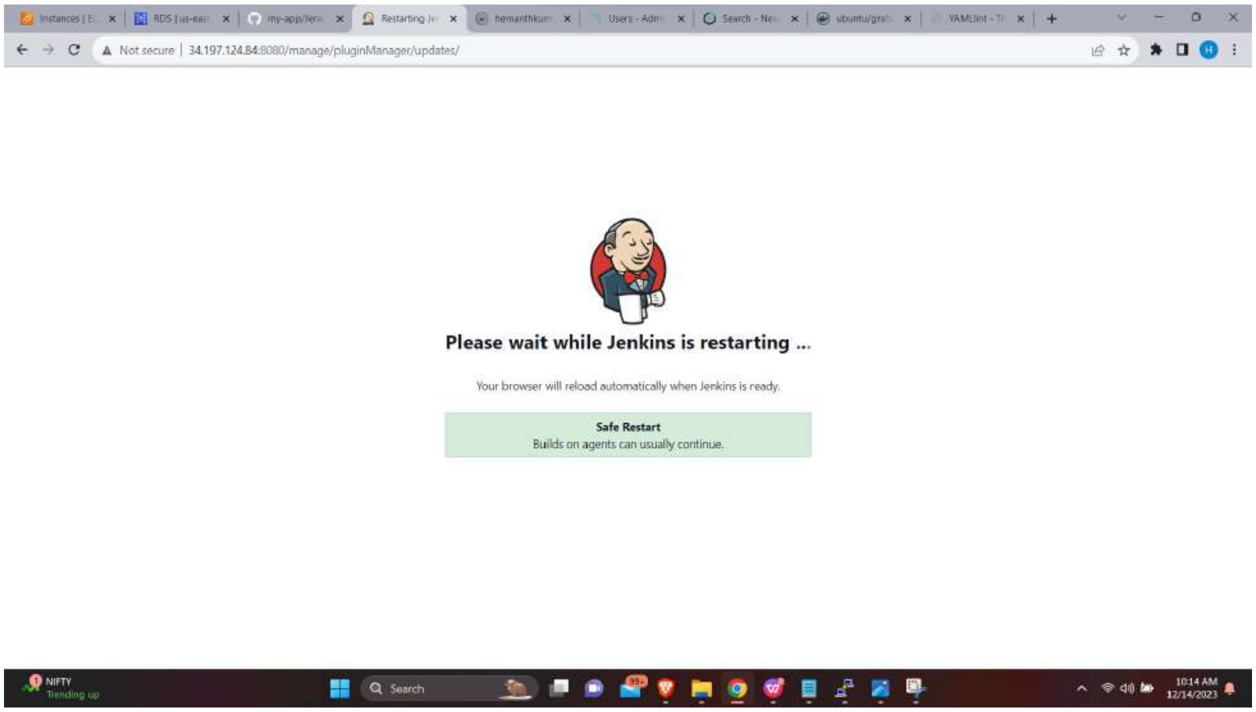
In Jenkins dashboard, Go to Manage Jenkins – plugins – Available plugins
Search Prometheus metrics – Install without restart.



34.197.124.84:8080/manage/pluginManager/available

prometheus metrics

Install	Name ↓	Released
✓	Prometheus metrics 2.4.1 monitoring Miscellaneous Jenkins Prometheus Plugin expose an endpoint (default /prometheus) with metrics where a Prometheus Server can scrape.	8 days 13 hr ago



