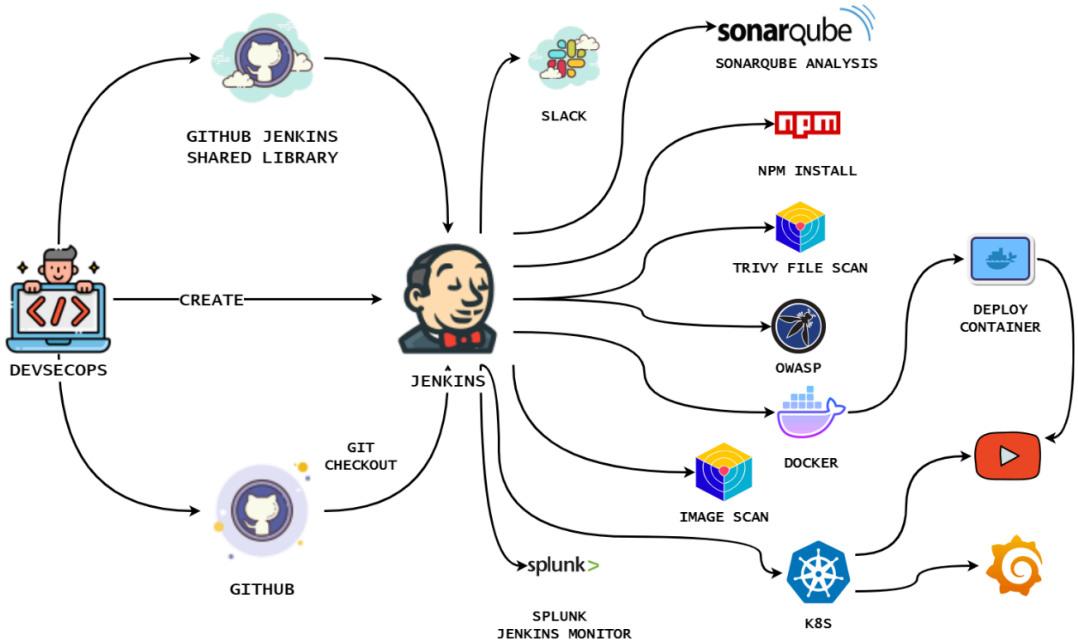
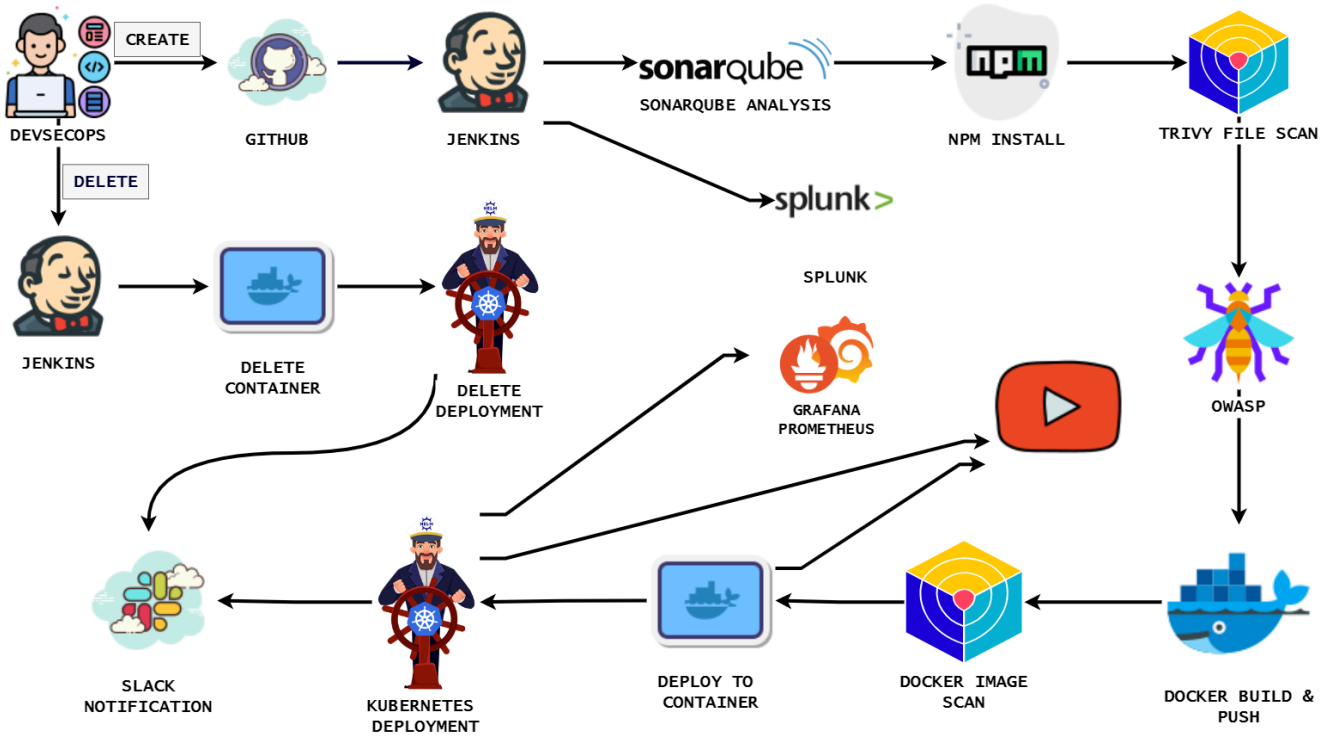
DevOps

YouTube Clone App with DevSecOps and Jenkins Shared Library

mrcloudbook.com · 8 January 2024



Hello and welcome! 🌟 Ready to create a YouTube clone that's rock-solid and feature-rich? 🔒



This blog is your gateway to a secure DevSecOps pipeline for your project. With Kubernetes, Docker, SonarQube, Trivy, OWASP Dependency Check, Prometheus, Grafana, Jenkins (and a shared library), Splunk, Rapid API, Slack notifications, and efficient parameters for creating and destroying your environment, we've got you covered.

Let's build a YouTube clone that's not just cutting-edge but also protected. Join us on this journey! 💪 ☸️

Github Repo: https://github.com/Aj7Ay/Youtube-clone-app.git

video on youtube: https://youtu.be/OCZriuQe08U?si=INELPohIN-FZK-r6

Normal Jenkinsfile you can use this one without the shared library

```
def COLOR_MAP = [
    'FAILURE' : 'danger',
    'SUCCESS' : 'good'
]
pipeline{
    agent any
    tools{
        jdk 'jdk17'
```

```
        nodejs 'node16'
    }
    environment {
        SCANNER_HOME=tool 'sonar-scanner'
    }
    stages {
        stage('clean workspace'){
            steps{
                cleanWs()
            }
        }
        stage('Checkout from Git'){
            steps{
                git branch: 'main', url: 'https://github.com/Aj7Ay/Youtu
            }
        }
        stage("Sonarqube Analysis "){
            steps{
                withSonarQubeEnv('sonar-server') {
                    sh ''' $SCANNER_HOME/bin/sonar-scanner -Dsonar.proje
                    -Dsonar.projectKey=youtube '''
                }
            }
        }
        stage("quality gate"){
           steps {
                script {
                    waitForQualityGate abortPipeline: false, credentials
                }
            }
        }
        stage('Install Dependencies') {
            steps {
                sh "npm install"
            }
        }
        stage('OWASP FS SCAN') {
            steps {
                dependencyCheck additionalArguments: '--scan ./ --disab
                dependencyCheckPublisher pattern: '**/dependency-check-r
            }
        }
        stage('TRIVY FS SCAN') {
            steps {
                sh "trivy fs . > trivyfs.txt"
```

```
                }
            }
            stage("Docker Build & Push"){
                steps{
                    script{
                       withDockerRegistry(credentialsId: 'docker', toolName
                           sh "docker build --build-arg REACT_APP_RAPID_API_
                           sh "docker tag youtube sevenajay/youtube:latest "
                           sh "docker push sevenajay/youtube:latest "
                        }
                    }
                }
            }
            stage("TRIVY"){
                steps{
                    sh "trivy image sevenajay/youtube:latest > trivyimage.tx
                }
            }
            stage('Deploy to container'){
                steps{
                    sh 'docker run -d --name youtube1 -p 3000:3000 sevenajay
                }
            }
            stage('Deploy to kubernets'){
                steps{
                    script{
                        withKubeConfig(caCertificate: '', clusterName: '', c
                            sh 'kubectl apply -f deployment.yml'
                        }
                    }
                }
            }
        }
        post {
        always {
            echo 'Slack Notifications'
            slackSend (
                channel: '#channel name',   #change your channel name
                color: COLOR_MAP[currentBuild.currentResult],
                message: "*${currentBuild.currentResult}:* Job ${env.JOB_NAM
            )
        }
    }
    }
```

Contents [hide]

STEPS:

Step 1: Launch an Ubuntu 22.04 instance for Jenkins

Log into AWS Console: Sign in to your AWS account.

Launch an Instance:

Choose **“EC2”** from services. Click “Launch Instance.”

Choose an AMI: Select an Ubuntu image.

Choose an Instance Type: Pick “t2.large.”

Key Pair: Choose an existing key pair or create a new one.

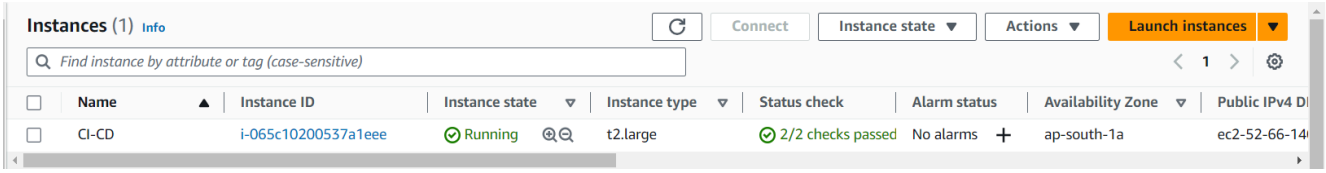
Configure Security Group:

Create a new security group. Add rules for HTTP, and HTTPS, and open all ports for learning purposes. Add Storage: Allocate at least 20 GB of storage.

Launch Instance: Review and launch the instance.

Access Your Instance: Use SSH to connect to your instance with the private key.

Keep in mind, that opening all ports is not recommended for production environments; it’s just for educational purposes.



Connect to Your EC2 Instance and Install Jenkins:

Use MobaXterm or PuTTY to connect to your EC2 instance. Create a shell script named

```
sudo vi install_jenkins.sh
```

Paste the following script:

```
#!/bin/bash
sudo apt update -y
wget -O - https://packages.adoptium.net/artifactory/api/gpg/key/public
echo "deb [signed-by=/etc/apt/keyrings/adoptium.asc] https://packages.ad
sudo apt update -y
sudo apt install temurin-17-jdk -y
/usr/bin/java --version
curl -fsSL https://pkg.jenkins.io/debian-stable/jenkins.io-2023.key | su
echo deb [signed-by=/usr/share/keyrings/jenkins-keyring.asc] https://pkg
sudo apt-get update -y
sudo apt-get install jenkins -y
sudo systemctl start jenkins
sudo systemctl status jenkins
```

Save and exit the text editor.

Make the script executable:

```
sudo chmod +x install_jenkins.sh
```

Run the script:

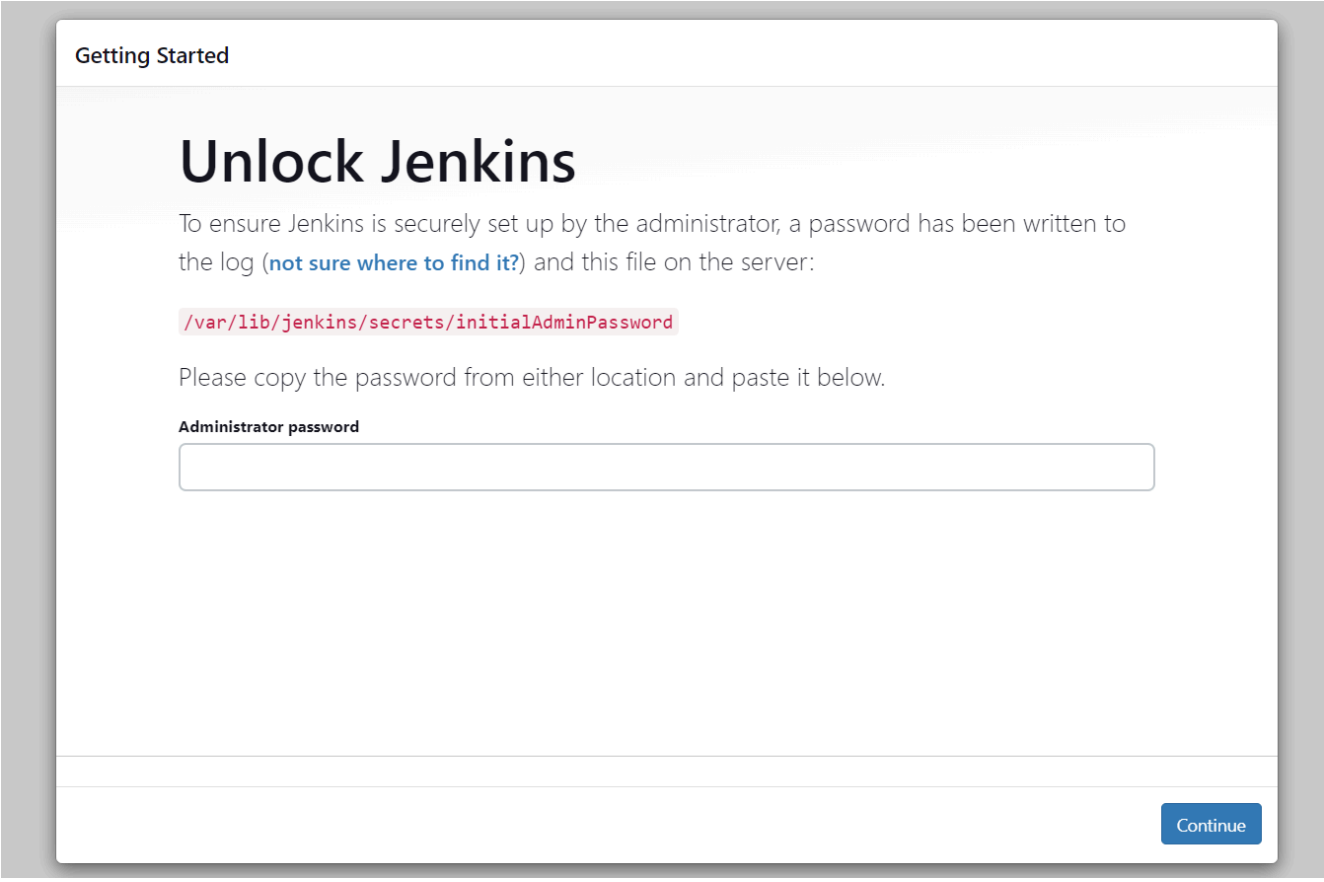
```
./install_jenkins.sh
```

The script will install Jenkins and start the Jenkins service.

You will need to go to your AWS EC2 Security Group and open Inbound Port 8080 since Jenkins works on Port 8080.

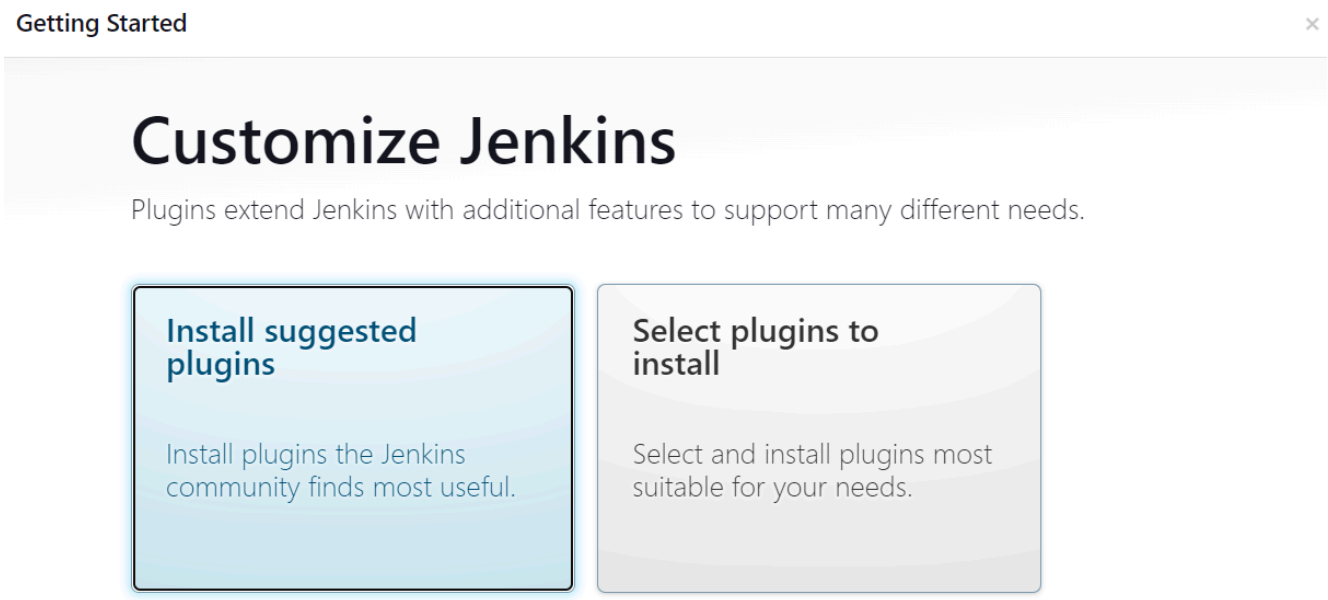
Now, grab your Public IP Address

```
EC2 Public IP Address:8080
sudo cat /var/lib/jenkins/secrets/initialAdminPassword
```



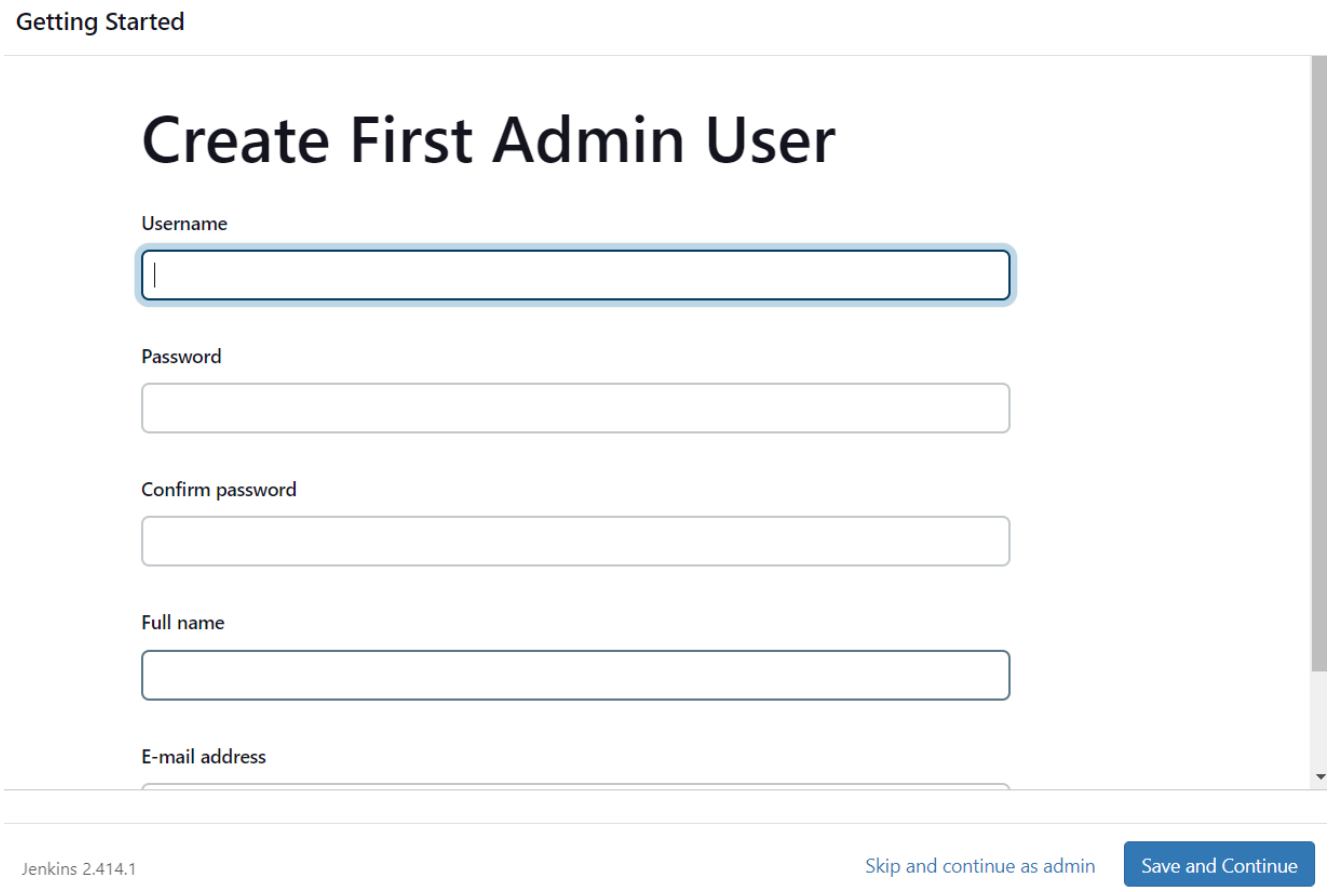

```
ubuntu@ip-172-31-33-57:~$ sudo cat /var/lib/jenkins/secrets/initialAdminPassword
0ed1cb07ea7447c5a47d723022e74968
ubuntu@ip-172-31-33-57:~$
```

Now, install the suggested plugins.



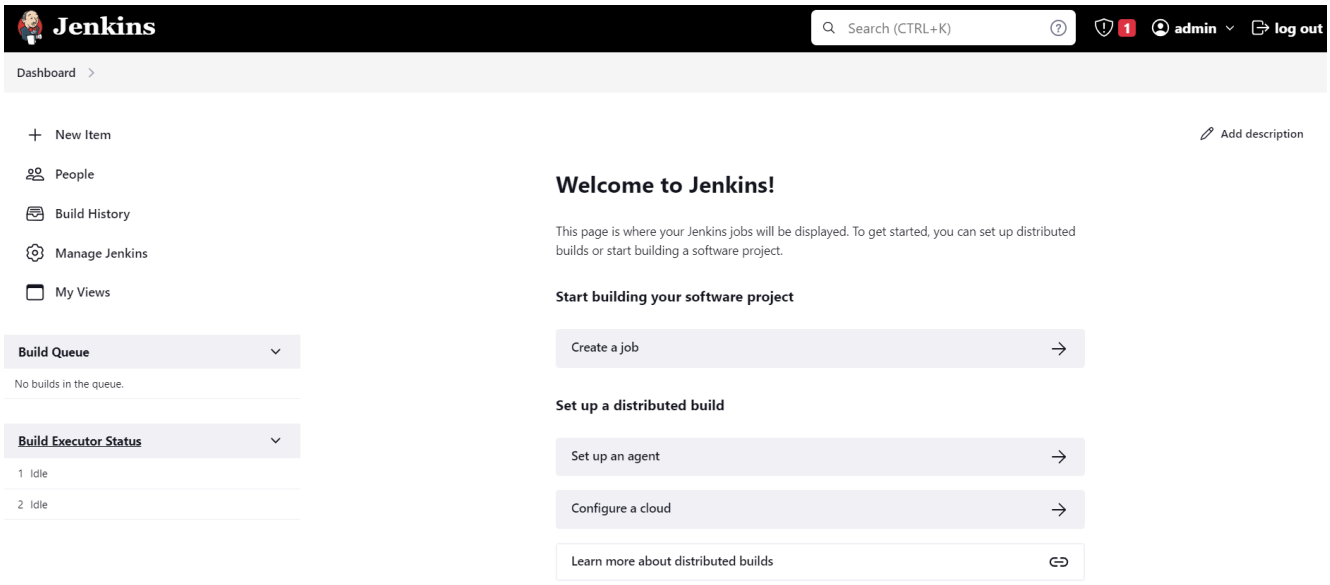
Jenkins will now get installed and install all the libraries.

Create an admin user



Click on save and continue.

Jenkins Dashboard



Step2A: Install Docker on the Jenkins machine

Run the below commands to install the docker

```
sudo apt-get update
sudo apt-get install docker.io -y
sudo usermod -aG docker $USER   #my case is ubuntu
newgrp docker
sudo chmod 777 /var/run/docker.sock
```

After the docker installation, we will create a Sonarqube container (Remember to add 9000 ports in the security group).

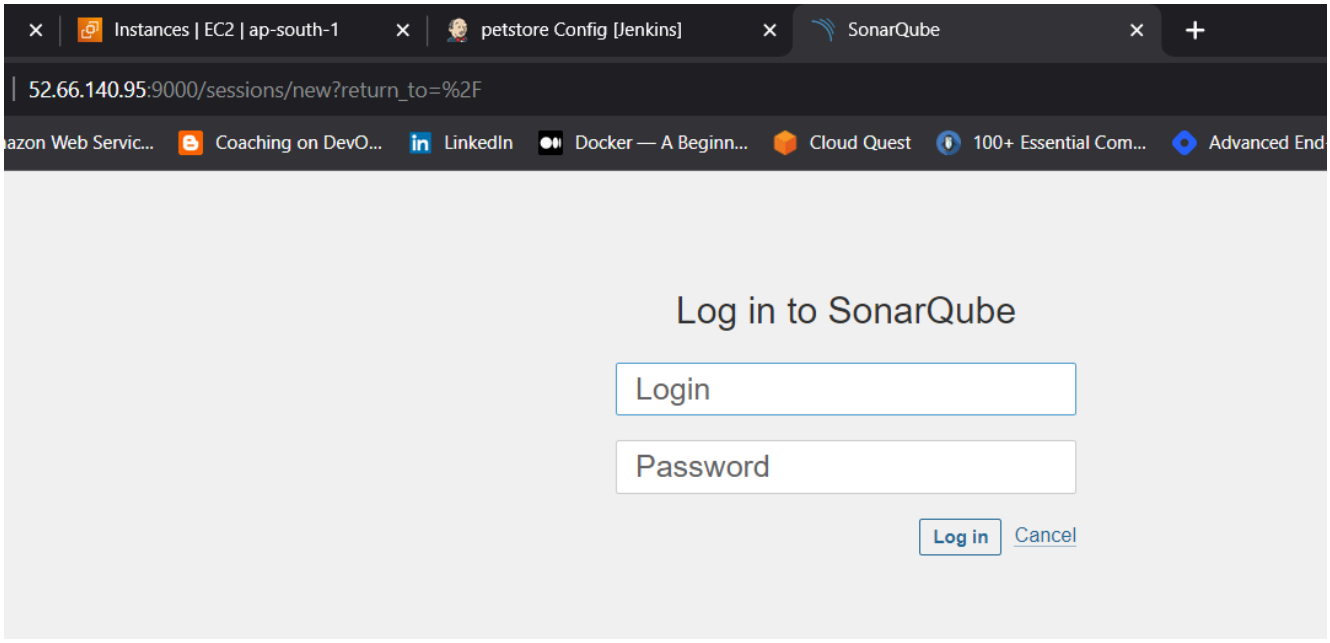
Run this command on your EC2 instance to create a SonarQube container:

```
docker run -d --name sonar -p 9000:9000 sonarqube:lts-community
```

```
ubuntu@ip-172-31-42-253:~$ sudo chmod 777 /var/run/docker.sock
ubuntu@ip-172-31-42-253:~$ docker run -d --name sonar -p 9000:9000 sonarqube:lts-community
Unable to find image 'sonarqube:lts-community' locally
lts-community: Pulling from library/sonarqube
44ba2882f8eb: Pull complete
2cabec57fa36: Pull complete
c20481384b6a: Pull complete
bf7b17ee74f8: Pull complete
38617faac714: Pull complete
706f20f58f5e: Pull complete
65a29568c257: Pull complete
Digest: sha256:1a118f8ab960d6c3d4ea8b4455a5a6560654511c88a6816f1603f764d5dcc77c
Status: Downloaded newer image for sonarqube:lts-community
4b60c96bf9ad3d62289436af7f752fdb04993092d0ca3065e2f2e32301b50139
ubuntu@ip-172-31-42-253:~$ docker ps
CONTAINER ID   IMAGE                    COMMAND                  CREATED         STATUS         PORTS                                       NAMES
4b60c96bf9ad   sonarqube:lts-community   "/opt/sonarqube/dock…"   9 seconds ago   Up 5 seconds   0.0.0.0:9000->9000/tcp, :::9000->9000/tcp   sonar
ubuntu@ip-172-31-42-253:~$
```

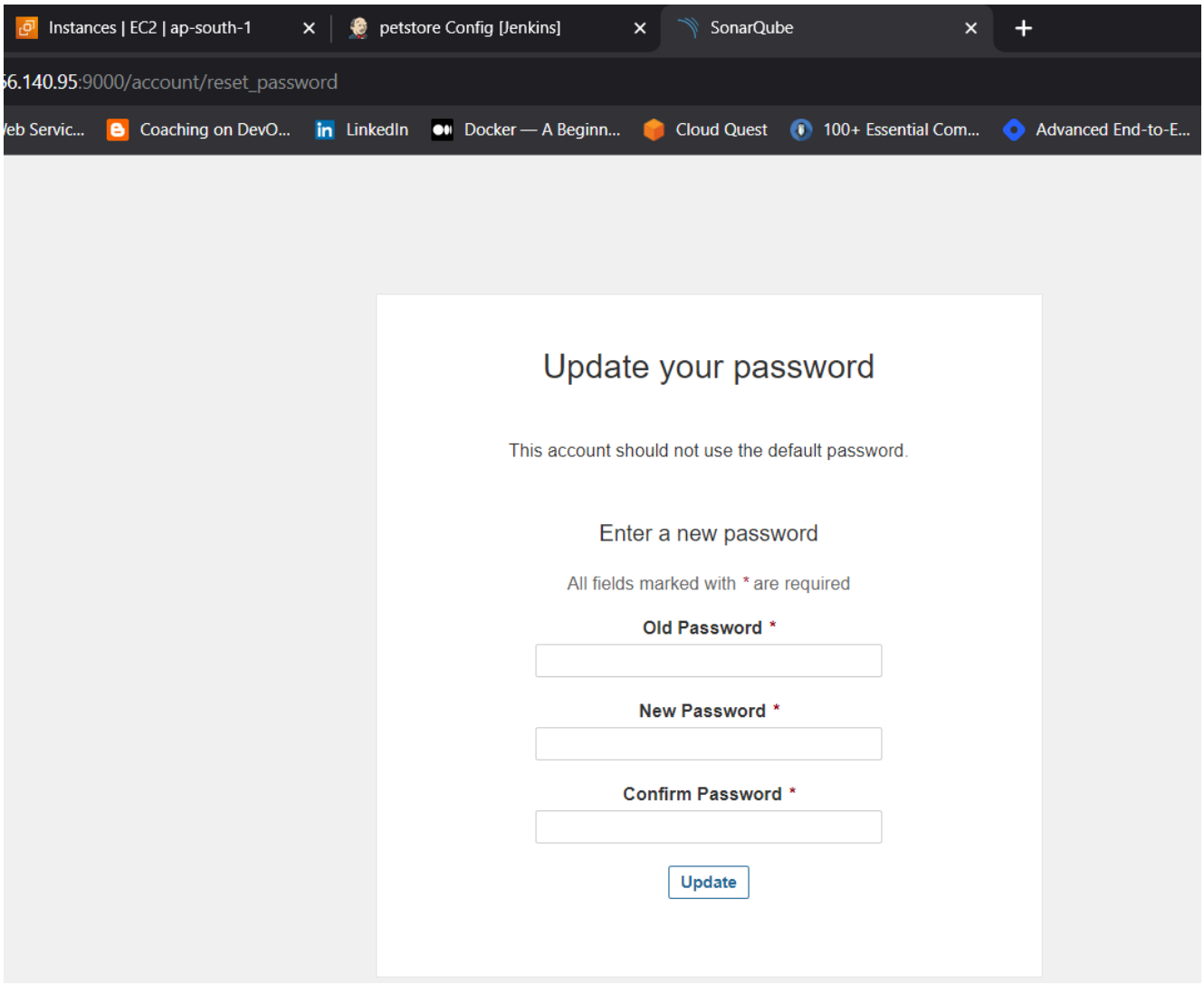
Now copy the IP address of the ec2 instance

```
ec2-public-ip:9000
```

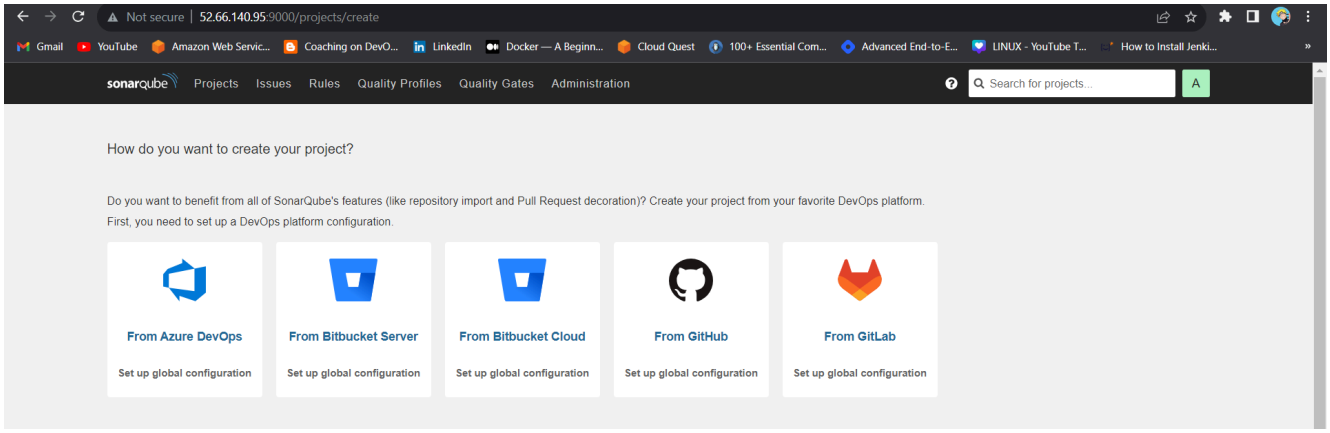


Enter username and password, click on login and change password

```
username admin
password admin
```



Update New password, This is Sonar Dashboard.



Step2B: Install Trivy on Jenkins machine

Create a shell script

```
sudo vi trivy.sh
```

Paste the below commands

```
sudo apt-get install wget apt-transport-https gnupg lsb-release -y
wget -qO - https://aquasecurity.github.io/trivy-repo/deb/public.key | gp
echo "deb [signed-by=/usr/share/keyrings/trivy.gpg] https://aquasecurity
sudo apt-get update
sudo apt-get install trivy -y
```

Provide executable permissions and run the shell script

```
sudo chmod +x trivy.sh
./trivy.sh
```

This will install Trivy on our Jenkins machine.

Step3A: Launch an Ubuntu instance for Splunk

SPLUNK BLOG LINK

SPLUNK FULL VIDEO ON YOUTUBE

Step 1: Launch Instances

1. Log in to your AWS console or your chosen cloud provider.

2. Navigate to the EC2 service and launch Ubuntu 22.04 instances. Ensure you select T2.medium as the instance type and allocate 24GB of storage to each instance.

Step 2: Install Splunk

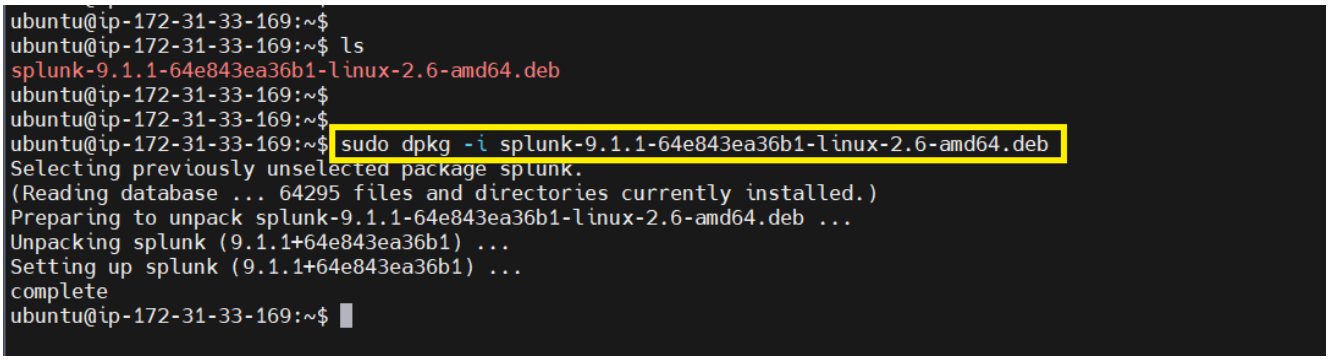
At this point, the first machine is set up with Jenkins. You can now move to the second machine and proceed with the installation of Splunk.

