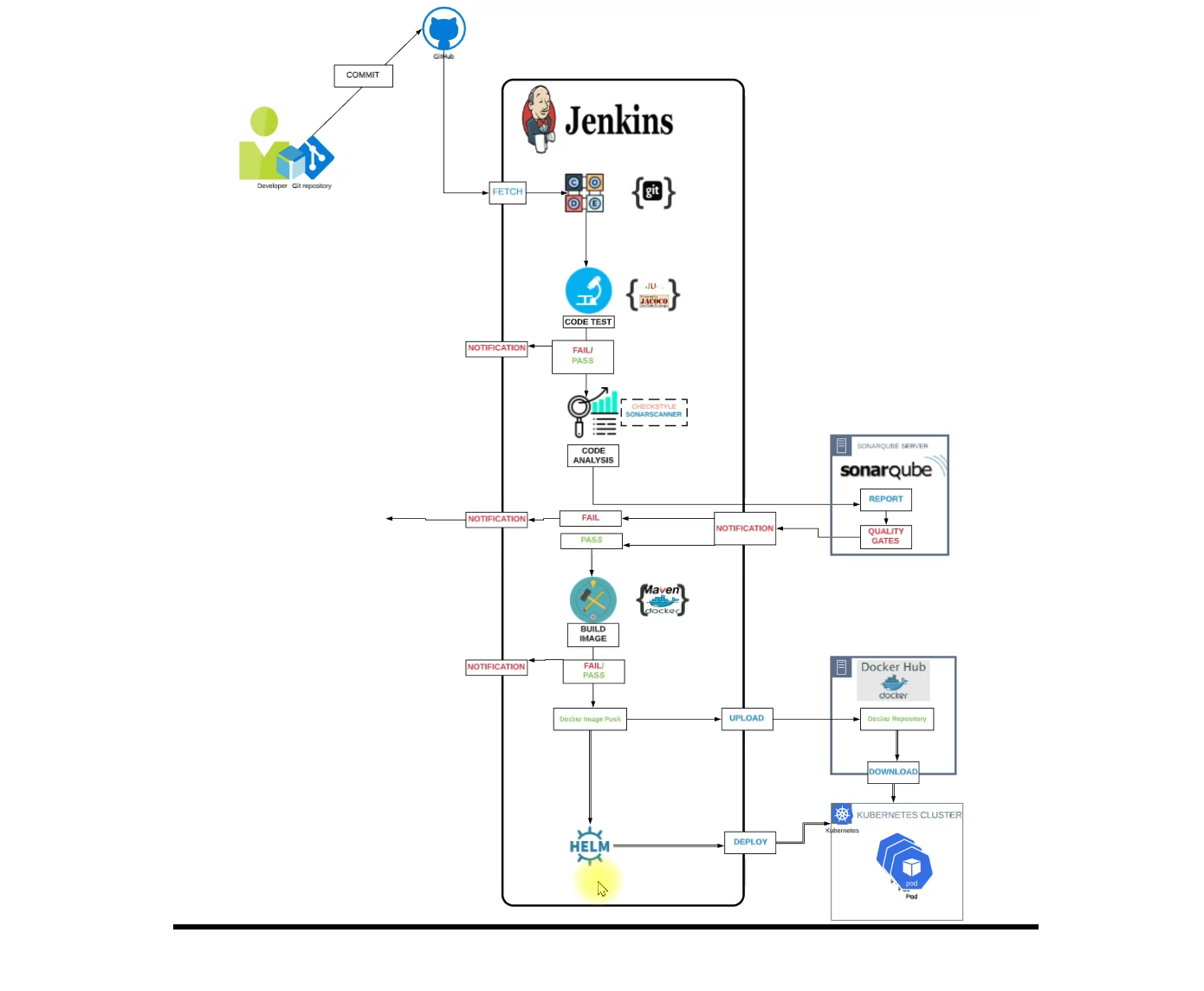
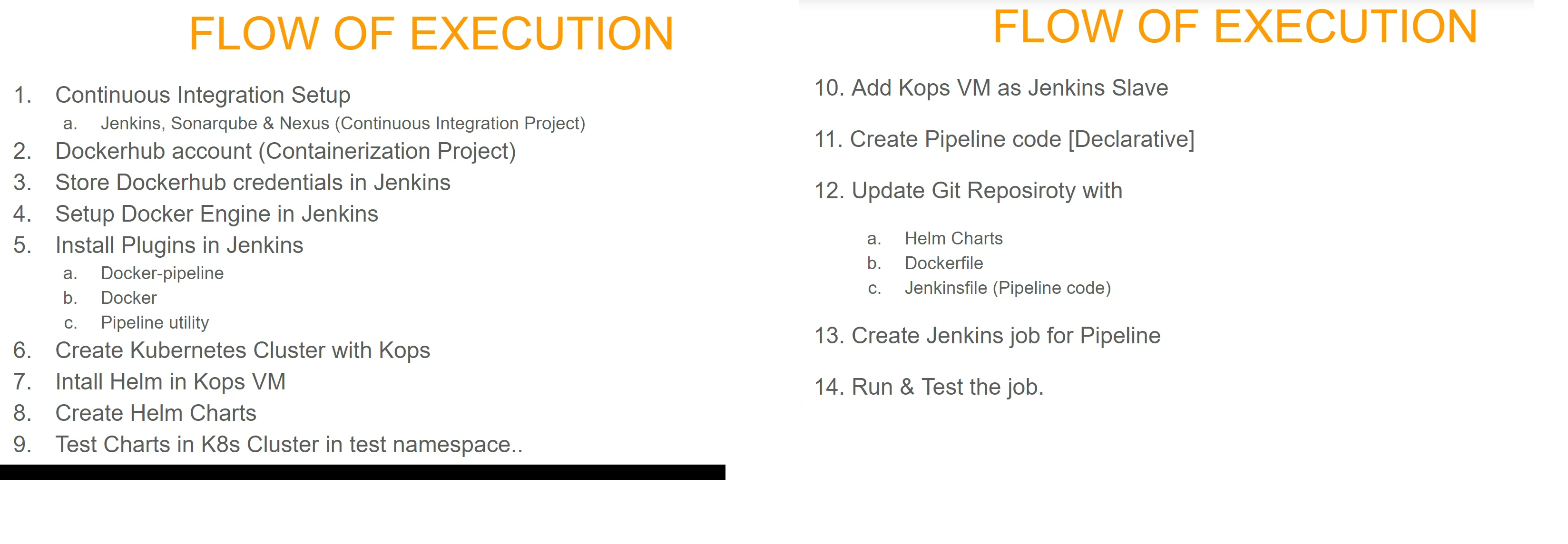
**CICD with docker and Kubernetes**



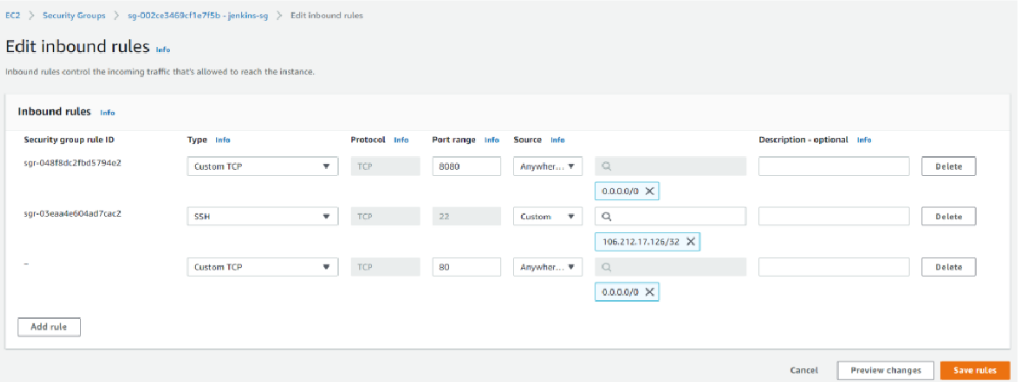
This is a CICD pipeline project, when a Developer make a code change and commit to git hub, Jenkins Pipeline will get triggered (Jenkins poll for GitHub changes every minute) and pull the application source code, Docker file, helm charts from GitHub. Jenkins will perform Code Unit test, Code analysis using sonar Qube and the report will be generated. Quality Gates is configured in Sonar qube which helps to limit the pipeline flow based on the number of bugs.

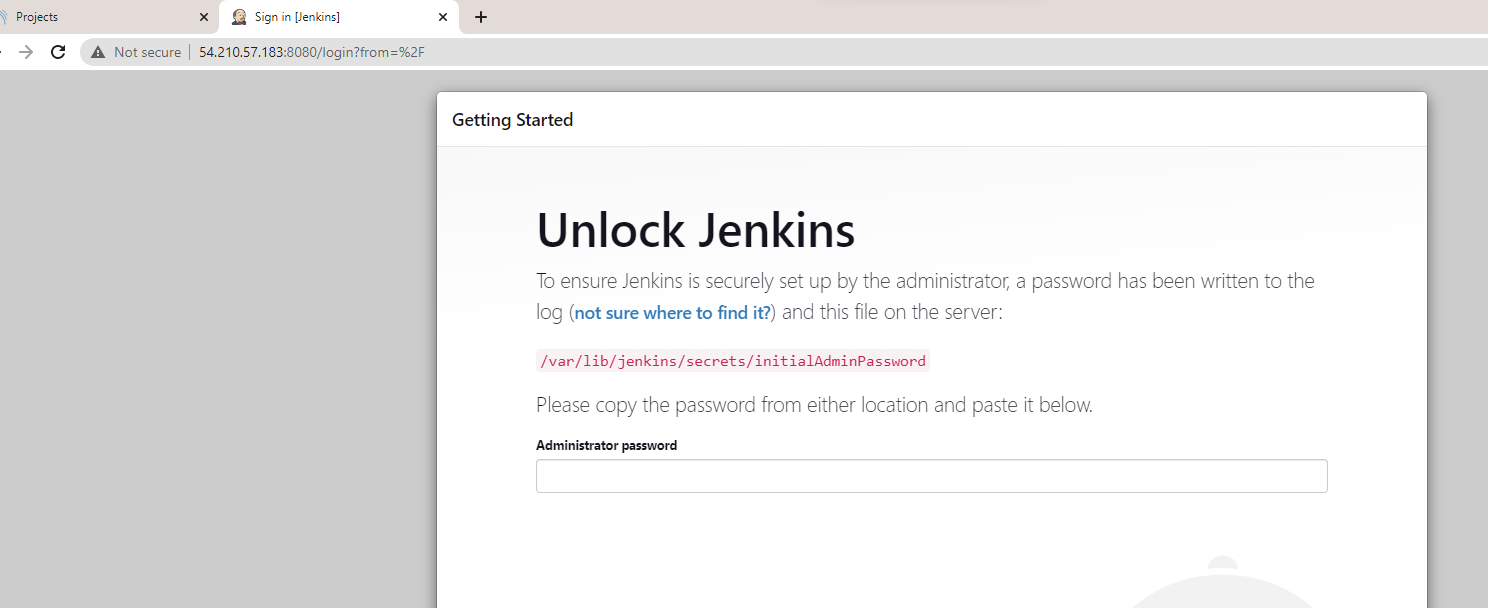
If Quality gate check is passed, docker image will be built and pushed to docker hub. Following the pipeline, Helm charts will be called, It will deploy kubernetes cluster which in turn pull images from Dockerhub, launches the PODS and host the application.