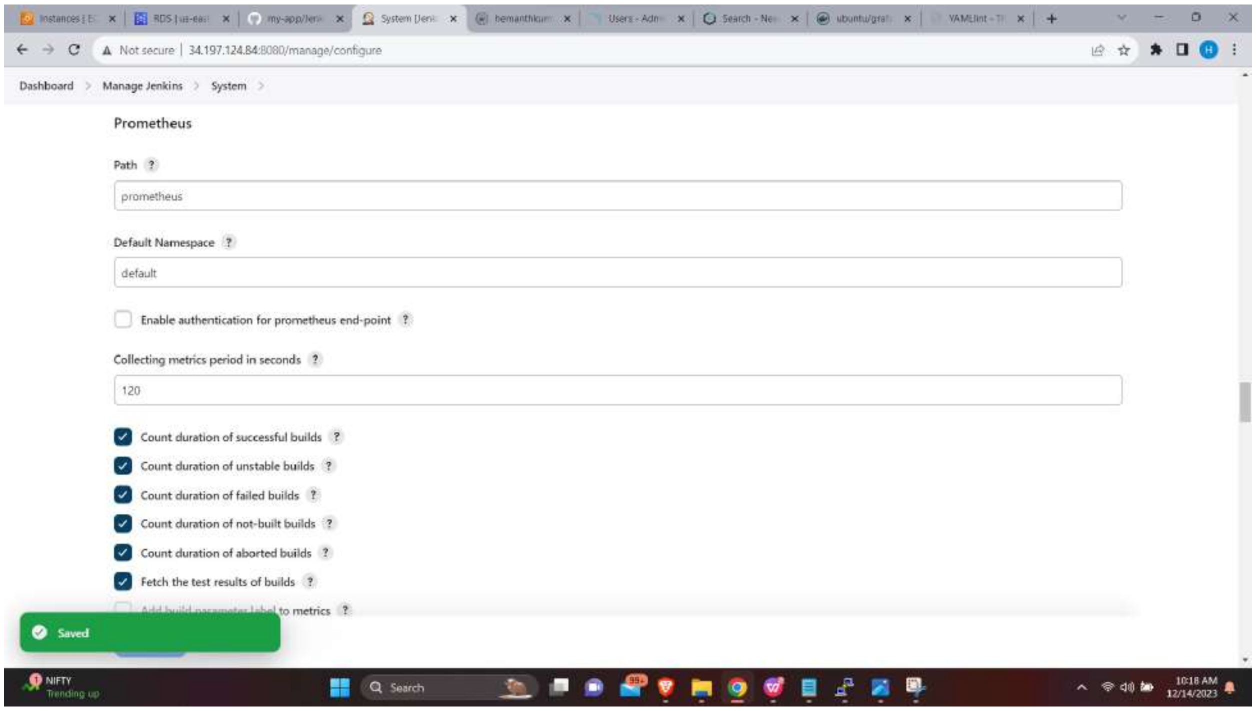
34.197.124.84:8080/manage/pluginManager/updates/

Please wait while Jenkins is restarting ...

Your browser will reload automatically when Jenkins is ready.

Safe Restart
Builds on agents can usually continue.

Dashboard – Manage Jenkins – System – Prometheus – apply & Save.


34.197.124.84:8080/manage/configure

Dashboard > Manage Jenkins > System >

Prometheus

Path: prometheus

Default Namespace: default

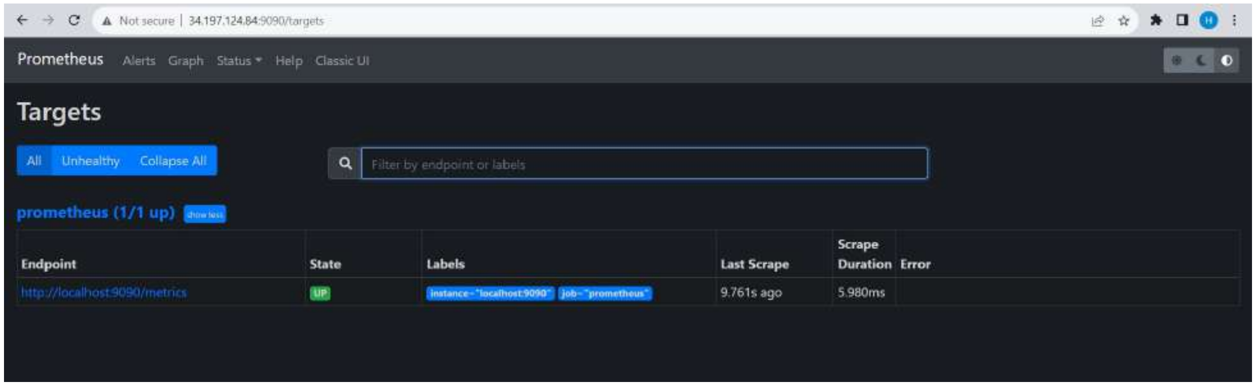
☐ Enable authentication for prometheus end-point

Collecting metrics period in seconds: 120

✓ Count duration of successful builds
✓ Count duration of unstable builds
✓ Count duration of failed builds
✓ Count duration of not-built builds
✓ Count duration of aborted builds
✓ Fetch the test results of builds
☐ Add build parameter label to metrics

Saved

Hit jenkins serverIPV4:9090
Then we can see Jenkins server metrics state is UP.