Connect to your second instance using Putty or Mobaxtreme.To download and install Splunk on your Ubuntu instance use the `wget` command, use the following command:

```
wget -O splunk-9.1.1-64e843ea36b1-linux-2.6-amd64.deb "https://download
```

To Depackage the Splunk use the below command

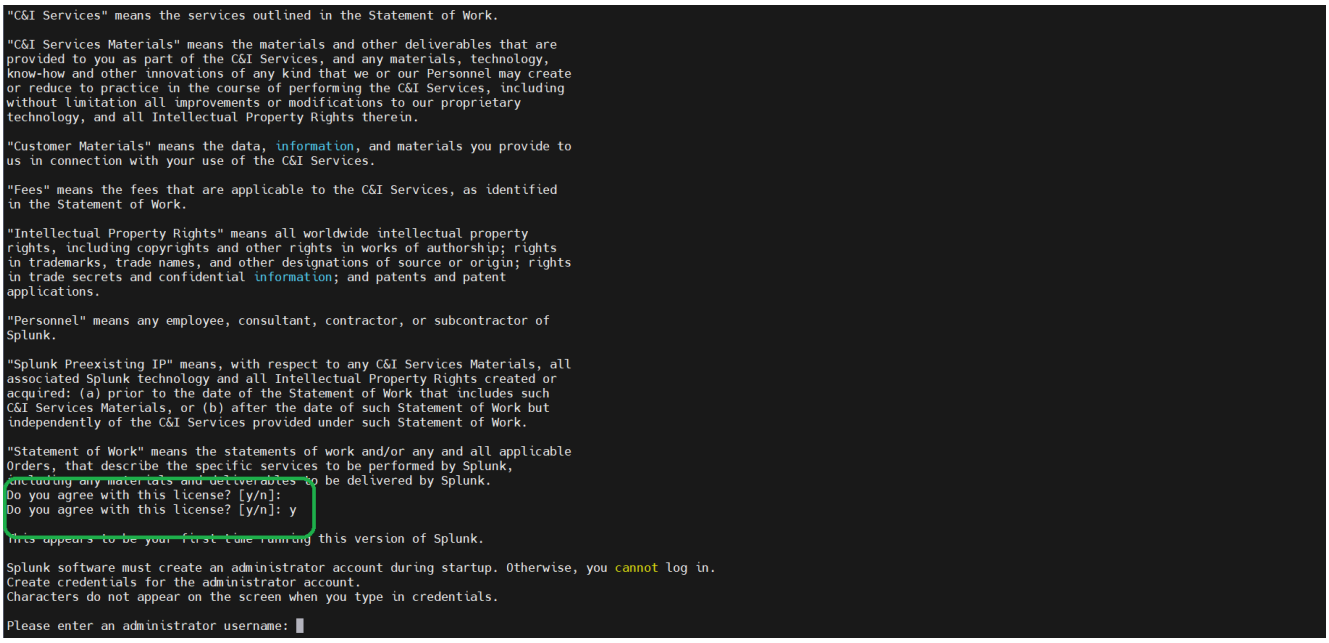
```
sudo dpkg -i splunk-9.1.1-64e843ea36b1-linux-2.6-amd64.deb
```



```
sudo /opt/splunk/bin/splunk enable boot-start
```

By running this command, you ensure that Splunk Enterprise is configured to start automatically when your Ubuntu system boots, allowing you to seamlessly integrate it into your workflow.

Please note that after running this command, you should follow the on-screen prompts to accept the terms and complete the setup to 100%.



After completing the initial setup and accepting the terms, you'll be prompted to create an admin user.

Administrator Username: Choose a username for the admin account. This should be a unique and secure username.

Administrator Password: Set a strong and secure password for the admin account. It's important to choose a password that combines upper and lower-case letters, numbers, and special characters for enhanced security.

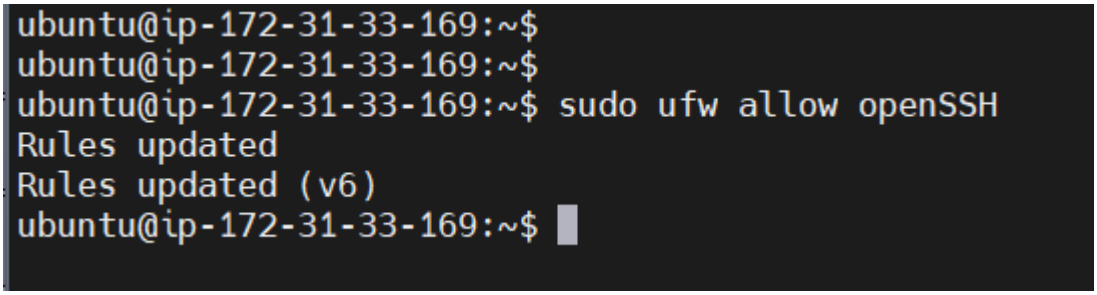
Confirm your password to ensure it matches the one you initially entered.

By creating an administrator username and password, you'll have full access to your Splunk instance, allowing you to configure and manage it effectively.

The command `sudo ufw allow OpenSSH` is used to allow incoming SSH traffic through the UFW (Uncomplicated Firewall) on your Ubuntu system. It's essential for enabling SSH access to your server.

```
sudo ufw allow openSSH
```

By running this command, you ensure that SSH access is permitted through your firewall, which is crucial for remote server management and administration.



The command `sudo ufw allow 8000` is used to allow incoming network traffic on port 8000 through the UFW (Uncomplicated Firewall) on your Ubuntu system. It permits access to a specific port for network services or applications.

```
sudo ufw allow 8000
```

```
ubuntu@ip-172-31-33-169:~$
ubuntu@ip-172-31-33-169:~$ sudo ufw allow 8000
Rules updated
Rules updated (v6)
ubuntu@ip-172-31-33-169:~$
```

sudo ufw status: This command allows you to check the status of your UFW firewall. It will display information about whether the firewall is active, which rules are enabled, and whether it's set to allow or deny specific types of traffic.

sudo ufw enable: This command is used to enable the UFW firewall if it's not already active. Enabling the firewall ensures that the rules you've configured or will configure are enforced.

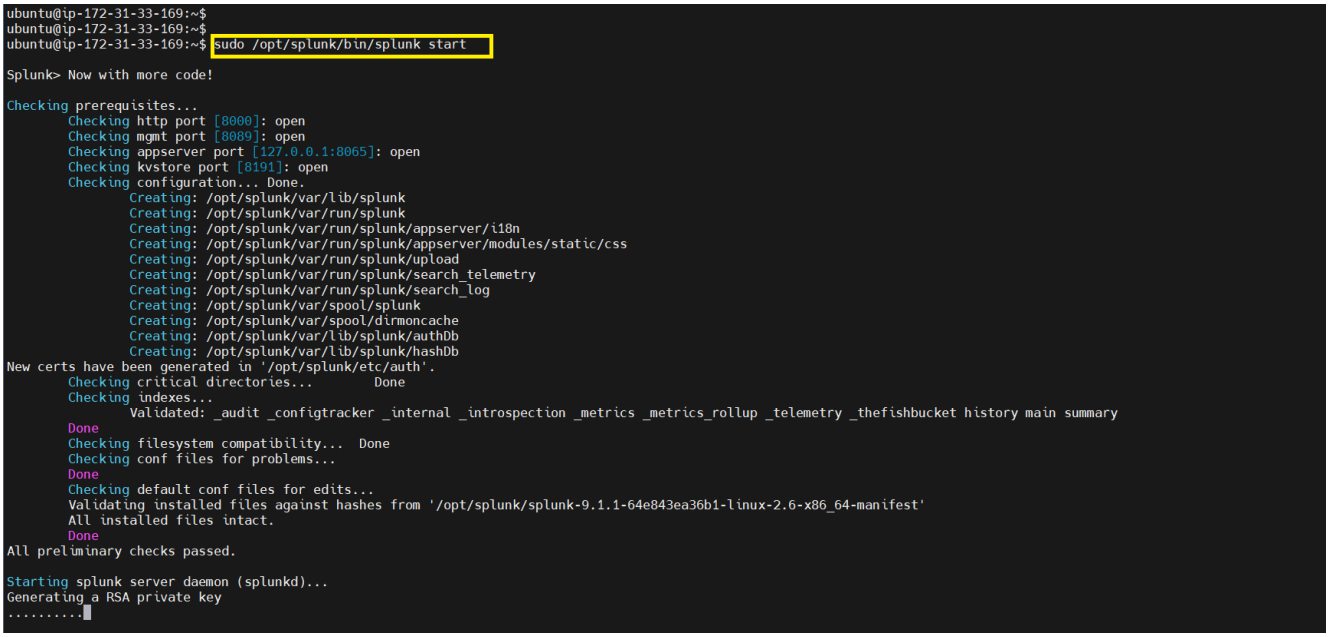
By running these commands, you can both check the current status of your firewall and activate it to apply the defined rules and settings.

```
sudo ufw status
sudo ufw enable
```

```
ubuntu@ip-172-31-33-169:~$ sudo ufw status
Status: inactive
ubuntu@ip-172-31-33-169:~$
ubuntu@ip-172-31-33-169:~$
ubuntu@ip-172-31-33-169:~$ sudo ufw enable
Command may disrupt existing ssh connections. Proceed with operation (y|n)? y
Firewall is active and enabled on system startup
ubuntu@ip-172-31-33-169:~$
```

The command `sudo /opt/splunk/bin/splunk start` is used to start the Splunk Enterprise application on your system. When you run this command with superuser privileges (using `sudo`), it initiates the Splunk service, allowing you to begin using the Splunk platform for data analysis, monitoring, and other data-related tasks.

```
sudo /opt/splunk/bin/splunk start
```

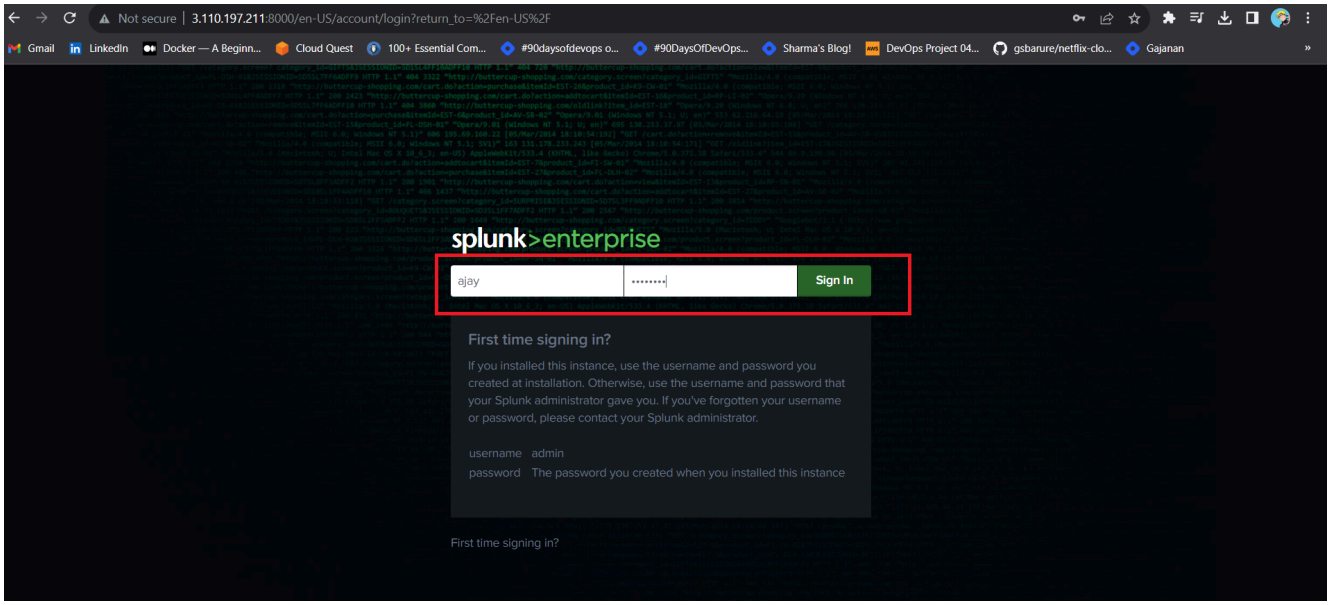


After successfully starting your Splunk instance, you can now access its web interface to start exploring and analyzing your data.

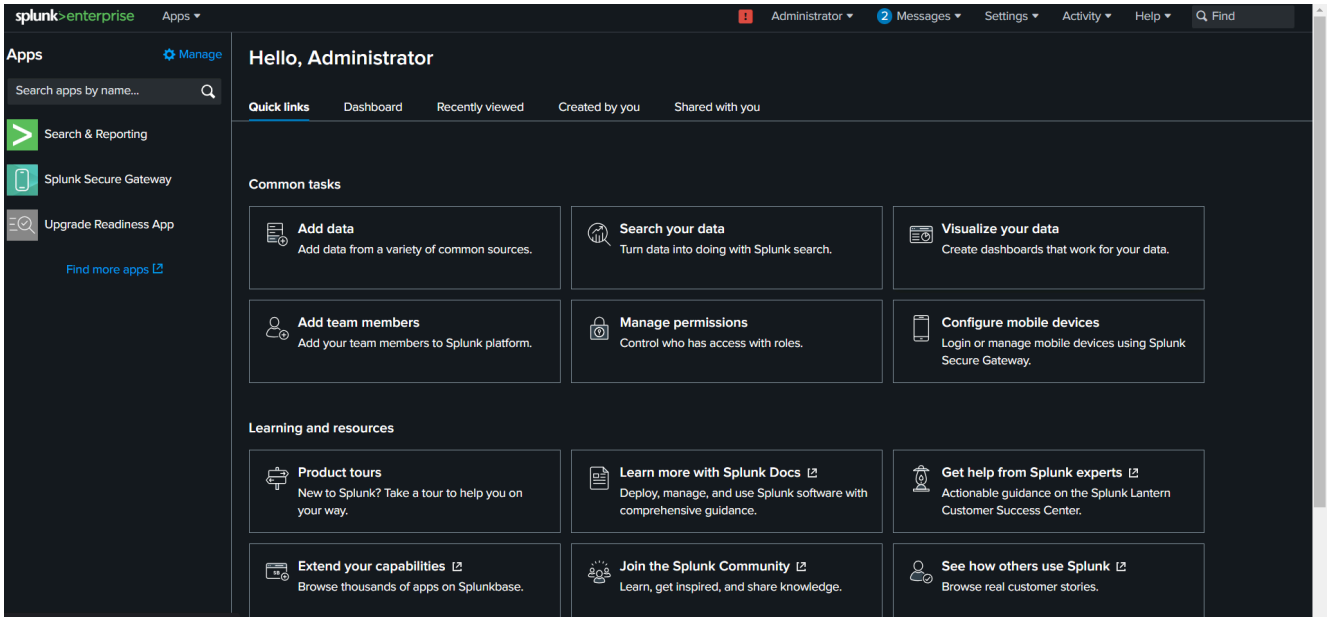
Copy Your Splunk Instance Public IP Address: Navigate to your cloud provider's console and find the public IP address of your Splunk instance.

Log in with Your Credentials: You'll be prompted to log in with the administrator username and password you created during the setup process (typically using the command sudo /opt/splunk/bin/splunk enable boot-start).

```
splunk-public-ip:8000
```



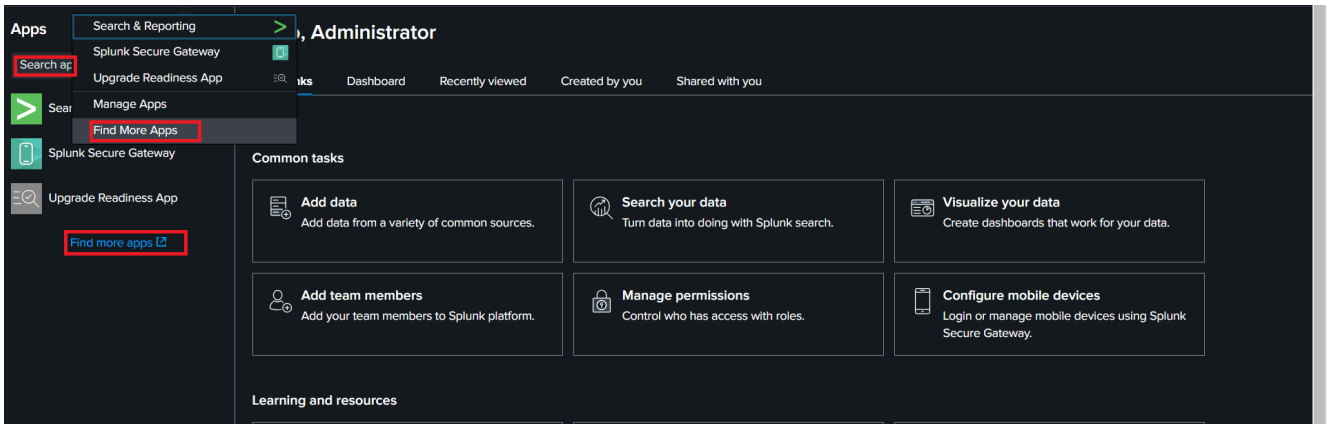
This is the Splunk Dashboard



Step3B: Install the Splunk app for Jenkins

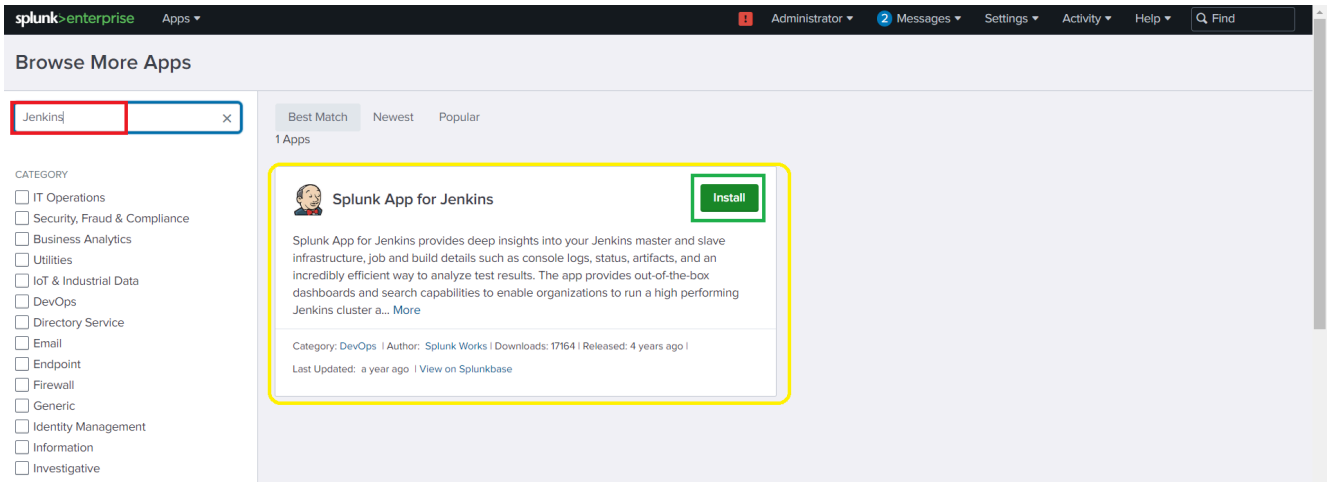
In Splunk Dashboard

Click on Apps –> Find more apps

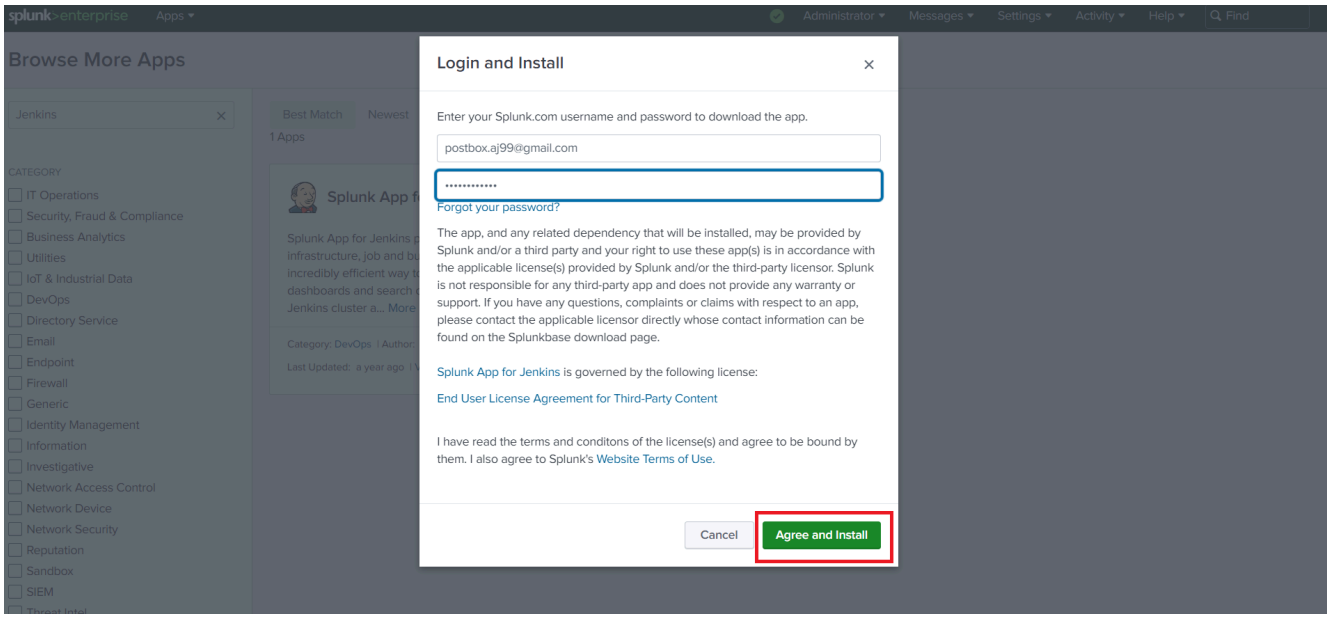


Search for Jenkins in the Search bar

You will get the Splunk app for Jenkins and click on install

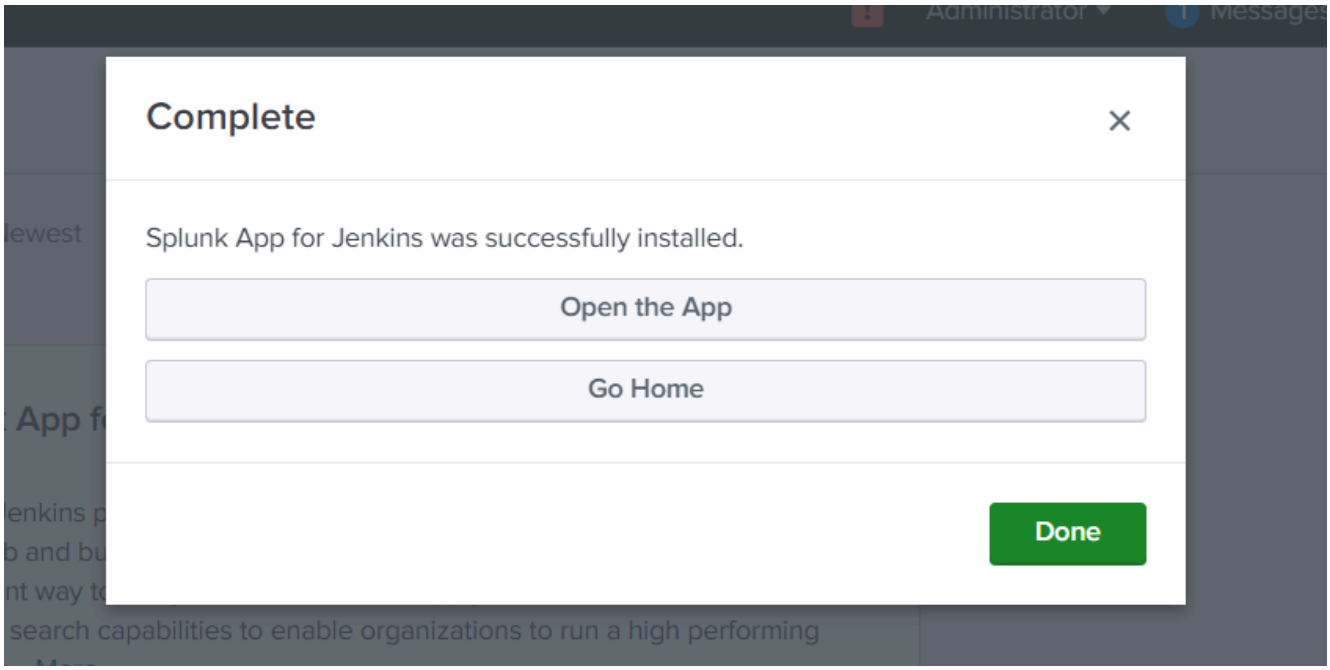


You will be prompted to provide your Splunk credentials. That's why we created a Splunk account

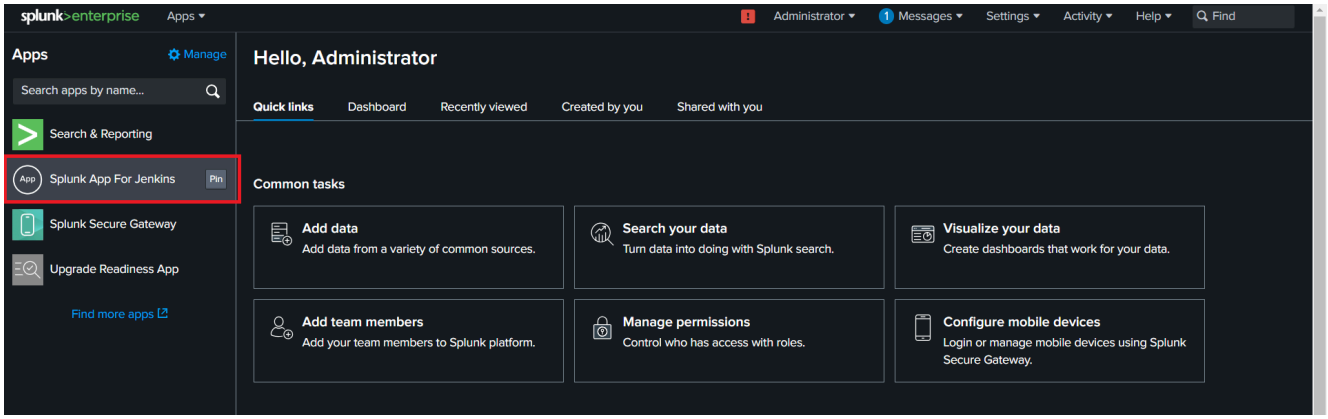


Click on Agree and install

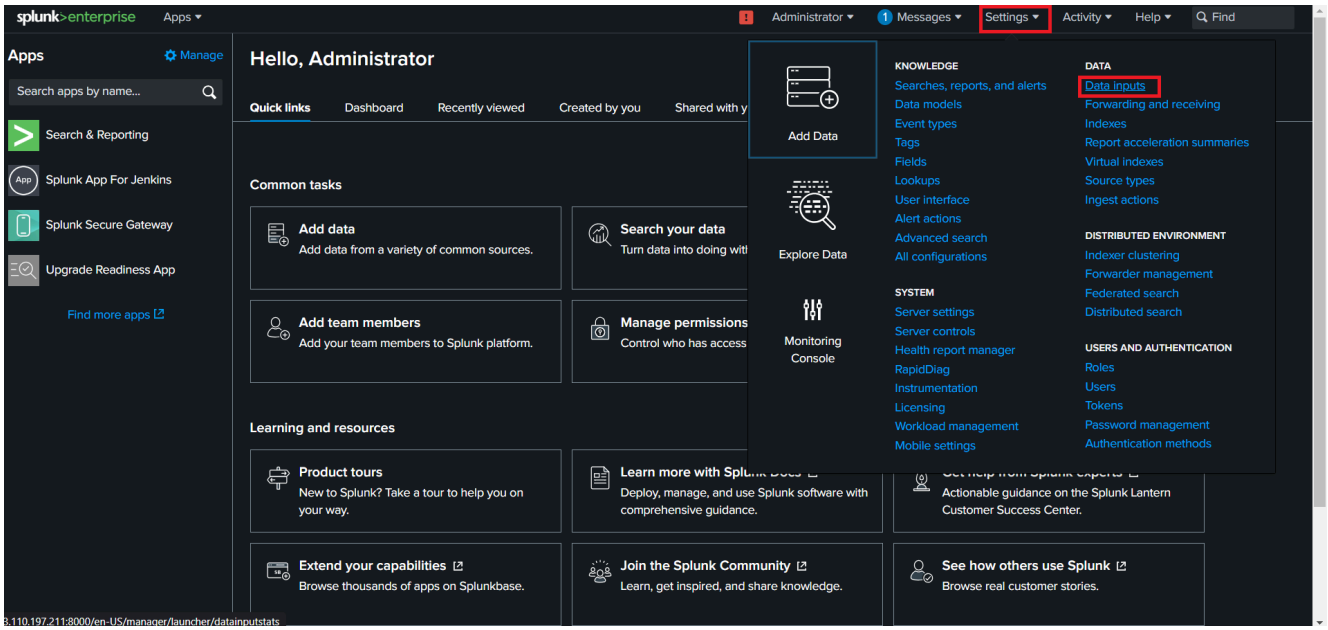
Now click on Go home



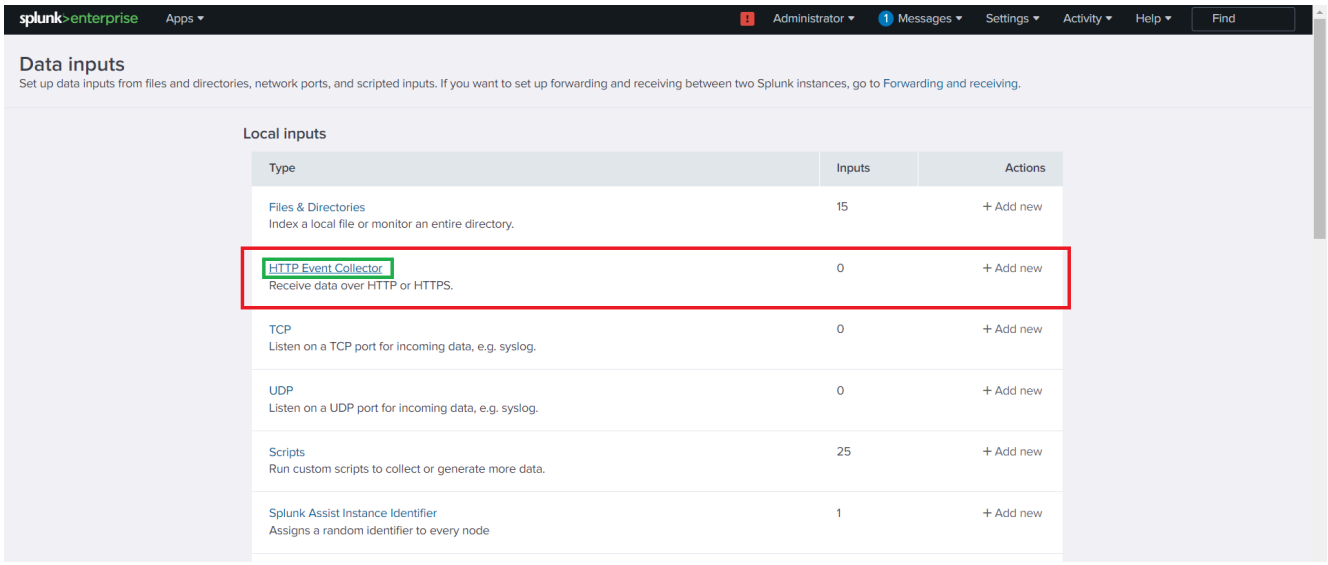
On the homepage of Splunk, you will see Jenkins has been added



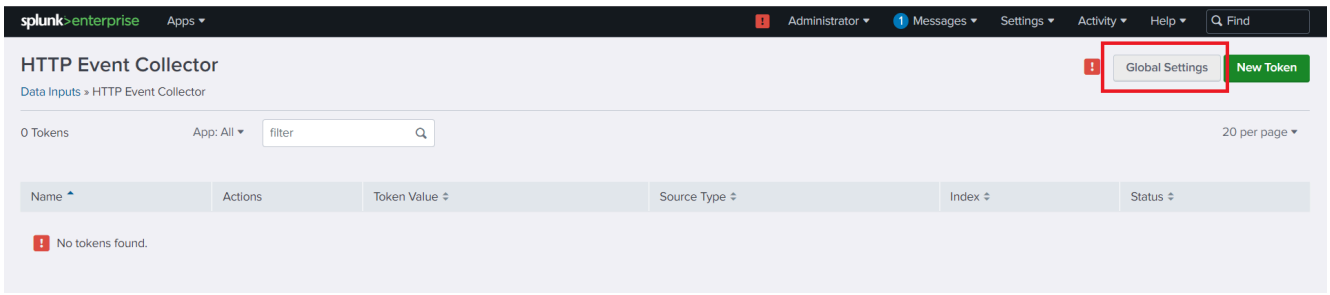
In the Splunk web interface, go to Settings > Data Inputs.



Click on HTTP Event Collector.