1. Launch the Jenkins server, ubuntu t2 small and refer user data from repo [Jenkins\_CI\_Pipleine/jenkins-setup.sh at main · satzwebio/Jenkins\_CI\_Pipleine · GitHub](https://github.com/satzwebio/Jenkins_CI_Pipleine/blob/main/jenkins-setup.sh)

And update the sec group as below,

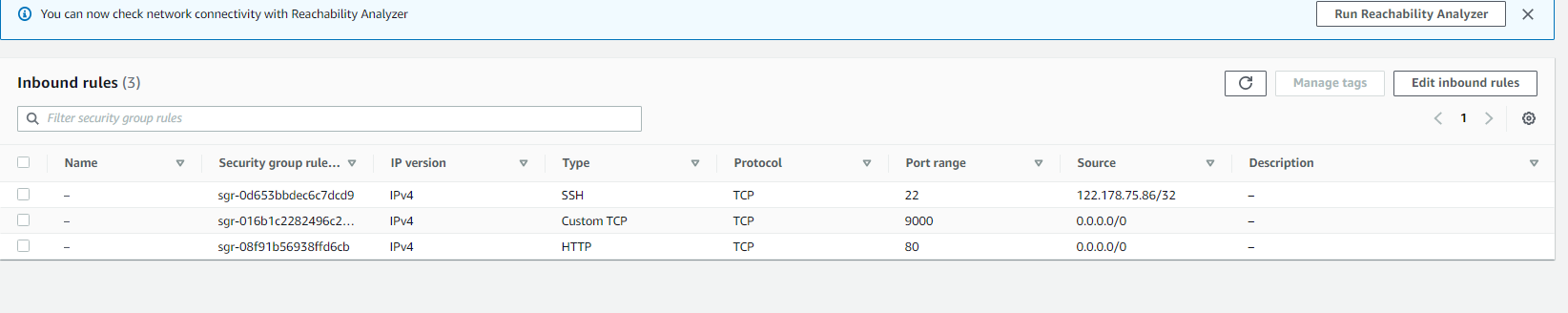
‘’



Get admin pwd from and login jenkins

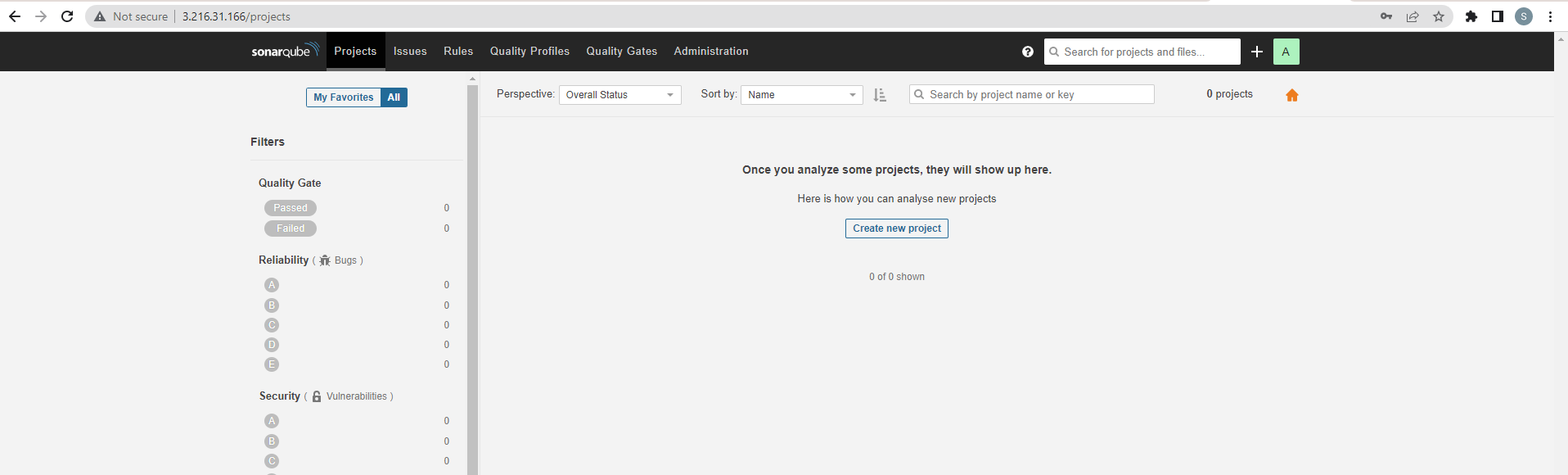
1. Launch sonar server, ubuntu t2 medium and refer user data from repo [Jenkins\_CI\_Pipleine/sonar-setup.sh at main · satzwebio/Jenkins\_CI\_Pipleine · GitHub](https://github.com/satzwebio/Jenkins_CI_Pipleine/blob/main/sonar-setup.sh)

Update the security groups as below,

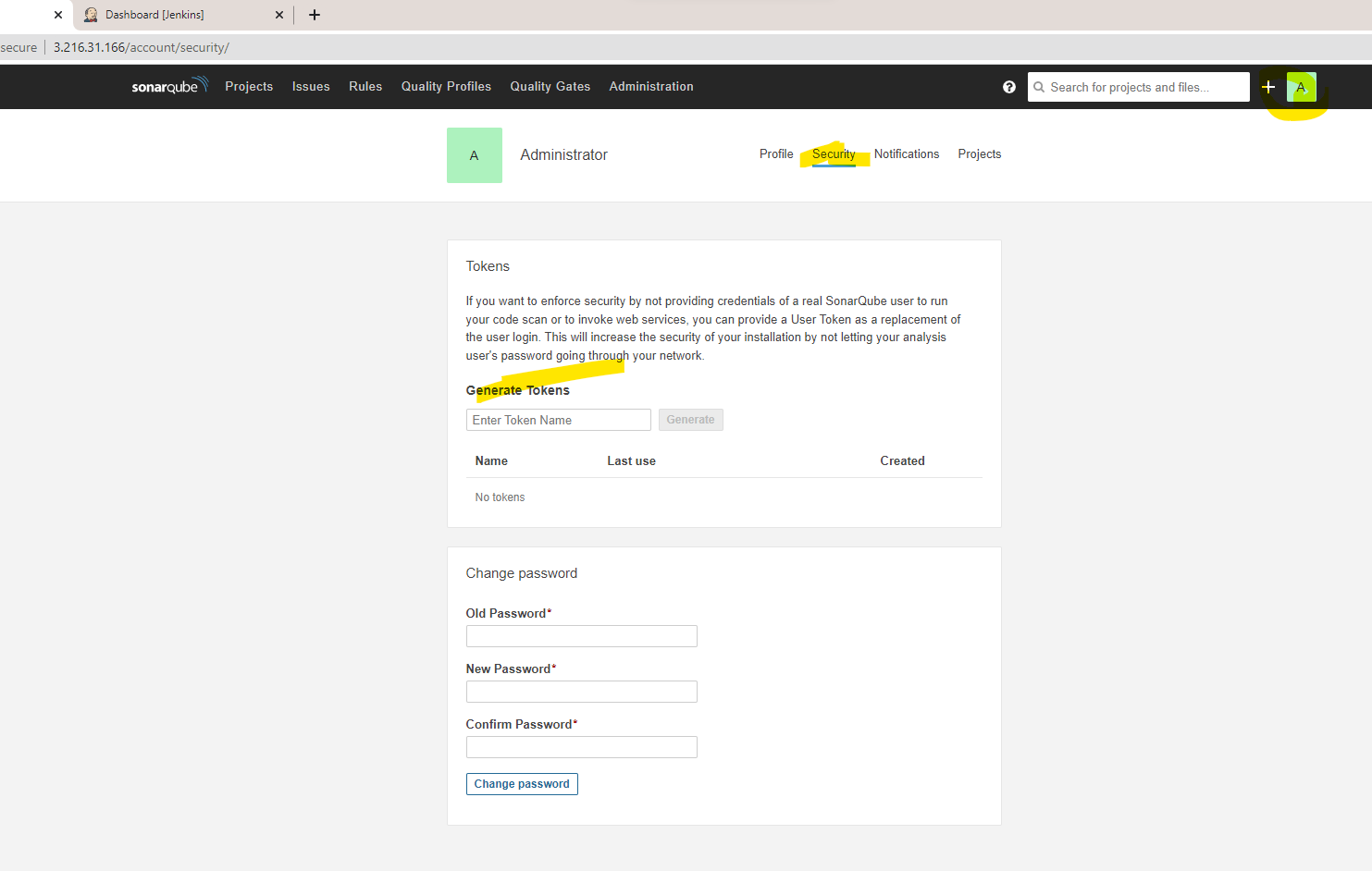


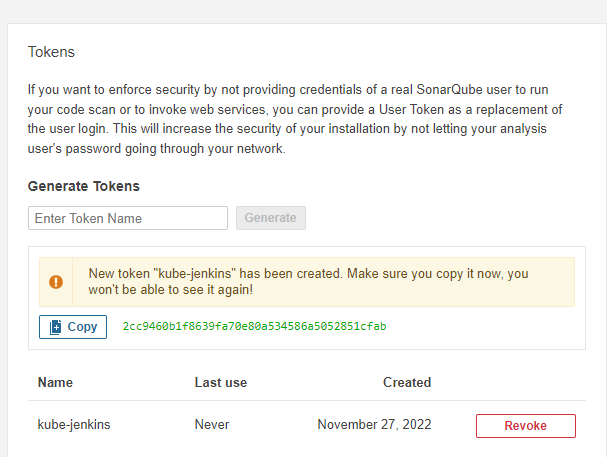
Launch instance, login ssh and check systemctl status sonarqube;

