**Continuous Integration Using Jenkins, Nexus, Sonarqube, Docker, AWS ECS and Slack**

Github :- For Repository

Jenkins :- For CICD Integration

Nexus :- For Storing & Retriving our built Artifact

Sonarqube Scanner :- To check the Quality of Code

Docker :- To Containerize the App

AWS Services :- To continue the flow of execution

AWS ECR :- To Register our Image that we built

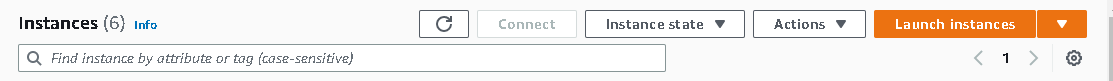
AWS ECS :- To Run on a Container

Slack :- To Get the Notifications of the Jobs(Execution)

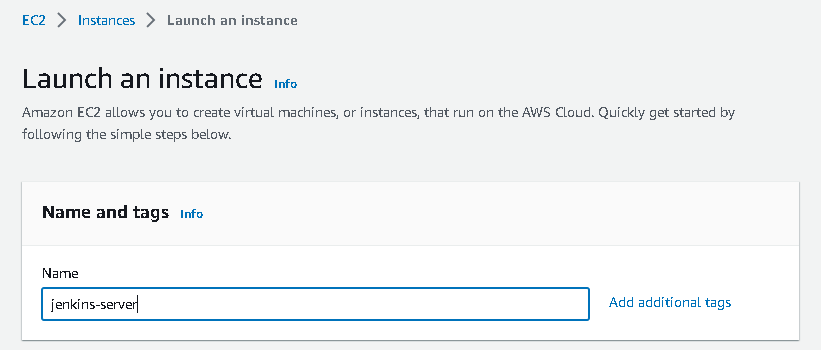
1. Installation of Jenkins:-

Let’s install Jenkins on Ubuntu Server

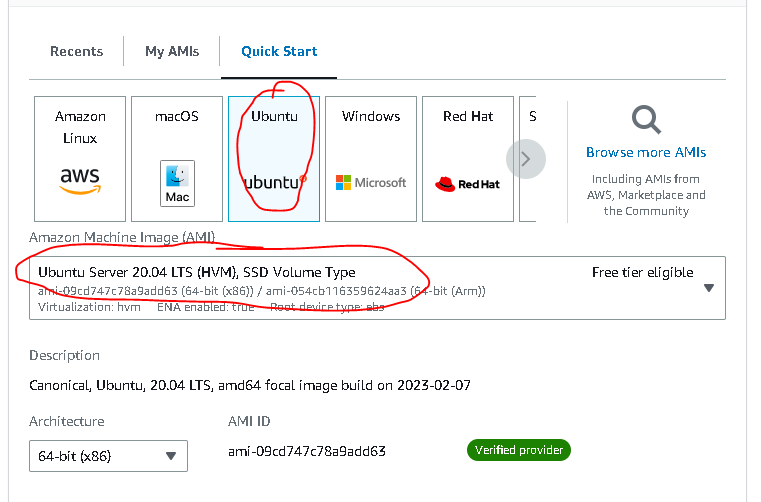
Go to EC2 > Launch Instance >



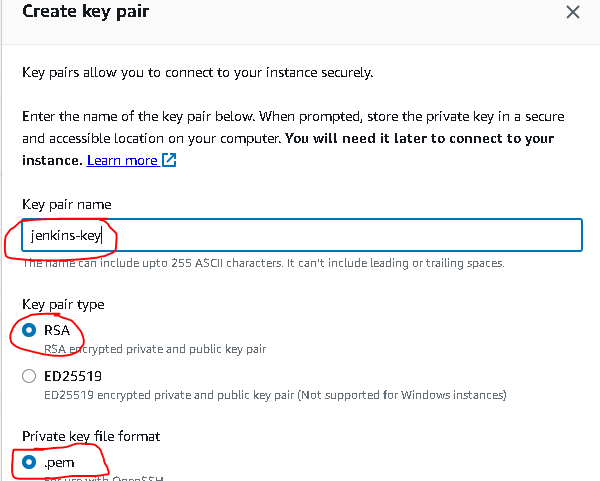
Name : Jenkins-server



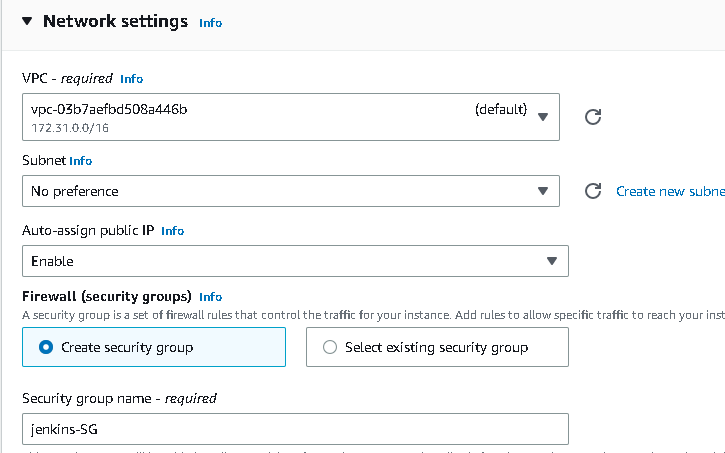
Select **Ubuntu 20.04 LTS**



Create a **New Key Pair**: Jenkins-key

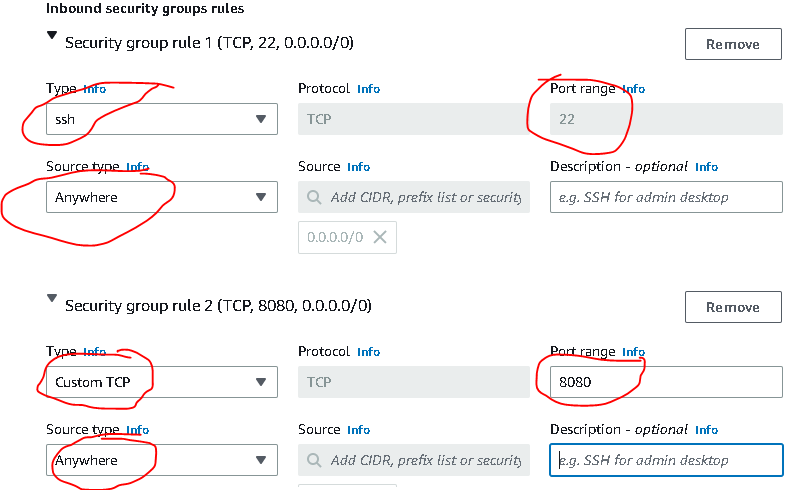


Create a New Security Group : Jenkins-SG



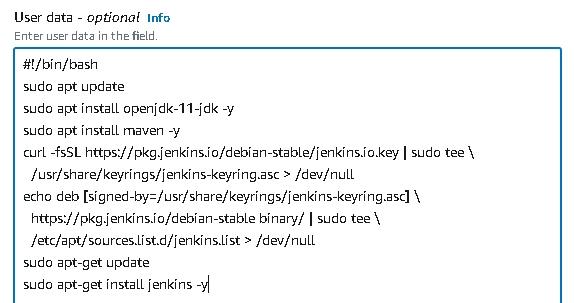
Add these **Inbound Rules**:- SSH : 22 : Anywhere