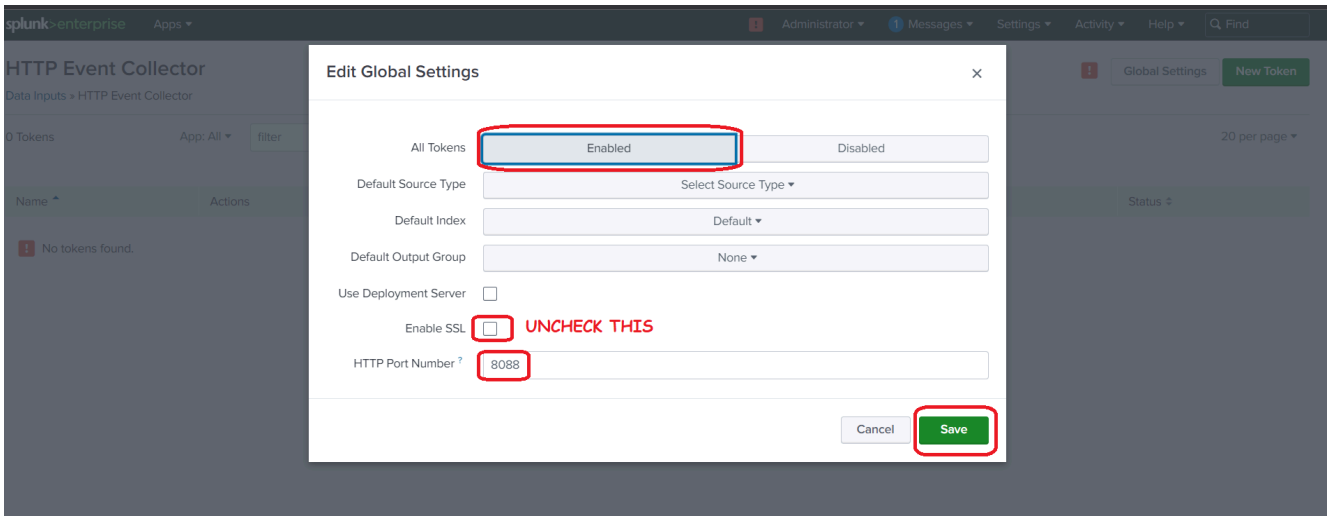
Click on Global Settings



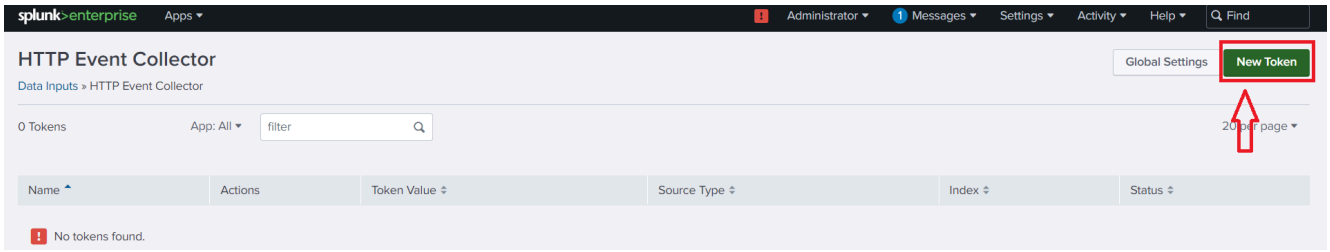
Set All tokens to enabled

Uncheck SSL enable

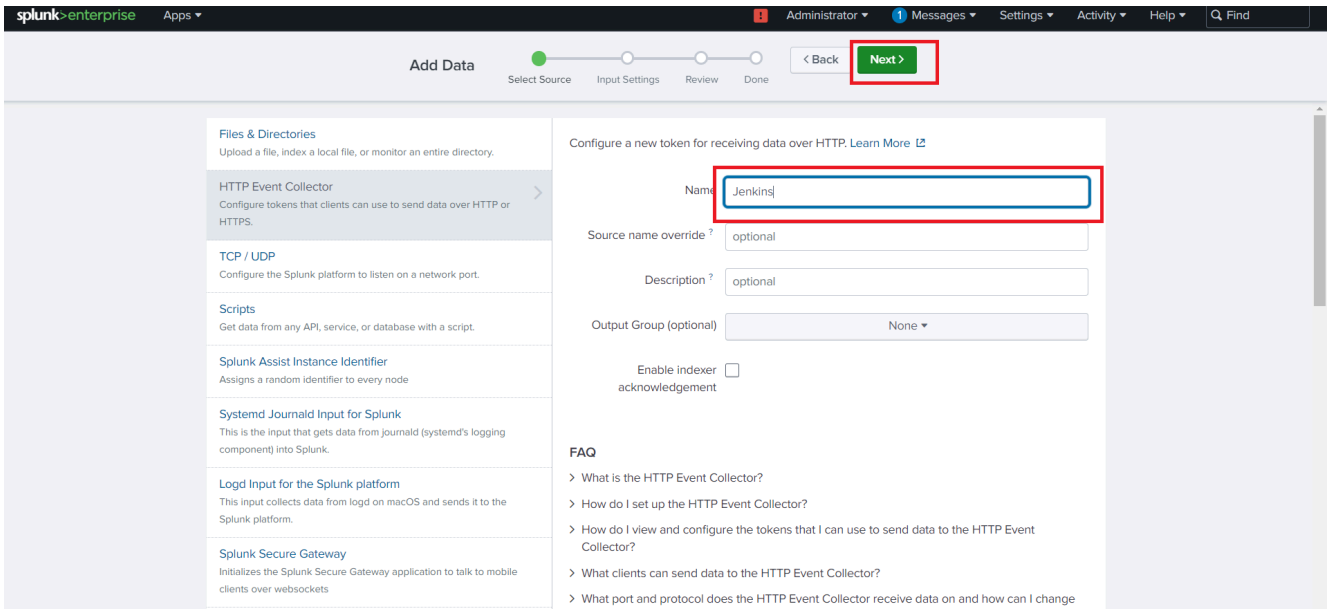
Use 8088 port and click on save



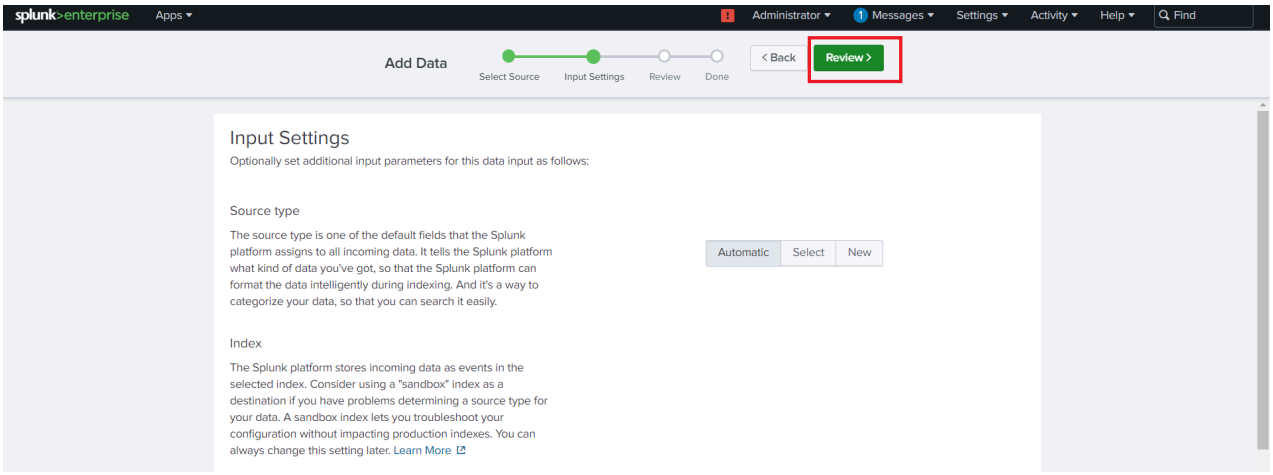
Now click on New token



Provide a Name and click on the next

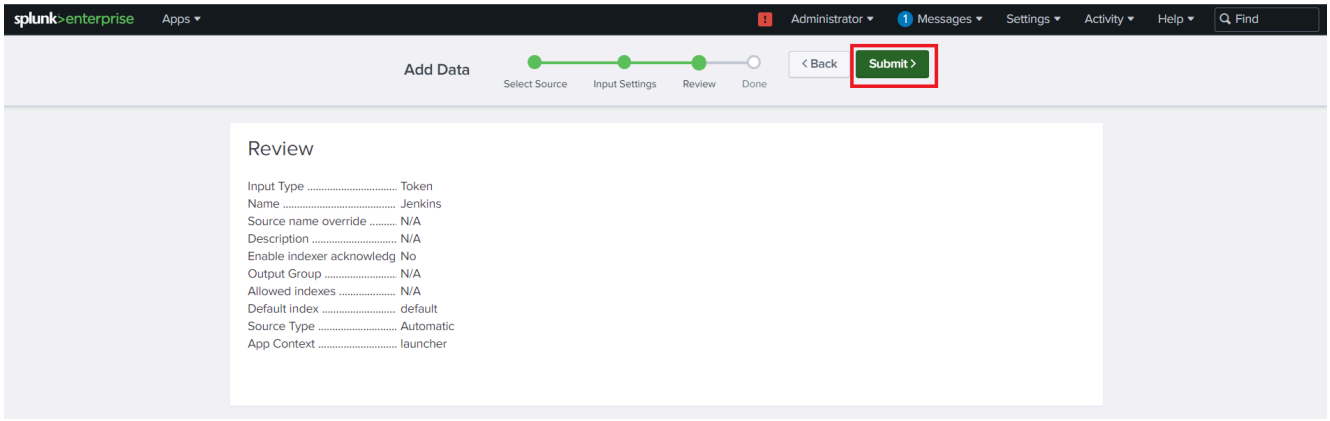


Click Review

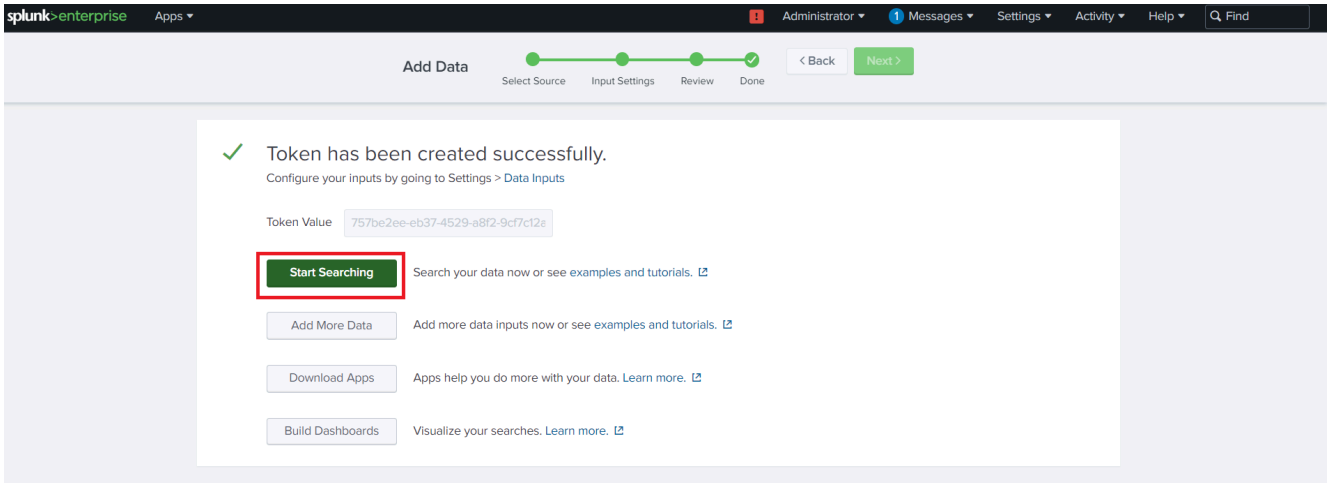


-

Click Submit

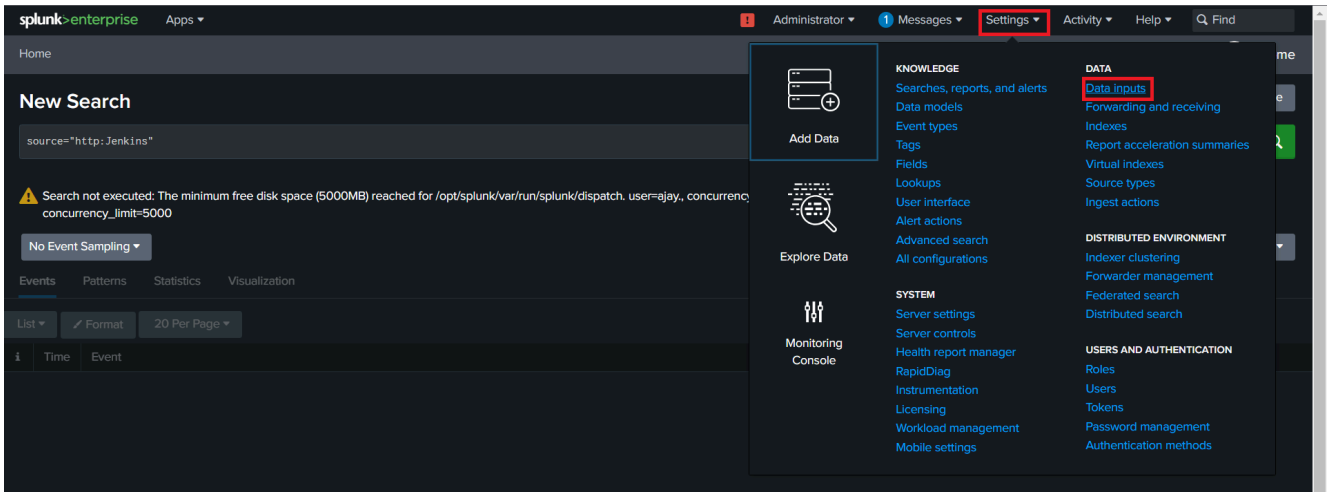


Click Start searching

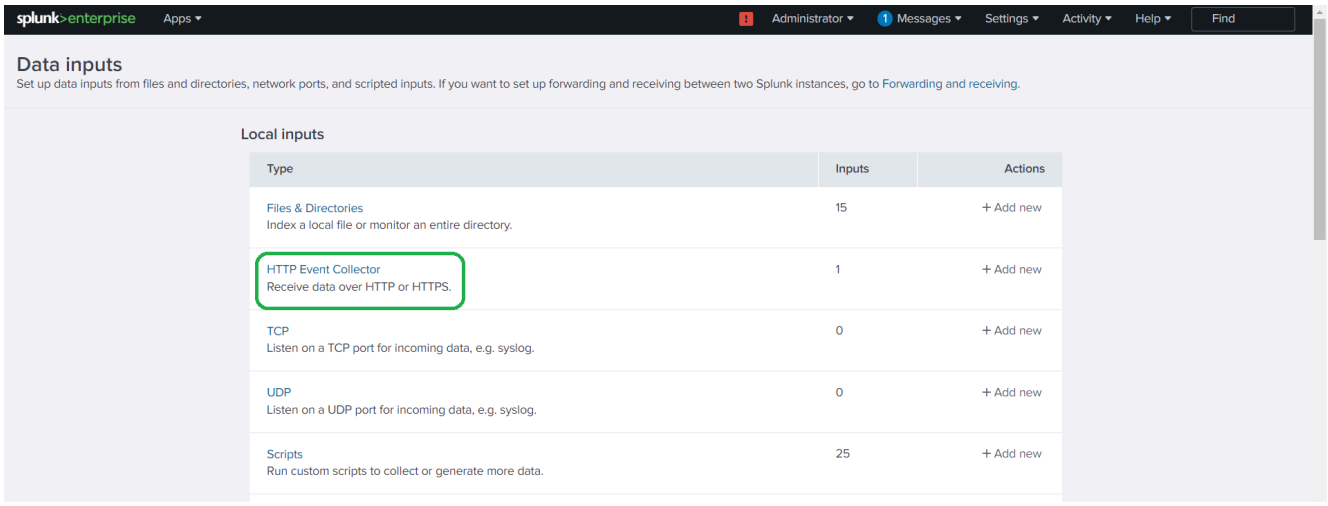


Now let's copy our token again

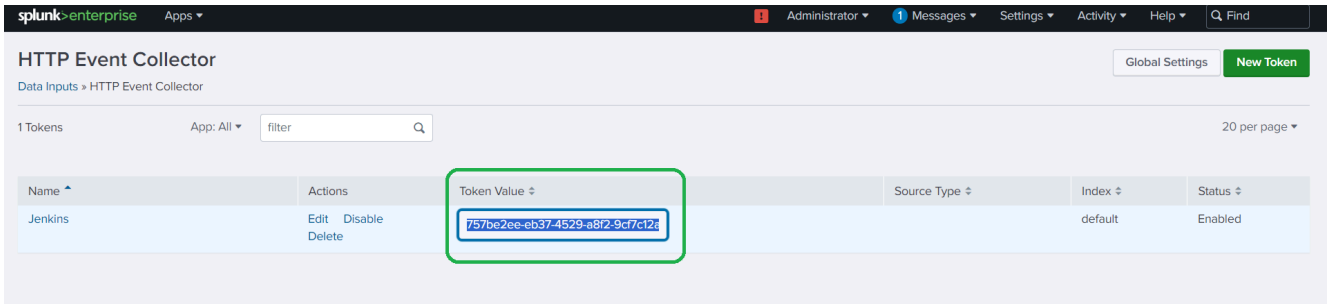
In the Splunk web interface, go to **Settings** > **Data Inputs**.



Click on the HTTP event collector



Now copy your token and keep it safe

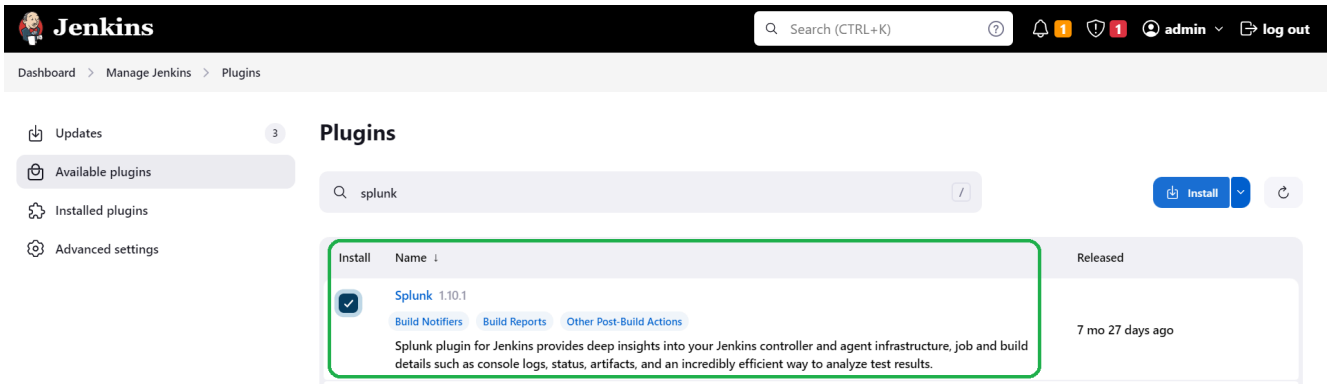


Add Splunk Plugin in Jenkins

Go to Jenkins dashboard

Click on Manage Jenkins –> Plugins –> Available plugins

Search for Splunk and install it.



Again Click on Manage Jenkins –> System

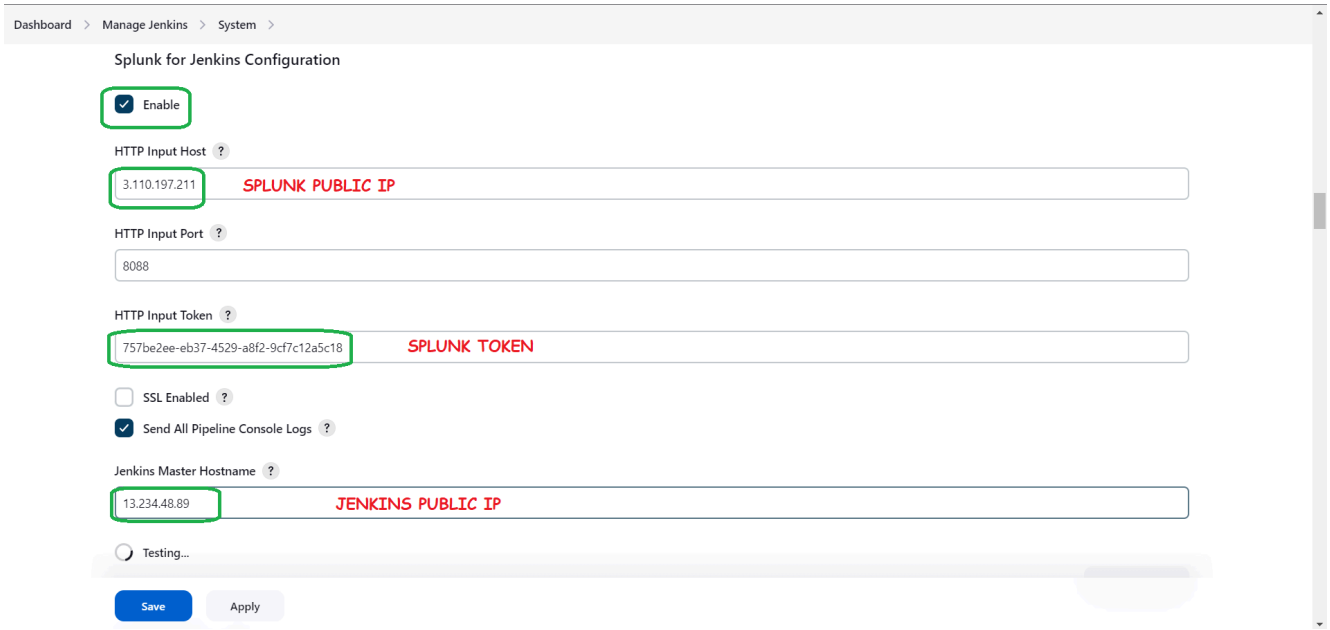
Search for Splunk

Check to enable

HTTP input host as SPLUNK PUBLIC IP

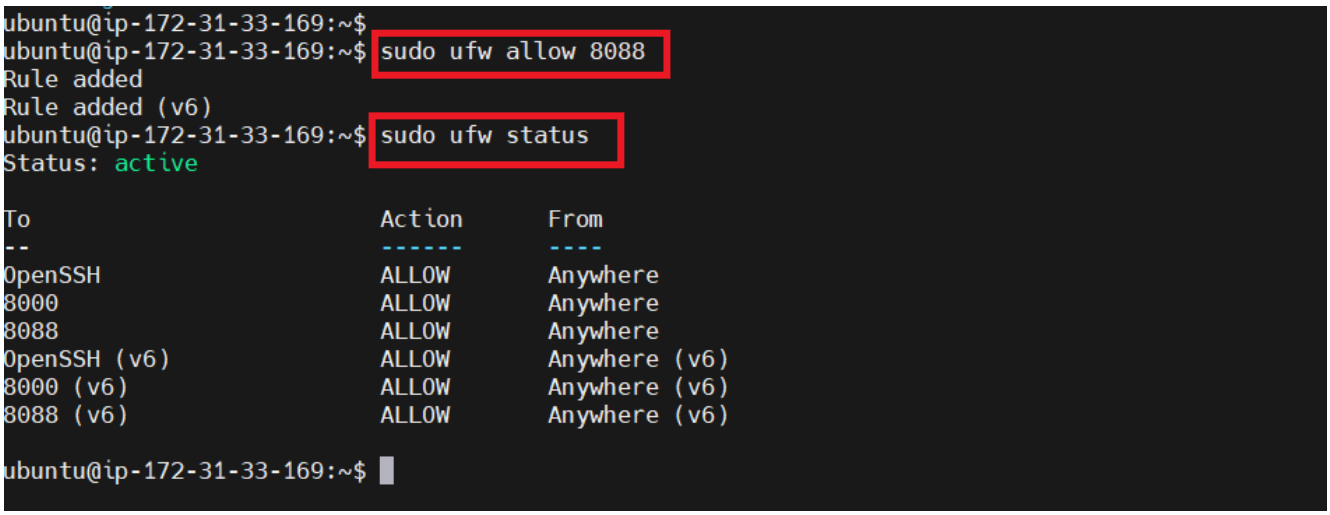
HTTP token that you generated in Splunk

Jenkins IP and apply.



Now go to Putty or Mobaxtreme and In Splunk machine run this command

```
sudo ufw allow 8088
```

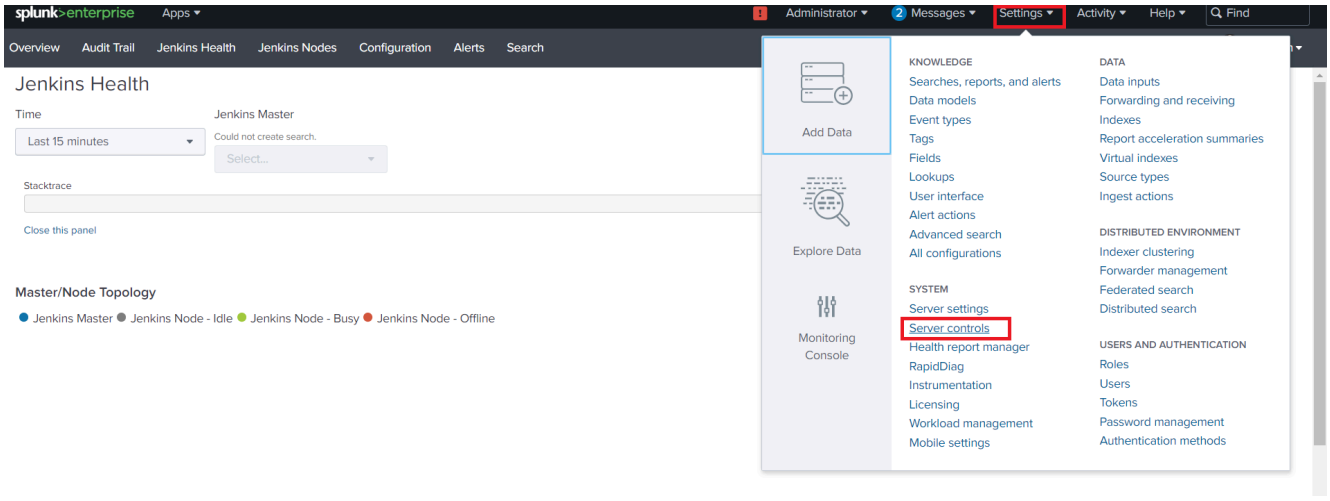


Now in the Jenkins dashboard Under Splunk click on Test connection

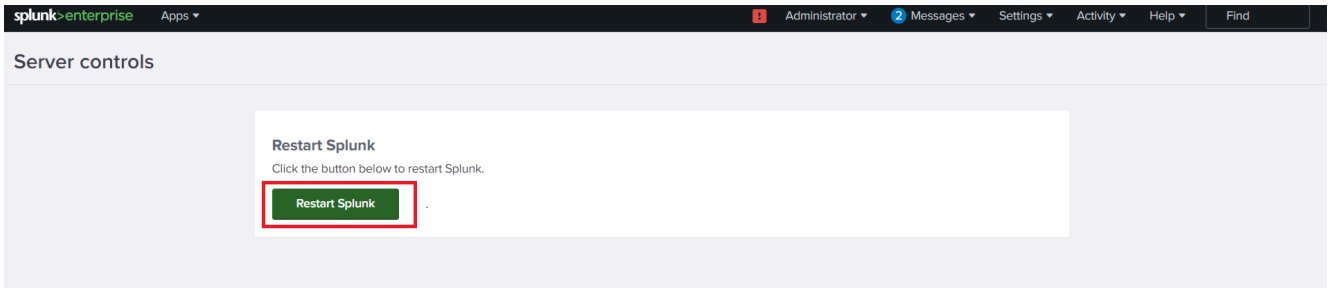
Restart Both Splunk and Jenkins

Let's Restart our Splunk machine

Click on Settings –> Server controls



Restart and log in again

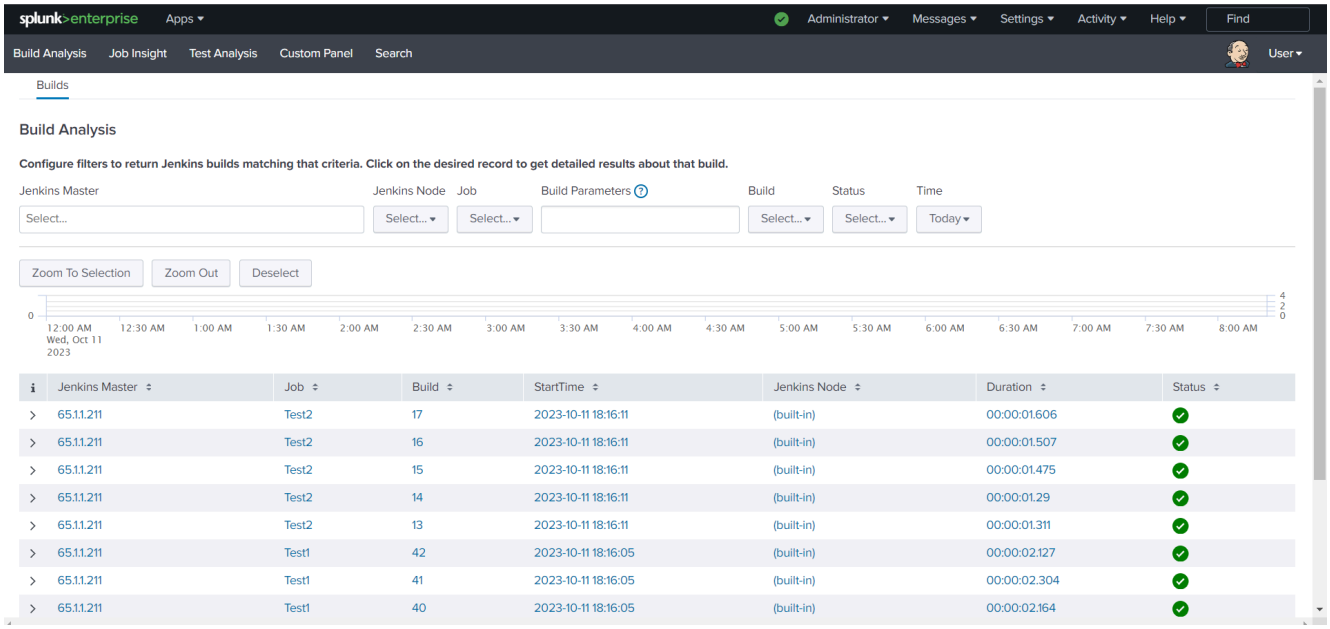


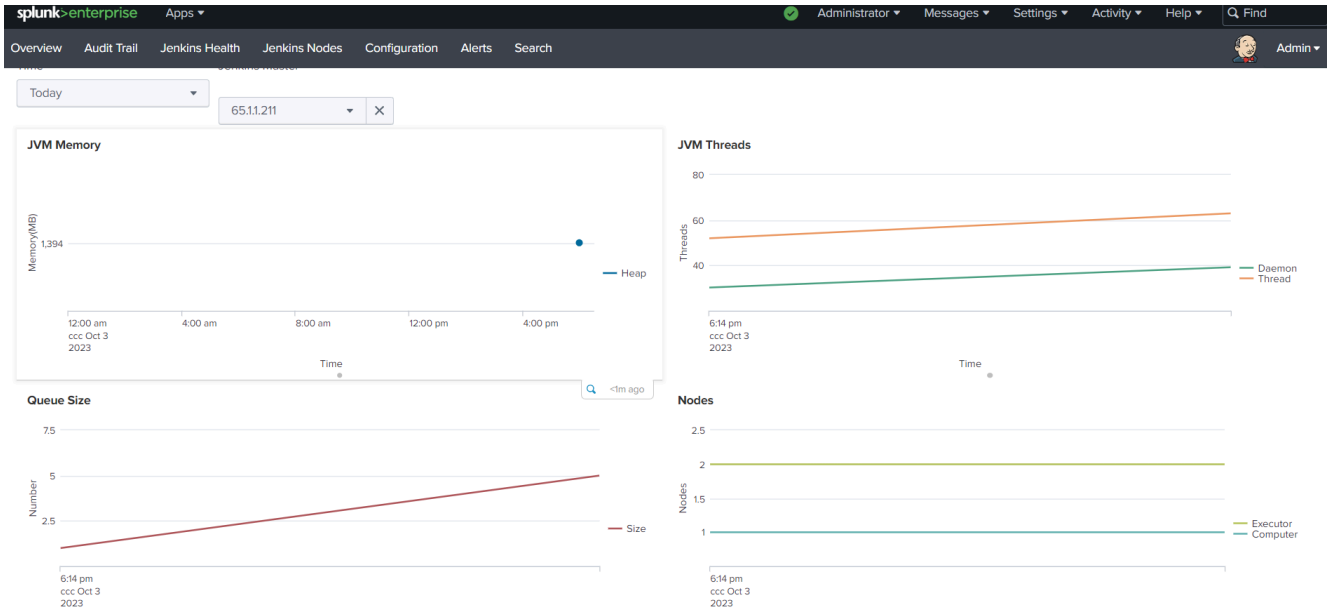
Now restart Jenkins and log in again.

```
<jenkins-ip:8080/restart> #this will restart jenkins
```

Now go to Splunk and click on the Jenkins app and you will get this output monitoring

Sample image.