34.197.124.84:9090/targets

Prometheus Alerts Graph Status Help Classic UI

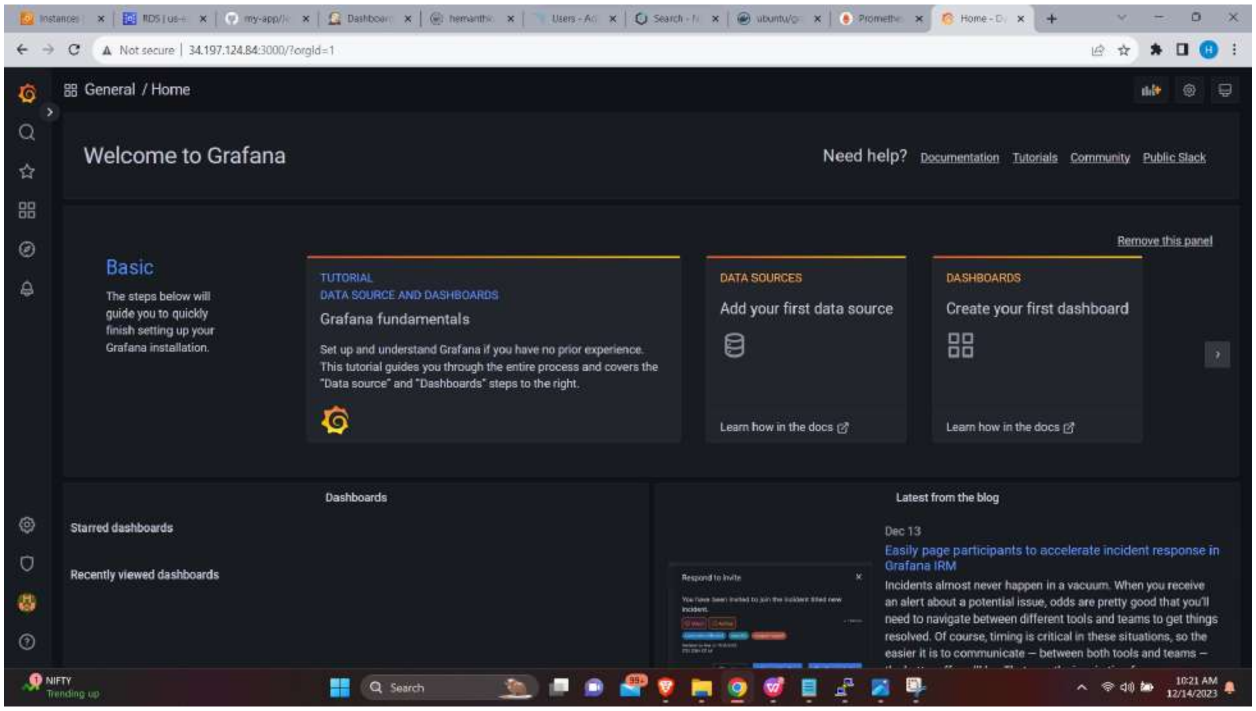
Targets

All Unhealthy Collapse All

prometheus (1/1 up)

Endpoint	State	Labels	Last Scrape	Scrape Duration	Error
http://localhost:9090/metrics	UP	instance="localhost:9090" job="prometheus"	9.761s ago	5.980ms	

Then Connect to the grafana dashboard by pasting Jenkins ServerIPv4:3000


Not secure | 34.197.124.84:3000/?orgId=1

General / Home

Welcome to Grafana

Need help? Documentation Tutorials Community Public Slack

Remove this panel

Basic

The steps below will guide you to quickly finish setting up your Grafana installation.

TUTORIAL
DATA SOURCE AND DASHBOARDS
Grafana fundamentals

Set up and understand Grafana if you have no prior experience. This tutorial guides you through the entire process and covers the "Data source" and "Dashboards" steps to the right.