Custom TCP : 8080 : Anywhere

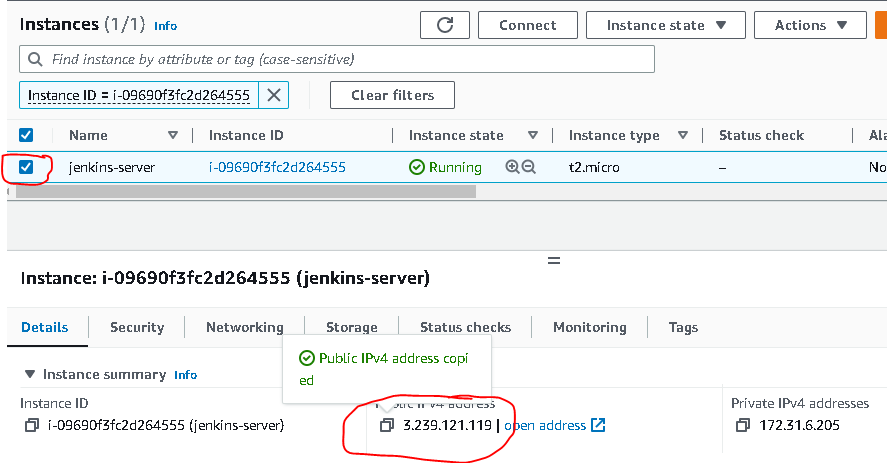


Click On Advanced Details > Go to User Data > Paste the Jenkins Installation Scripts which is given in the Link :

**Note : This script will not only install Jenkins, but also Java & Maven**

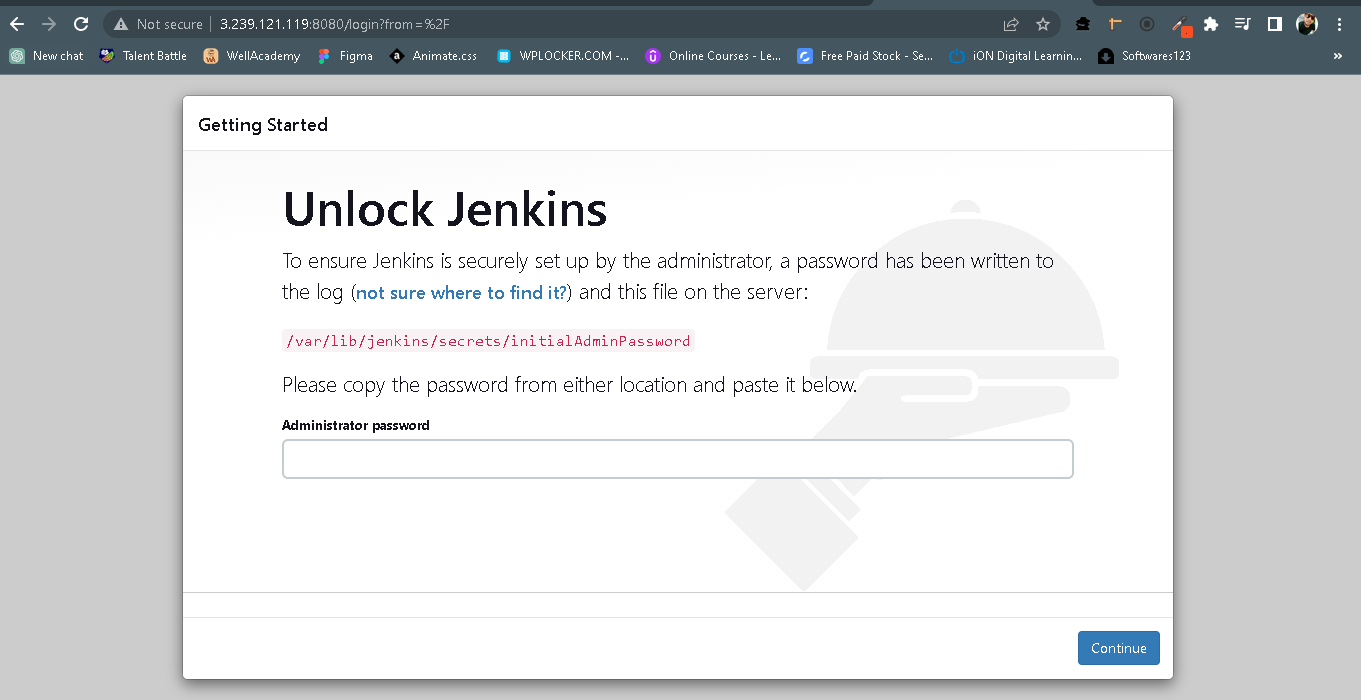
****

Now, Click on **Launch Instance**

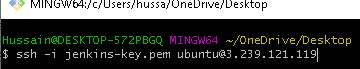
Now, copy the Public Ipv4 Address & paste it in the URL with Port 8080:



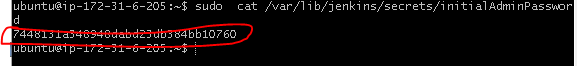
You will get the Jenkins welcome page



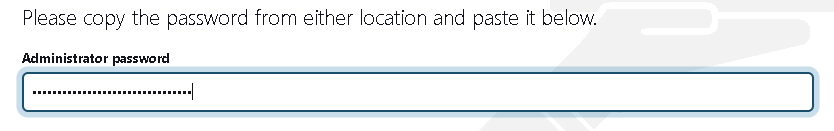
Now, Connect via SSH >



Read the content of this directory :- /var/lib/jenkins/secrets/initialAdminPassword

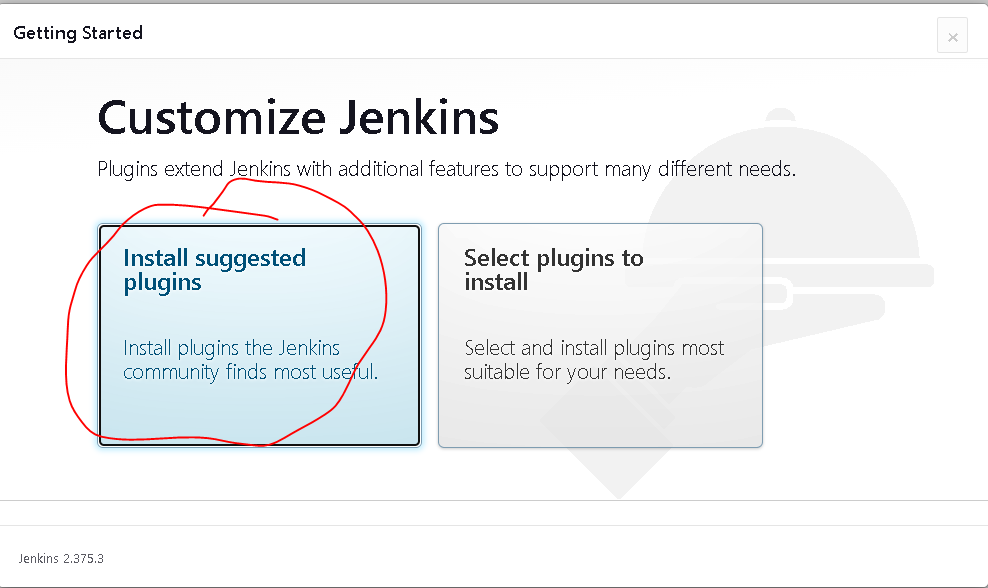