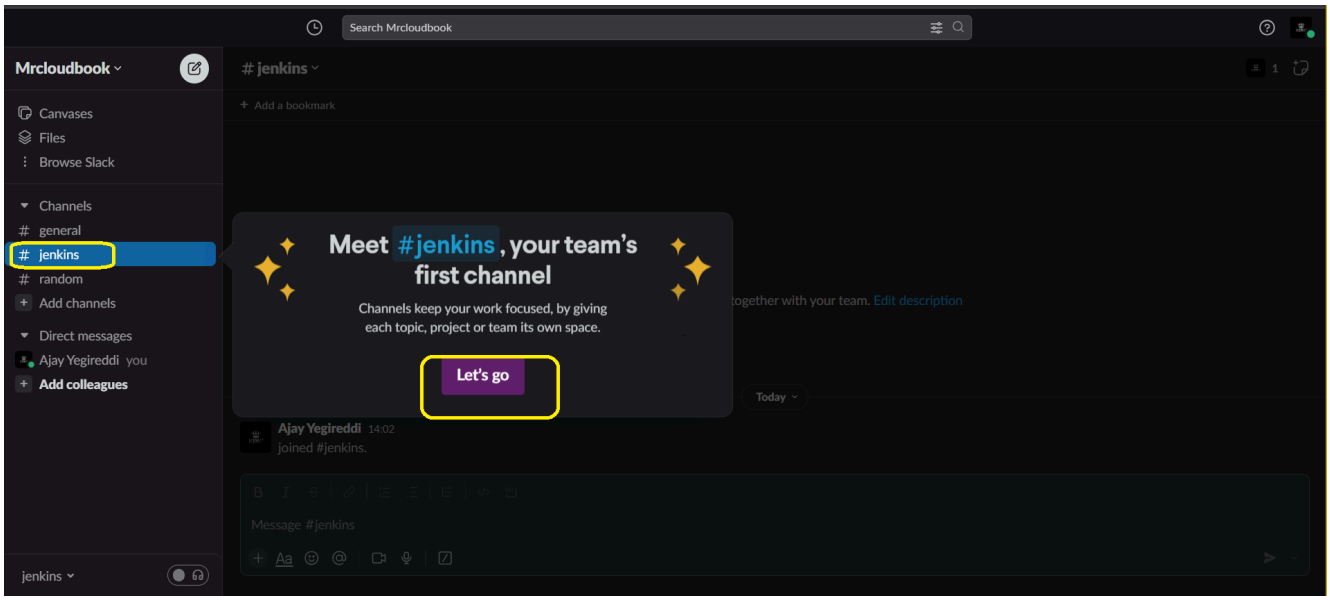


Step4A: Integrate Slack for Notifications

SLACK BLOG

SLACK FULL VIDEO ON YOUTUBE

Create a Slack account and create a channel Named Jenkins

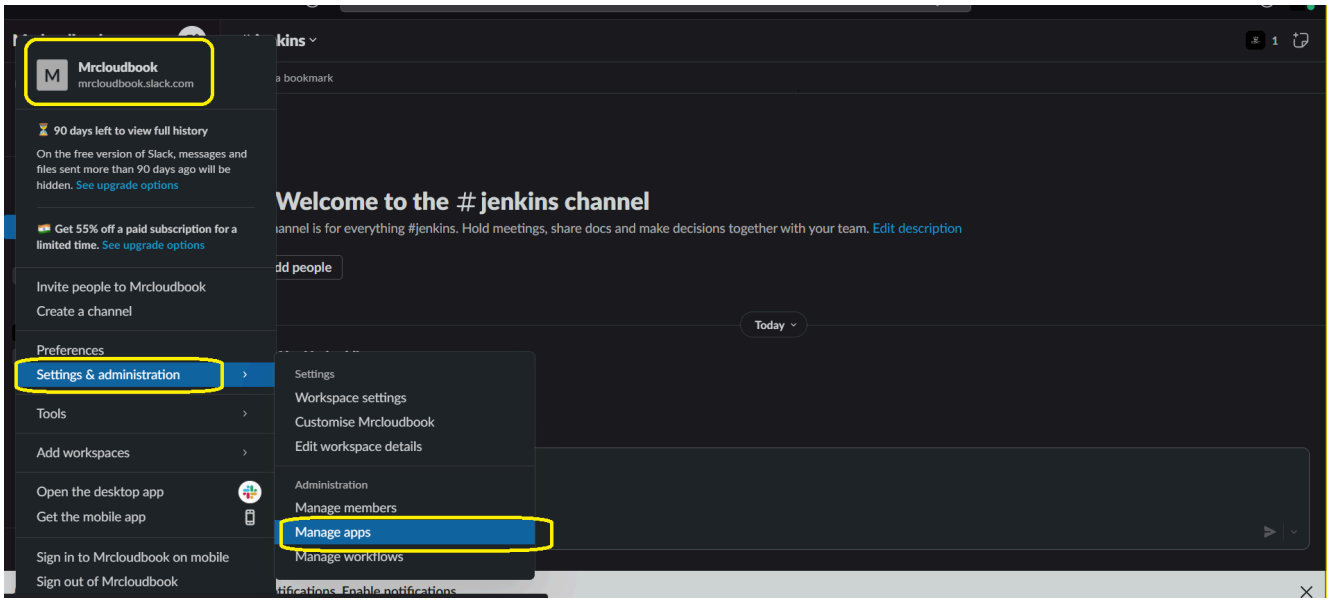


Step4B: Install the Jenkins CI app on Slack

Go to Slack and click on your name

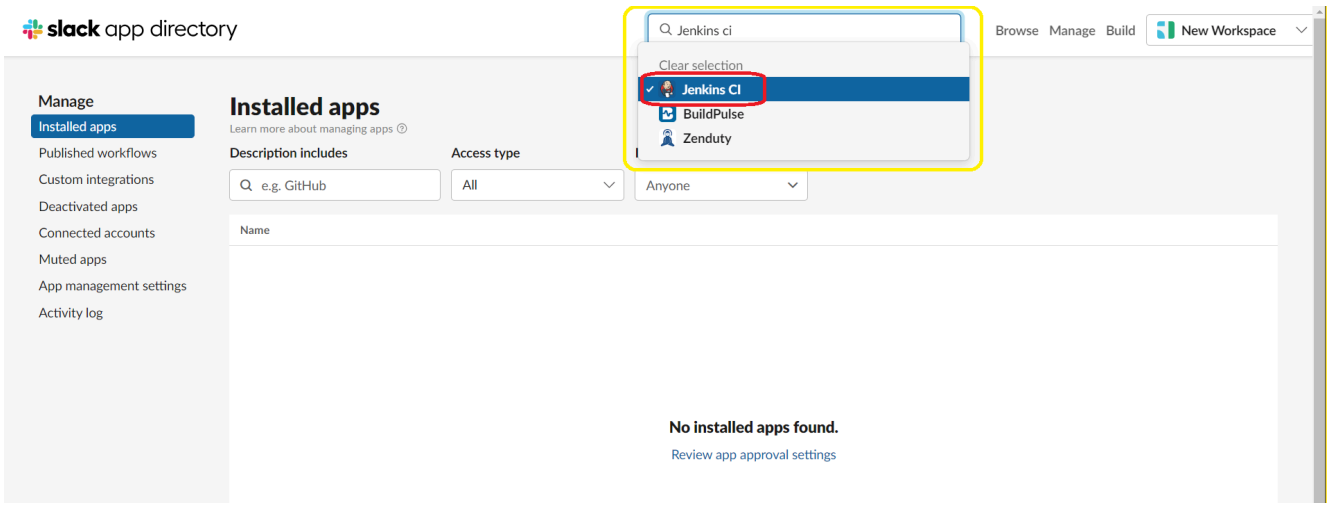
Select Settings and Administration

Click on Manage apps



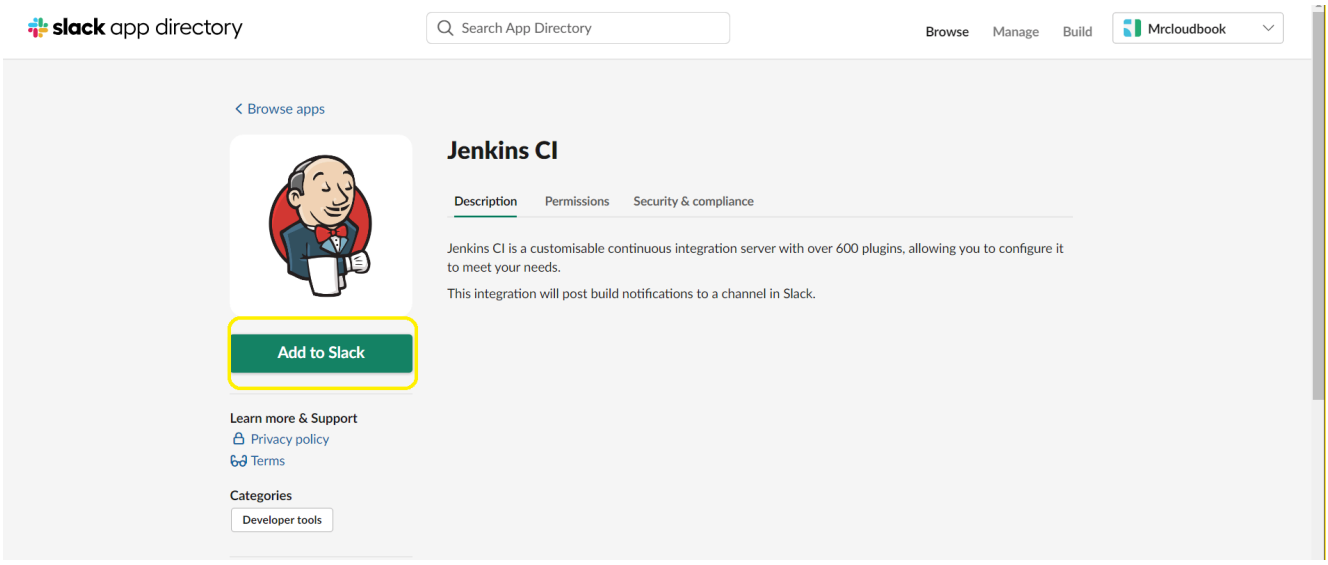
It will open a new tab

Search for Jenkins CI and click on it



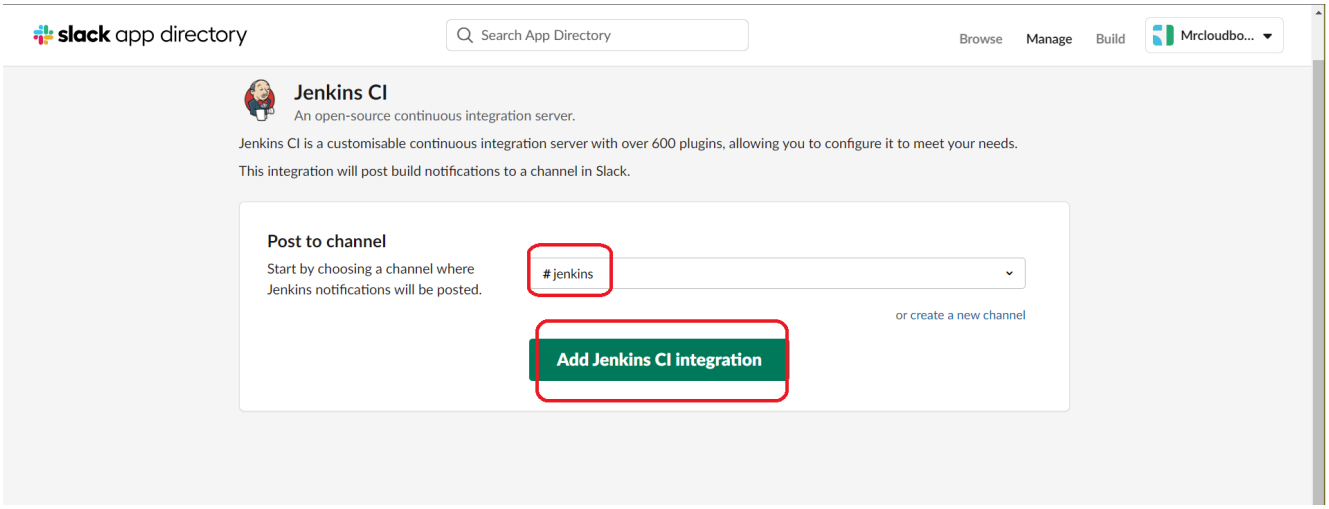
It will open another tab

Click on Add to Slack

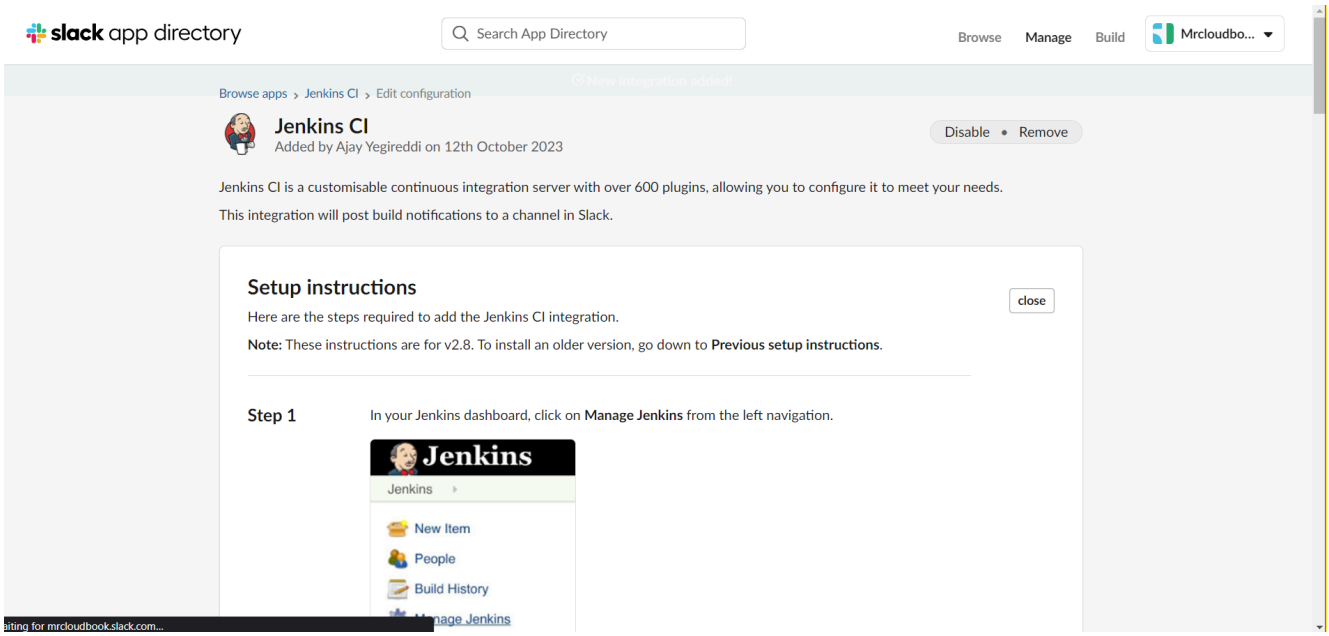


Now choose your Slack channel

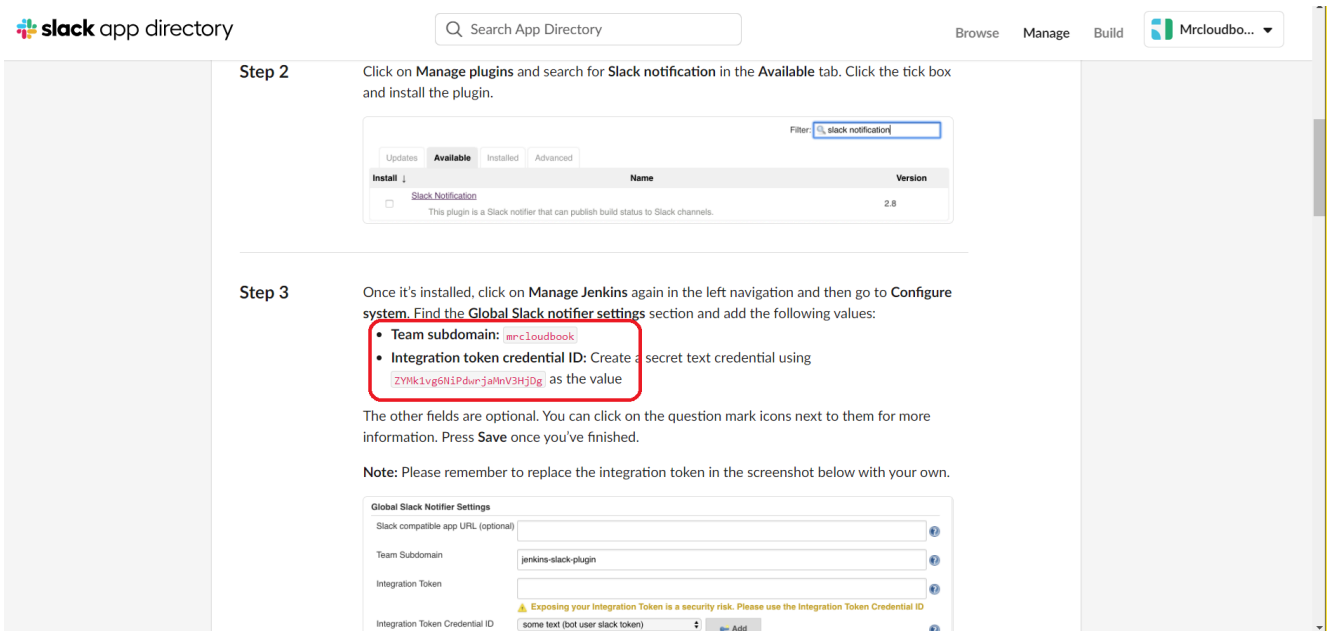
Click on Add Jenkins CI integration.

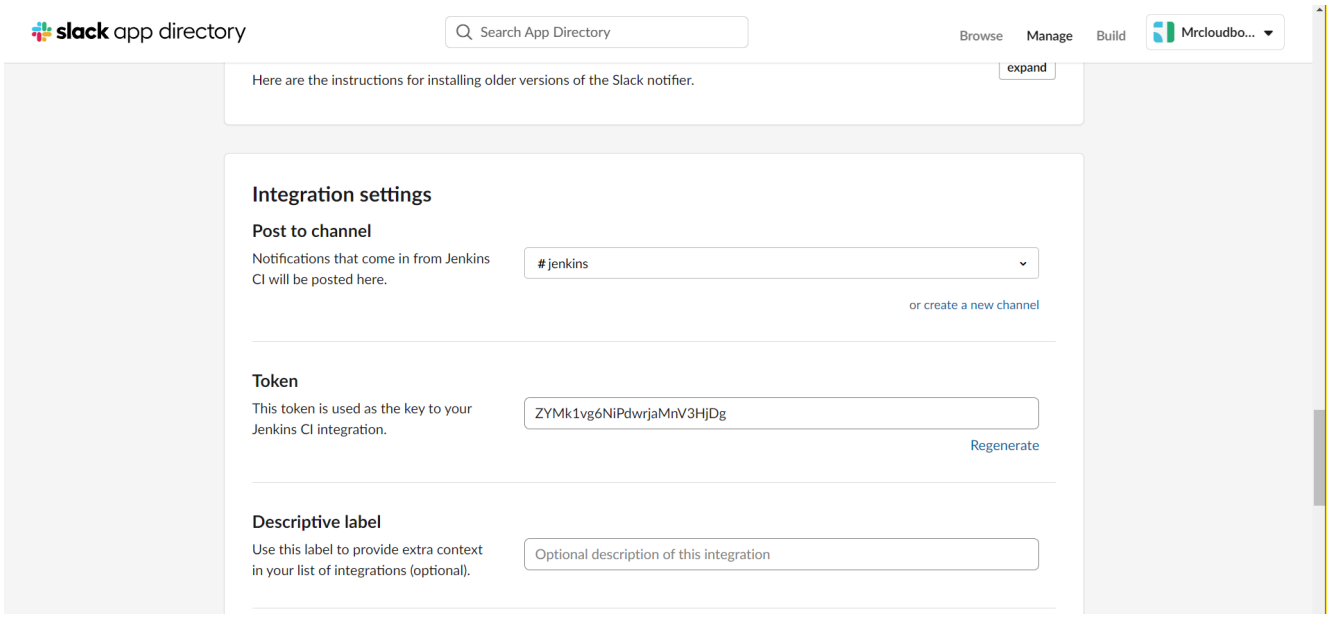


You will be redirected to this page



Copy the team subdomain and integration token credential ID for later use.



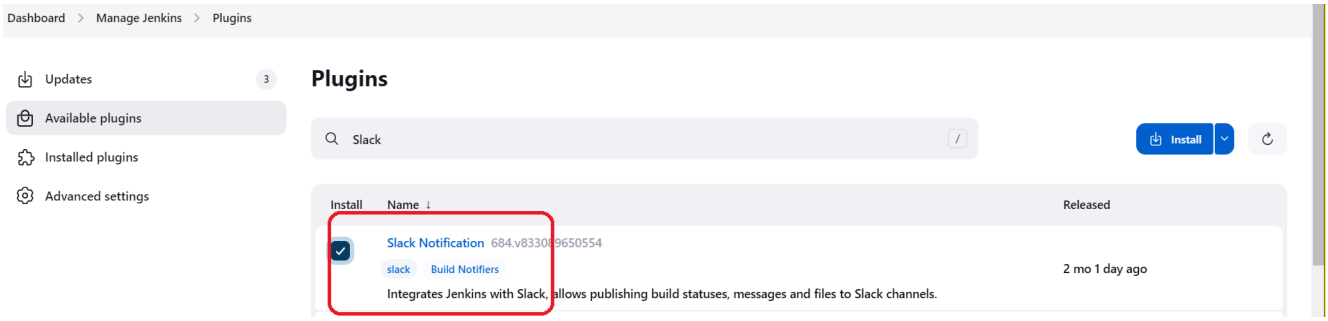


Install Slack Notification Plugin in Jenkins

Go to Jenkins Dashboard

Click on manage Jenkins –> Plugins –> Available plugins

Search for Slack Notification and install

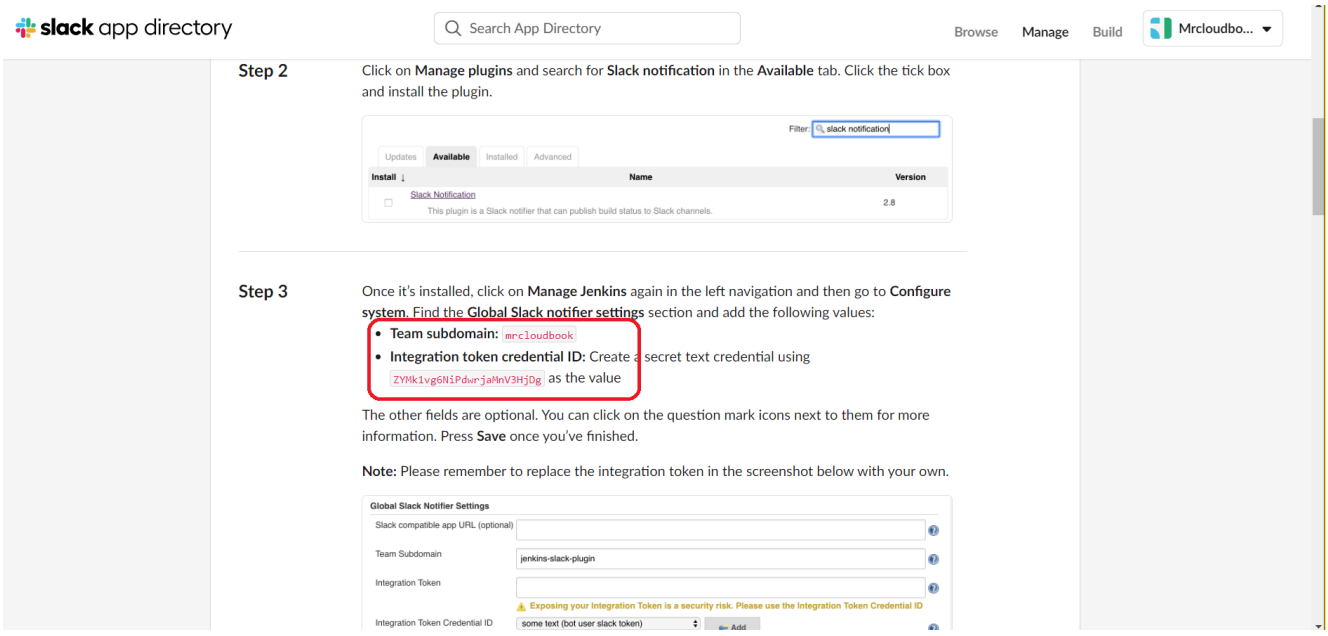


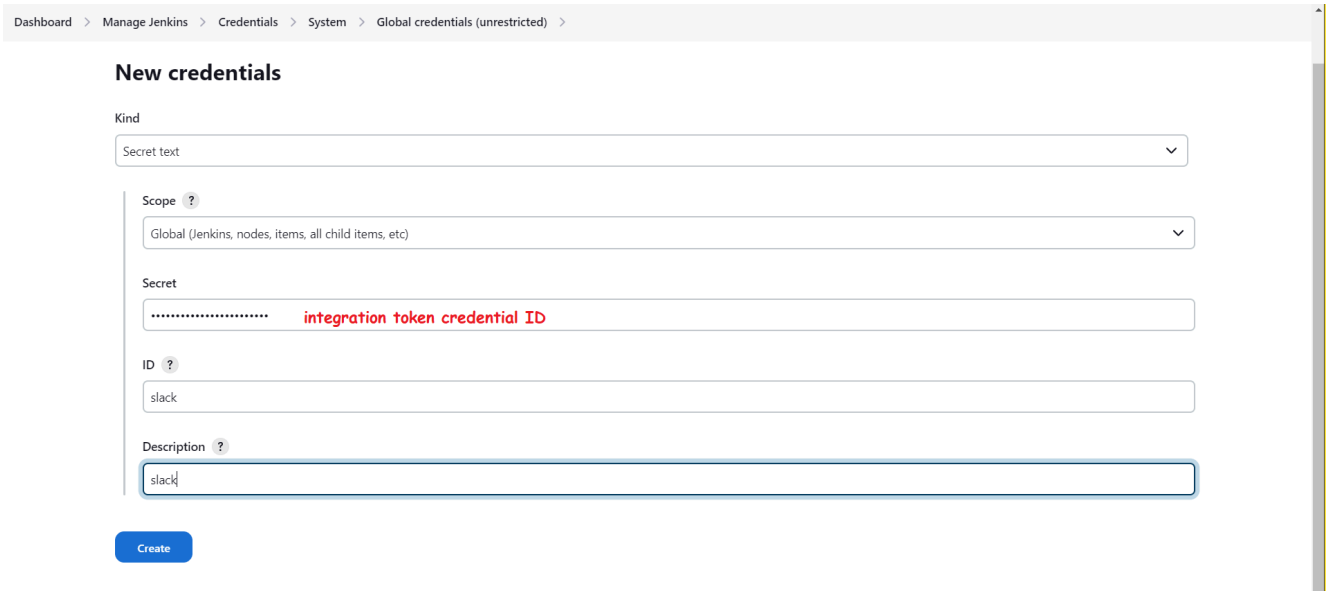
Click on Manage Jenkins –> Credentials –> Global

Select kind as Secret Text

At Secret Section Provide Your Slack integration token credential ID

Id and description are optional and create





Click on Manage Jenkins –> System

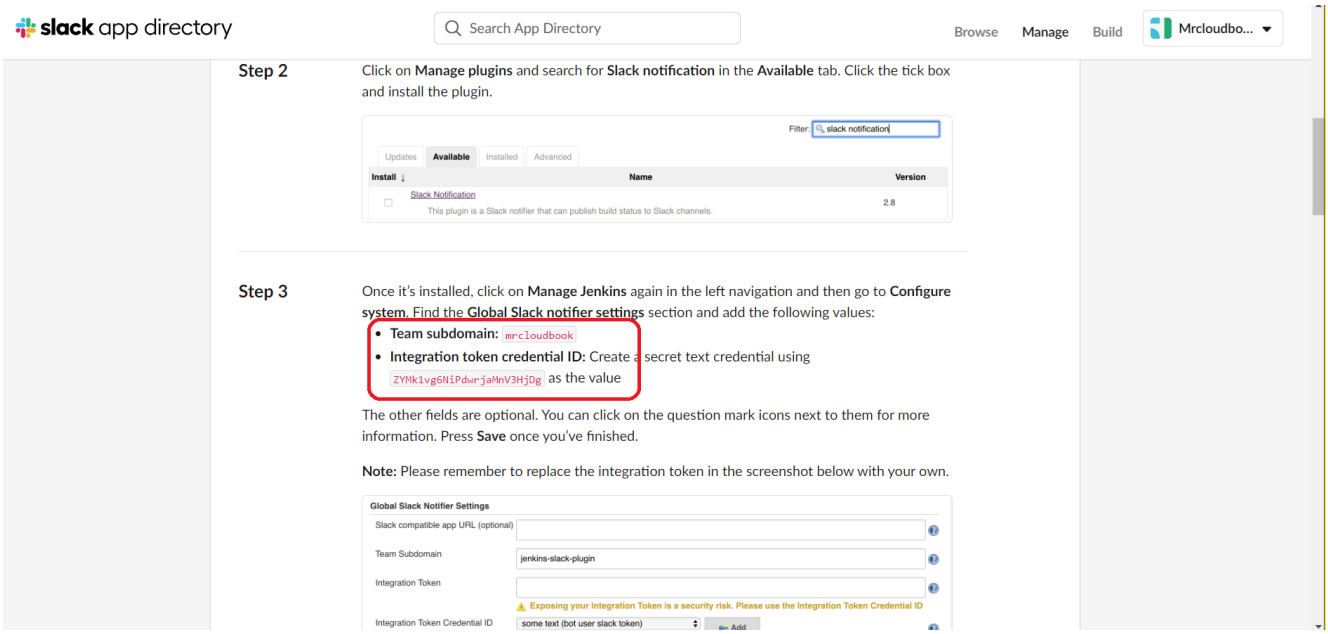
Go to the end of the page

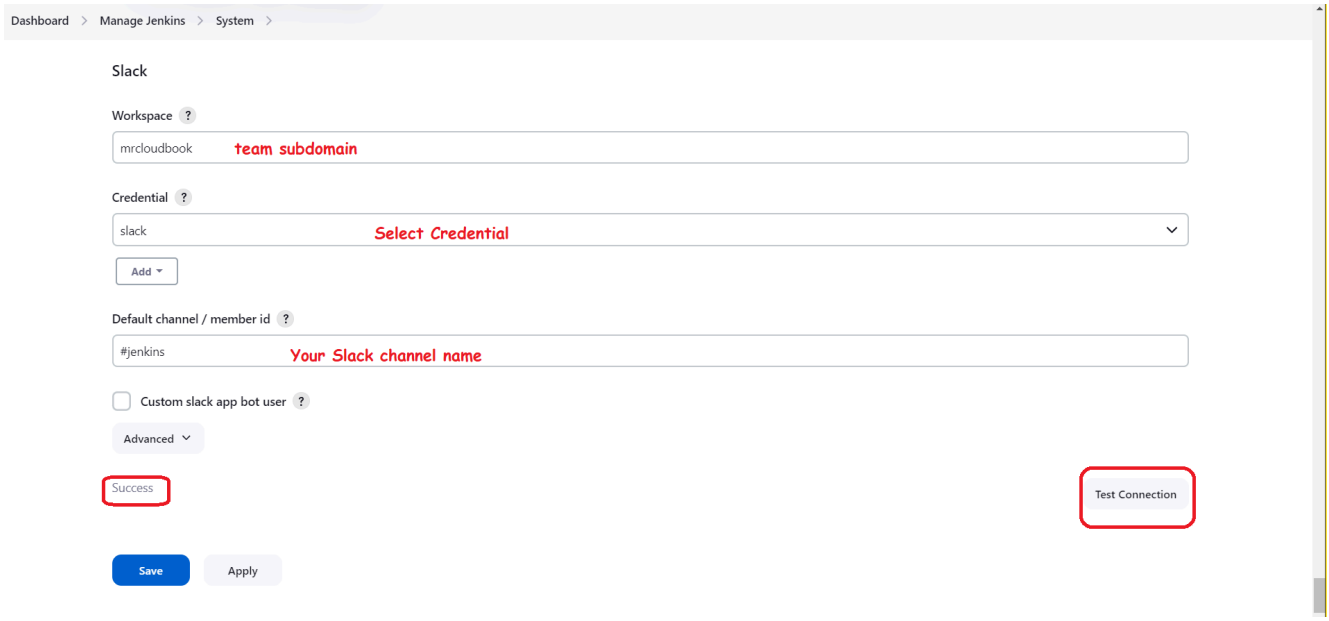
Workspace –> team subdomain

Credential –> Select your Credential for Slack

Default channel –> Provide your Channel name

Test connection





Click on Apply and save

Add this to the pipeline

```
def COLOR_MAP = [
    'FAILURE' : 'danger',
    'SUCCESS' : 'good'
]
post {
    always {
        echo 'Slack Notifications'
        slackSend (
            channel: '#channel name',   #change your channel name
            color: COLOR_MAP[currentBuild.currentResult],
            message: "*${currentBuild.currentResult}:* Job ${env.JOB_NAI
        )
    }
}
```

You will get a Notification in Slack

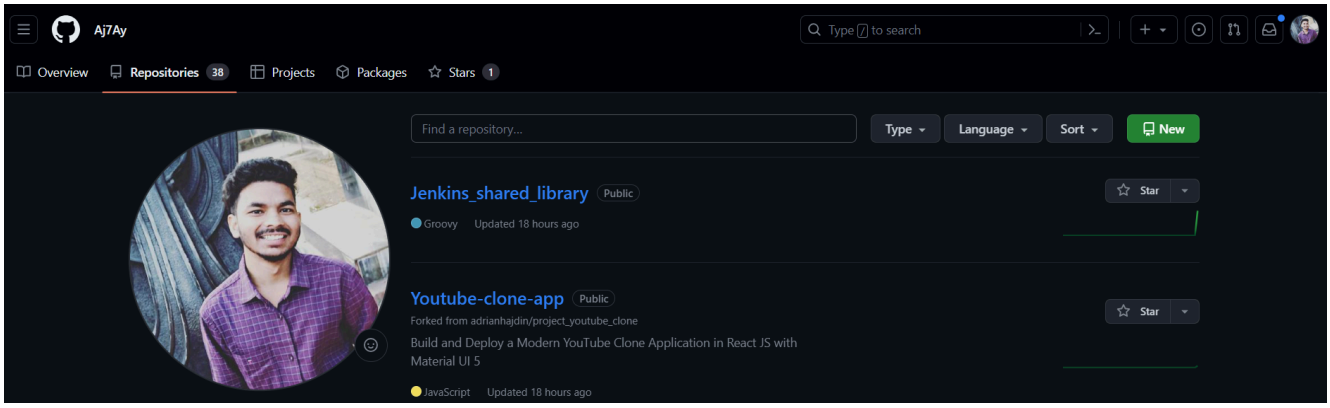
Step5A: Start Job

Go to Jenkins dashboard and click on New Item.

Provide a name for the Job & click on Pipeline and click on OK.

Step5B: Create a Jenkins shared library in GitHub

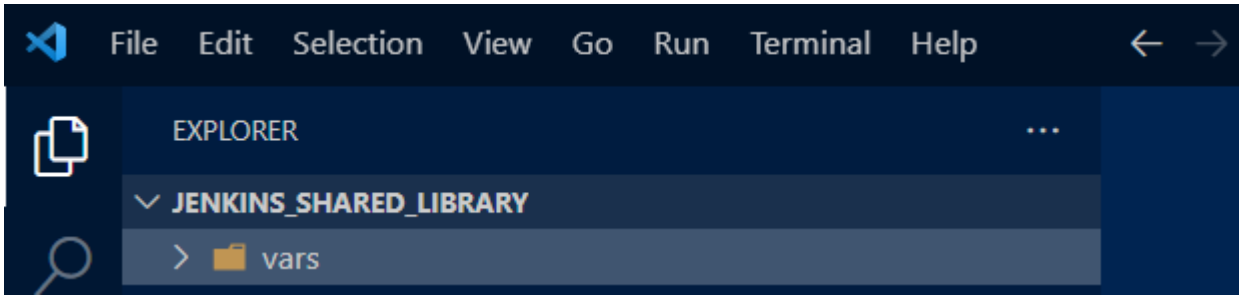
Create a new repository in GitHub named Jenkins_shared_library.



Connect to your VS Code

Create a directory named Jenkins_shared_library

Create a Vars directory inside it



Open Terminal

Run the below commands to push to GitHub

```
echo "# Jenkins_shared_library" >> README.md
git init
git add README.md
```

```
git commit -m "first commit"
git branch -M main
# make sure to change your repo Url here
git remote add origin https://github.com/Aj7Ay/Jenkins_shared_library.g
git push -u origin main
```

Now

Create a **cleanWorkspace.groovy** file and add the below code

```
#cleanWorkspace.groovy //cleans workspace
def call() {
    cleanWs()
}
```

Create **checkoutGit.groovy** file and add the below code

```
def call(String gitUrl, String gitBranch) {
    checkout([
        $class: 'GitSCM',
        branches: [[name: gitBranch]],
        userRemoteConfigs: [[url: gitUrl]]
    ])
}
```

Now push them to GitHub using the below commands from vs code

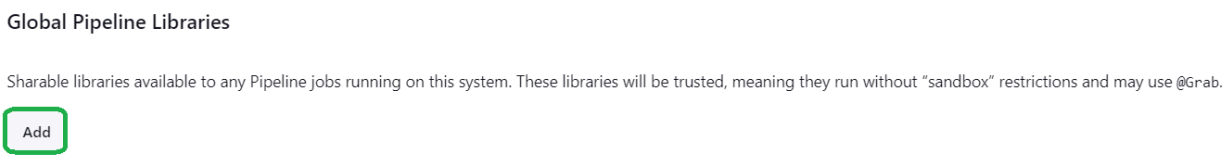
```
git add .
git commit -m "message"
git push origin main
```

Step5C: Add Jenkins shared library to Jenkins system

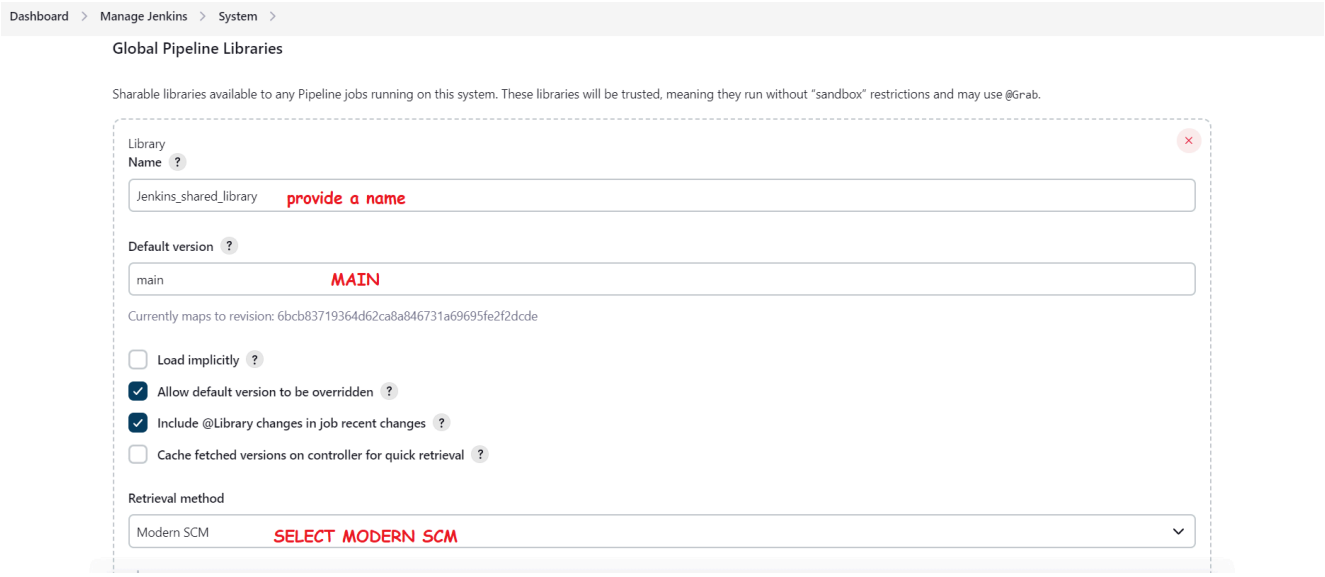
Go to Jenkins Dashboard

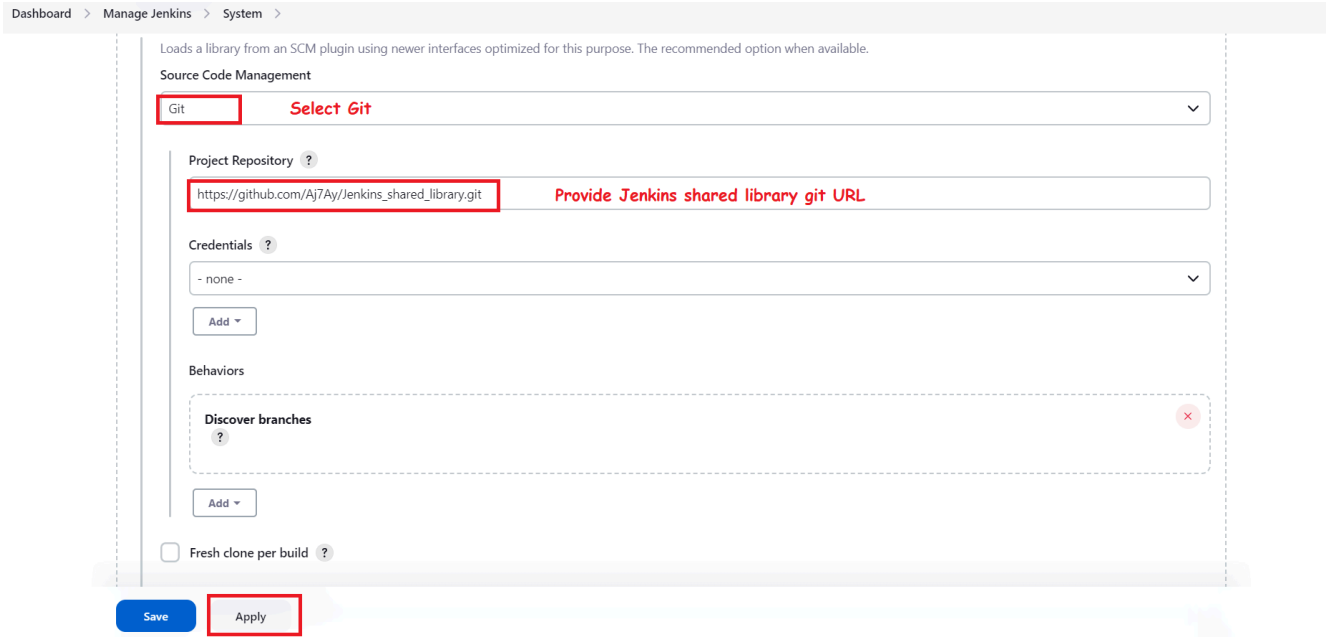
Click on Manage Jenkins –> system

Search for Global Pipeline Libraries and click on Add



Now Provide a name that we have to call in our pipeline





Click apply and save

Step5D: Run Pipeline

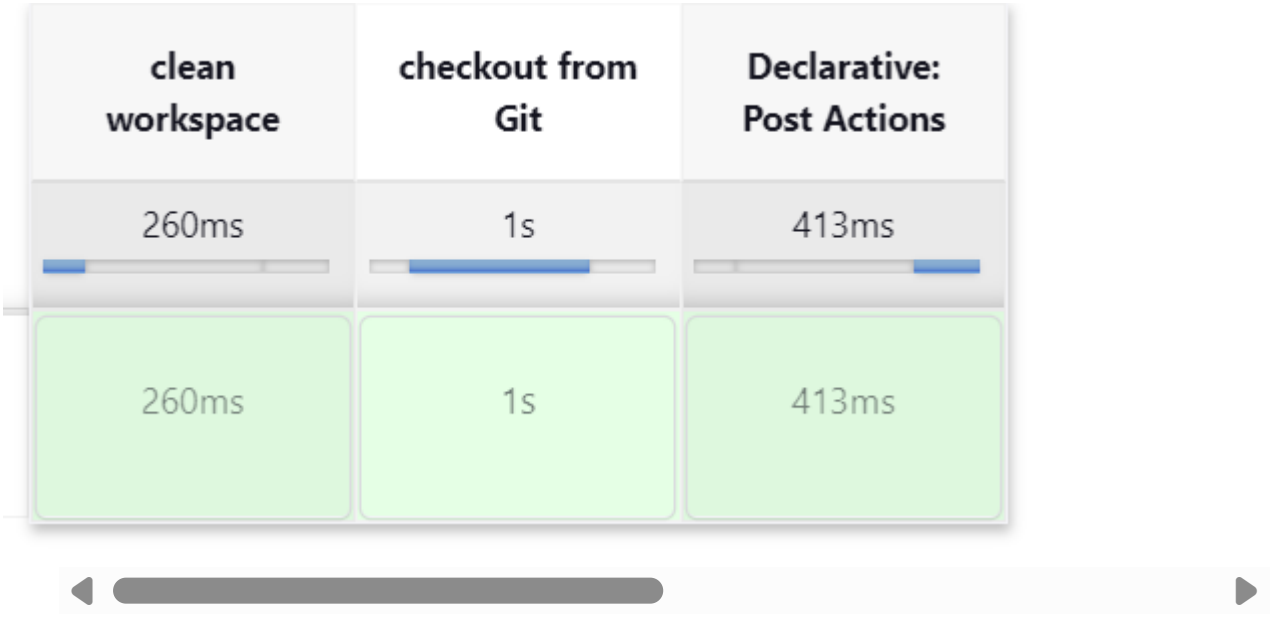
Go to Jenkins Dashboard again & select the job and add the below pipeline

```
@Library('Jenkins_shared_library') _  #name used in jenkins system for
def COLOR_MAP = [
    'FAILURE' : 'danger',
    'SUCCESS' : 'good'
]
pipeline{
    agent any
    parameters {
        choice(name: 'action', choices: 'create\ndelete', description:
    }
    stages{
        stage('clean workspace'){
            steps{
                cleanWorkspace()
            }
        }
        stage('checkout from Git'){
            steps{
                checkoutGit('https://github.com/Aj7Ay/Youtube-clone-app
            }
```

```
            }
        }
        post {
            always {
                echo 'Slack Notifications'
                slackSend (
                    channel: '#channel name',   #change your channel name
                    color: COLOR_MAP[currentBuild.currentResult],
                    message: "*${currentBuild.currentResult}:* Job ${env.J(
                  )
              }
           }
    }
```