Check in port 80 or 9000, username is both admin



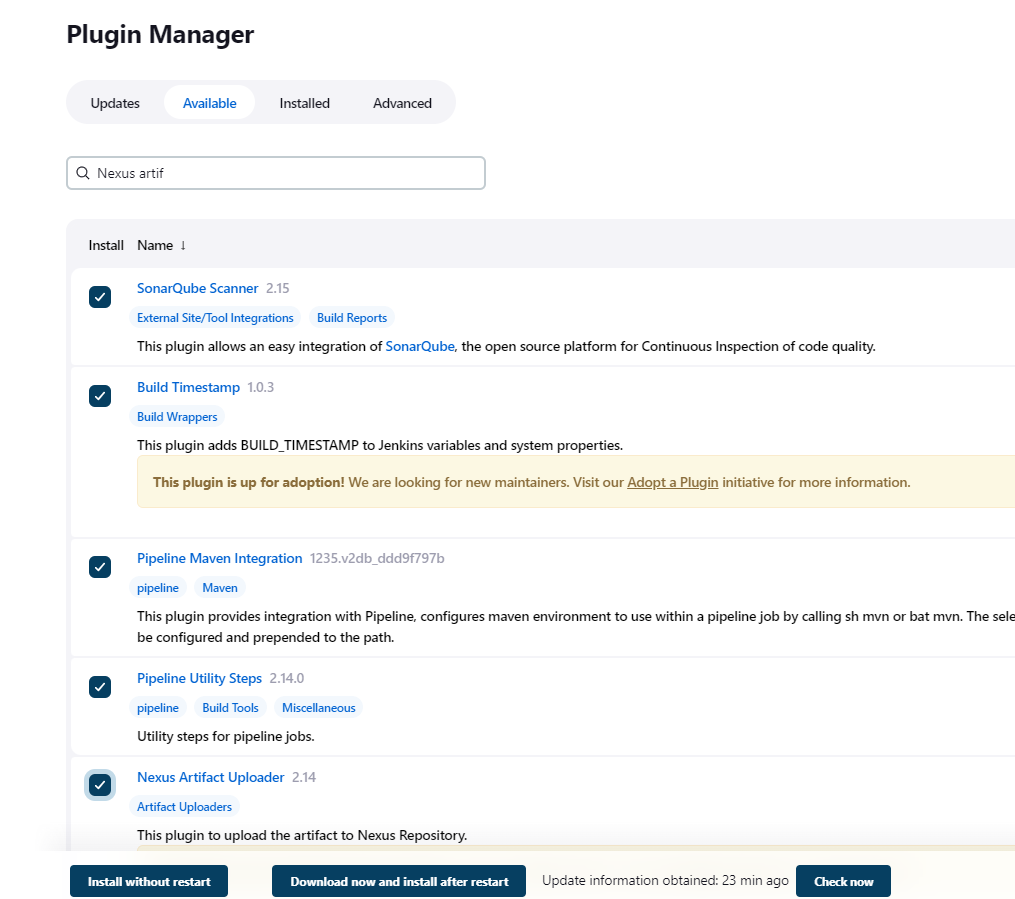
1. Generate new token in Sonar



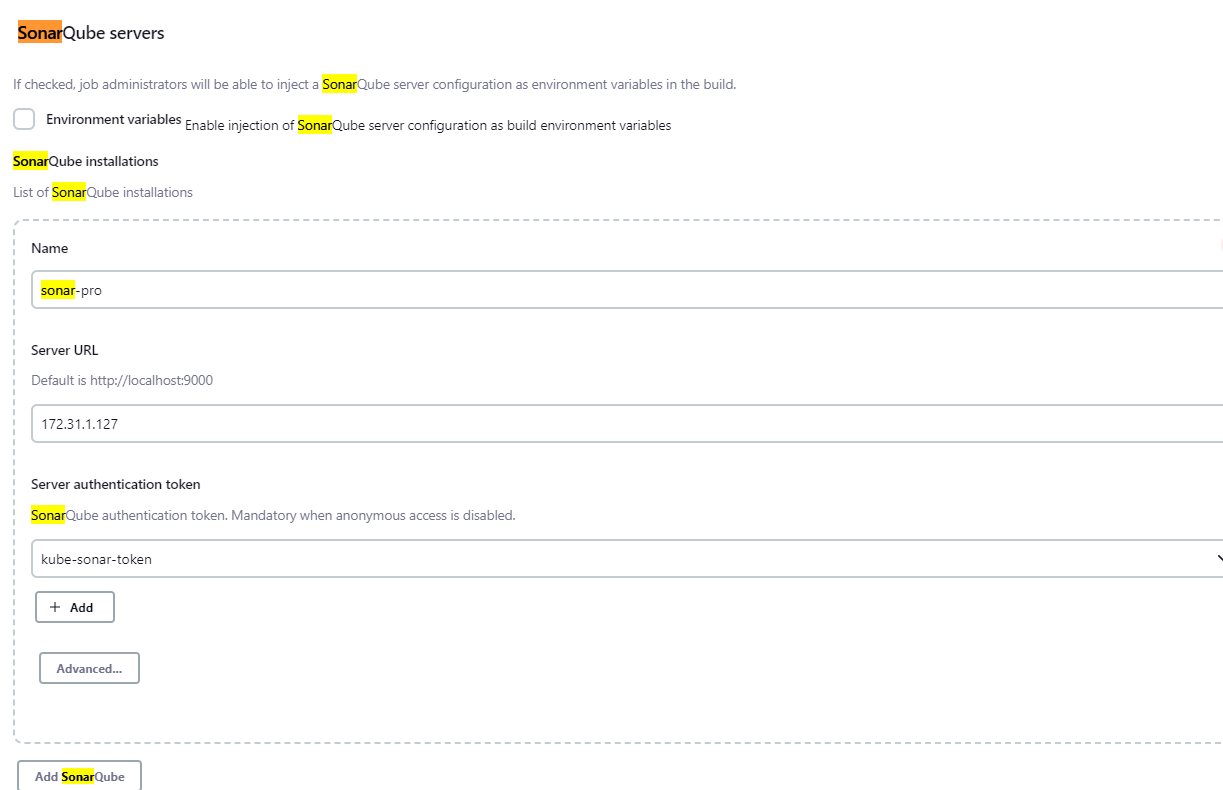


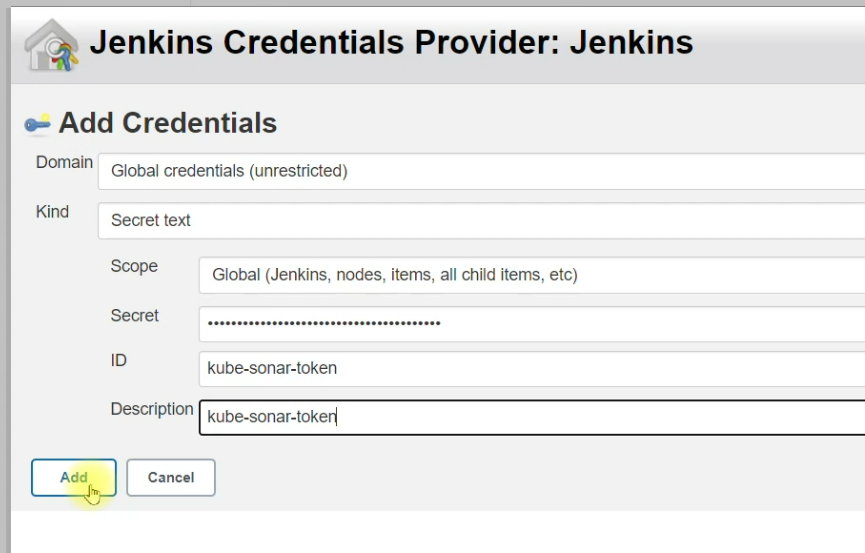
Token: 2cc9460b1f8639fa70e80a534586a5052851cfab

1. Install the below plugins on Jenkins,

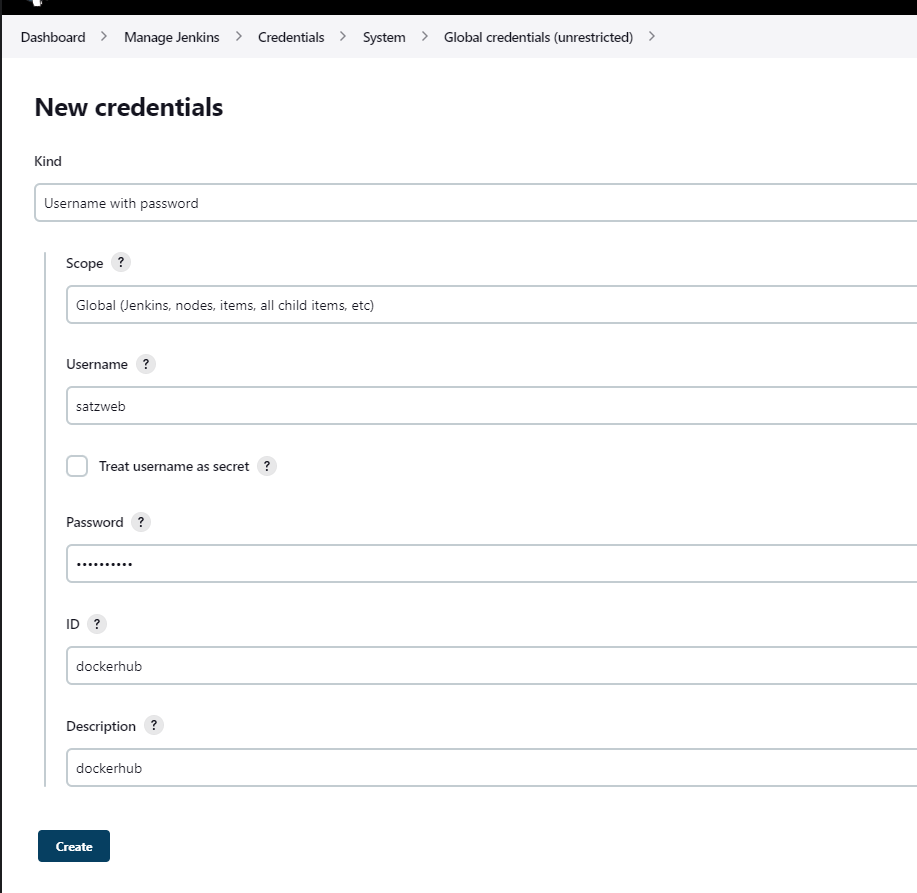


1. In Jenkins, configure sonar qube server, Mention name as sonar-pro, Enter Sonarqube private ip, add sonar qube authentication token.

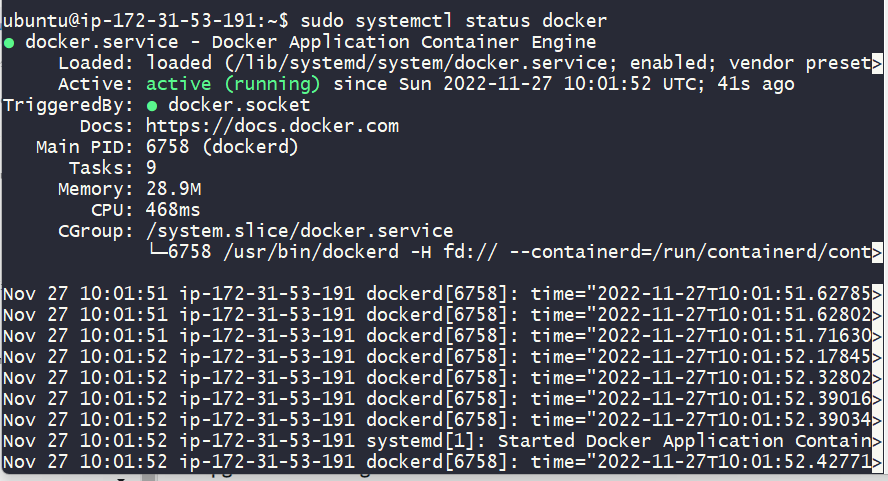




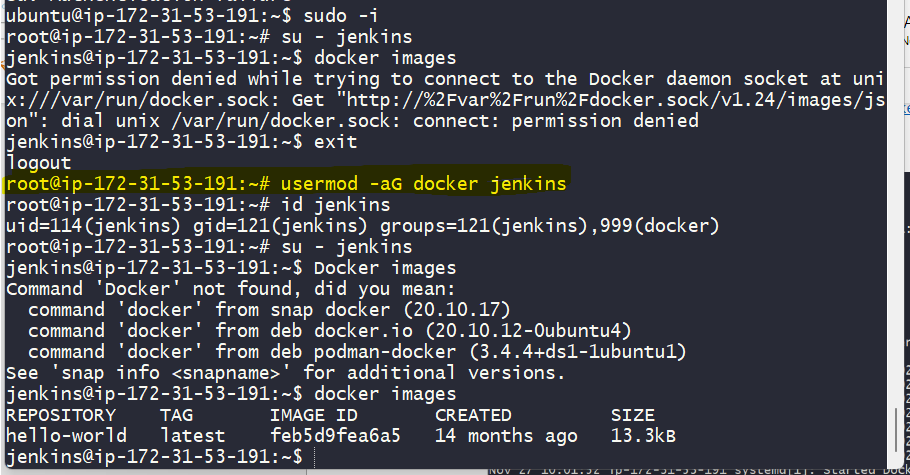
1. Update All traffic from Sonar security group to Jenkins and similarly allow all traffic from Jenkins security group to Sonar.
2. Create new credentials in Jenkins, this is to add docker hub creds,