Copy the Admin Password & paste it in the Jenkins Page

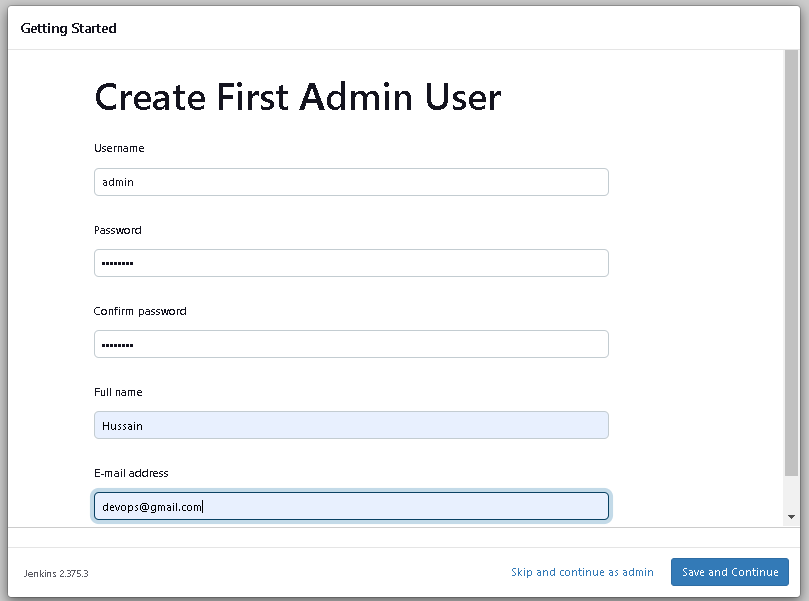


Click **Continue**

Click on **Install Suggested Plugins**

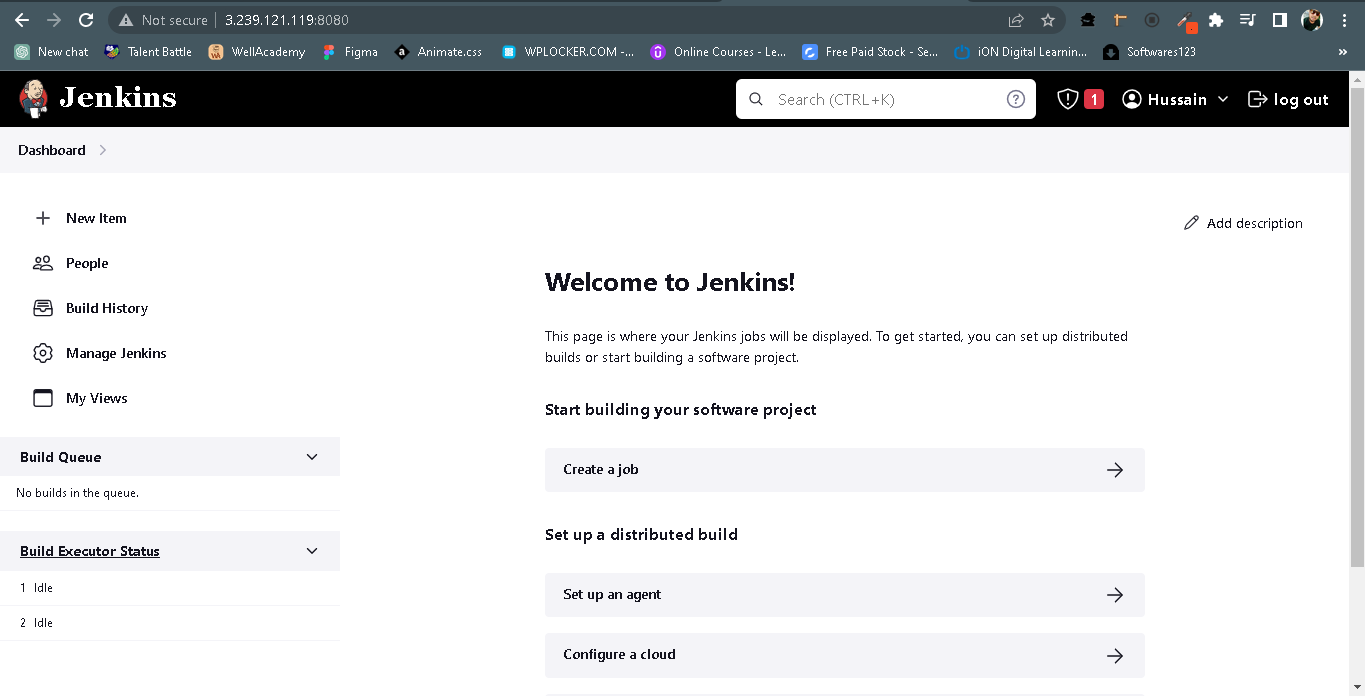


Setup the Credentials >

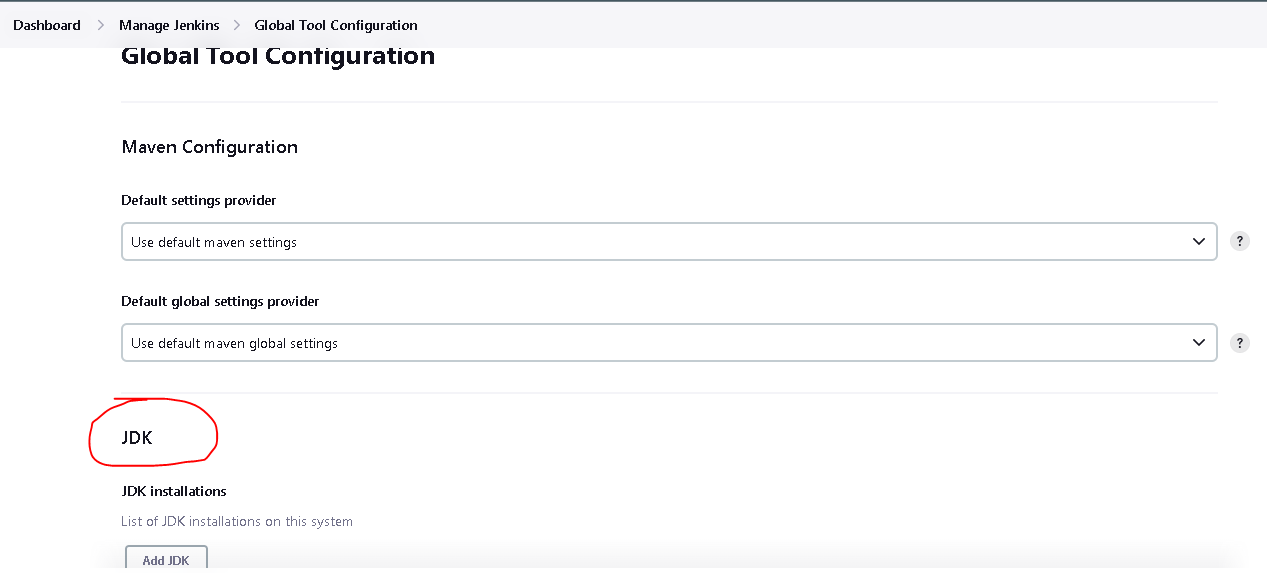