DATA SOURCES
Add your first data source
Learn how in the docs

DASHBOARDS
Create your first dashboard
Learn how in the docs

Dashboards

Starred dashboards

Recently viewed dashboards

Latest from the blog

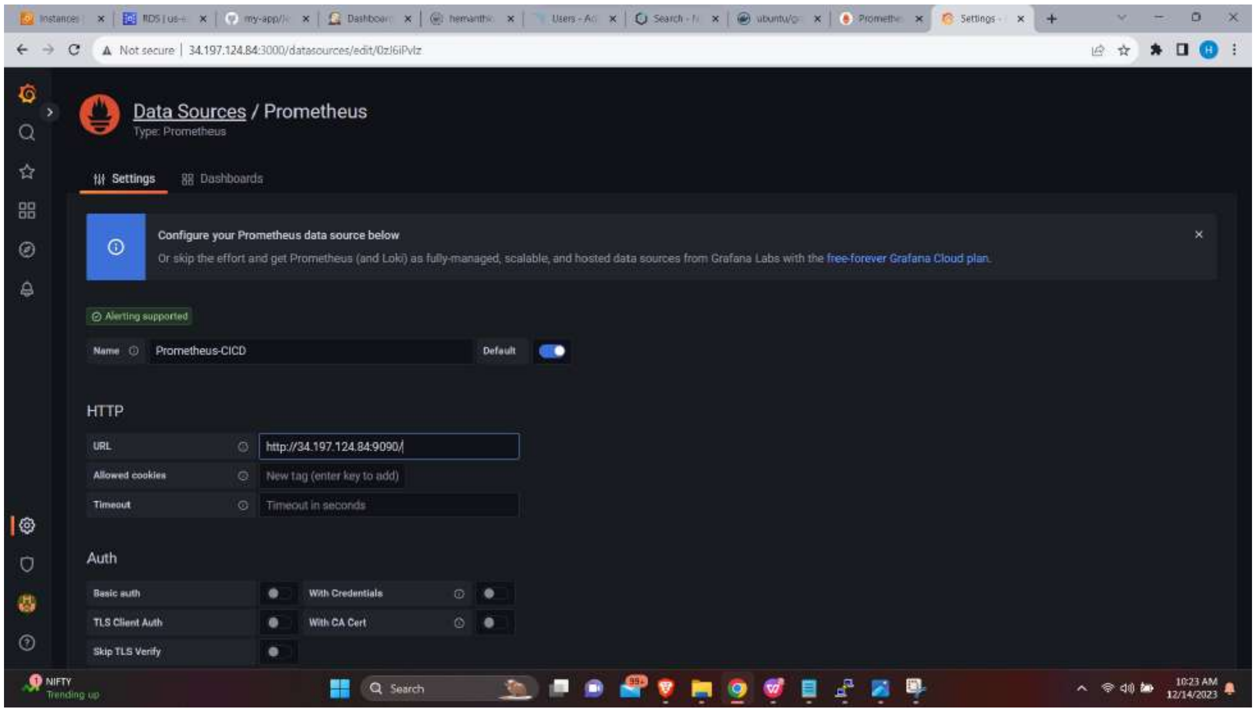
Dec 13

Easily page participants to accelerate incident response in Grafana IRM

Incidents almost never happen in a vacuum. When you receive an alert about a potential issue, odds are pretty good that you'll need to navigate between different tools and teams to get things resolved. Of course, timing is critical in these situations, so the easier it is to communicate — between both tools and teams —

10:21 AM 12/14/2023

Settings – Create datasource – Choose Prometheus
Set a name: PrometheusCICD
URL : <Prometheus URL>
Save & Test.


Not secure | 34.197.124.84:3000/datasources/edit/0zJ6iPVlz

Data Sources / Prometheus
Type: Prometheus

Settings Dashboards

Configure your Prometheus data source below
Or skip the effort and get Prometheus (and Loki) as fully-managed, scalable, and hosted data sources from Grafana Labs with the free-forever Grafana Cloud plan.