Build with parameters and build

Stage view



Step6: Install Plugins like JDK, Sonarqube Scanner, NodeJs

Step6A: Install Plugin

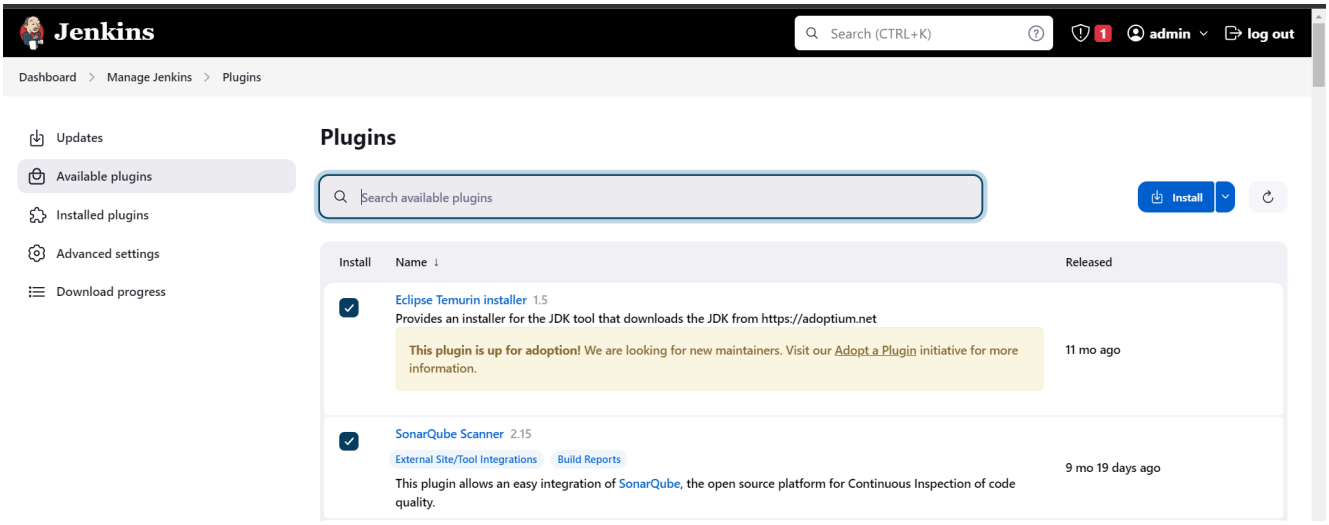
Goto Manage Jenkins →Plugins → Available Plugins →

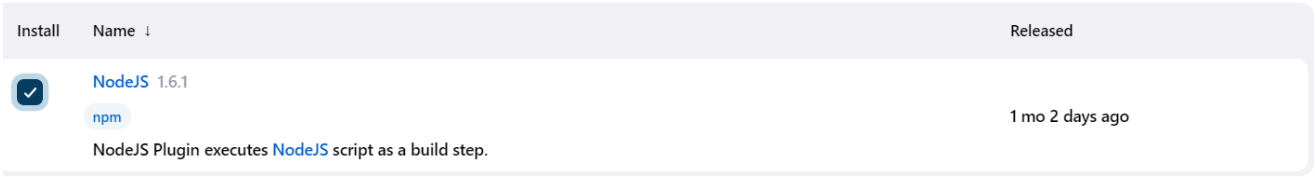
Install below plugins

1 → Eclipse Temurin Installer (Install without restart)

2 → SonarQube Scanner (Install without restart)

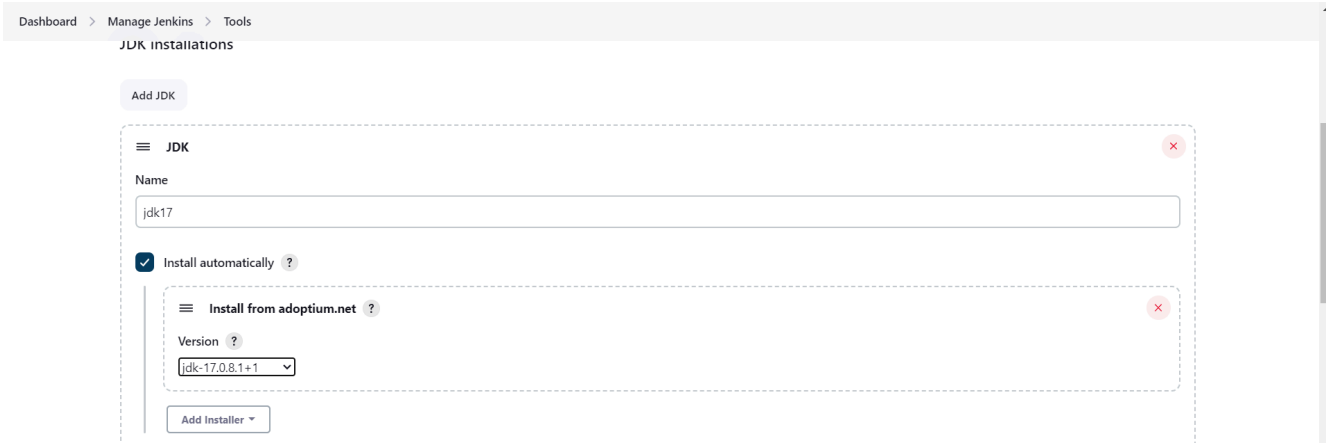
3 → NodeJs Plugin (Install Without restart)





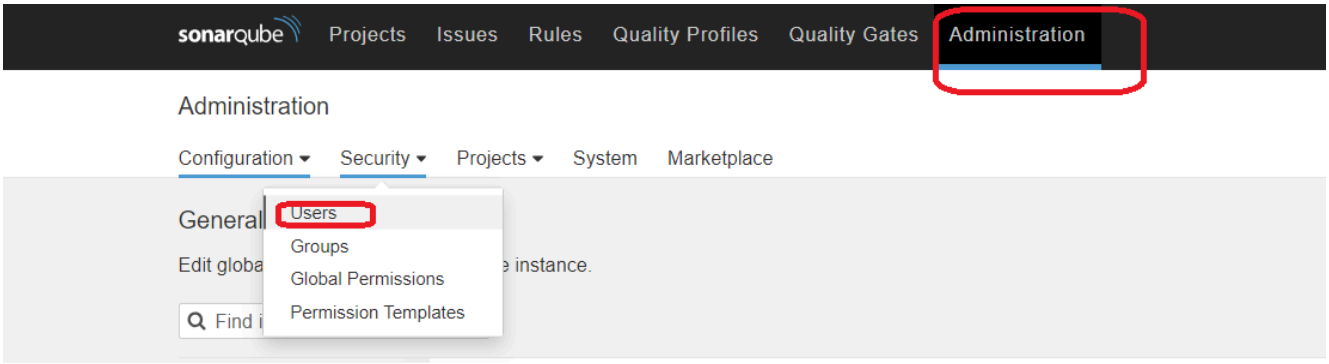
Step6B: Configure Java and Nodejs in Global Tool Configuration

Goto Manage Jenkins → Tools → Install JDK(17) and NodeJs(16)→ Click on Apply and Save

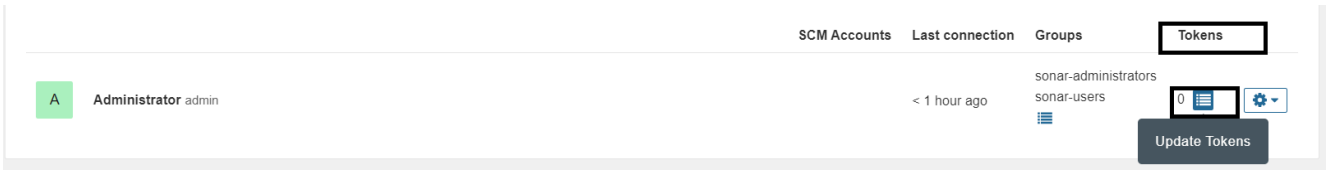


Step6C: Configure Sonar Server in Manage Jenkins

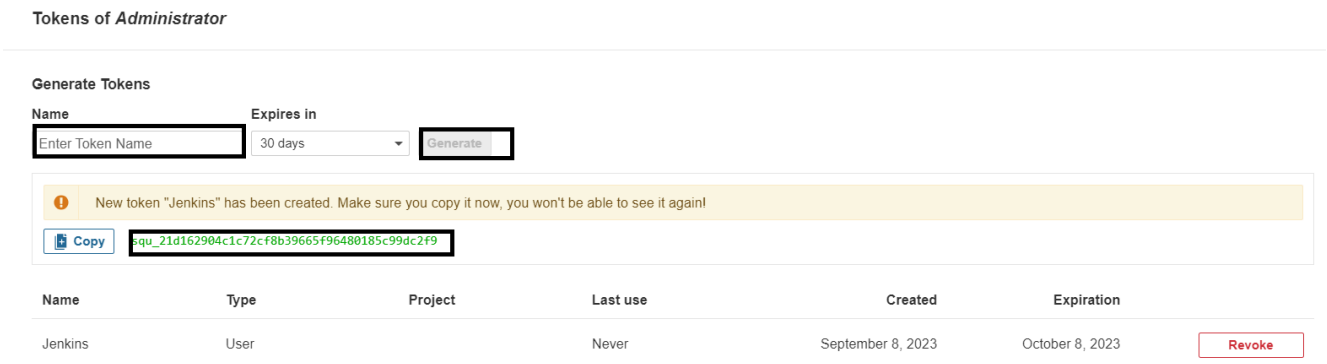
Grab the Public IP Address of your EC2 Instance, Sonarqube works on Port 9000, so <Public IP>:9000. Goto your Sonarqube Server. Click on Administration → Security → Users → Click on Tokens and Update Token → Give it a name → and click on Generate Token



click on update Token

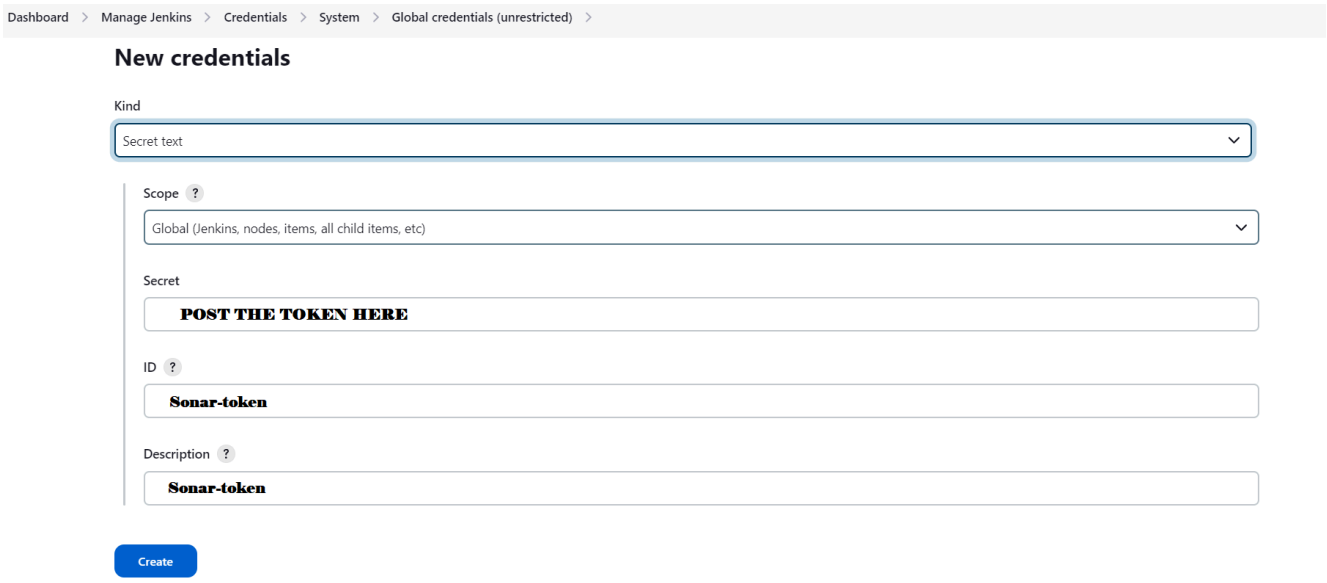


Create a token with a name and generate



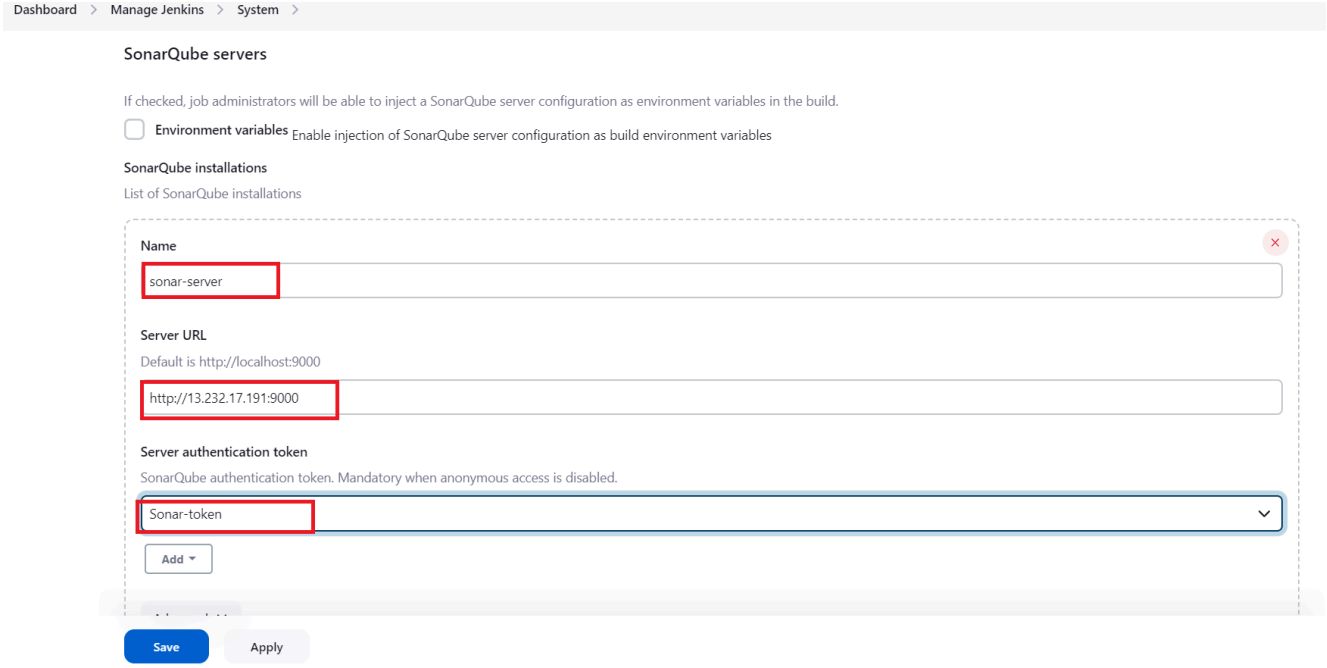
copy Token

Goto Jenkins Dashboard → Manage Jenkins → Credentials → Add Secret Text. It should look like this



You will this page once you click on create

Now, go to Dashboard → Manage Jenkins → System and Add like the below image.

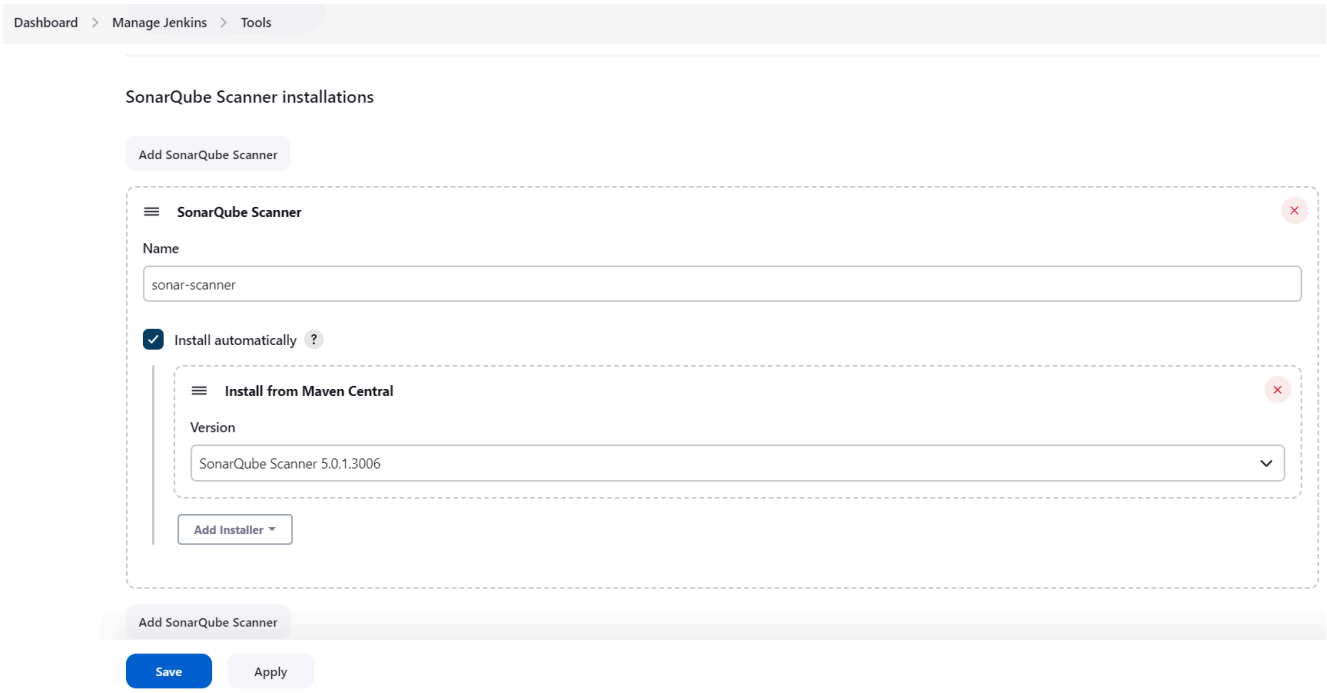


Click on Apply and Save

The Configure System option is used in Jenkins to configure different server

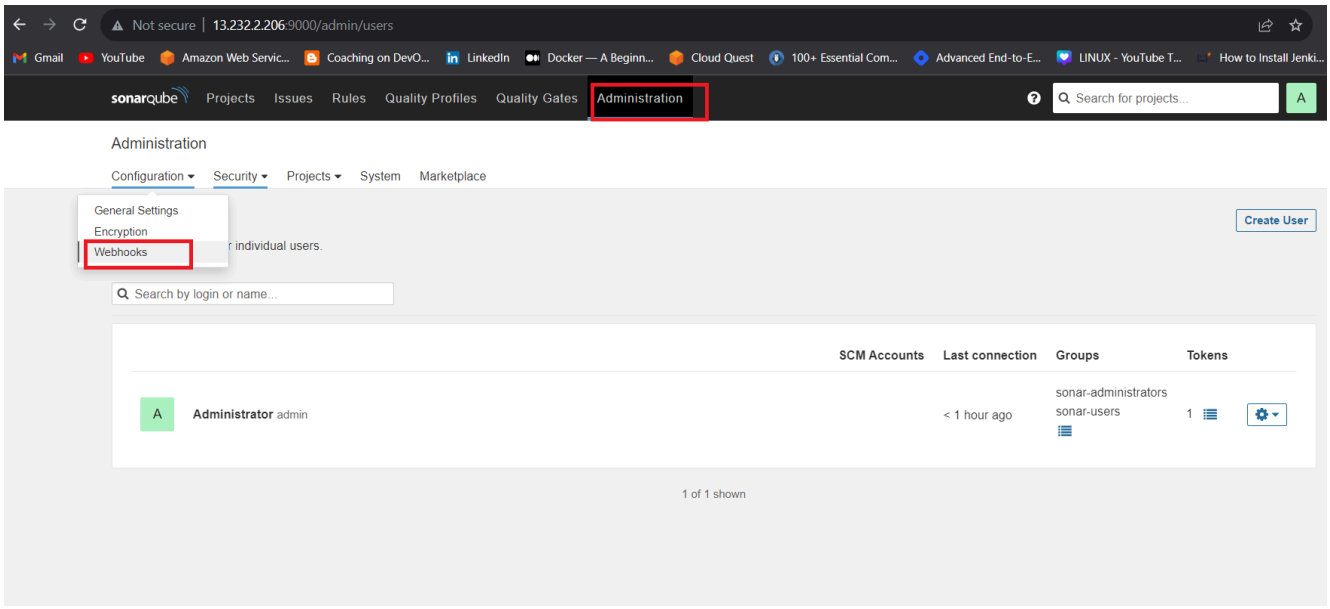
Global Tool Configuration is used to configure different tools that we install using Plugins

We will install a sonar scanner in the tools.

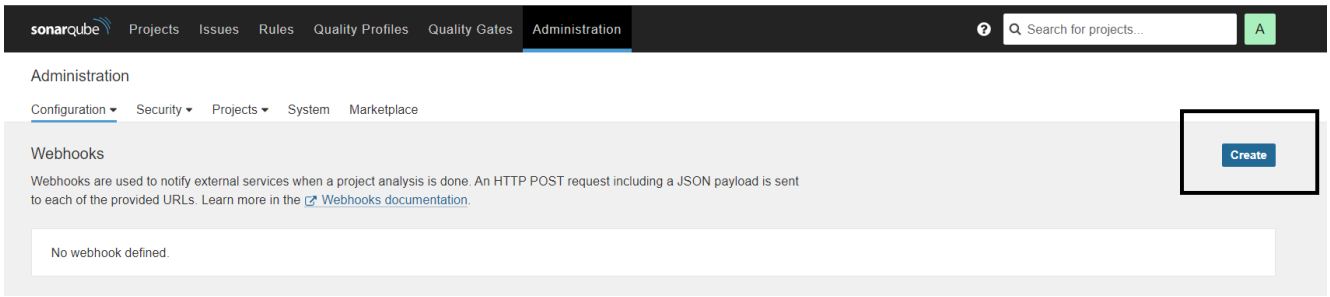


In the Sonarqube Dashboard add a quality gate also

Administration–> Configuration–>Webhooks

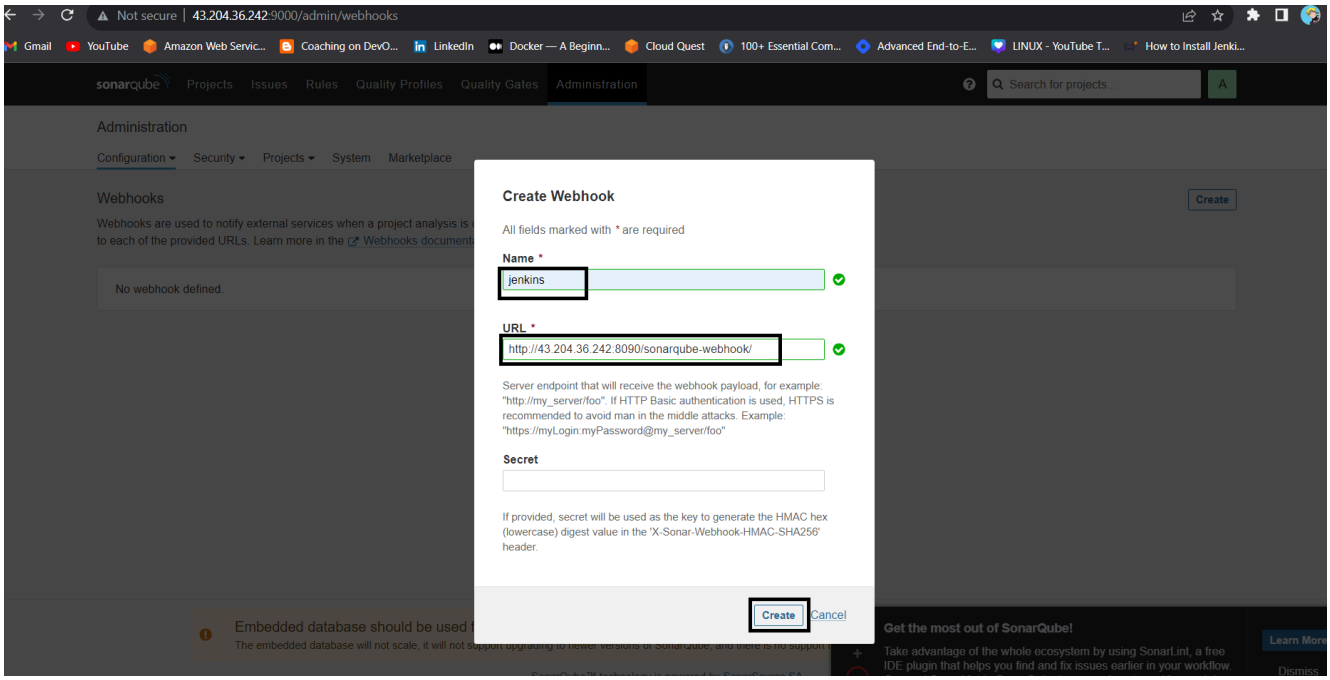


Click on Create



Add details

```
#in url section of quality gate
<http://jenkins-public-ip:8080>/sonarqube-webhook/
```



Step6D: Add New stages to the pipeline

Go to vs code and create a file **sonarqubeAnalysis.groovy** & add the below code and push to Jenkins shared library GitHub Repo.

```
def call() {
    withSonarQubeEnv('sonar-server') {
        sh ''' $SCANNER_HOME/bin/sonar-scanner -Dsonar.projectName=Youtu
    }
}
```

Create another file for **qualityGate.groovy**

```
def call(credentialsId) {
    waitForQualityGate abortPipeline: false, credentialsId: credentials
}
```

Create another file for **npmInstall.groovy**

```
def call() {
    sh 'npm install'
}
```

Push them to the GitHub Jenkins shared library

```
git add .
git commit -m "message"
git push origin main
```

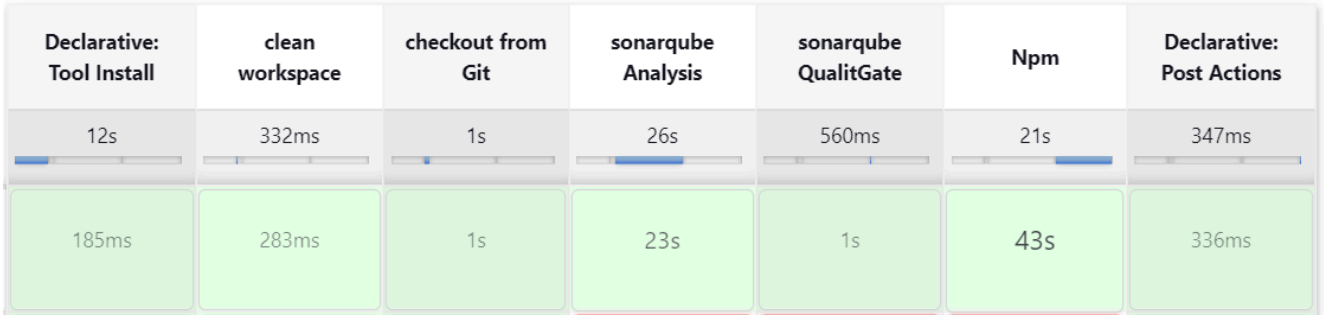
Add these stages to the pipeline now

```
#under parameters
tools{
        jdk 'jdk17'
        nodejs 'node16'
    }
    environment {
        SCANNER_HOME=tool 'sonar-scanner'
    }
# add in stages
stage('sonarqube Analysis'){
        when { expression { params.action == 'create'}}
            steps{
                sonarqubeAnalysis()
            }
        }
        stage('sonarqube QualitGate'){
        when { expression { params.action == 'create'}}
```

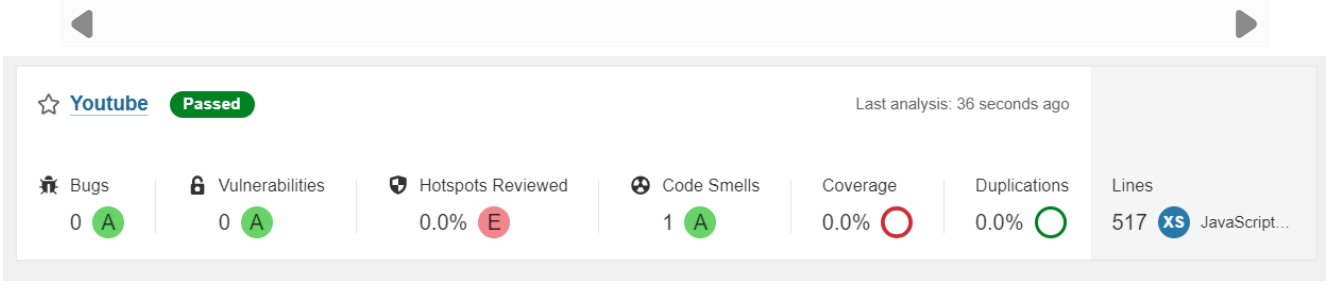
```
        steps{
            script{
                def credentialsId = 'Sonar-token'
                qualityGate(credentialsId)
            }
        }
    }
    stage('Npm'){
    when { expression { params.action == 'create'}}
        steps{
            npmInstall()
        }
    }
```

Build now.

Stage view

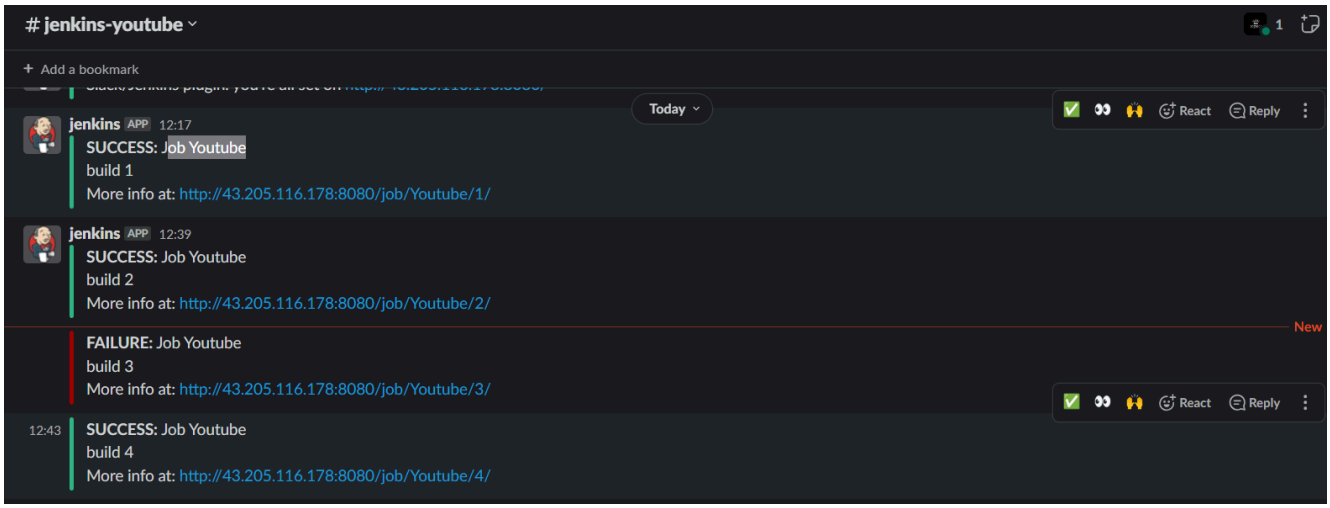


To see the report, you can go to Sonarqube Server and go to Projects.



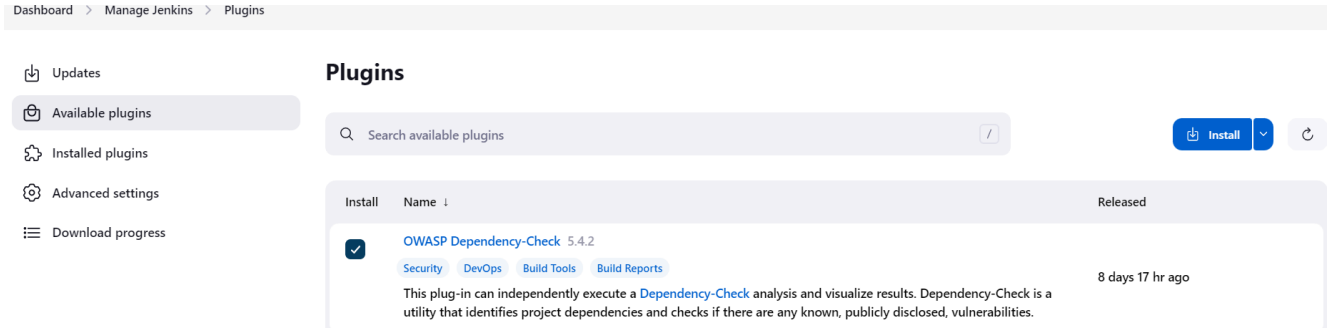
You can see the report has been generated and the status shows as passed. You can see that there are 517 lines scanned. To see a detailed report, you can go to issues.

Slack Notification



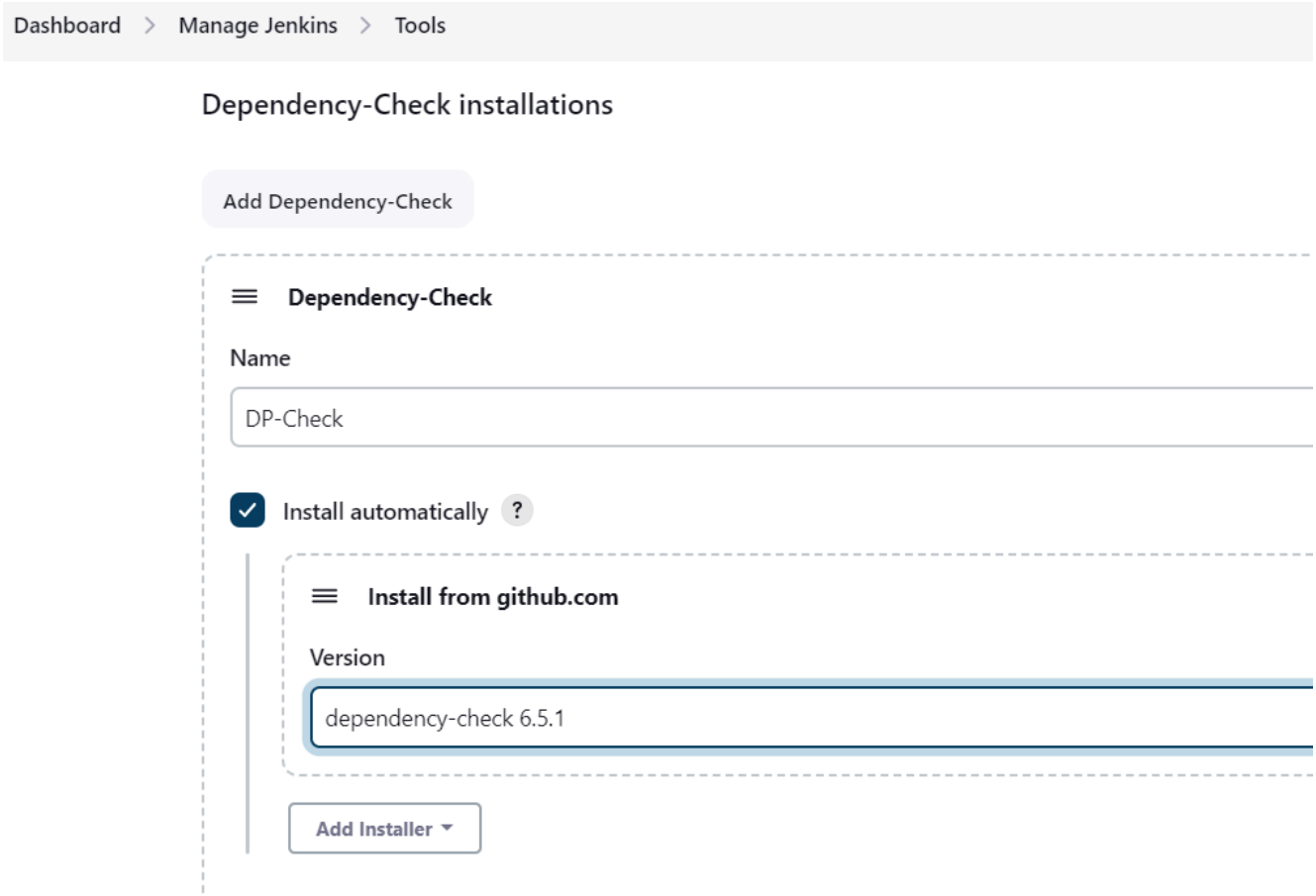
Step7: Install OWASP Dependency Check Plugins

GotoDashboard → Manage Jenkins → Plugins → OWASP Dependency-Check. Click on it and install it without restart.