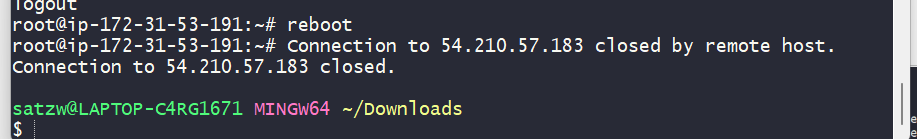


1. Install Docker engine on Jenkins, refer <https://docs.docker.com/engine/install/ubuntu/>



1. As a root add Jenkins user to the Jenkins group, and then reboot the machine.

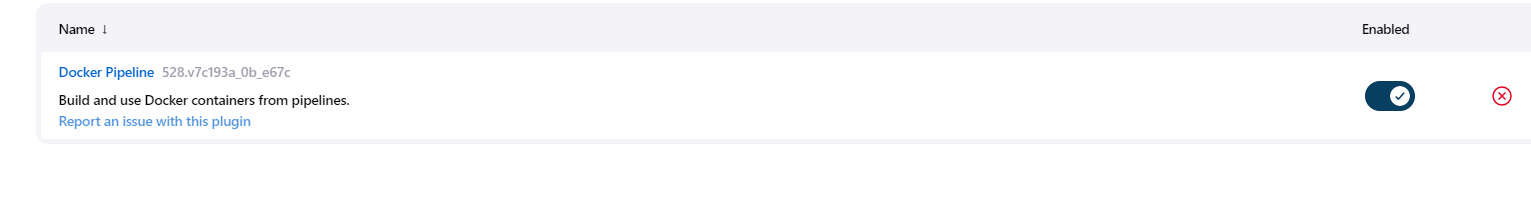


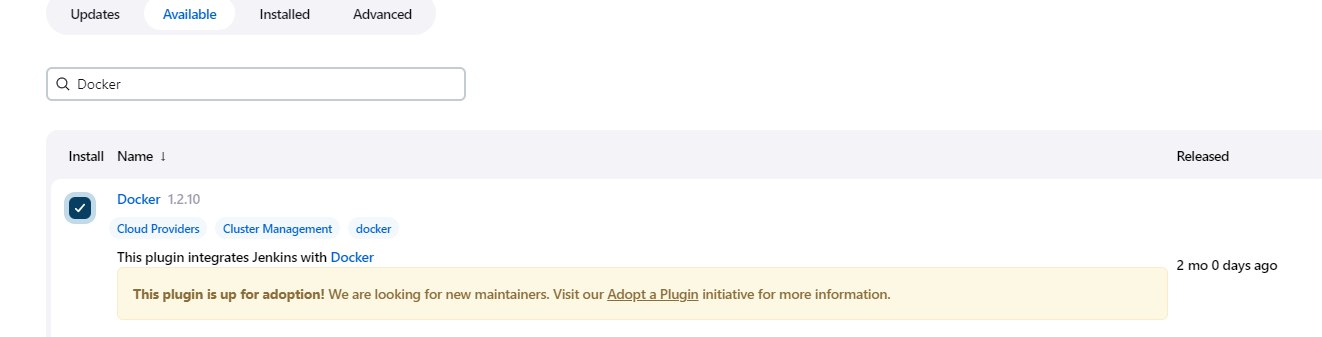


1. Install Below plugin on Jenkins, and install without restart

Docker

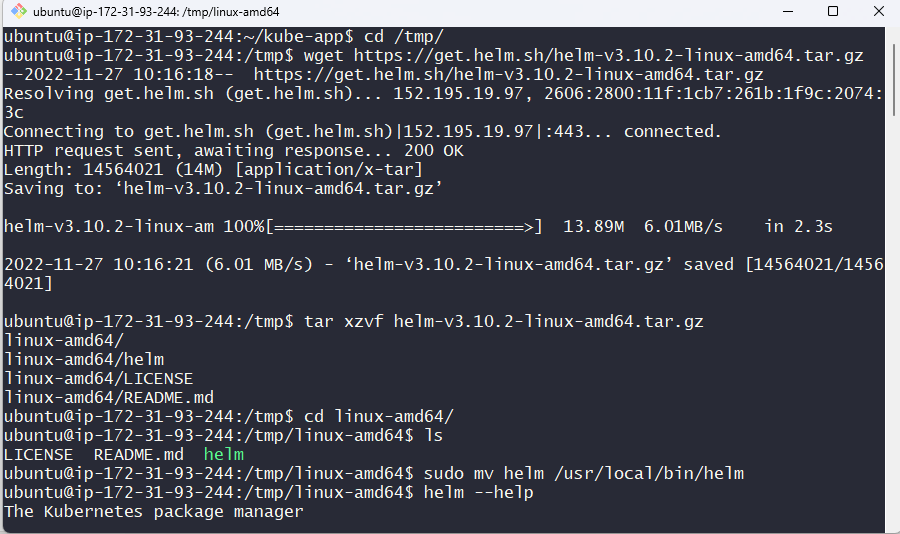
Docker Pipleine





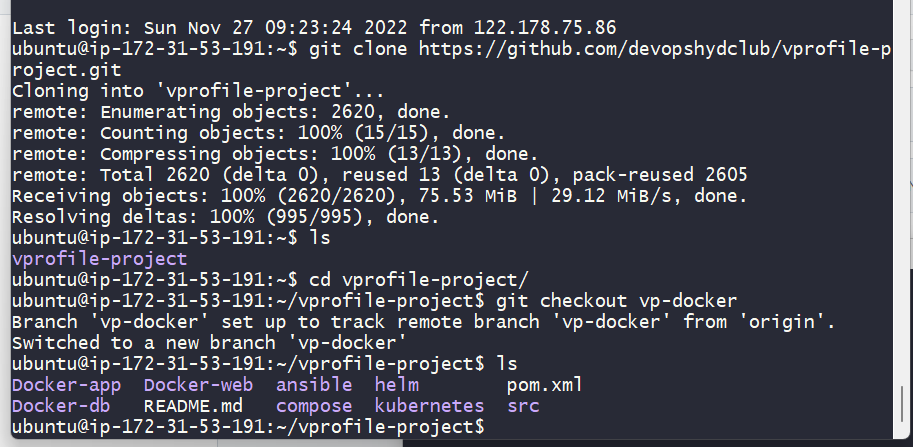
1. In KOPS VM download HELM

Get the coplink from <https://github.com/helm/helm/releases>. Check the os Linux amd64

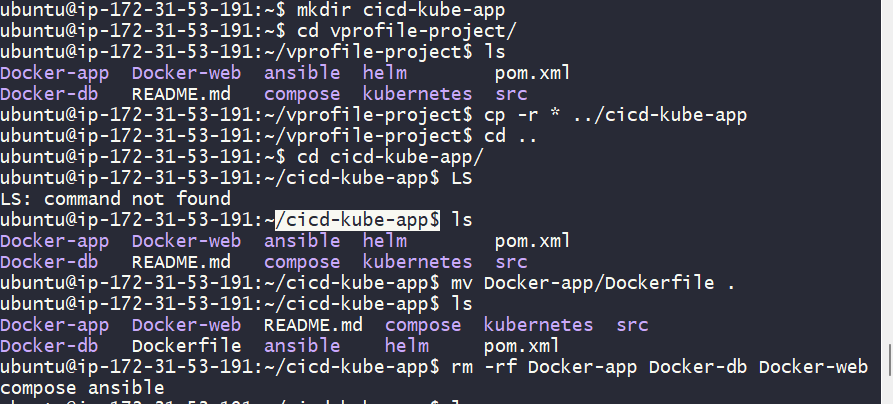


From here the steps are option. YOu can clone the <https://github.com/imranvisualpath/cicd-kube-docker.git>

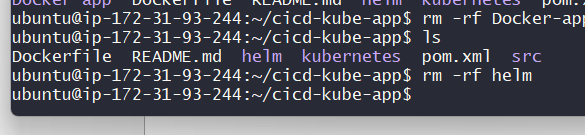
1. Get into KOPS Vm, and clone the repository



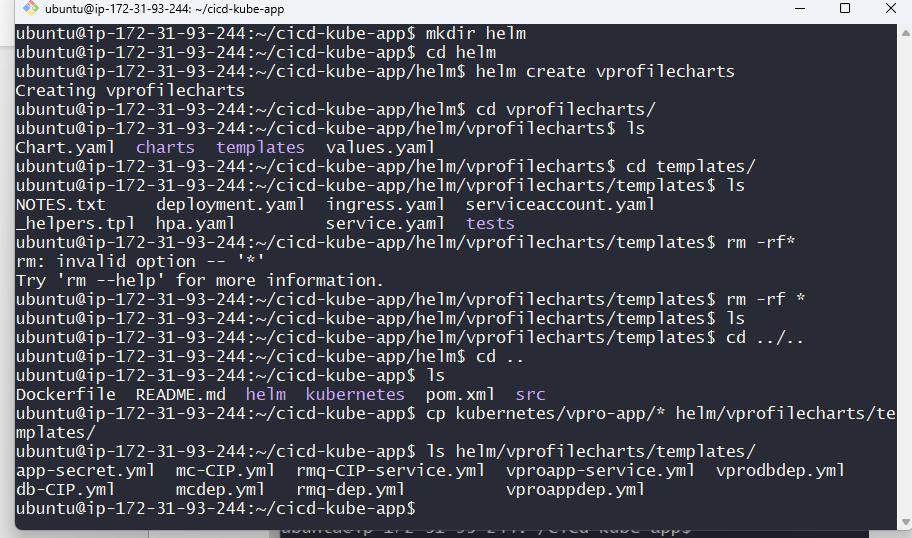
1. Copy all the files from vprofile to Cicd directory created on home, remove unwanted files.



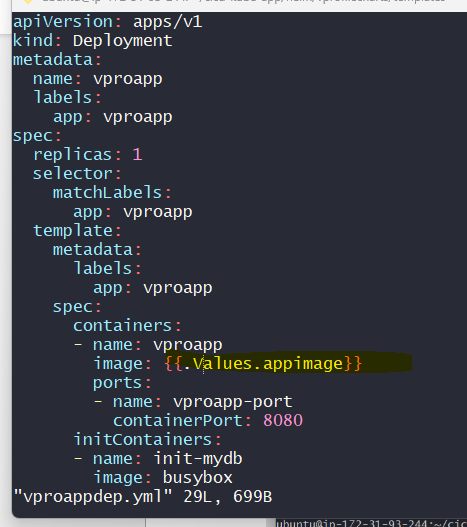
Remove Helm directoryas well.



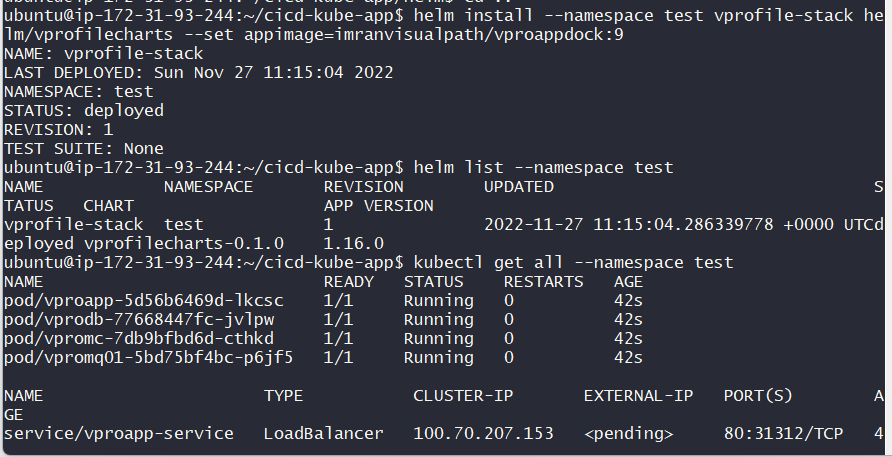
1. Create a helm directory and create helm charts. Then move all the deployment, service files to helm/templates directory.



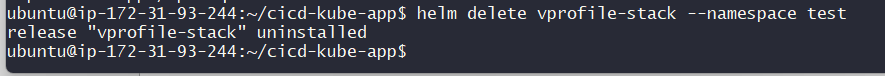
Vim Vproappdep.yml



Just for testing we created a test namespace and launched the stacks. It creates deployment, service stc...