Alerting supported

Name: Prometheus-CICD Default: on

HTTP

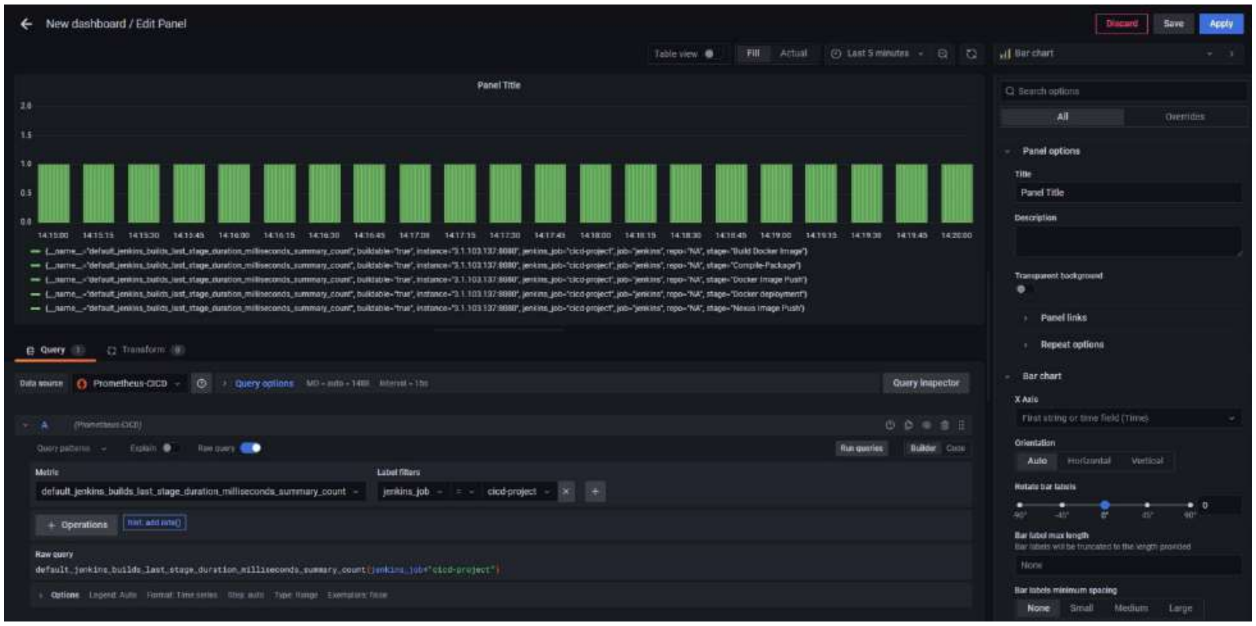
URL: http://34.197.124.84:9090/
Allowed cookies: New tag (enter key to add)
Timeout: Timeout in seconds

Auth

Basic auth: off With Credentials: off
TLS Client Auth: off With CA Cert: off
Skip TLS Verify: off

10:23 AM 12/14/2023

Create a new dashboard and attach the datasource with a new panel.
There we can monitor the Jenkins dashboard and pipeline project utilization metrics.



```
{__name__="default_jenkins_builds_last_stage_duration_milliseconds_summary_count", buildable="true", instance="3.1.103.137:8080", jenkins_job="cicd-project", job="jenkins", repo="NA", stage="Build Docker Image"}
{__name__="default_jenkins_builds_last_stage_duration_milliseconds_summary_count", buildable="true", instance="3.1.103.137:8080", jenkins_job="cicd-project", job="jenkins", repo="NA", stage="Compile-Package"}
{__name__="default_jenkins_builds_last_stage_duration_milliseconds_summary_count", buildable="true", instance="3.1.103.137:8080", jenkins_job="cicd-project", job="jenkins", repo="NA", stage="Docker Image Push"}
{__name__="default_jenkins_builds_last_stage_duration_milliseconds_summary_count", buildable="true", instance="3.1.103.137:8080", jenkins_job="cicd-project", job="jenkins", repo="NA", stage="Docker deployment"}
{__name__="default_jenkins_builds_last_stage_duration_milliseconds_summary_count", buildable="true", instance="3.1.103.137:8080", jenkins_job="cicd-project", job="jenkins", repo="NA", stage="Nexus Image Push"}
```

Data source: Prometheus-CICD — Query options: MD = auto = 1488, Interval = 15s

Metric: default_jenkins_builds_last_stage_duration_milliseconds_summary_count

Label filters: jenkins_job = cicd-project

Raw query

```
default_jenkins_builds_last_stage_duration_milliseconds_summary_count{jenkins_job="cicd-project"}
```

Options: Legend: Auto, Format: Time series, Step: auto, Type: Range, Exemplars: false