First, we configured the Plugin and next, we had to configure the Tool

Goto Dashboard → Manage Jenkins → Tools →



Click on Apply and Save here.

Create a file for **trivyFs.groovy**

```
def call() {
    sh 'trivy fs . > trivyfs.txt'
}
```

Push to GitHub

```
git add .
git commit -m "message"
git push origin main
```

Add the below stages to the Jenkins pipeline

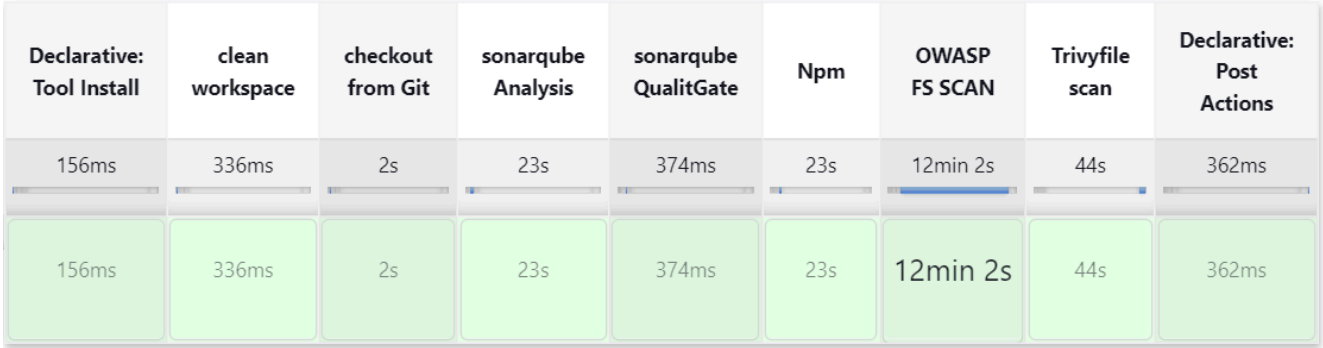
```
stage('Trivy file scan'){
        when { expression { params.action == 'create'}}
            steps{
                trivyFs()
            }
        }
        stage('OWASP FS SCAN') {
        when { expression { params.action == 'create'}}
            steps {
                dependencyCheck additionalArguments: '--scan ./ --disab
                dependencyCheckPublisher pattern: '**/dependency-check-r
            }
        }
```

Stage with the Dependency Check steps cannot be directly used inside a shared library.

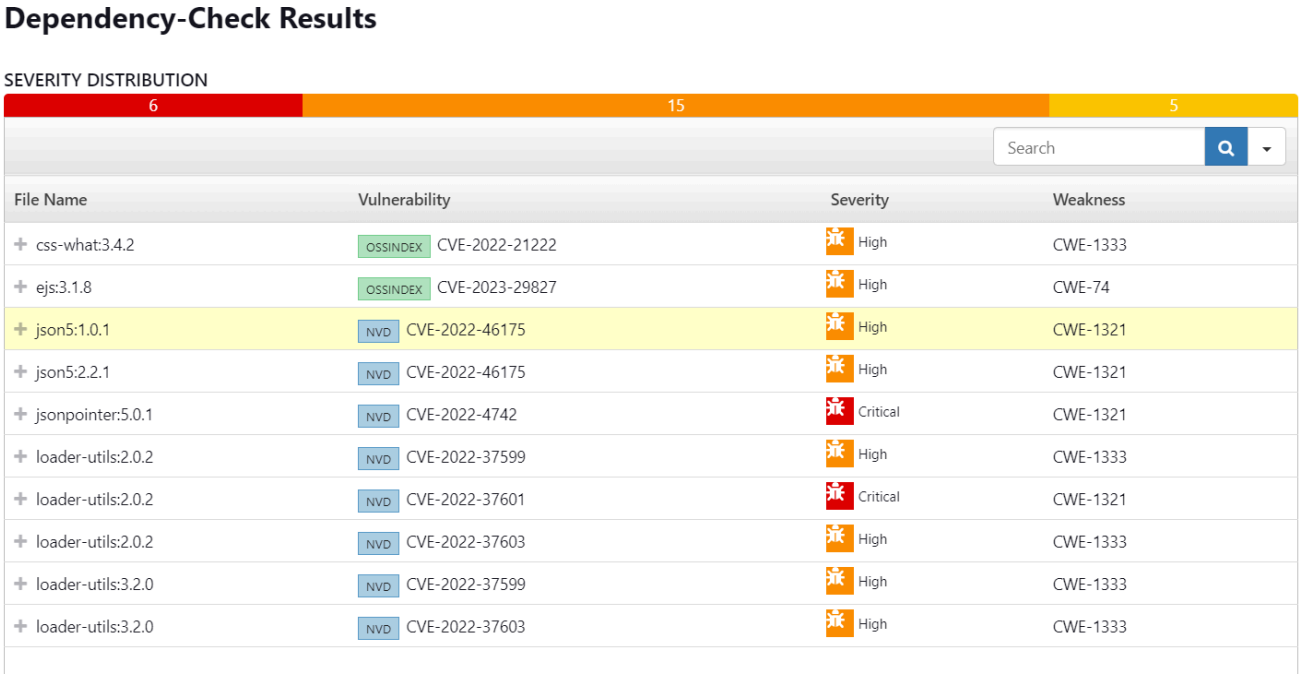
The main reason is that pipelines loaded from shared libraries have more restrictive script security by default. So the `dependencyCheck` and `dependencyCheckPublisher` steps would fail with rejected signature errors.

Build now

Stage view



You will see that in status, a graph will also be generated and Vulnerabilities.



Dependency-Check Results

SEVERITY DISTRIBUTION

6 | 15 | 5

Search

File Name	Vulnerability	Severity	Weakness
css-what:3.4.2	OSSINDEX CVE-2022-21222	High	CWE-1333
ejs:3.1.8	OSSINDEX CVE-2023-29827	High	CWE-74
json5:1.0.1	NVD CVE-2022-46175	High	CWE-1321
json5:2.2.1	NVD CVE-2022-46175	High	CWE-1321
jsonpointer:5.0.1	NVD CVE-2022-4742	Critical	CWE-1321
loader-utils:2.0.2	NVD CVE-2022-37599	High	CWE-1333
loader-utils:2.0.2	NVD CVE-2022-37601	Critical	CWE-1321
loader-utils:2.0.2	NVD CVE-2022-37603	High	CWE-1333
loader-utils:3.2.0	NVD CVE-2022-37599	High	CWE-1333
loader-utils:3.2.0	NVD CVE-2022-37603	High	CWE-1333

Step8A: Docker Image Build and Push

We need to install the Docker tool in our system, Goto Dashboard → Manage Plugins → Available plugins → Search for Docker and install these plugins

```
Docker
```

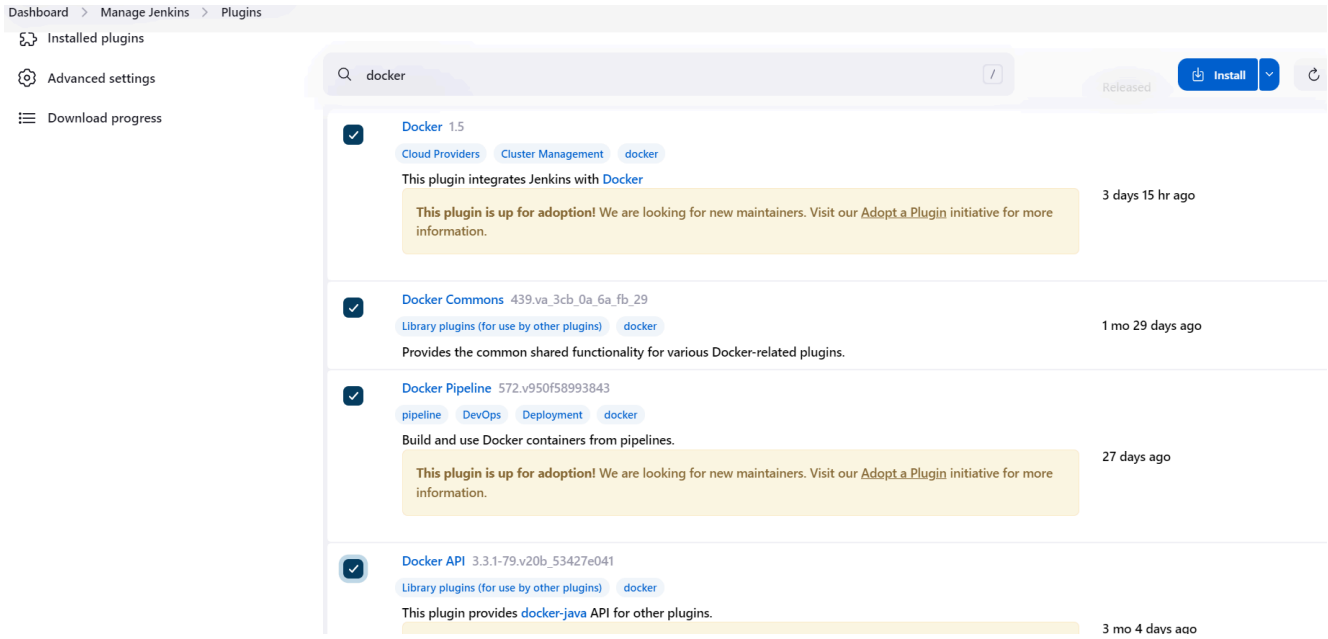
```
Docker Commons
```

```
Docker Pipeline
```

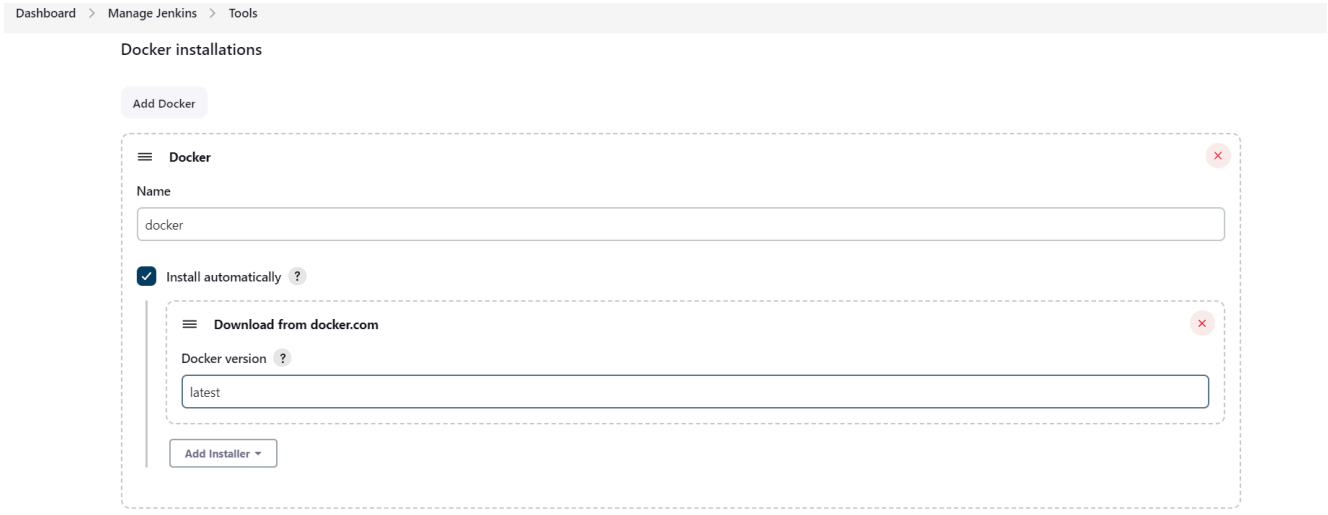
```
Docker API
```

```
docker-build-step
```

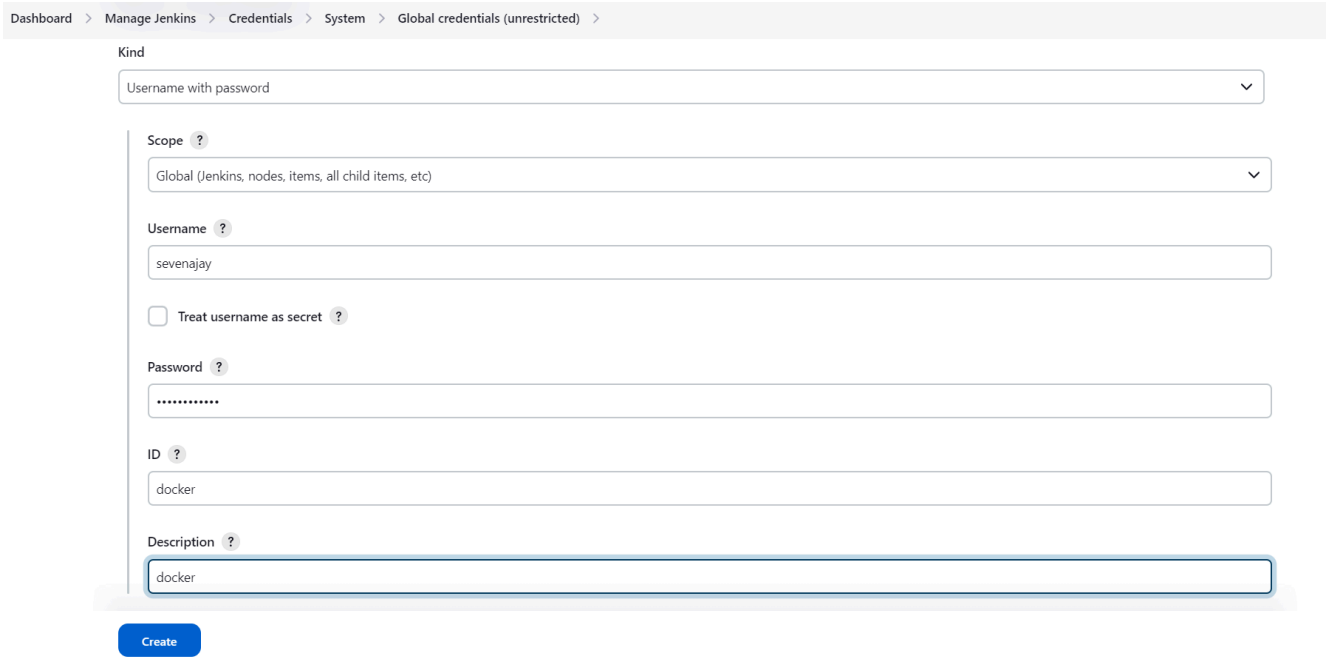
and click on install without restart



Now, goto Dashboard → Manage Jenkins → Tools →



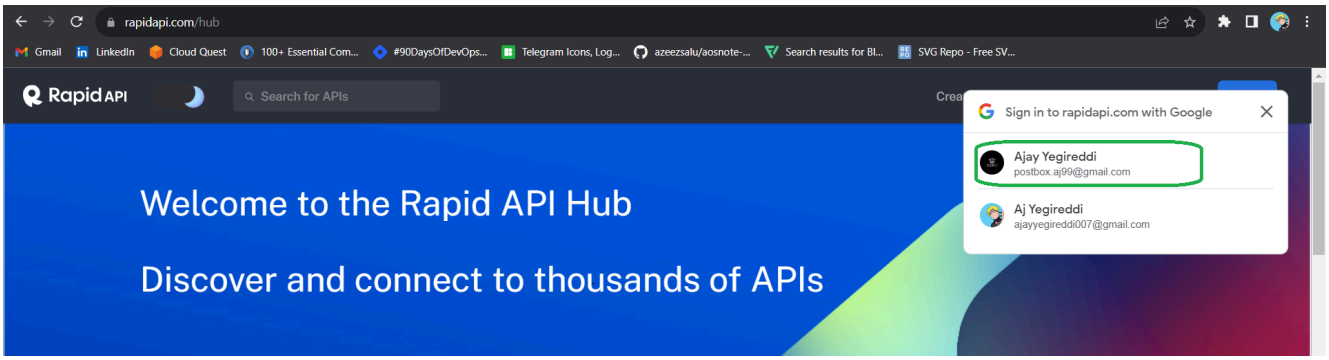
Add DockerHub Username and Password under Global Credentials



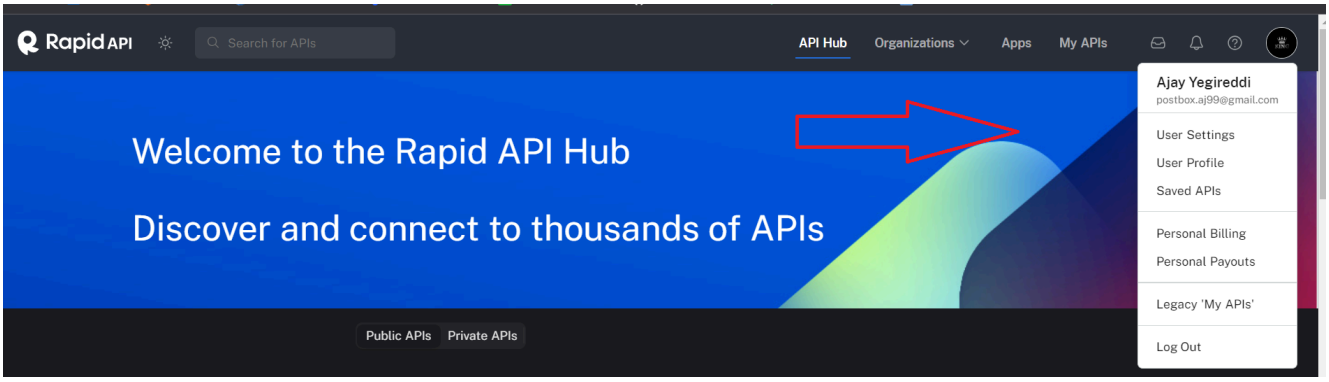
Step8B: Create an API key from Rapid API

Open a new tab in the browser and search for rapidapi.com

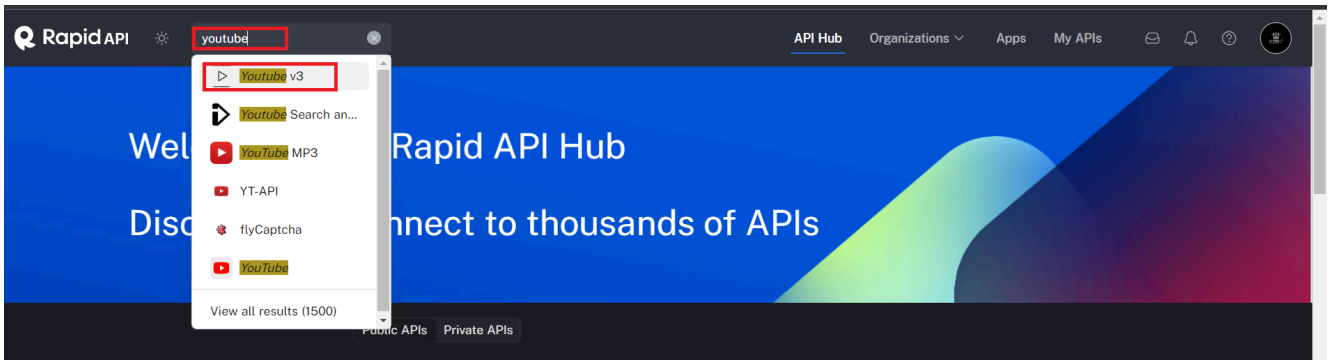
It will automatically provide your mail and select a mail to create an account



Account is created

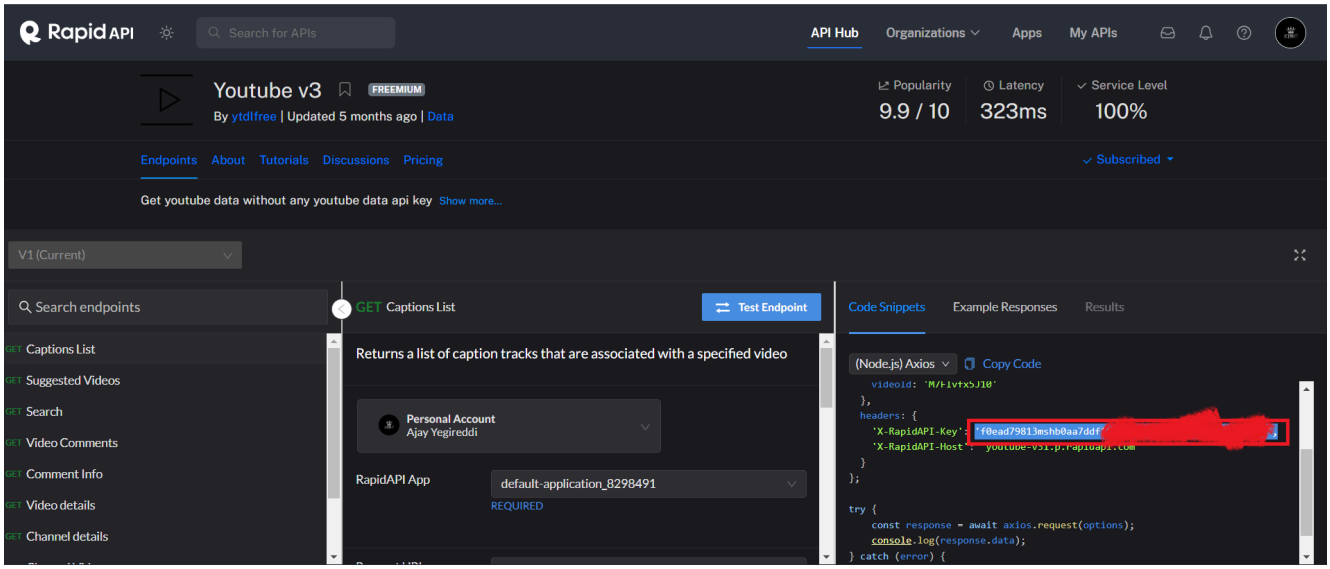


Now in the search bar search for YouTube and select YouTube v3



Copy API and use it in the groovy file

docker build –build-arg REACT_APP_RAPID_API_KEY=<API-KEY> -t ${imageName} .



Create a shared library file for **dockerBuild.groovy**

```
def call(String dockerHubUsername, String imageName) {
    // Build the Docker image
    sh "docker build --build-arg REACT_APP_RAPID_API_KEY=f0ead79813mshb(
     // Tag the Docker image
    sh "docker tag ${imageName} ${dockerHubUsername}/${imageName}:latest
    // Push the Docker image
    withDockerRegistry([url: 'https://index.docker.io/v1/', credentials:
        sh "docker push ${dockerHubUsername}/${imageName}:latest"
    }
}
```

Create another file for **trivyImage.groovy**

```
def call() {
    sh 'trivy image sevenajay/youtube:latest > trivyimage.txt'
}
```

Push the above files to the GitHub shared library.

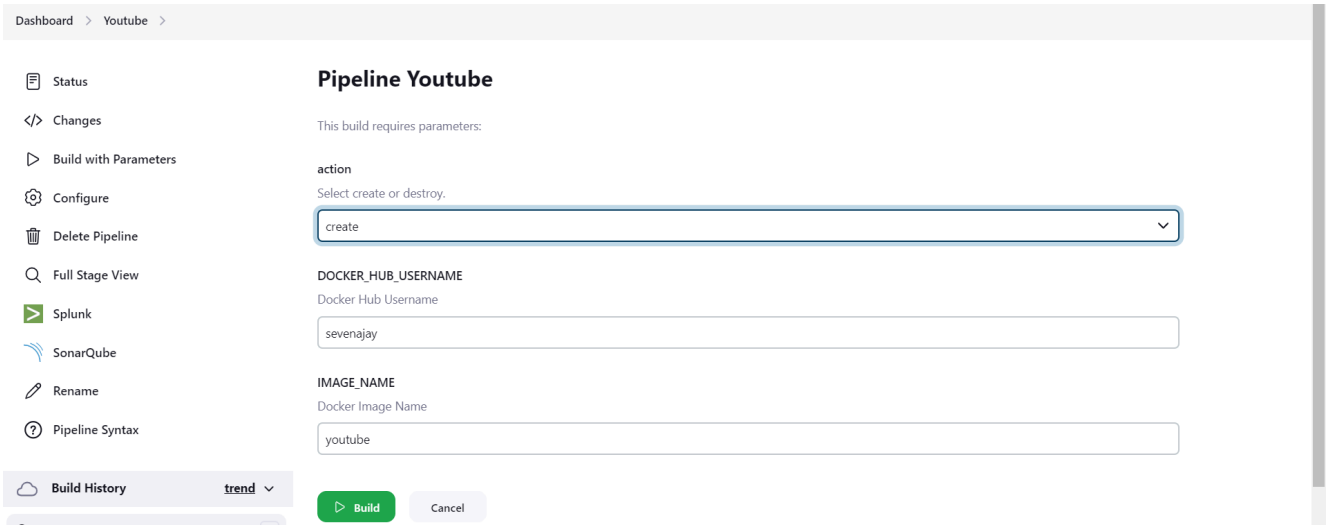
```
git add .
git commit -m "message"
git push origin main
```

Add this stage to your pipeline with parameters

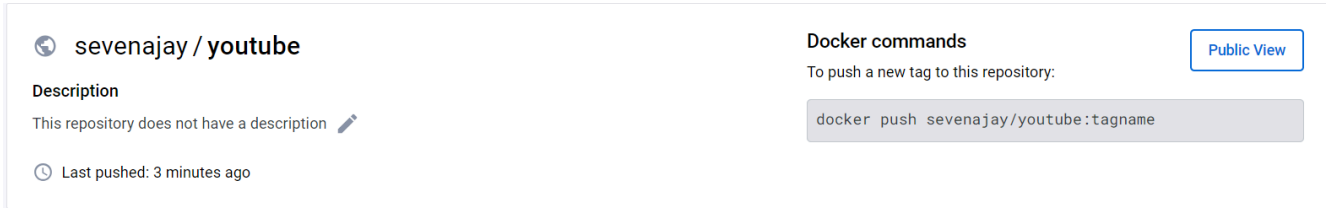
```
#add inside parameter
 string(name: 'DOCKER_HUB_USERNAME', defaultValue: 'sevenajay', descript
 string(name: 'IMAGE_NAME', defaultValue: 'youtube', description: 'Docke
#stage
stage('Docker Build'){
        when { expression { params.action == 'create'}}
            steps{
                script{
                   def dockerHubUsername = params.DOCKER_HUB_USERNAME
                   def imageName = params.IMAGE_NAME
                   dockerBuild(dockerHubUsername, imageName)
                }
            }
        }
        stage('Trivy iamge'){
        when { expression { params.action == 'create'}}
            steps{
```

```
                trivyImage()
            }
        }
```

Build now with parameters



When you log in to Dockerhub, you will see a new image is created



Step8C: Run the Docker container

Create a new file **runContainer.groovy**

```
def call(){
    sh "docker run -d --name youtube1 -p 3000:3000 sevenajay/youtube:lat
}
```

Create Another file to remove container **removeContainer.groovy**

```
def call(){
    sh 'docker stop youtube1'
    sh 'docker rm youtube1'
}
```

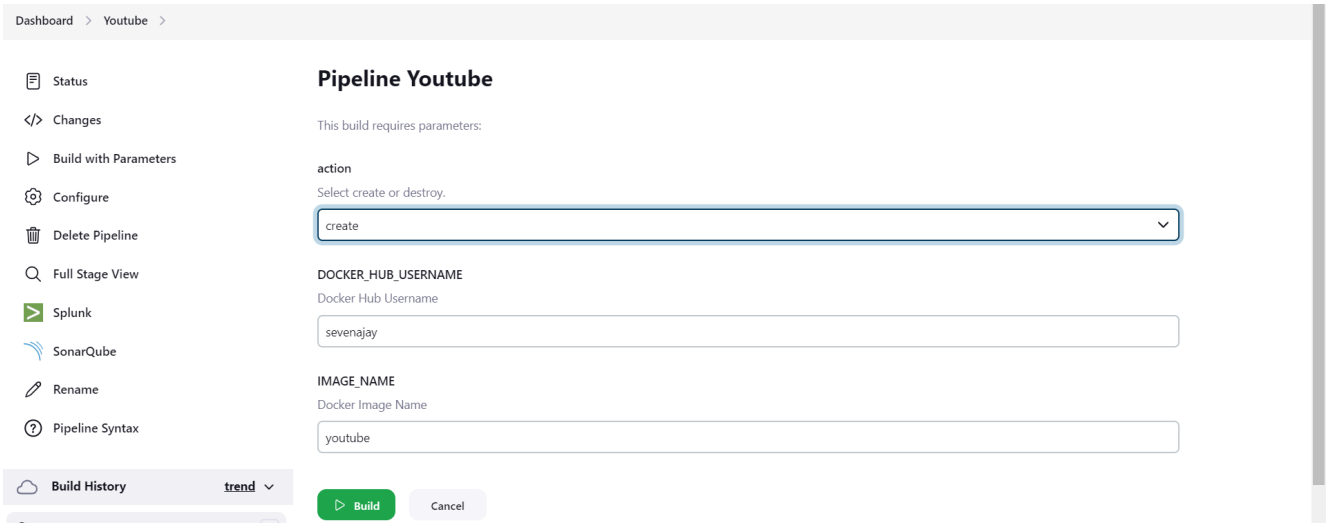
Push them to the Shared library GitHub repo

```
git add .
git commit -m "message"
git push origin main
```

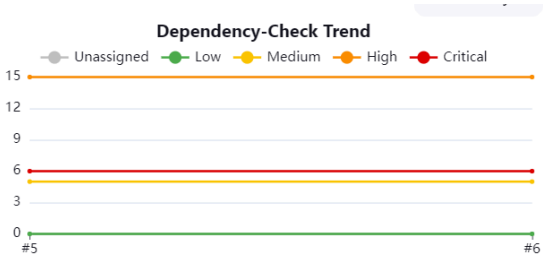
Add the below stages to the Pipeline

```
stage('Run container'){
        when { expression { params.action == 'create'}}
            steps{
                runContainer()
            }
        }
        stage('Remove container'){
        when { expression { params.action == 'delete'}}
            steps{
                removeContainer()
            }
        }
```

Build with parameters ‘create’



Stage view

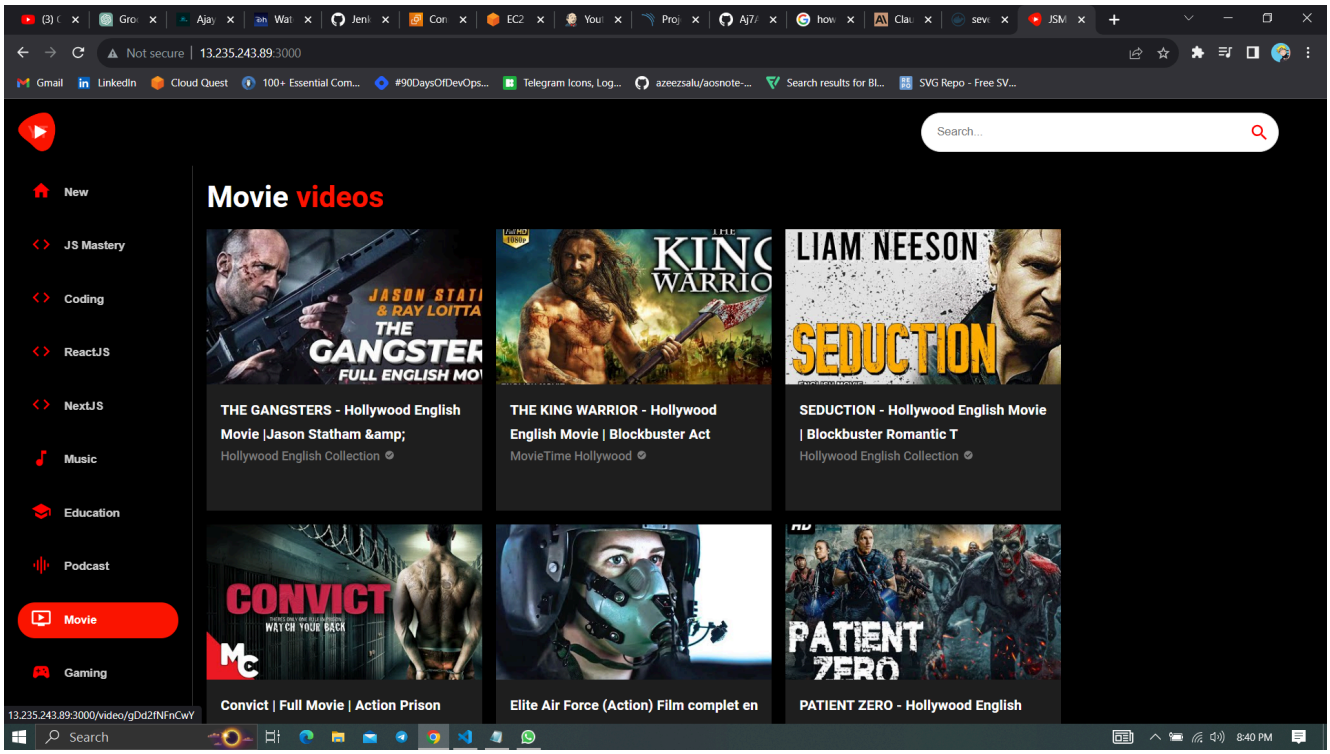


Declarative: Tool Install	clean workspace	checkout from Git	sonarqube Analysis	sonarqube QualitGate	Npm	OWASP FS SCAN	Trivyfile scan	Docker Build	Trivy iamge	Run container	Remove container	Declarative: Post Actions
159ms	371ms	1s	25s	346ms	21s	7min 41s	40s	5min 40s	3min 7s	1s	0ms	366ms
159ms	371ms	1s	25s	346ms	21s	7min 41s	40s	5min 40s	3min 7s	1s		366ms

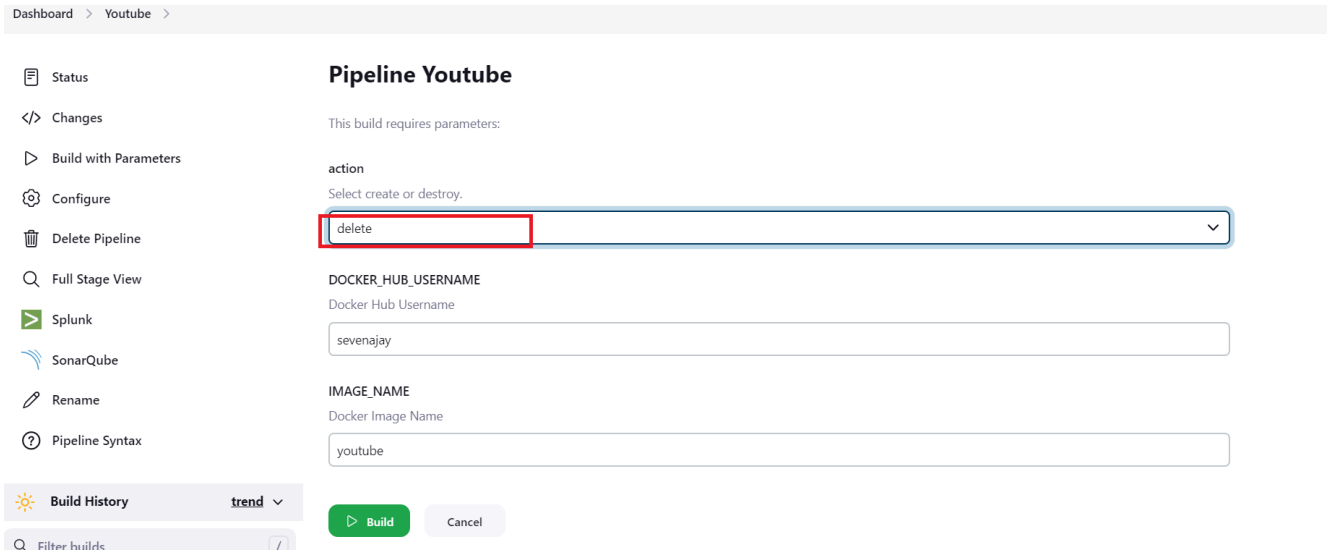
It will start the container

```
<public-ip-jenkins:3000>
```

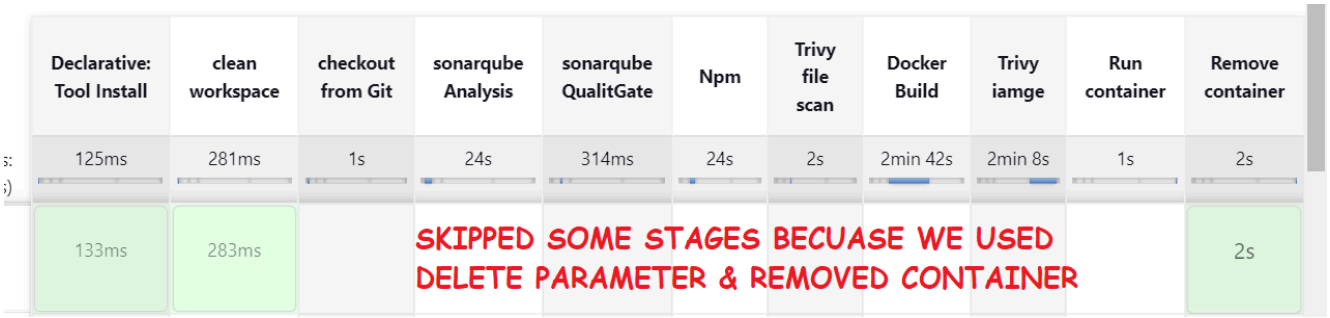
Output:

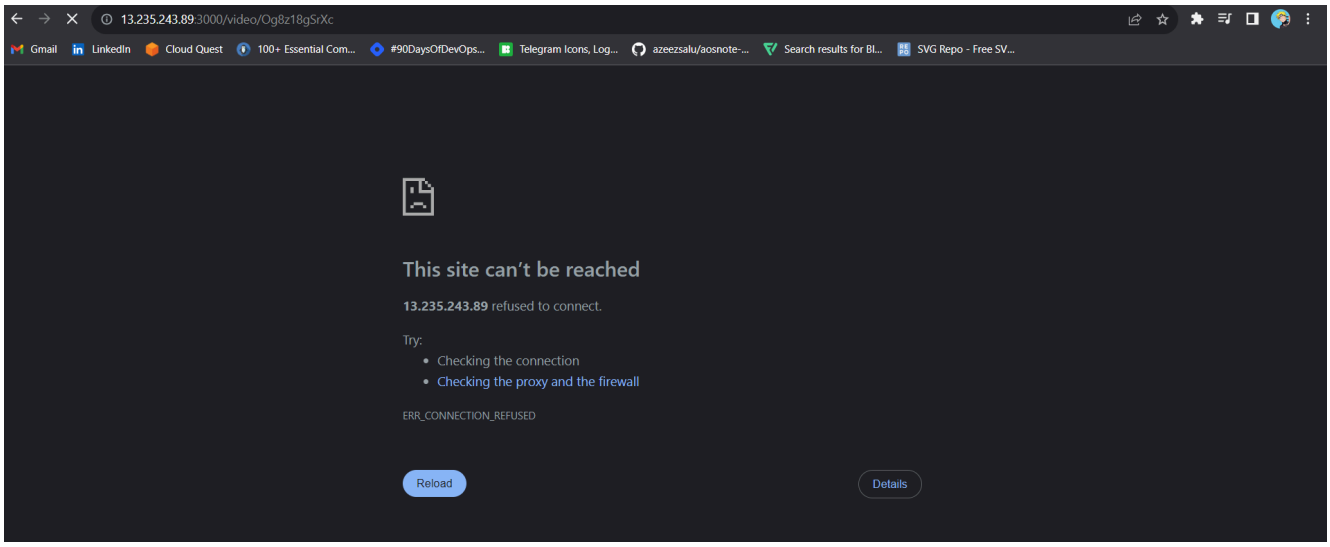


Build with parameters ‘delete’



It will stop and remove the Container





Step9A: Kubernetes Setup

Connect your machines to Putty or Mobaxtreme

Take-Two Ubuntu 20.04(t2.medium) instances one for k8s master and the other one for worker.