To uninstall the stacks,



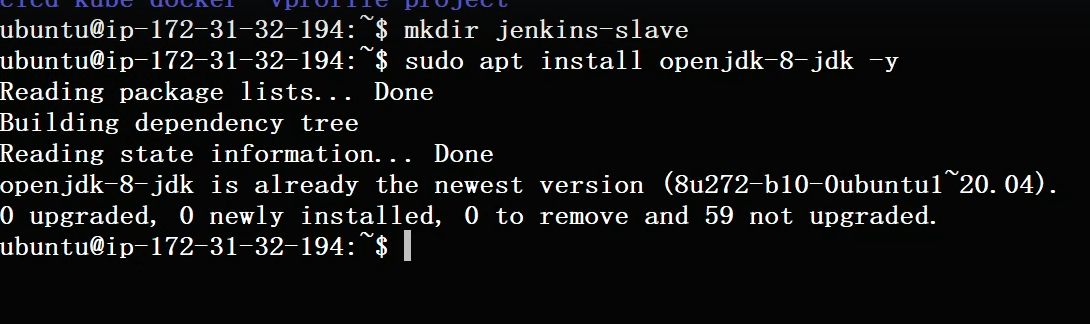
Create a prod namespace:



Create jenkinsfile

Refer our repo : <https://github.com/satzwebio/cicd-kube-docker.git>

In KOPS VM, create jenkins-slave directory and install jdk



In addition perfrom below,

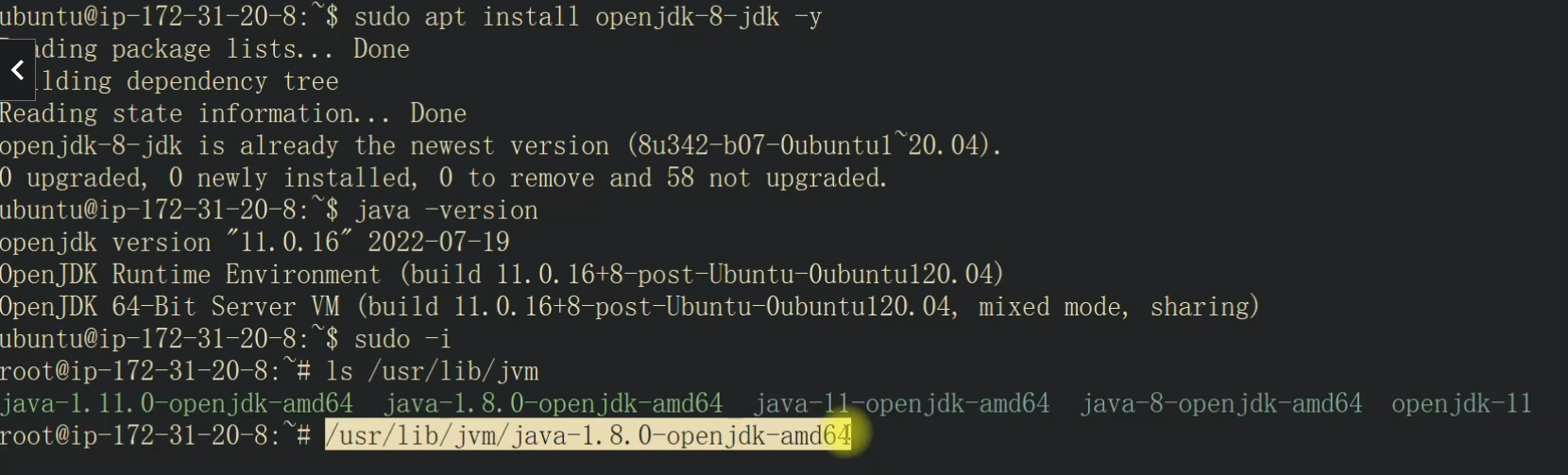
sudo apt remove openjdk-8-jdk -y

sudo apt purge openjdk-8-jdk -y

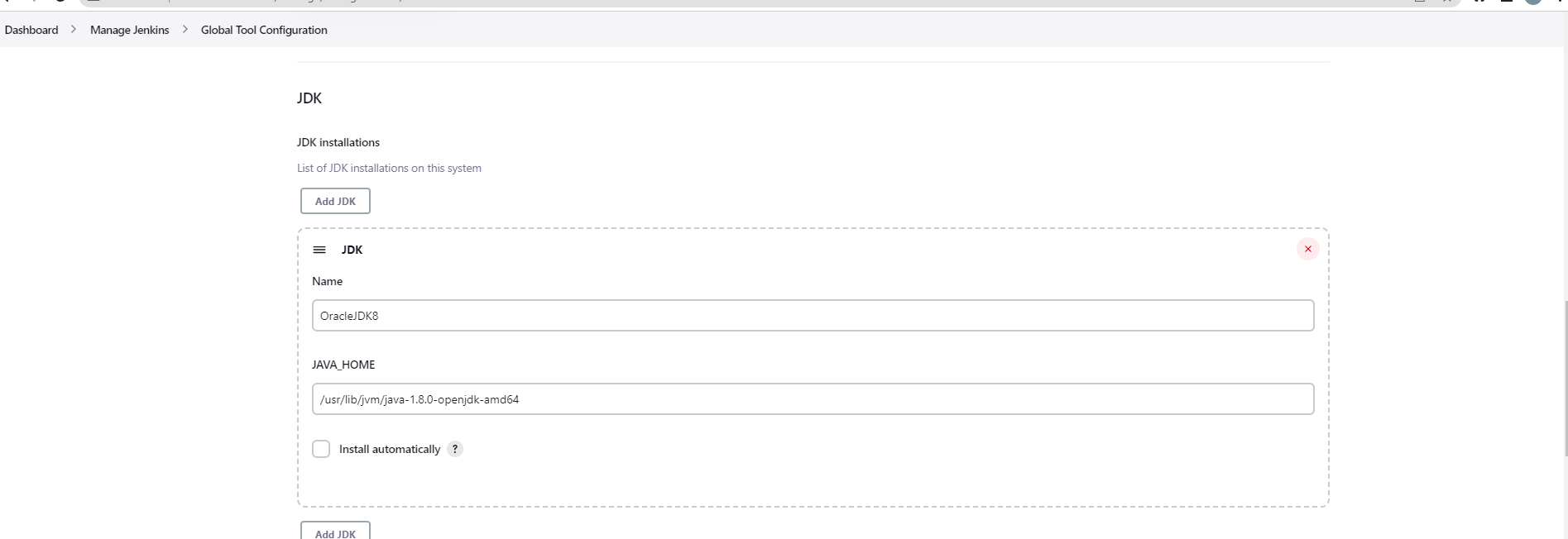
sudo apt update

sudo apt install openjdk-11-jdk -y

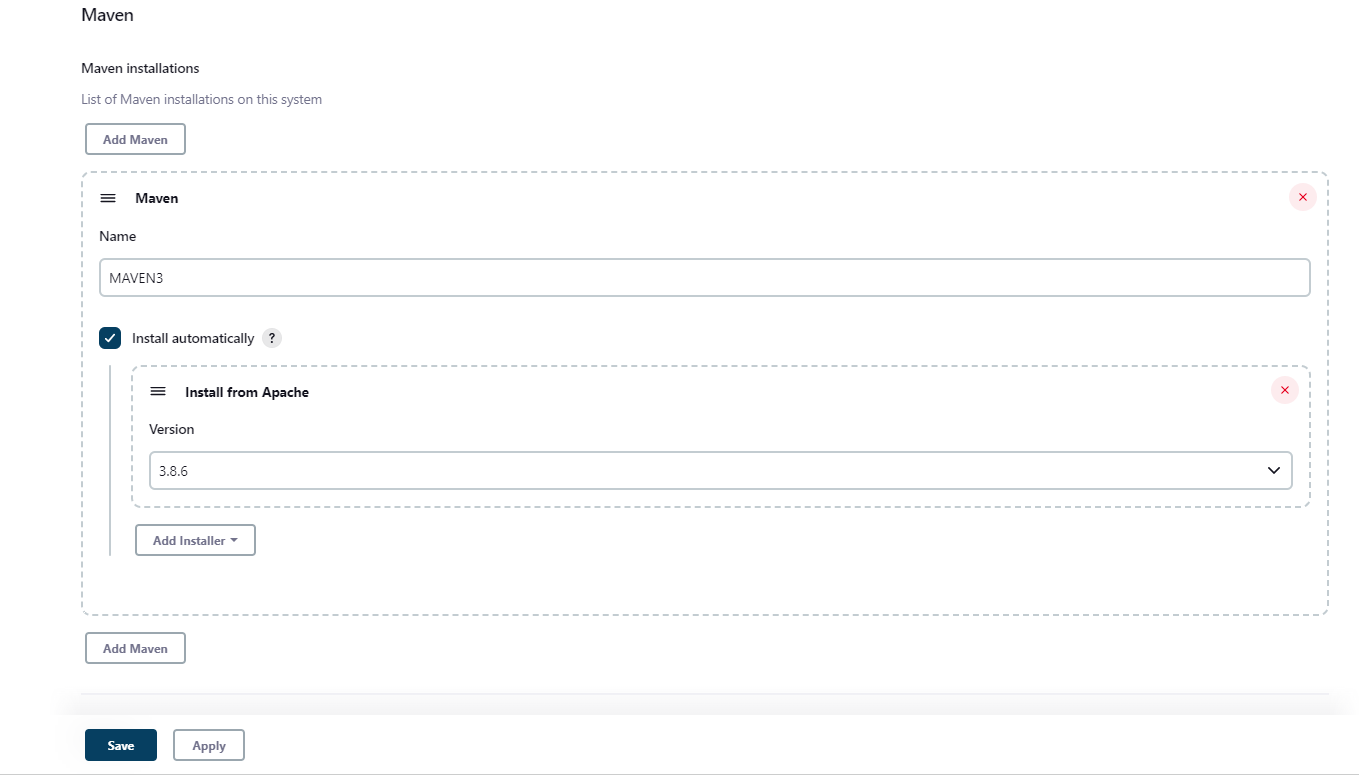
One more Java package need to be installed for Jenkins to access



And specify the path in Jenkins,



Then add MAVEN,



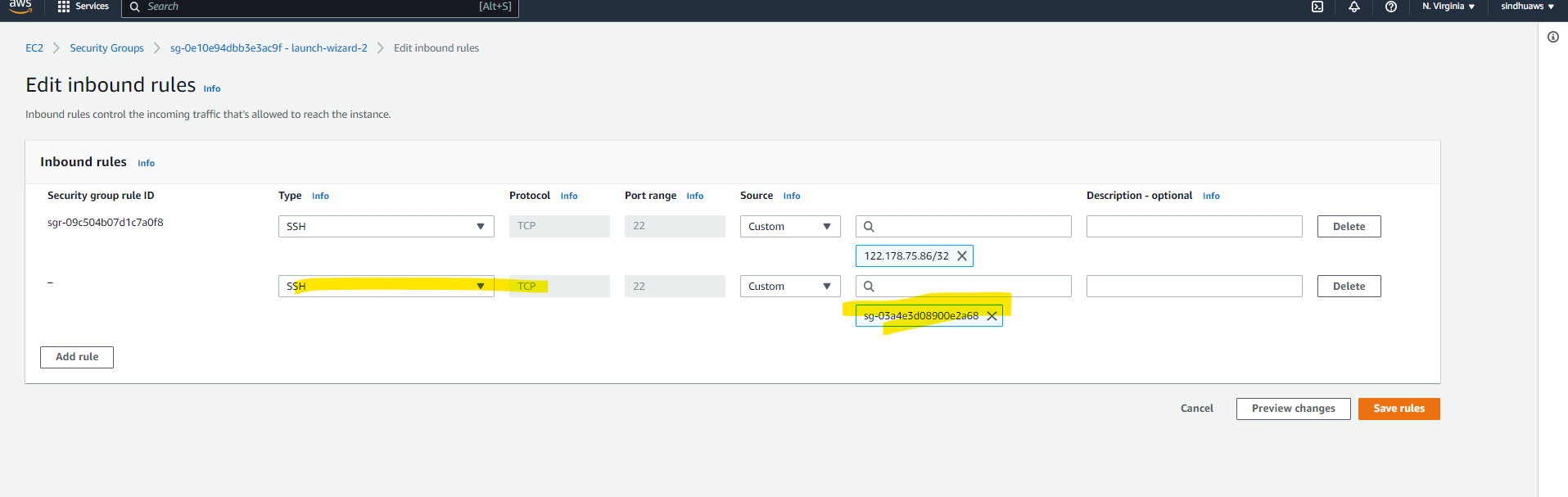
Create opt/jenkins-slave directory and give ubuntu permission.

So jenkins master will have an agent in this directory.