Install Kubectl on Jenkins machine also.

Step9B: Kubectl is to be installed on Jenkins

Connect your Jenkins machine

Create a shell script file kube.sh

```
sudo vi kube.sh
```

Paste the below commands

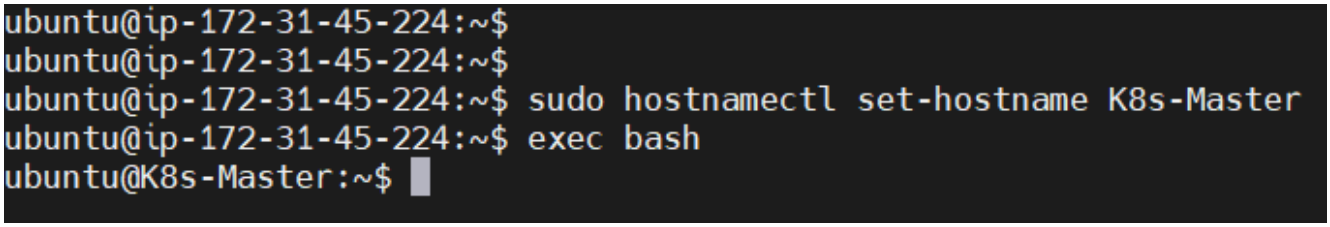
```
sudo apt update
sudo apt install curl -y
```

```
curl -LO https://dl.k8s.io/release/$(curl -L -s https://dl.k8s.io/releas
sudo install -o root -g root -m 0755 kubectl /usr/local/bin/kubectl
kubectl version --client
```

Step9C: K8S Master-Slave setup

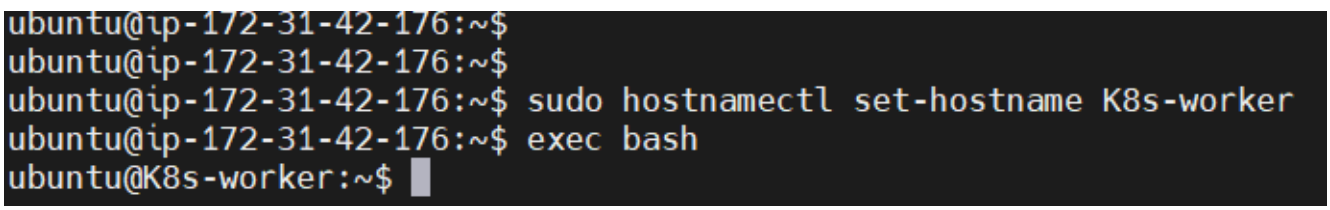
Part 1 ----Master Node----

```
sudo hostnamectl set-hostname K8s-Master
```



----Worker Node----

```
sudo hostnamectl set-hostname K8s-Worker
```



Part 2 ----Both Master & Node ----

```
sudo apt-get update
sudo apt-get install -y docker.io
sudo usermod –aG docker Ubuntu
newgrp docker
sudo chmod 777 /var/run/docker.sock
sudo apt-get update
# apt-transport-https may be a dummy package; if so, you can skip that p
sudo apt-get install -y apt-transport-https ca-certificates curl gpg
curl -fsSL https://pkgs.k8s.io/core:/stable:/v1.29/deb/Release.key | suc
echo 'deb [signed-by=/etc/apt/keyrings/kubernetes-apt-keyring.gpg] https
sudo apt-get update
sudo apt-get install -y kubelet kubeadm kubectl
sudo apt-mark hold kubelet kubeadm kubectl sudo snap install kube-apiser
```

Part 3 ––––– Master –––––

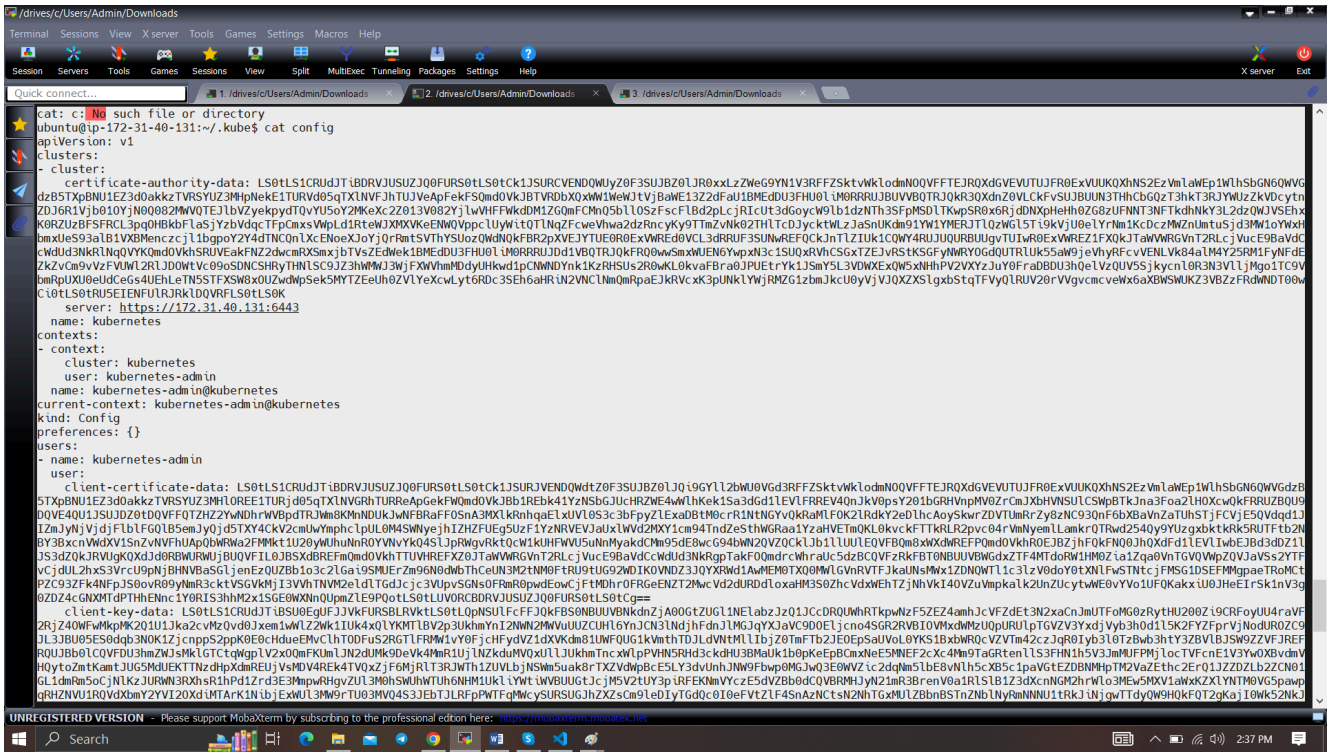
```
sudo kubeadm init --pod-network-cidr=10.244.0.0/16
# in case your in root exit from it and run below commands
mkdir -p $HOME/.kube
sudo cp -i /etc/kubernetes/admin.conf $HOME/.kube/config
sudo chown $(id -u):$(id -g) $HOME/.kube/config
kubectl apply -f https://raw.githubusercontent.com/coreos/flannel/master
```

––––Worker Node––––

```
sudo kubeadm join <master-node-ip>:<master-node-port> --token <token> --
```

```
Then you can join any number of worker nodes by running the following on each as root:

kubeadm join 172.31.37.230:6443 --token z2rpwv.mzu6q6k0j1y36z6y \
        --discovery-token-ca-cert-hash sha256:342823611225701786a93d19e063b06a8e03470b7658ccb1d98ac02e94d32c07
```

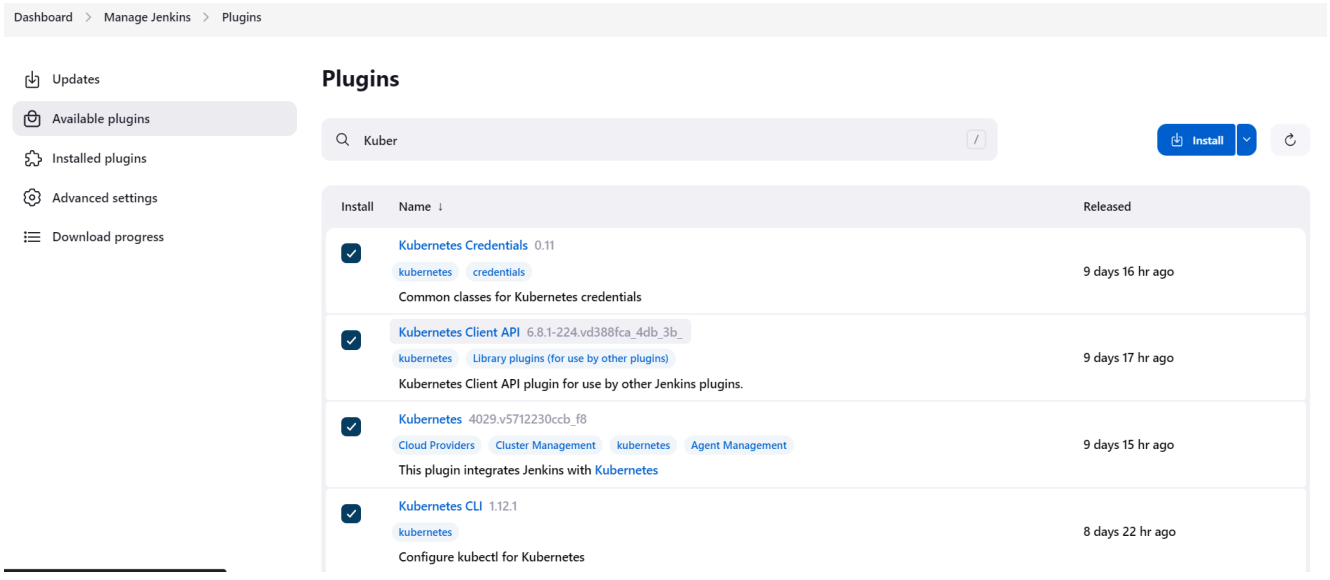
Copy the config file to Jenkins master or the local file manager and save it



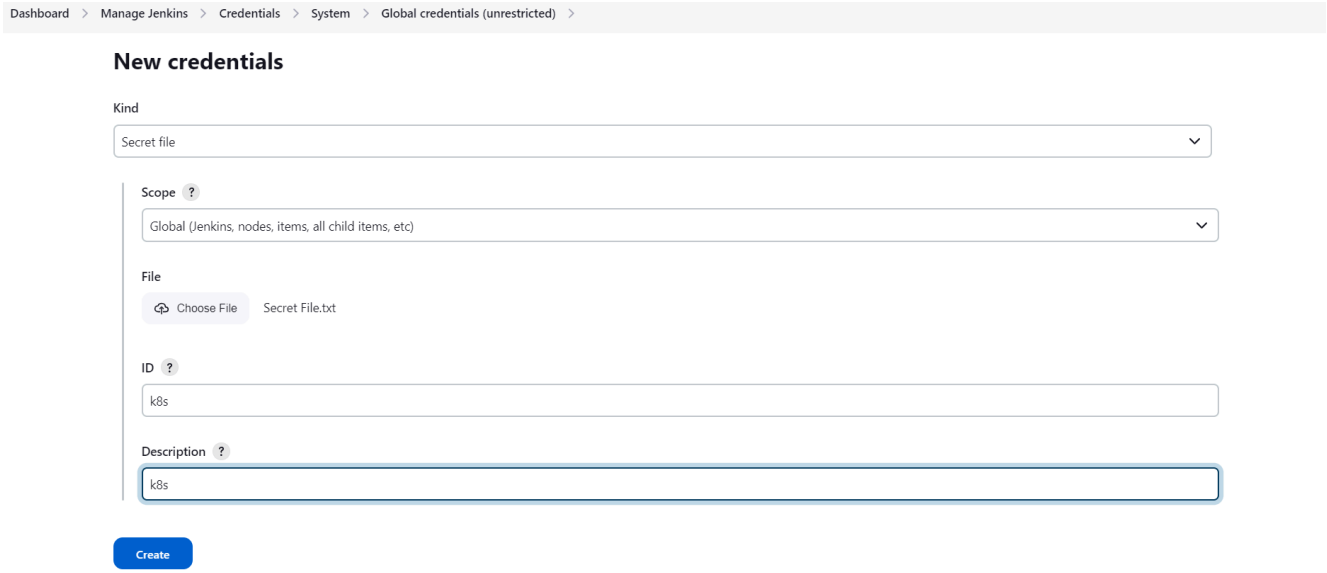
copy it and save it in documents or another folder save it as secret-file.txt

Note: create a secret-file.txt in your file explorer save the config in it and use this at the kubernetes credential section.

Install Kubernetes Plugin, Once it's installed successfully



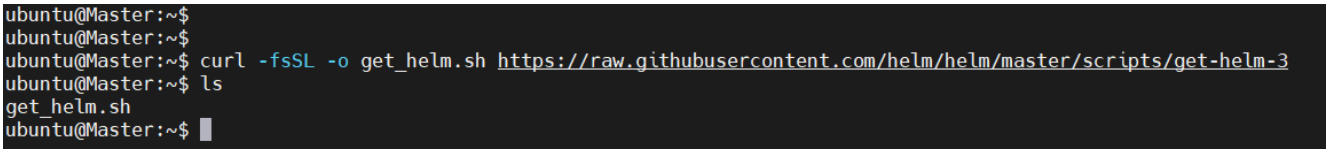
goto manage Jenkins –> manage credentials –> Click on Jenkins global –> add credentials



Step9D: Install Helm & Monitoring K8S using Prometheus and Grafana

On Kubernetes Master install the helm

```
curl -fsSL -o get_helm.sh https://raw.githubusercontent.com/helm/helm/ma
chmod 700 get_helm.sh
./get_helm.sh
```



```
ubuntu@Master:~$
ubuntu@Master:~$ sudo chmod 700 get_helm.sh
ubuntu@Master:~$
ubuntu@Master:~$ ls -la
total 56
drwxr-xr-x 5 ubuntu ubuntu  4096 Oct 14 17:30 .
drwxr-xr-x 3 root   root    4096 Oct  9 06:57 ..
-rw------- 1 ubuntu ubuntu   114 Oct 14 17:30 .Xauthority
-rw------- 1 ubuntu ubuntu  1627 Oct 14 15:24 .bash_history
-rw-r--r-- 1 ubuntu ubuntu   220 Feb 25  2020 .bash_logout
-rw-r--r-- 1 ubuntu ubuntu  3771 Feb 25  2020 .bashrc
drwx------ 2 ubuntu ubuntu  4096 Oct  9 07:00 .cache
drwxrwxr-x 3 ubuntu docker  4096 Oct  9 07:08 .kube
-rw-r--r-- 1 ubuntu ubuntu   807 Feb 25  2020 .profile
drwx------ 2 ubuntu ubuntu  4096 Oct  9 06:57 .ssh
-rw-r--r-- 1 ubuntu ubuntu     0 Oct  9 07:00 .sudo_as_admin_successful
-rw-rw-r-- 1 ubuntu docker   165 Oct  9 07:12 .wget-hsts
-rwx------ 1 ubuntu ubuntu 11715 Oct 14 17:30 get_helm.sh
ubuntu@Master:~$
```

```
ubuntu@Master:~$
ubuntu@Master:~$ sudo ./get_helm.sh
Downloading https://get.helm.sh/helm-v3.13.1-linux-amd64.tar.gz
Verifying checksum... Done.
Preparing to install helm into /usr/local/bin
helm installed into /usr/local/bin/helm
ubuntu@Master:~$
```

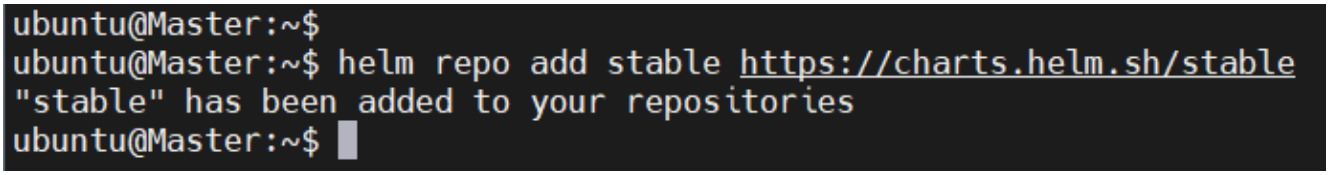
See the Helm version

```
helm version --client
```

```
ubuntu@Master:~$
ubuntu@Master:~$ helm version --client
version.BuildInfo{Version:"v3.13.1", GitCommit:"3547a4b5bf5edb5478ce352e18858d8a552a4110", GitTreeState:"clean", GoVersion:"go1.20.8"}
ubuntu@Master:~$
```

We need to add the Helm Stable Charts for your local client. Execute the below command:

```
helm repo add stable https://charts.helm.sh/stable
```

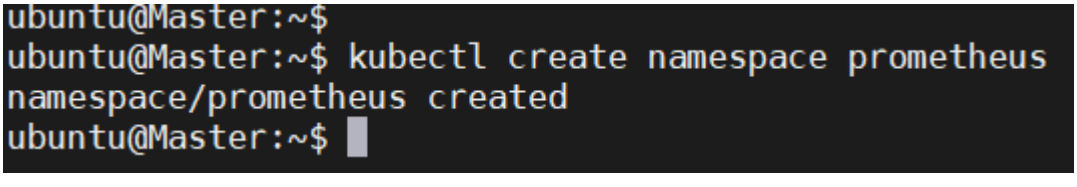


Add Prometheus Helm repo

```
helm repo add prometheus-community https://prometheus-community.github.i
```

Create Prometheus namespace

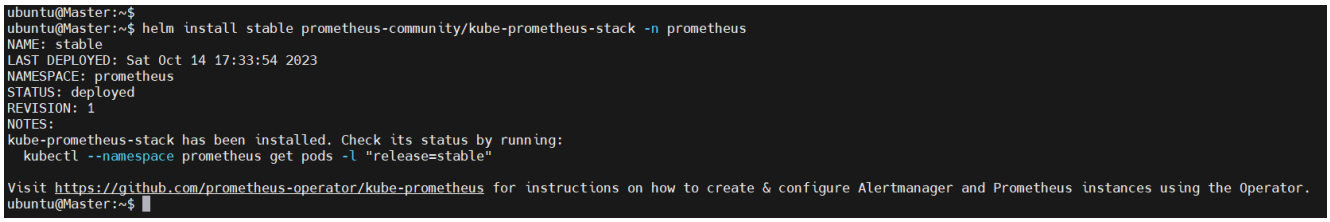
```
kubectl create namespace prometheus
```



Install kube-Prometheus-stack

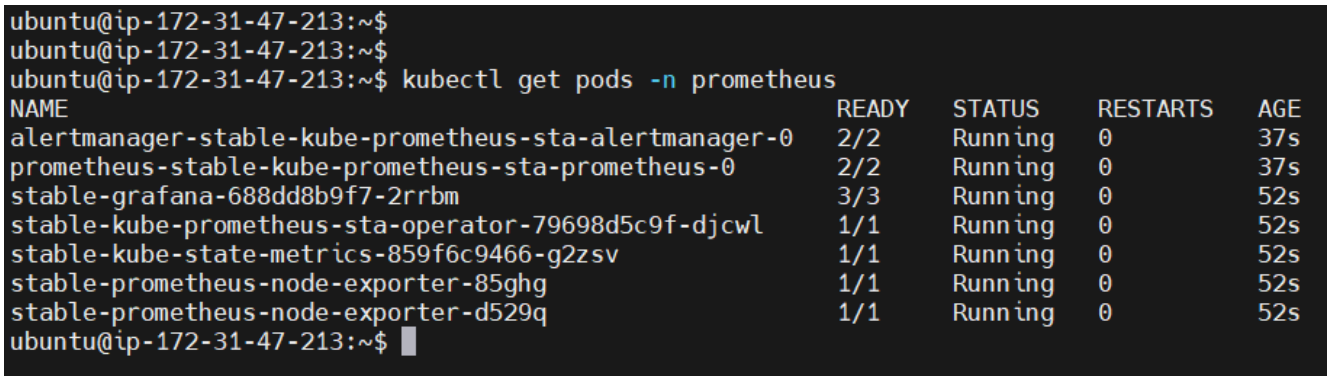
Below is the command to install kube-prometheus-stack. The helm repo kube-stack-Prometheus (formerly Prometheus-operator) comes with a Grafana deployment embedded.

```
helm install stable prometheus-community/kube-prometheus-stack -n promet
```



Let's check if the Prometheus and Grafana pods are running or not

```
kubectl get pods -n prometheus
```



Now See the services

```
kubectl get svc -n prometheus
```

```
ubuntu@ip-172-31-47-213:~$
ubuntu@ip-172-31-47-213:~$
ubuntu@ip-172-31-47-213:~$ kubectl get svc -n prometheus
NAME                                     TYPE        CLUSTER-IP       EXTERNAL-IP   PORT(S)                      AGE
alertmanager-operated                    ClusterIP   None             <none>        9093/TCP,9094/TCP,9094/UDP   53s
prometheus-operated                      ClusterIP   None             <none>        9090/TCP                     53s
stable-grafana                           ClusterIP   10.97.78.239     <none>        80/TCP                       69s
stable-kube-prometheus-sta-alertmanager  ClusterIP   10.98.194.55     <none>        9093/TCP,8080/TCP            69s
stable-kube-prometheus-sta-operator      ClusterIP   10.108.220.28    <none>        443/TCP                      69s
stable-kube-prometheus-sta-prometheus    ClusterIP   10.107.180.169   <none>        9090/TCP,8080/TCP            69s
stable-kube-state-metrics                ClusterIP   10.111.13.212    <none>        8080/TCP                     69s
stable-prometheus-node-exporter          ClusterIP   10.106.128.227   <none>        9100/TCP                     69s
ubuntu@ip-172-31-47-213:~$
```

This confirms that Prometheus and grafana have been installed successfully using Helm.

To make Prometheus and grafana available outside the cluster, use LoadBalancer or NodePort instead of ClusterIP.

Edit Prometheus Service

```
kubectl edit svc stable-kube-prometheus-sta-prometheus -n prometheus
```

```
    meta.helm.sh/release-name: stable
    meta.helm.sh/release-namespace: prometheus
  creationTimestamp: "2023-10-14T17:34:10Z"
  labels:
    app: kube-prometheus-stack-prometheus
    app.kubernetes.io/instance: stable
    app.kubernetes.io/managed-by: Helm
    app.kubernetes.io/part-of: kube-prometheus-stack
    app.kubernetes.io/version: 51.7.0
    chart: kube-prometheus-stack-51.7.0
    heritage: Helm
    release: stable
    self-monitor: "true"
  name: stable-kube-prometheus-sta-prometheus
  namespace: prometheus
  resourceVersion: "6596"
  uid: 6205569e-3967-41be-9366-59b70b7abce9
spec:
  clusterIP: 10.97.53.48
  clusterIPs:
  - 10.97.53.48
  internalTrafficPolicy: Cluster
  ipFamilies:
  - IPv4
  ipFamilyPolicy: SingleStack
  ports:
  - name: http-web
    port: 9090
    protocol: TCP
    targetPort: 9090
  - appProtocol: http
    name: reloader-web
    port: 8080
    protocol: TCP
    targetPort: reloader-web
  selector:
    app.kubernetes.io/name: prometheus
    operator.prometheus.io/name: stable-kube-prometheus-sta-prometheus
  sessionAffinity: None
  type: LoadBalancer
status:
  loadBalancer: {}
-- INSERT --
```

```
ubuntu@Master:~$
ubuntu@Master:~$ kubectl edit svc stable-kube-prometheus-sta-prometheus -n prometheus
service/stable-kube-prometheus-sta-prometheus edited
ubuntu@Master:~$
```

Edit Grafana Service

```
kubectl edit svc stable-grafana -n prometheus
```

```
# Please edit the object below. Lines beginning with a '#' will be ignored,
# and an empty file will abort the edit. If an error occurs while saving this file will be
# reopened with the relevant failures.
#
apiVersion: v1
kind: Service
metadata:
  annotations:
    meta.helm.sh/release-name: stable
    meta.helm.sh/release-namespace: prometheus
  creationTimestamp: "2023-10-14T17:34:10Z"
  labels:
    app.kubernetes.io/instance: stable
    app.kubernetes.io/managed-by: Helm
    app.kubernetes.io/name: grafana
    app.kubernetes.io/version: 10.1.4
    helm.sh/chart: grafana-6.60.4
  name: stable-grafana
  namespace: prometheus
  resourceVersion: "6603"
  uid: 6ff89333-2743-428d-9c78-b8ec727a6261
spec:
  clusterIP: 10.102.79.119
  clusterIPs:
  - 10.102.79.119
  internalTrafficPolicy: Cluster
  ipFamilies:
  - IPv4
  ipFamilyPolicy: SingleStack
  ports:
  - name: http-web
    port: 80
    protocol: TCP
    targetPort: 3000
  selector:
    app.kubernetes.io/instance: stable
    app.kubernetes.io/name: grafana
  sessionAffinity: None
  type: LoadBalancer
status:
  loadBalancer: {}
~
-- INSERT --
```

```
ubuntu@Master:~$
ubuntu@Master:~$
ubuntu@Master:~$ kubectl edit svc stable-grafana -n prometheus
service/stable-grafana edited
ubuntu@Master:~$
```

Verify if the service is changed to LoadBalancer and also get the Load BalancerPorts.

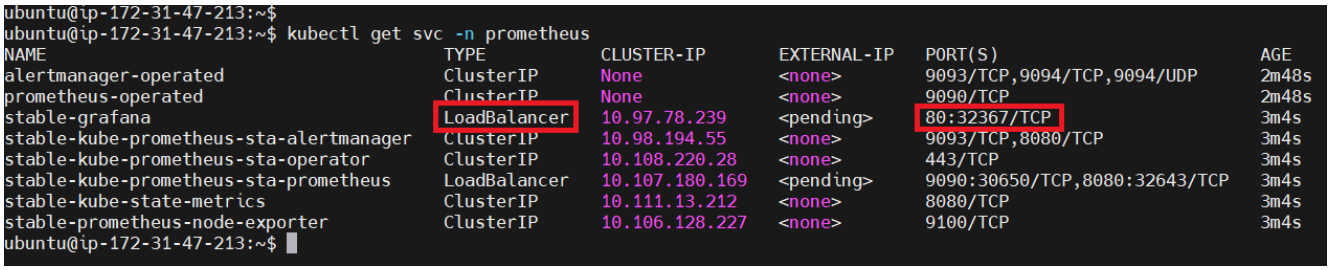
```
kubectl get svc -n prometheus
```

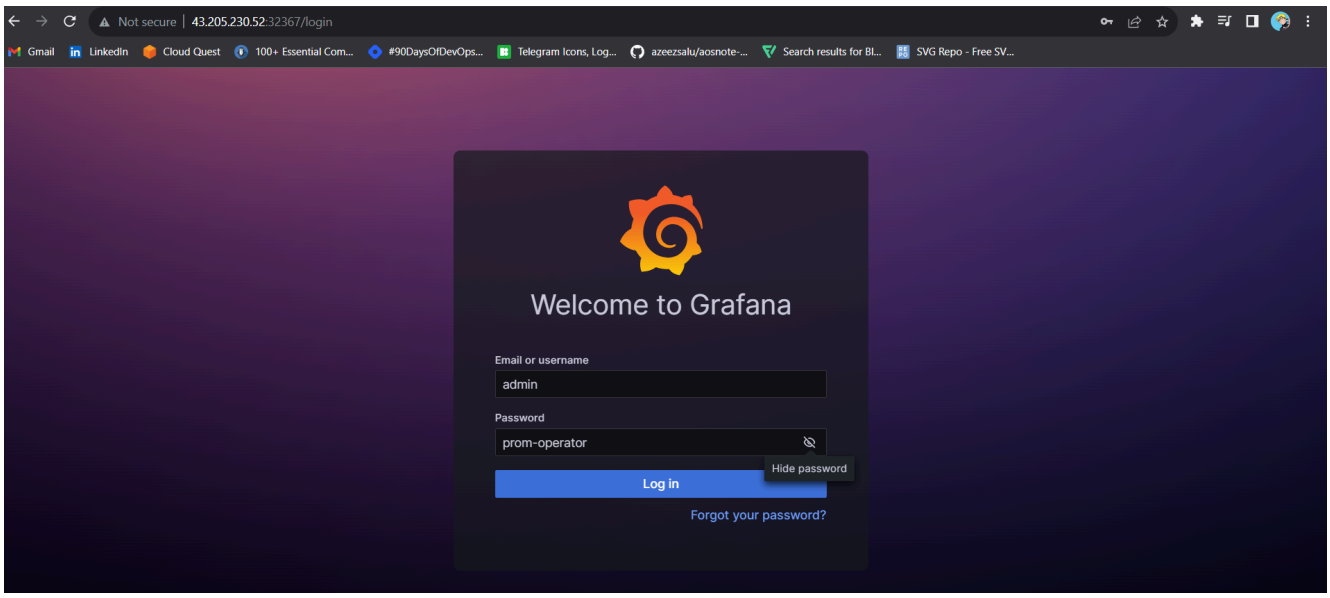
```
ubuntu@Master:~$ kubectl get svc -n prometheus
NAME                                      TYPE           CLUSTER-IP       EXTERNAL-IP   PORT(S)                       AGE
alertmanager-operated                     ClusterIP      None             <none>        9093/TCP,9094/TCP,9094/UDP    3m41s
prometheus-operated                       ClusterIP      None             <none>        9090/TCP                      3m41s
stable-grafana                            LoadBalancer   10.102.79.119    <pending>     80:32525/TCP                  3m49s
stable-kube-prometheus-sta-alertmanager   ClusterIP      10.104.104.67    <none>        9093/TCP,8080/TCP             3m49s
stable-kube-prometheus-sta-operator       ClusterIP      10.104.152.148   <none>        443/TCP                       3m49s
stable-kube-prometheus-sta-prometheus     LoadBalancer   10.97.53.48      <pending>     9090:30549/TCP,8080:30105/TCP 3m49s
stable-kube-state-metrics                 ClusterIP      10.106.45.195    <none>        8080/TCP                      3m49s
stable-prometheus-node-exporter           ClusterIP      10.101.188.117   <none>        9100/TCP                      3m49s
ubuntu@Master:~$
```

Access Grafana UI in the browser

Get the external IP from the above screenshot and put it in the browser

```
<k8s-master-public-ip:external-ip>
```





Login to Grafana

```
UserName: admin
Password: prom-operator
```

Create a Dashboard in Grafana

In Grafana, we can create various kinds of dashboards as per our needs.

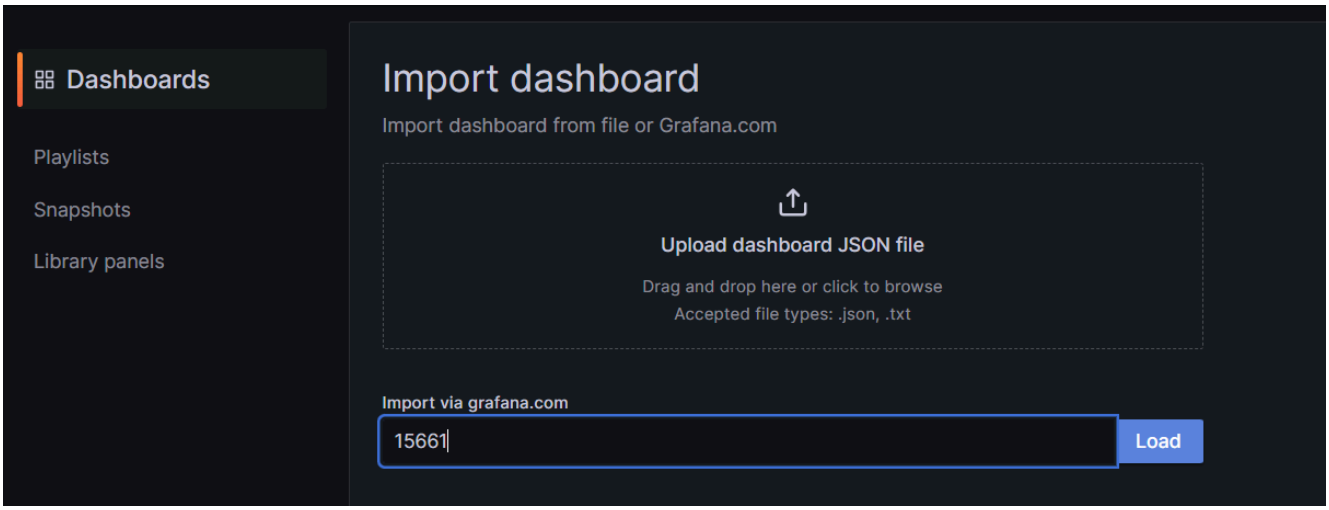
How to Create Kubernetes Monitoring Dashboard?

For creating a dashboard to monitor the cluster:

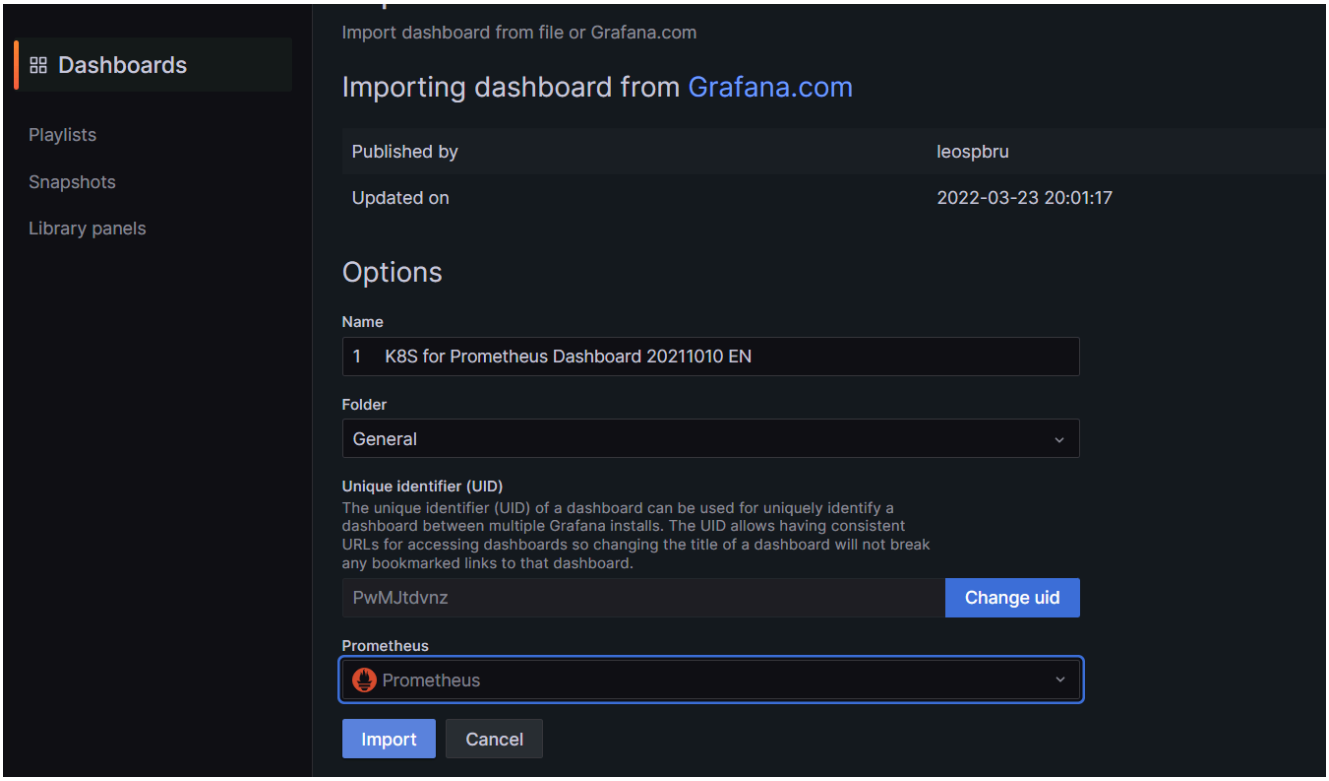
Click the '+' button on the left panel and select 'Import'.

Enter the 15661 dashboard id under Grafana.com Dashboard.

Click 'Load'.

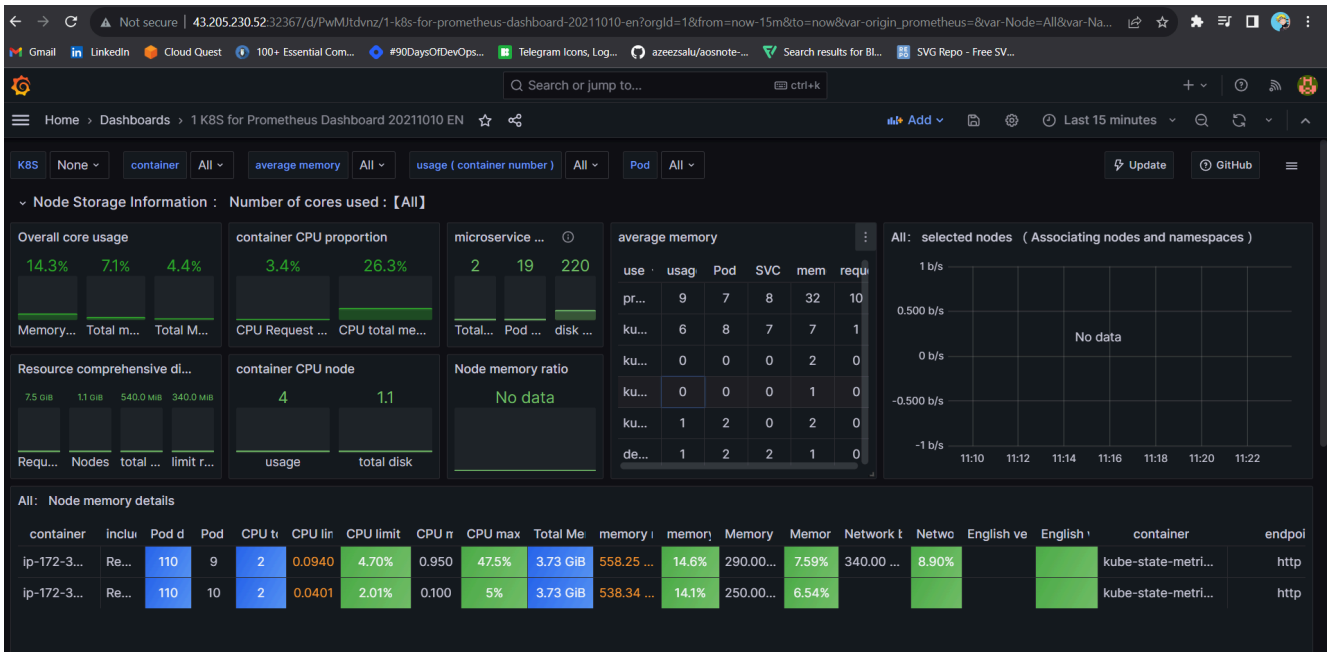


Select 'Prometheus' as the endpoint under the Prometheus data sources drop-down.



Click ‘Import’.

This will show the monitoring dashboard for all cluster nodes



How to Create Kubernetes Cluster Monitoring Dashboard?

For creating a dashboard to monitor the cluster:

Click the ‘+’ button on the left panel and select ‘Import’.

Enter 3119 dashboard ID under Grafana.com Dashboard.

Click ‘Load’.

Select ‘Prometheus’ as the endpoint under the Prometheus data sources drop-down.

Click ‘Import’.

This will show the monitoring dashboard for all cluster nodes

Create a POD Monitoring Dashboard

For creating a dashboard to monitor the cluster:

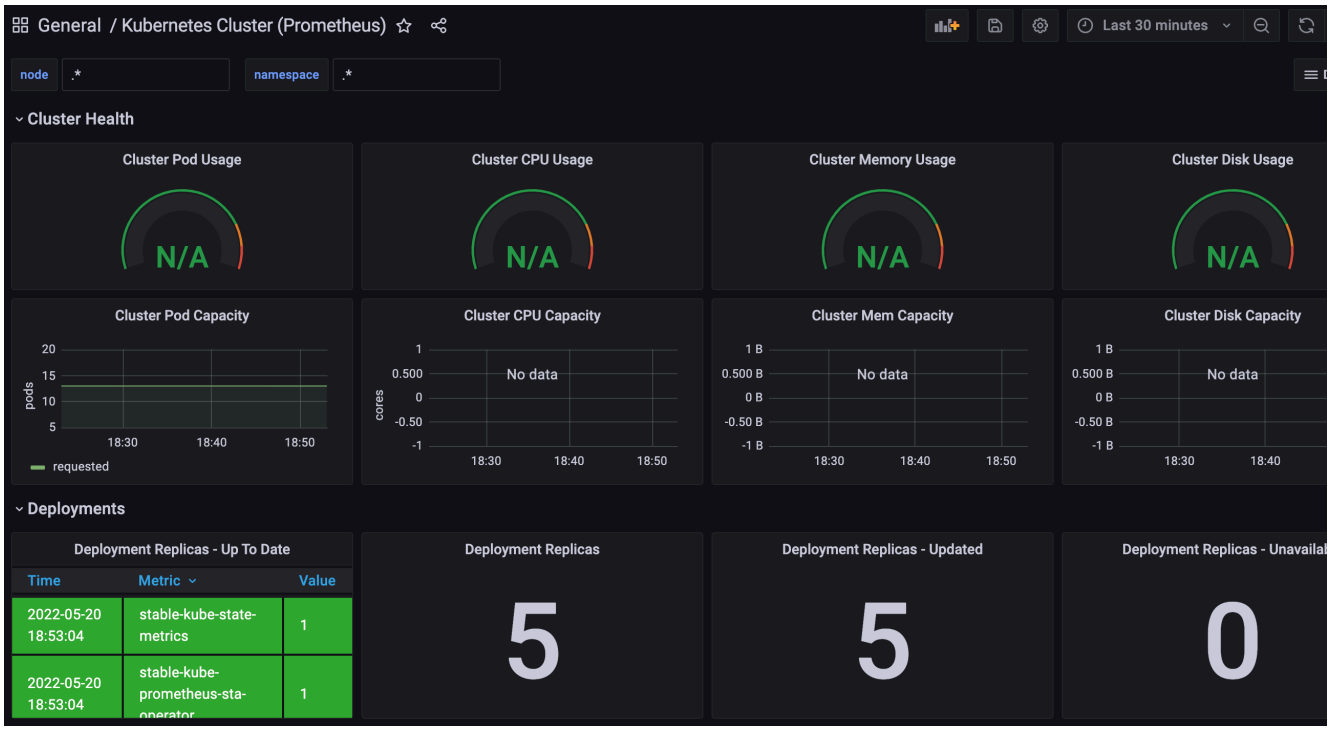
Click the '+' button on the left panel and select 'Import'.

Enter 6417 dashboard ID under Grafana.com Dashboard.

Click 'Load'.

Select 'Prometheus' as the endpoint under the Prometheus data sources drop-down.

Click 'Import'.



Step9E: K8S Deployment

Let's Create a Shared Jenkins library file for K8s deploy and delete

Name **kubeDeploy.groovy**

```
def call() {
    withKubeConfig(caCertificate: '', clusterName: '', contextName: '',
        sh "kubectl apply -f deployment.yml"
    }
}
```

To delete deployment

Name **kubeDelete.groovy**

```
def call() {
    withKubeConfig(caCertificate: '', clusterName: '', contextName: '',
```

```
            sh "kubectl delete -f deployment.yml"
        }
    }
```

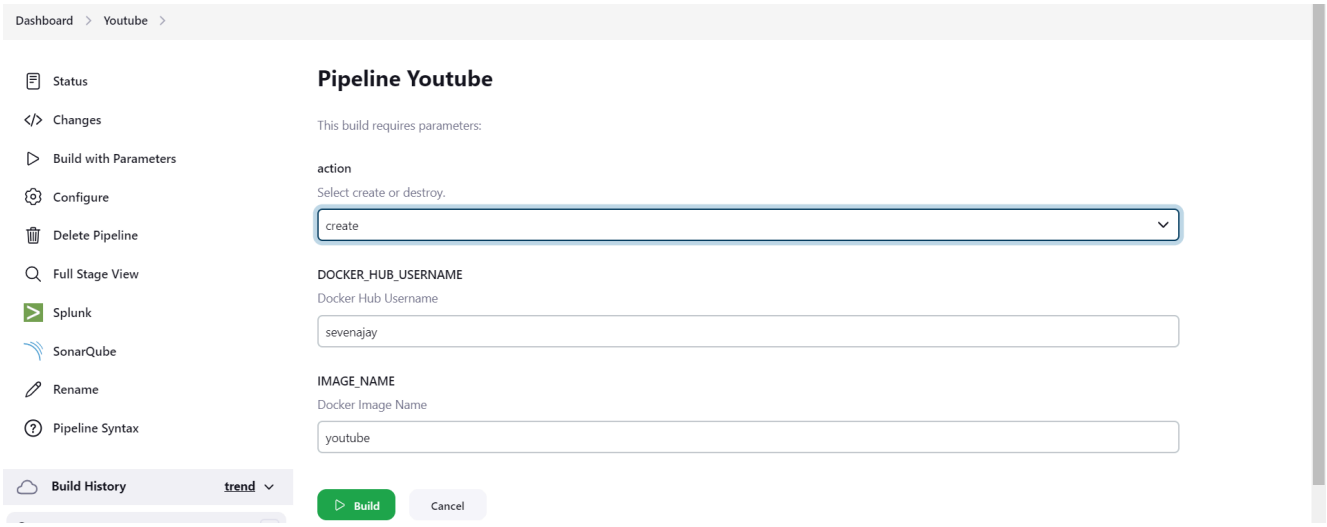
Let's push them to GitHub

```
git add .
git commit -m "message"
git push origin main
```

The final stage of the Pipeline

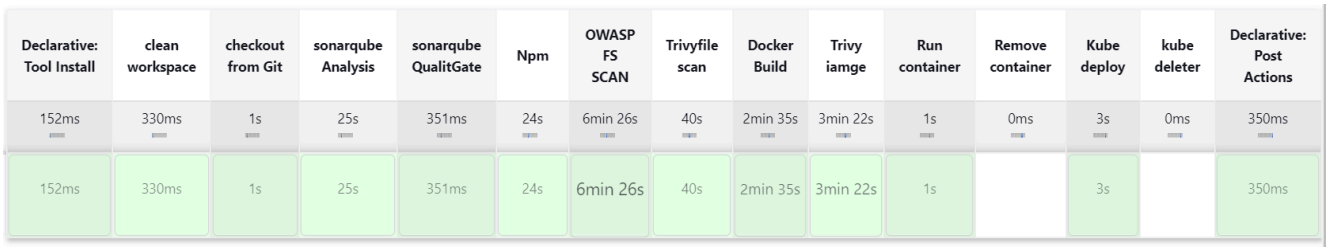
```
stage('Kube deploy'){
        when { expression { params.action == 'create'}}
            steps{
                kubeDeploy()
            }
        }
        stage('kube deleter'){
        when { expression { params.action == 'delete'}}
            steps{
                kubeDelete()
            }
        }
```

Build Now with parameters 'create'



It will apply the deployment

stage view



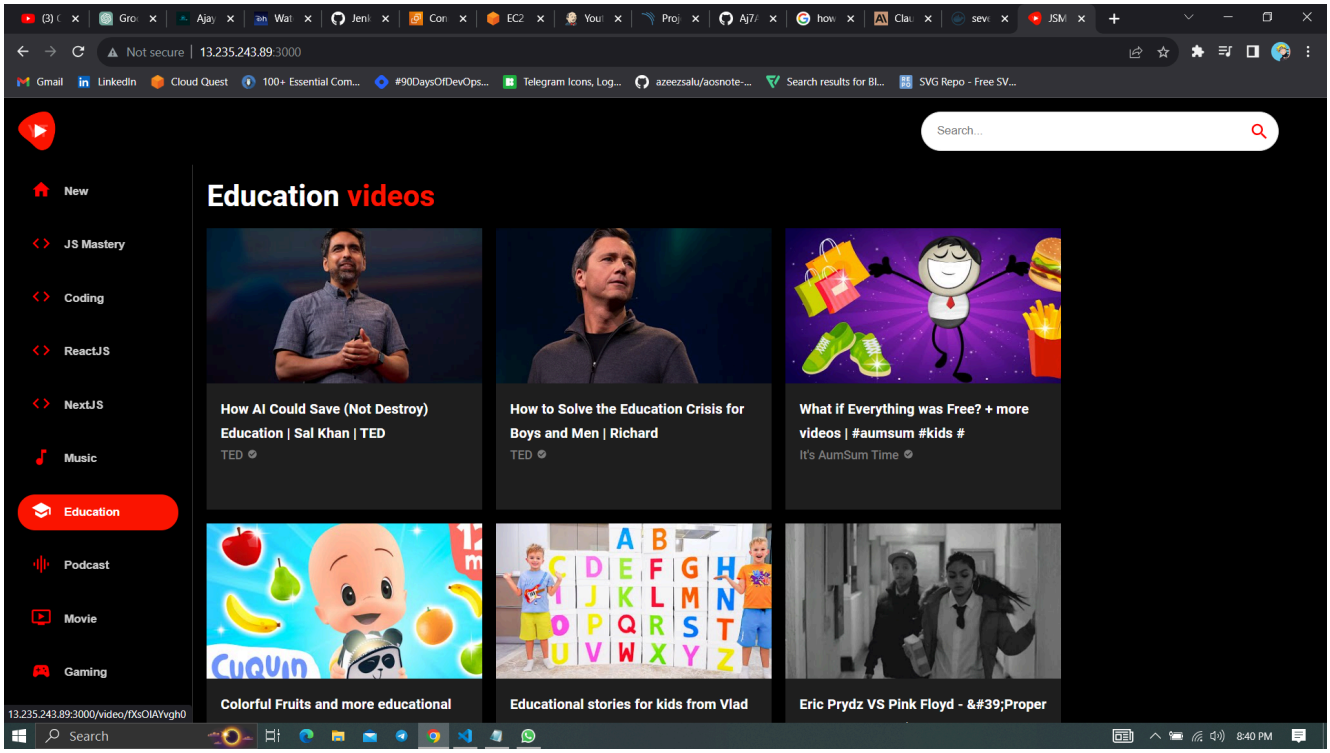
Declarative: Tool Install	clean workspace	checkout from Git	sonarqube Analysis	sonarqube QualitGate	Npm	OWASP FS SCAN	Trivyfile scan	Docker Build	Trivy iamge	Run container	Remove container	Kube deploy	kube deleter	Declarative: Post Actions
152ms	330ms	1s	25s	351ms	24s	6min 26s	40s	2min 35s	3min 22s	1s	0ms	3s	0ms	350ms
152ms	330ms	1s	25s	351ms	24s	6min 26s	40s	2min 35s	3min 22s	1s		3s		350ms

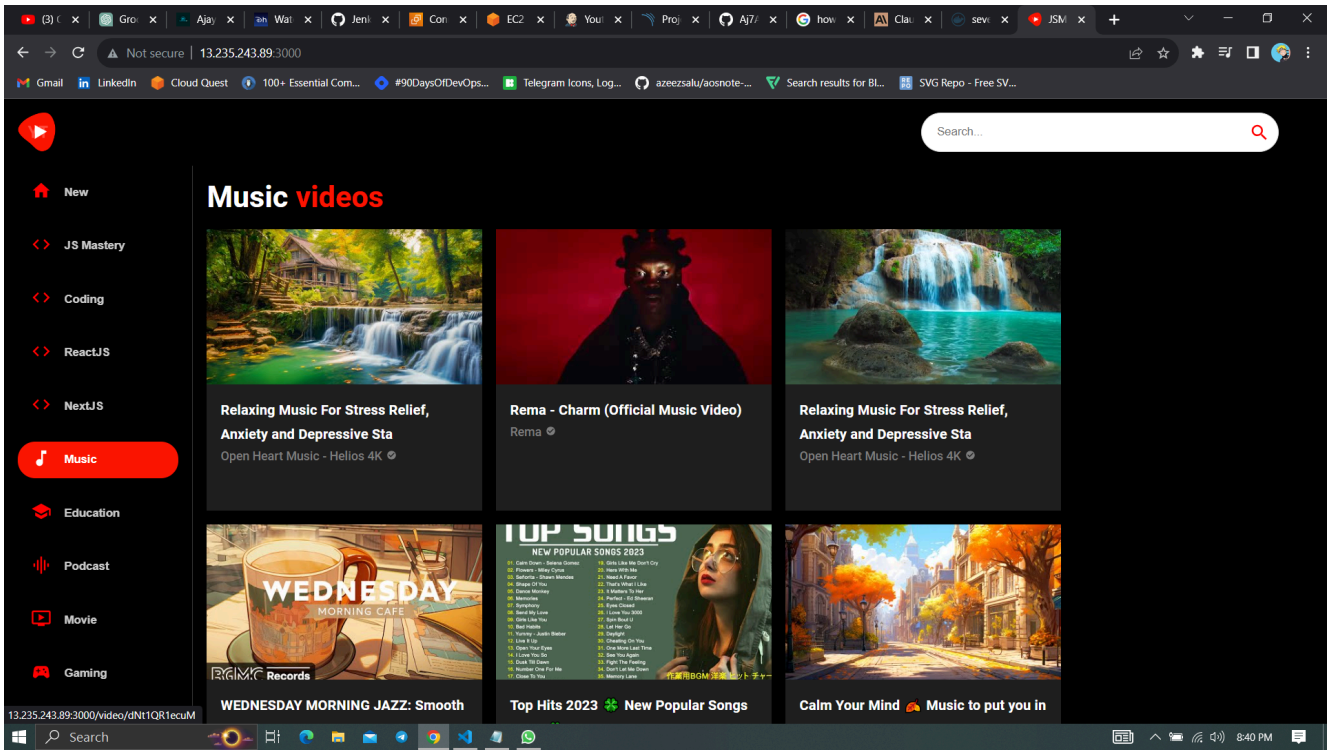
```
kubectl get all (or)
kubectl get svc
```

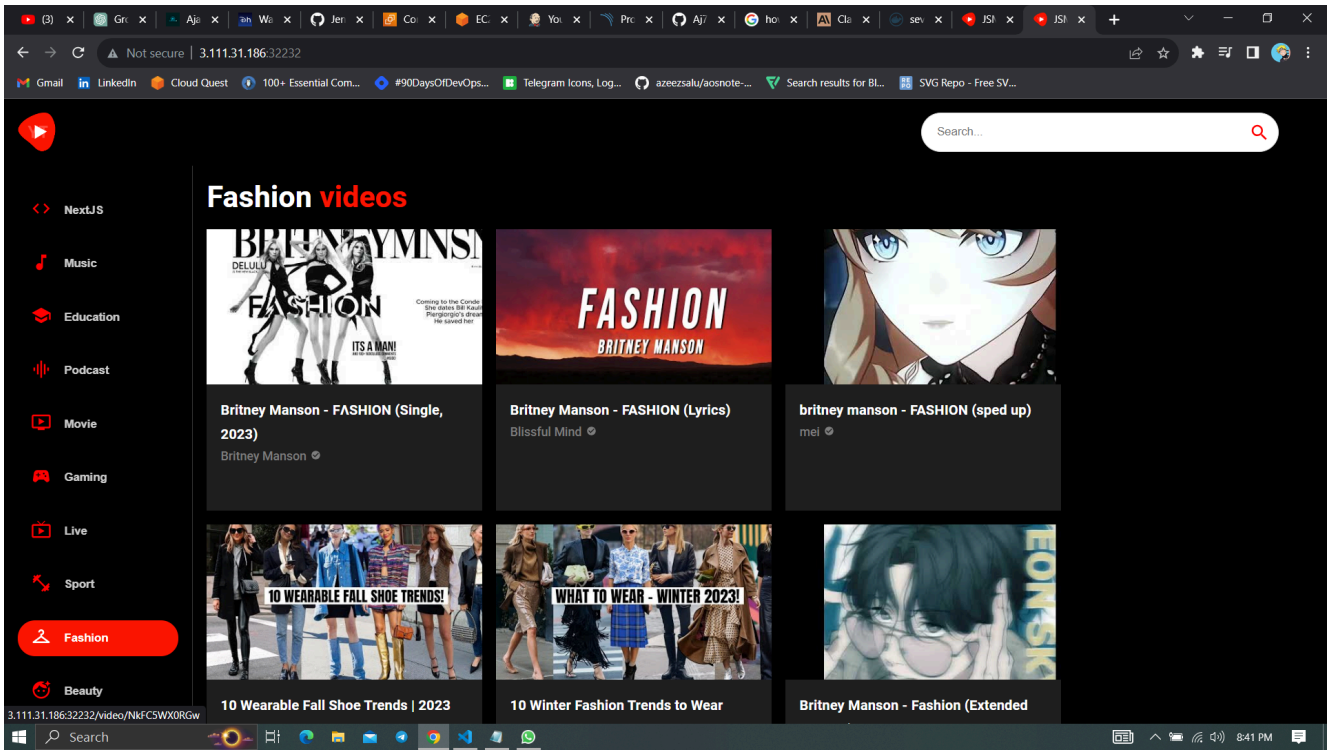
```
<kubernetes-worker-ip:svc port>
```

```
ubuntu@K8s-master:~$
ubuntu@K8s-master:~$ kubectl get all
NAME                                    READY   STATUS    RESTARTS   AGE
pod/my-app-deployment-79f9d49c54-qxf2q  1/1     Running   0          3m10s

NAME                     TYPE        CLUSTER-IP      EXTERNAL-IP   PORT(S)        AGE
service/kubernetes       ClusterIP   10.96.0.1       <none>        443/TCP        58m
service/my-app-service   NodePort    10.111.246.72   <none>        80:32089/TCP   3m10s

NAME                                READY   UP-TO-DATE   AVAILABLE   AGE
deployment.apps/my-app-deployment   1/1     1            1           3m10s

NAME                                           DESIRED   CURRENT   READY   AGE
replicaset.apps/my-app-deployment-79f9d49c54   1         1         1       3m10s
ubuntu@K8s-master:~$
```

output:





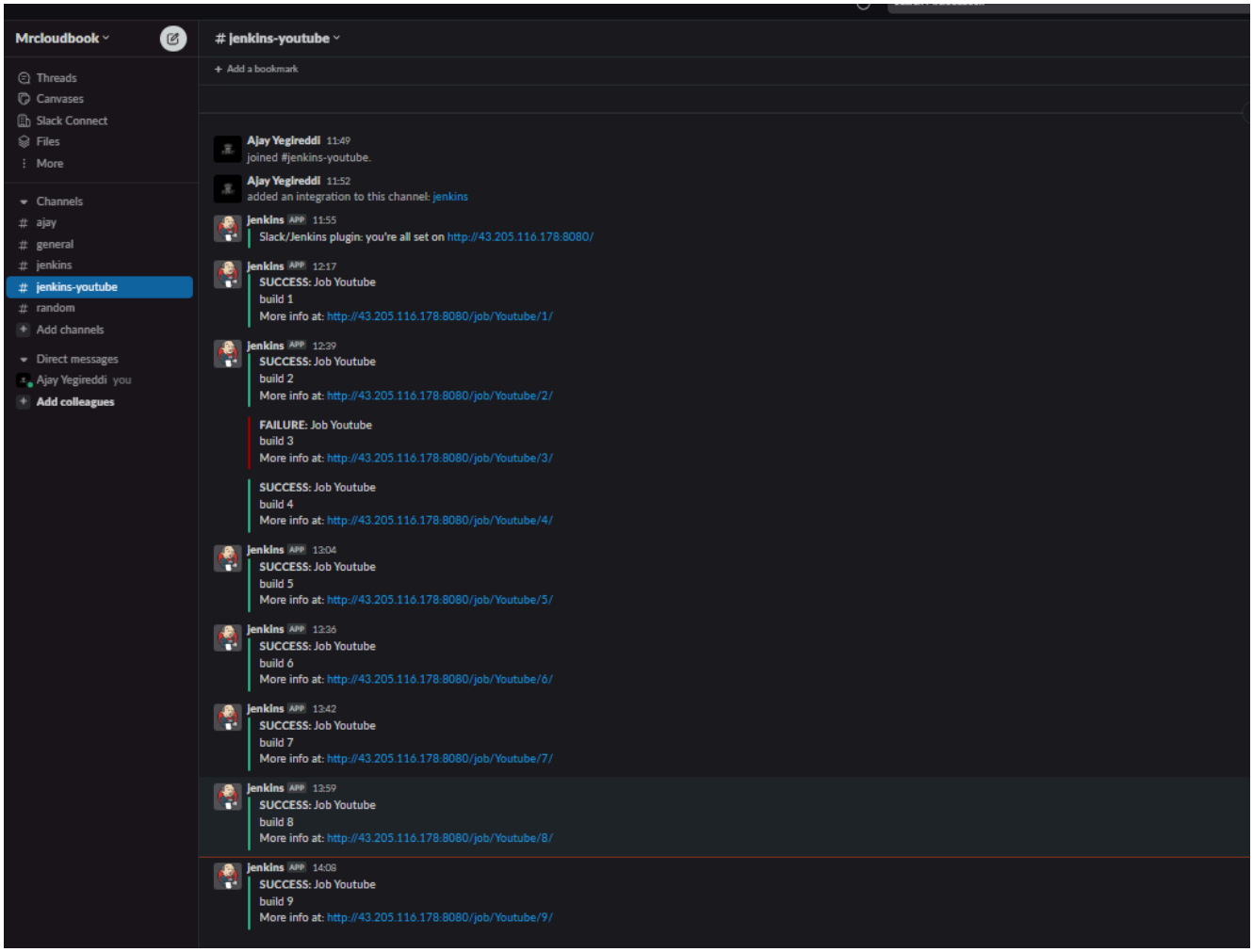


Build with parameter ‘delete’

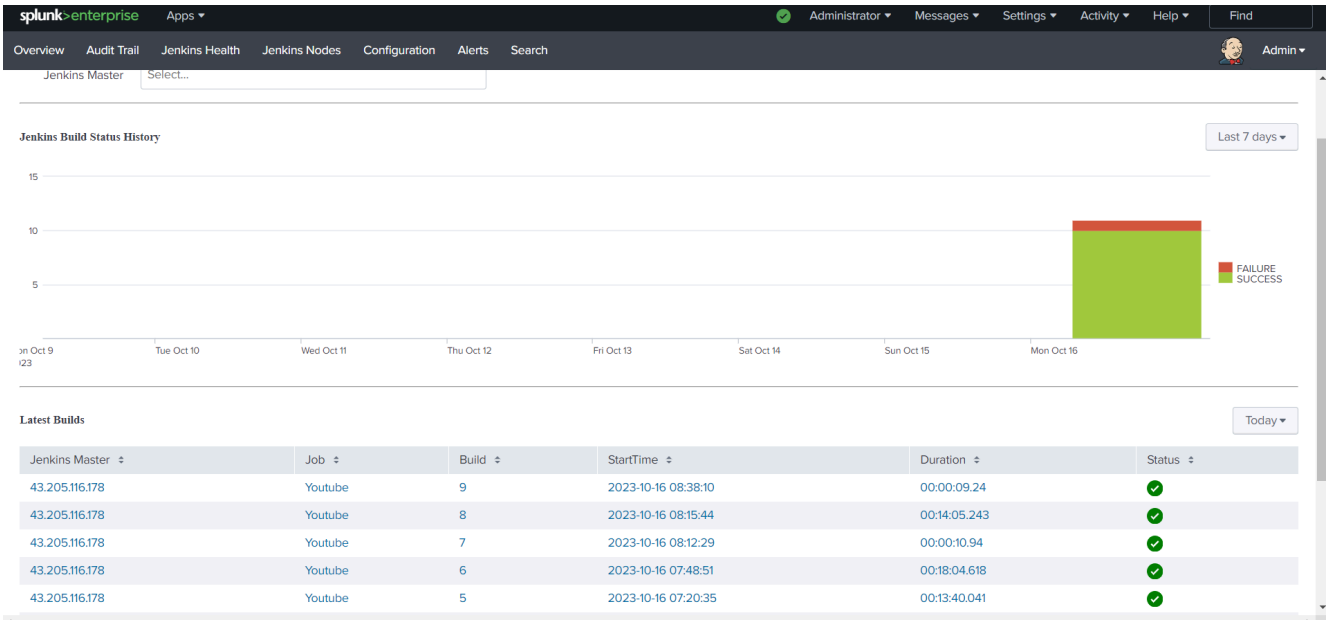
It will destroy Container and Kubernetes deployment.

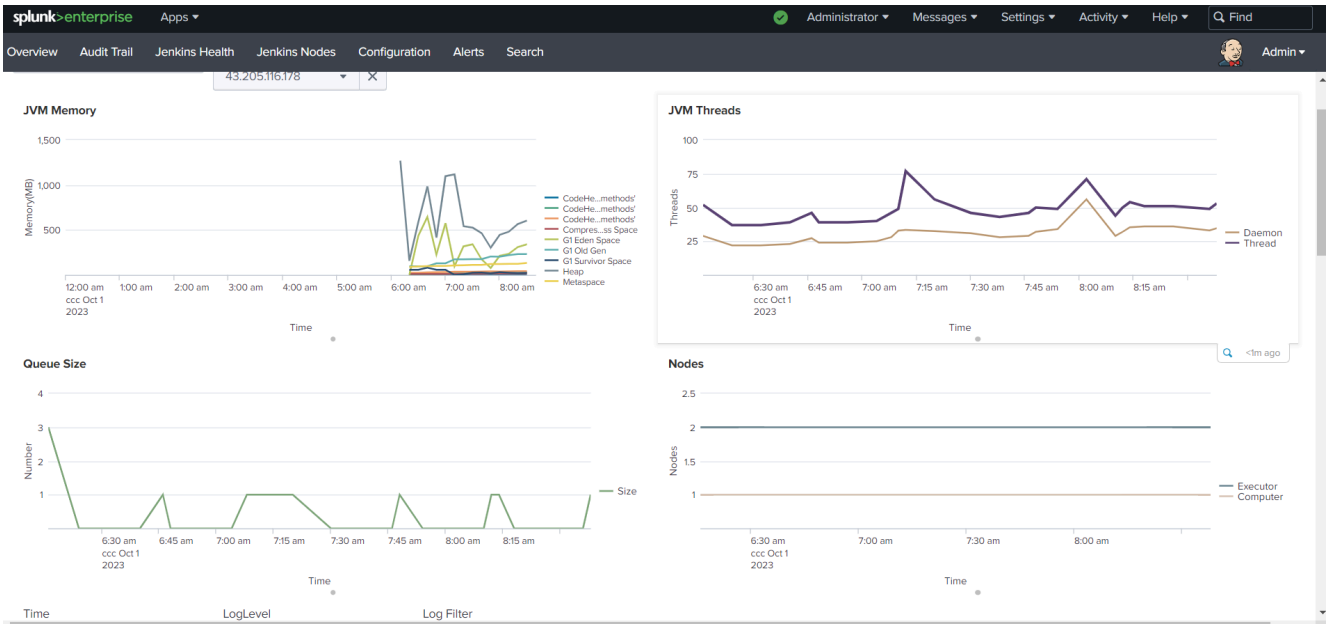
Declarative: Tool Install	clean workspace	checkout from Git	sonarqube Analysis	sonarqube QualitGate	Npm	OWASP FS SCAN	Trivyfile scan	Docker Build	Trivy iamge	Run container	Remove container	Kube deploy	kube deleter	Declarative: Post Actions
157ms	338ms	1s	25s	351ms	24s	6min 26s	40s	2min 35s	3min 22s	1s	1s	3s	604ms	346ms
162ms	346ms	2s									1s		604ms	343ms
152ms	330ms	1s	25s	351ms	24s	6min 26s	40s	2min 35s	3min 22s	1s		3s		350ms

Slack Notifications



Splunk





Pipeline

```
@Library('Jenkins_shared_library') _
def COLOR_MAP = [
    'FAILURE' : 'danger',
    'SUCCESS' : 'good'
]
pipeline{
    agent any
    parameters {
        choice(name: 'action', choices: 'create\ndelete', description:
        string(name: 'DOCKER_HUB_USERNAME', defaultValue: 'sevenajay', 
        string(name: 'IMAGE_NAME', defaultValue: 'youtube', description
```

```
    }
    tools{
        jdk 'jdk17'
        nodejs 'node16'
    }
    environment {
        SCANNER_HOME=tool 'sonar-scanner'
    }
    stages{
        stage('clean workspace'){
            steps{
                cleanWorkspace()
            }
        }
        stage('checkout from Git'){
            steps{
                checkoutGit('https://github.com/Aj7Ay/Youtube-clone-app
            }
        }
        stage('sonarqube Analysis'){
        when { expression { params.action == 'create'}}
            steps{
                sonarqubeAnalysis()
            }
        }
        stage('sonarqube QualitGate'){
        when { expression { params.action == 'create'}}
            steps{
                script{
                    def credentialsId = 'Sonar-token'
                    qualityGate(credentialsId)
                }
            }
        }
        stage('Npm'){
        when { expression { params.action == 'create'}}
            steps{
                npmInstall()
            }
        }
        stage('Trivy file scan'){
        when { expression { params.action == 'create'}}
            steps{
                trivyFs()
            }
```

```
        }
        stage('OWASP FS SCAN') {
            steps {
                dependencyCheck additionalArguments: '--scan ./ --disab
                dependencyCheckPublisher pattern: '**/dependency-check-r
            }
        }
        stage('Docker Build'){
        when { expression { params.action == 'create'}}
            steps{
                script{
                   def dockerHubUsername = params.DOCKER_HUB_USERNAME
                   def imageName = params.IMAGE_NAME
                   dockerBuild(dockerHubUsername, imageName)
                }
            }
        }
        stage('Trivy iamge'){
        when { expression { params.action == 'create'}}
            steps{
                trivyImage()
            }
        }
        stage('Run container'){
        when { expression { params.action == 'create'}}
            steps{
                runContainer()
            }
        }
        stage('Remove container'){
        when { expression { params.action == 'delete'}}
            steps{
                removeContainer()
            }
        }
        stage('Kube deploy'){
        when { expression { params.action == 'create'}}
            steps{
                kubeDeploy()
            }
        }
        stage('kube deleter'){
        when { expression { params.action == 'delete'}}
            steps{
                kubeDelete()
```

```
                }
            }
        }
        post {
        always {
            echo 'Slack Notifications'
            slackSend (
                channel: '#channel name',   #change your channel name
                color: COLOR_MAP[currentBuild.currentResult],
                message: "*${currentBuild.currentResult}:* Job ${env.JOB_NAM
            )
        }
    }
    }
```

In conclusion, deploying a YouTube clone app on Docker and Kubernetes with a strong DevSecOps approach and Jenkins Shared Library is a powerful combination that can take your application deployment to the next level. It provides the security, scalability, and efficiency needed to ensure a smooth transition to production.

By implementing DevSecOps practices from the very beginning and utilizing the orchestration capabilities of Kubernetes, your app will be more secure and ready to handle the demands of your growing user base. Docker containers will give you the flexibility to move your app across different environments with ease, ensuring consistency and reducing deployment-related issues.

Jenkins Shared Library is your key to streamlined, automated, and standardized CI/CD workflows, simplifying the deployment process and making it reproducible and consistent. With these tools and practices in your arsenal, you'll be well-prepared to face the challenges of modern application deployment.

We hope this tutorial has been valuable in helping you understand the essential components of a DevSecOps-driven deployment. As you embark on your journey to deploy your own YouTube clone app, remember that learning and refining these skills takes time and practice. Don't be discouraged by challenges; instead, see them as opportunities to grow and improve your expertise.

If you found this tutorial helpful, please share it with your network, and consider subscribing to our blog or channel for more in-depth technical guides. We're here to

support you and answer any questions you may have along the way.

Thank you for joining us on this deployment journey. We wish you the best of luck in your application deployment endeavours. Stay curious, keep learning, and continue to explore the exciting world of DevSecOps, containers, and orchestration!

Here's to your success in the world of tech and DevSecOps!

Ajay Kumar Yegireddi is a DevSecOps Engineer and System Administrator, with a passion for sharing real-world DevSecOps projects and tasks. **Mr. Cloud Book**, provides hands-on tutorials and practical insights to help others master DevSecOps tools and workflows. Content is designed to bridge the gap between development, security, and operations, making complex concepts easy to understand for both beginners and professionals.

Comments

2 responses to "YouTube Clone App with DevSecOps and Jenkins Shared Library"

manoj
13 March 2024

Hi,

This was great. I learned a lot here. Keep up the good work.

Reply

Jamal
21 December 2024

Thank you very much, I learned a lot.

Reply

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