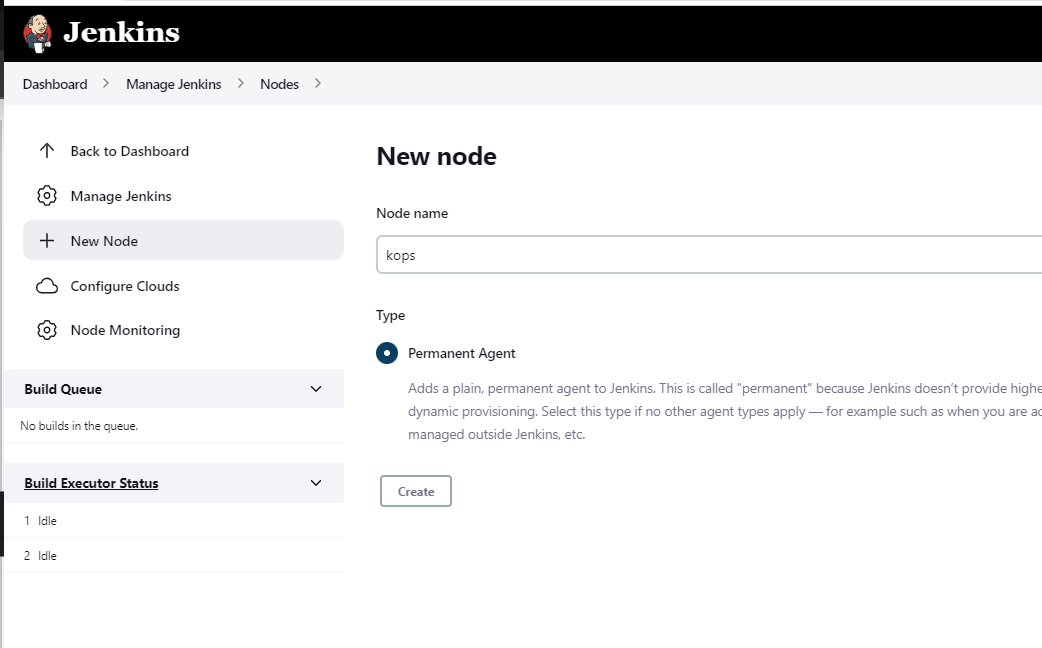
Jenkins will ssh into this VM with ubuntu user, so ubuntu should own this directory



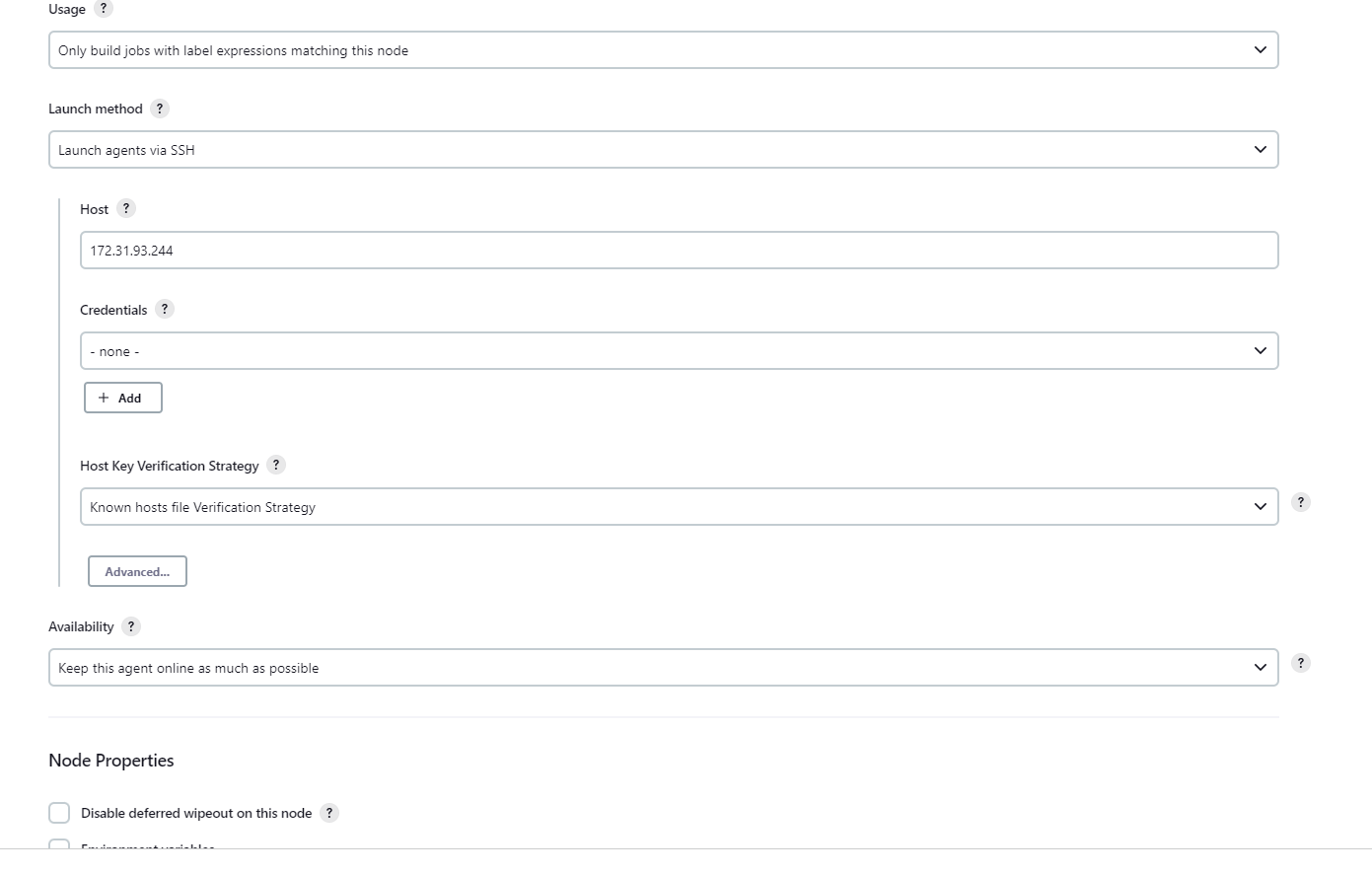
Update security group, allow ssh from Jenkins to KOPS vm,



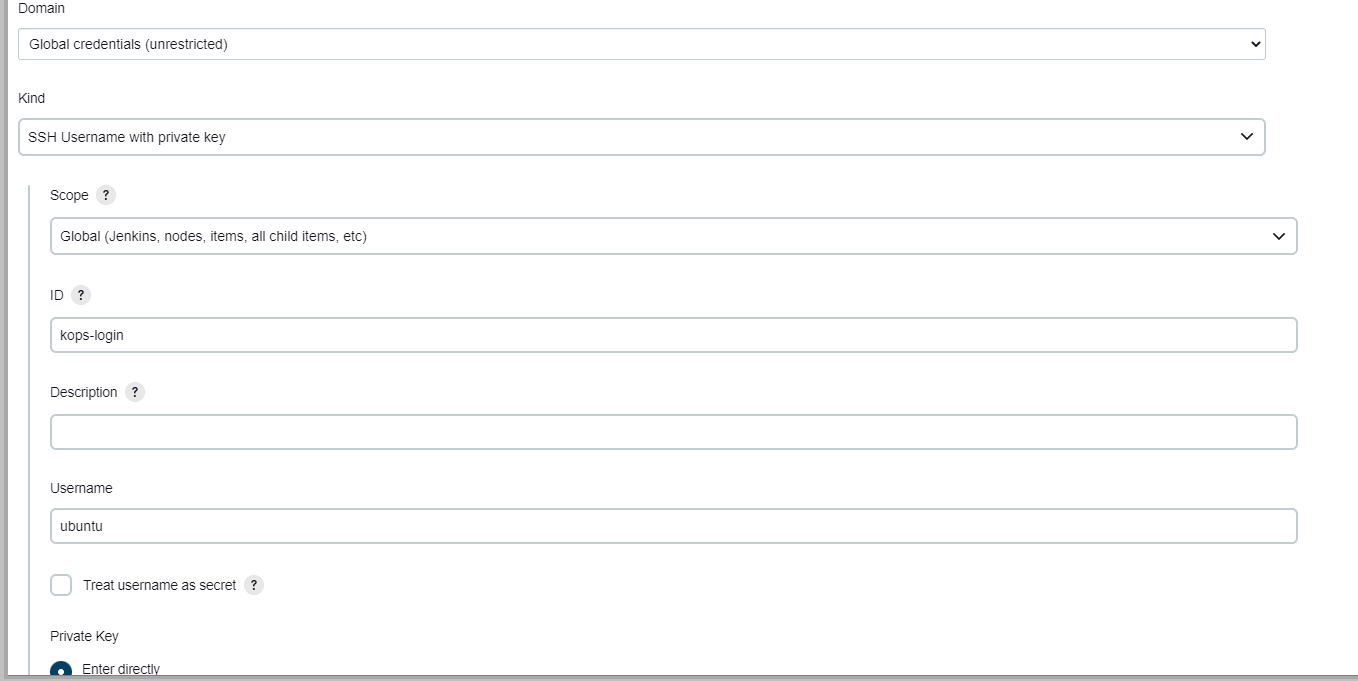
In Jenkins, create a new node



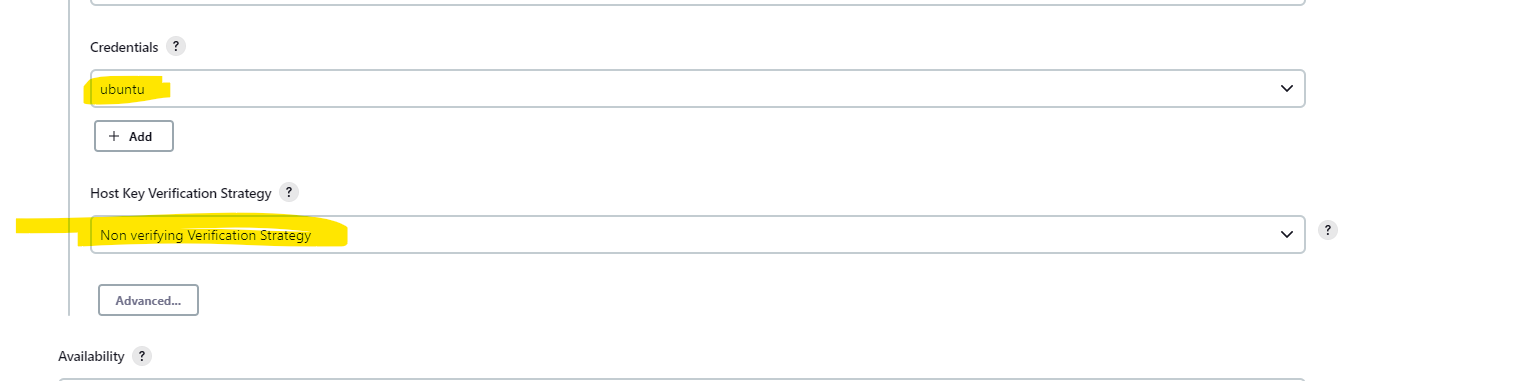




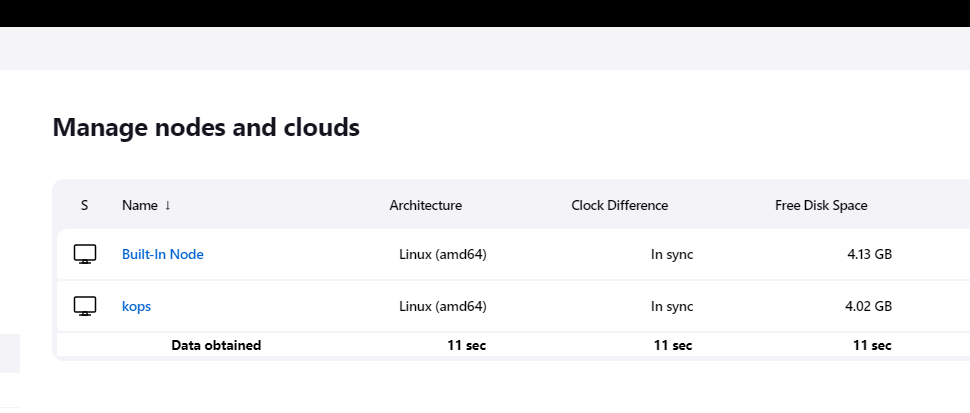
Add credentials, enter KOPS private key



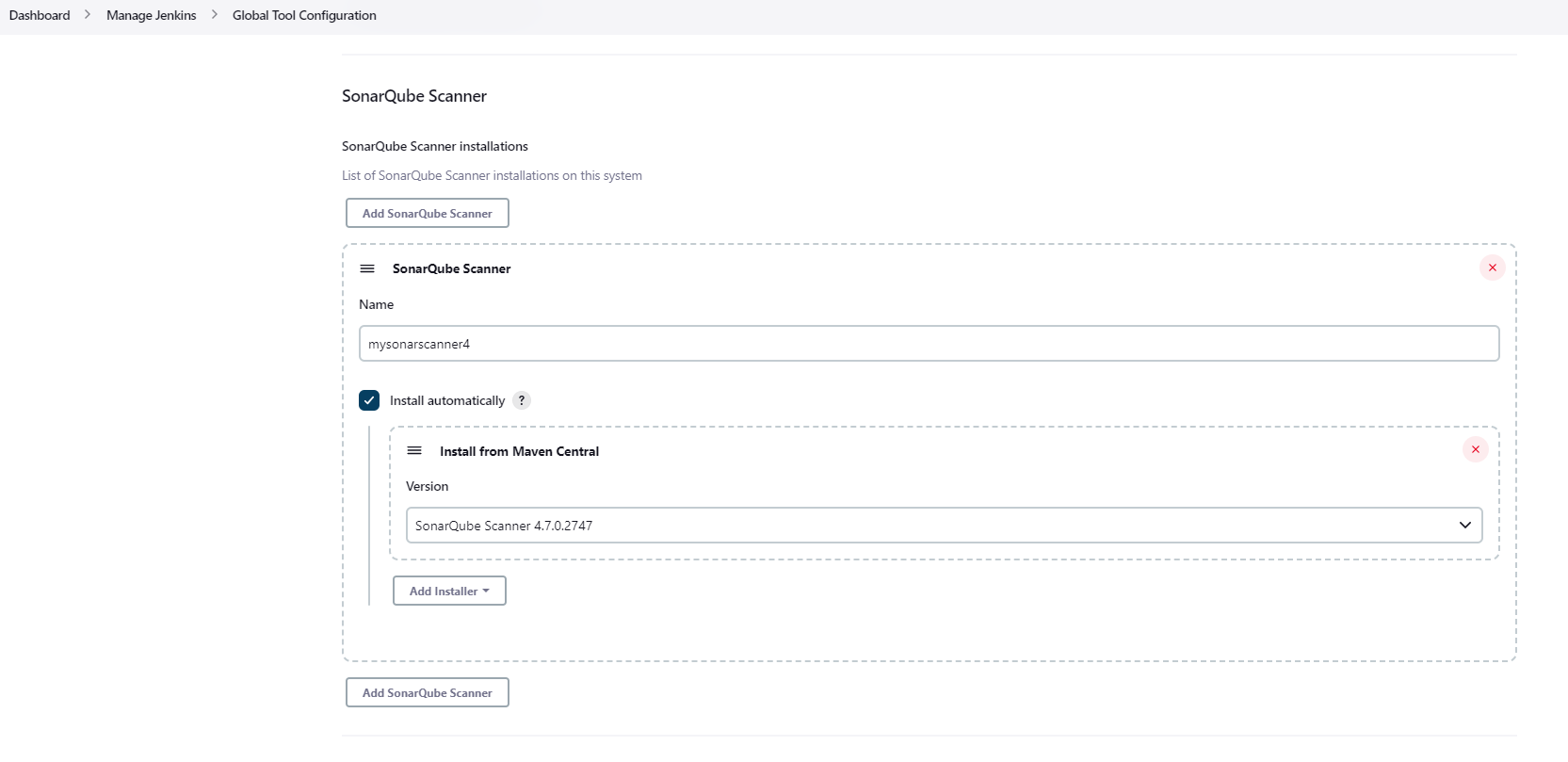
Select the cred and host verification strategy



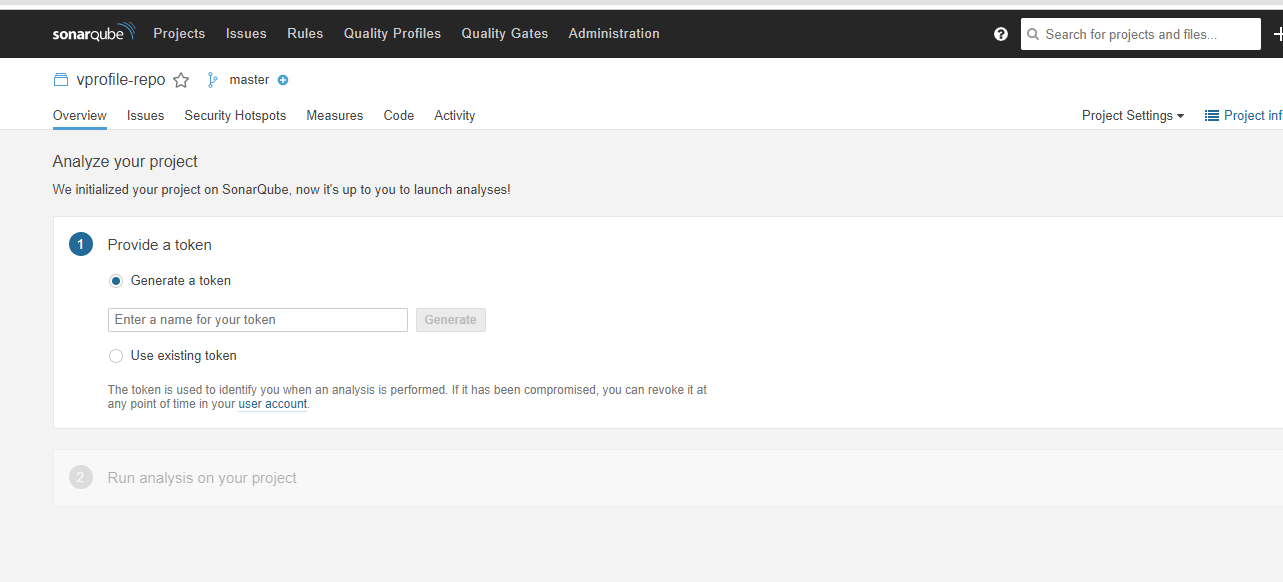
Agent should be connected successfully,

\

In Jenkins add mysonarscanner4 under sonar qube scanner, since we have specified this name in jenkins file,

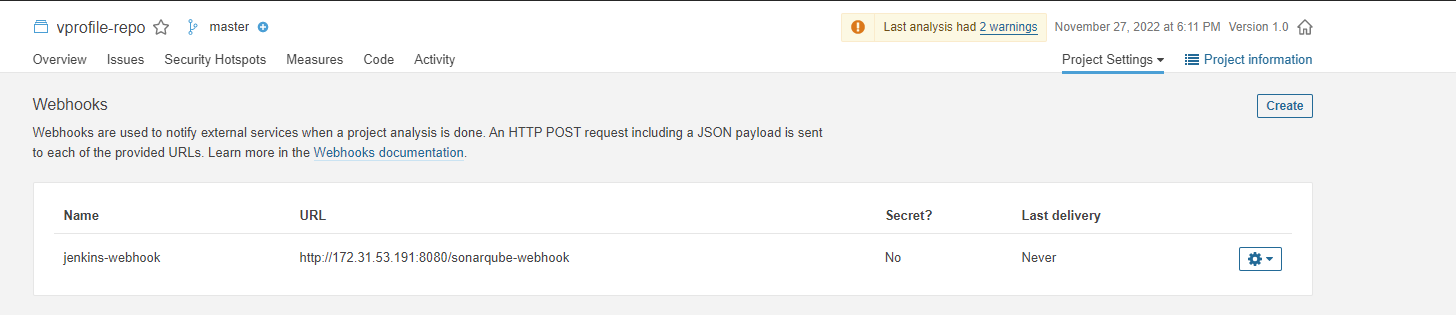


Create a new project in sonar qube,

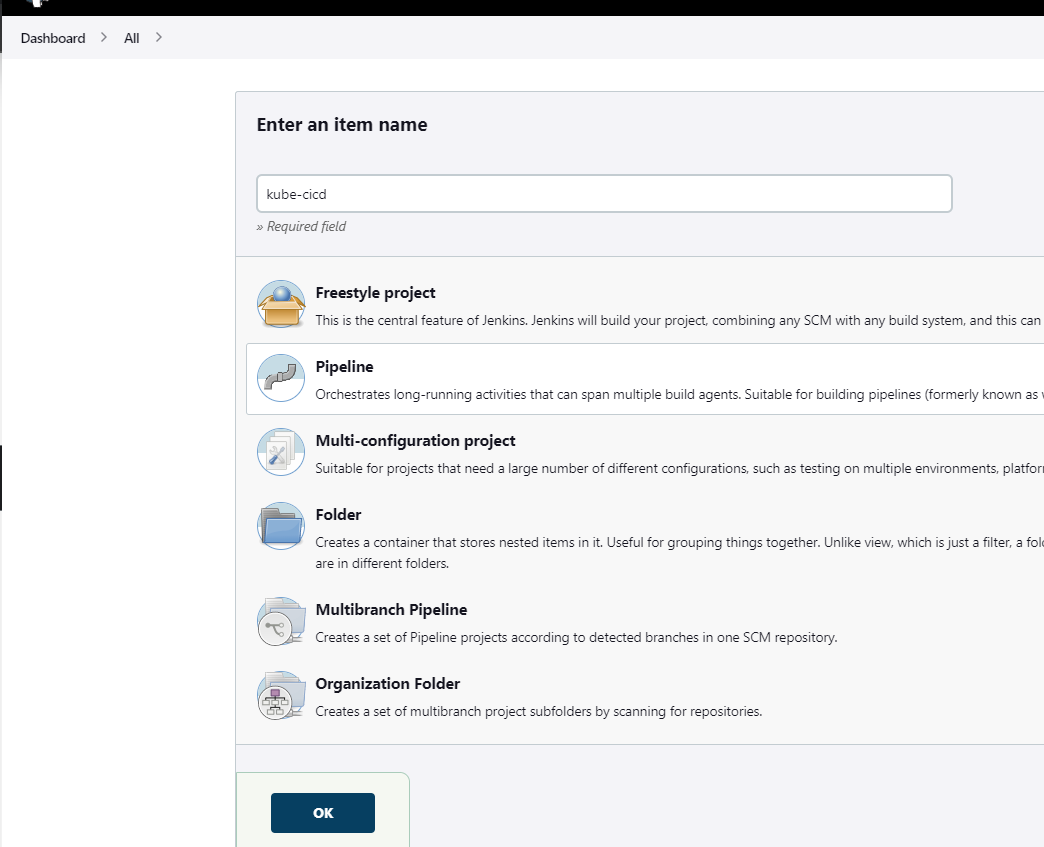


In project setting under webhook, create below..

Provide private ip of Jenkins.



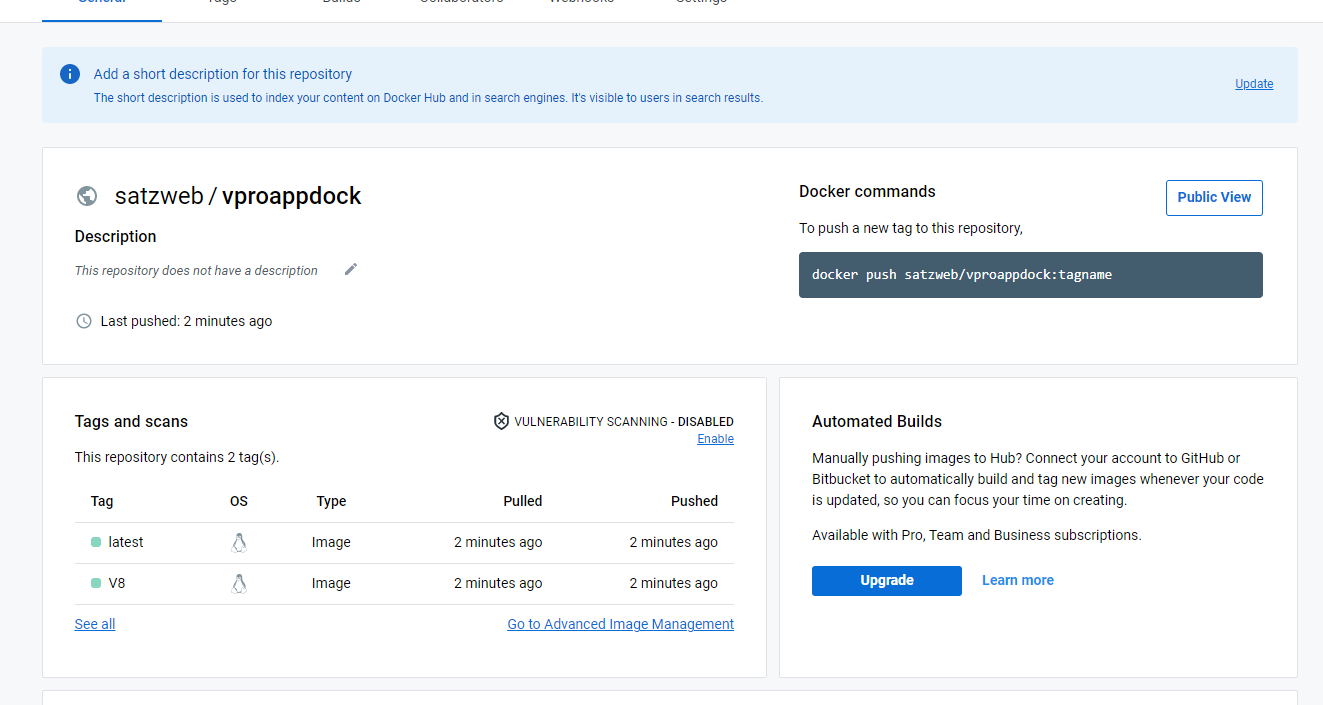
Create a pipeline project in jenkins,



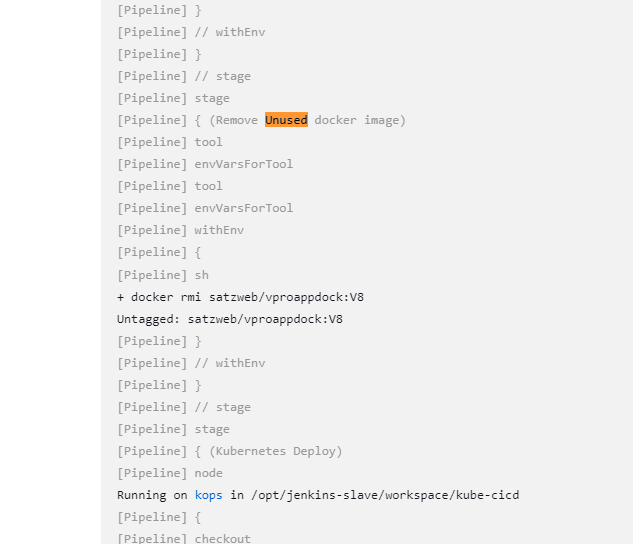
Pipeline finished successfully.



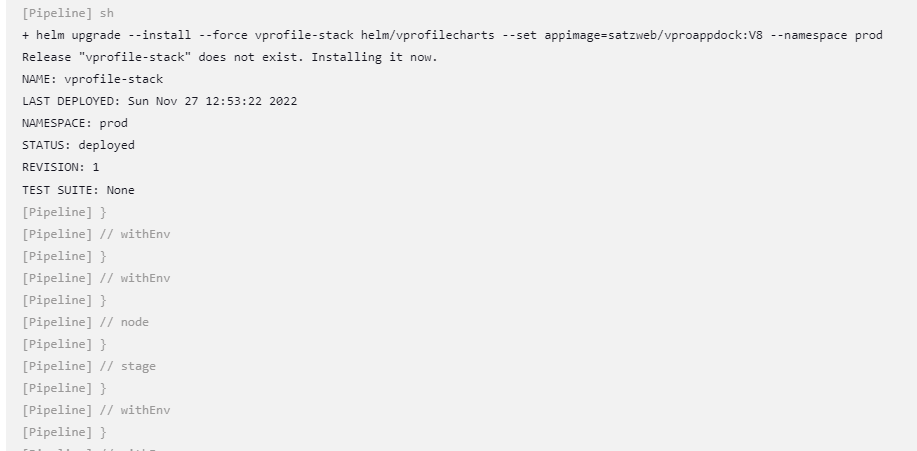
In the docker hub, we can see the images,

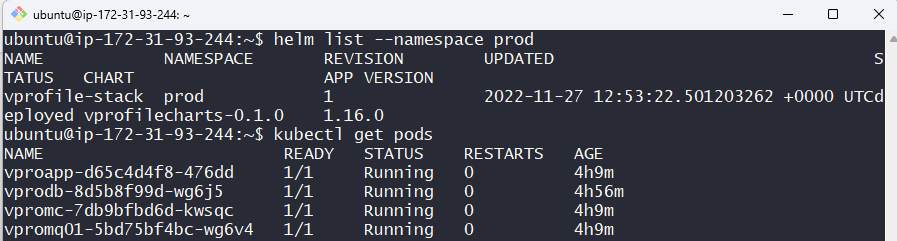


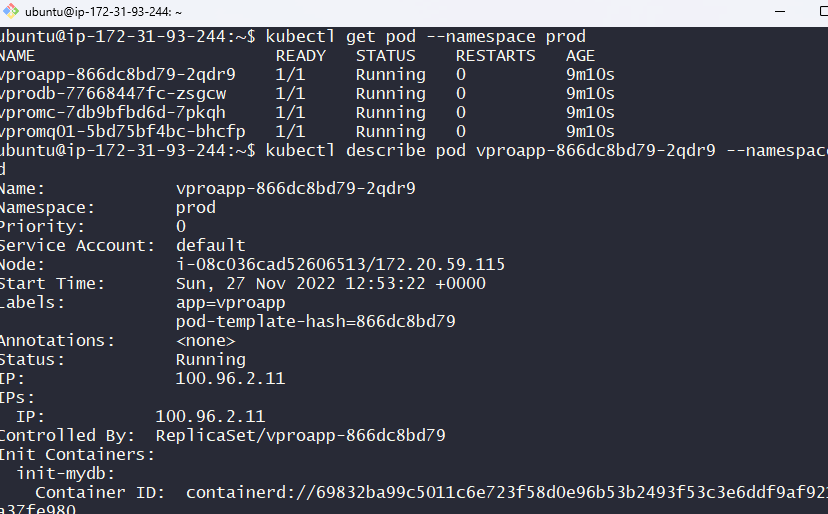
We can see the unused images are removed from the docker hub

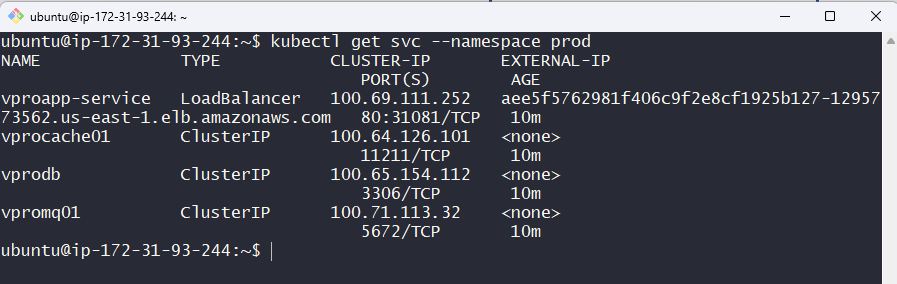


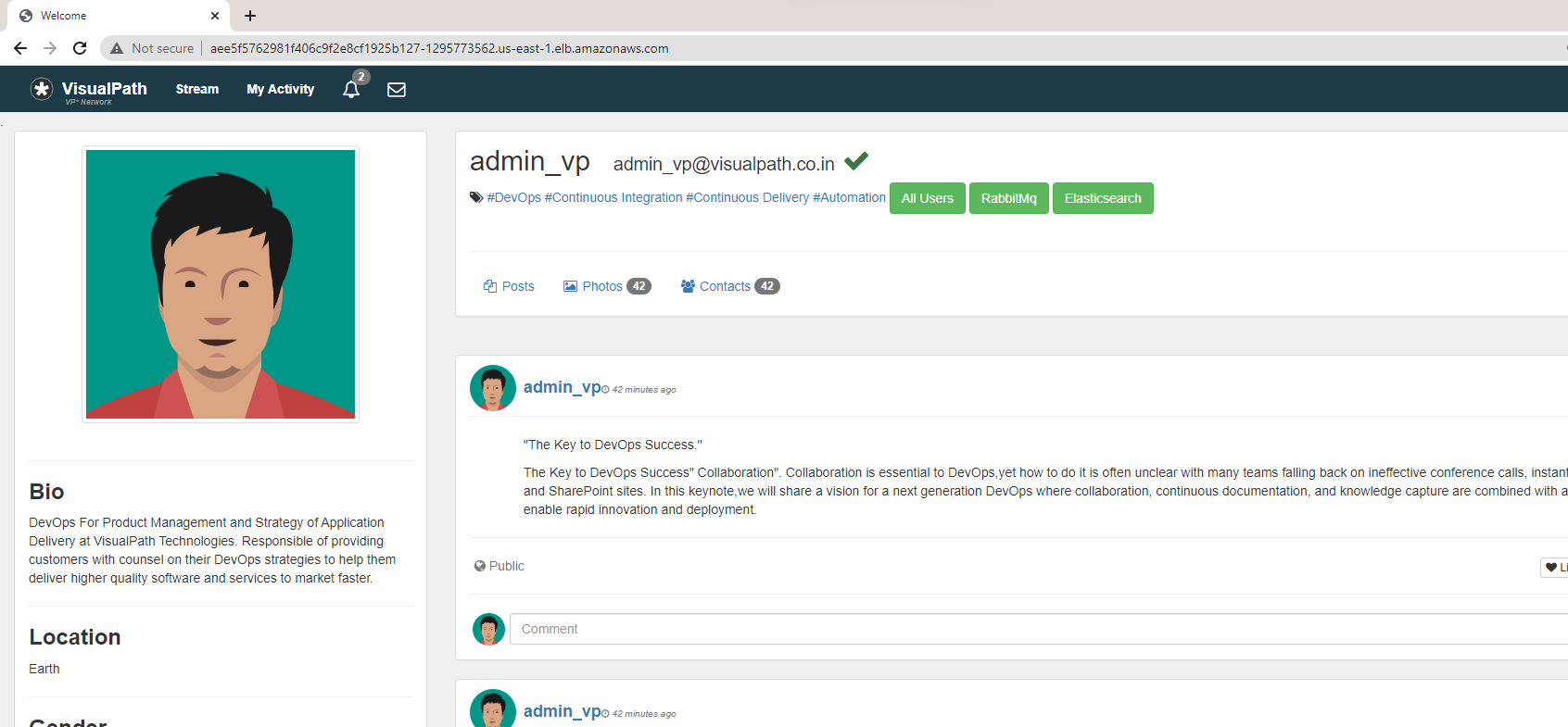
Can see the helm is installing the required stack,











Instead of Build manually in jenkins, we can update it to Poll SCM, so whenever a change in git repo, a new build will get triggered and deploy the stack to kuberntes.