Click on **Save & Continue** > **Save & Finish** > **Start Using Jenkns**

**You will see the UI as below:-**

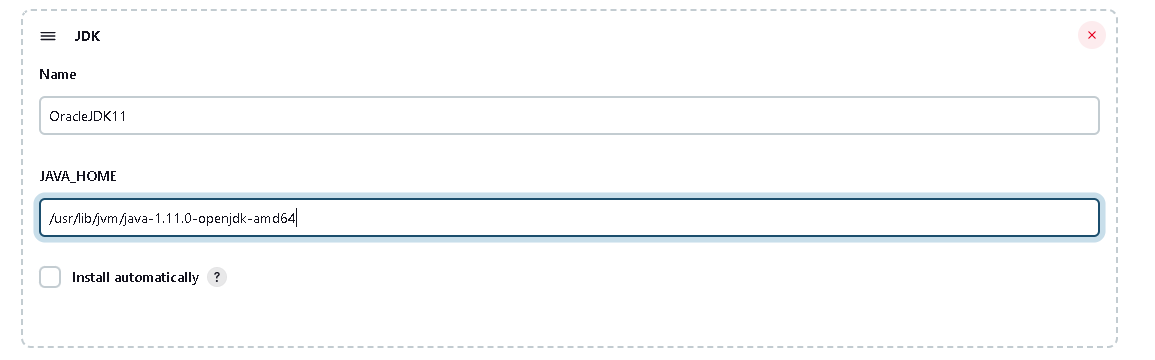


Now, Go to Manage Jenkins > Global Tool Configuration > JDK > Click on Add JDK

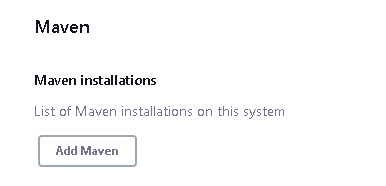


Name : OracleJDK11 (remember it)

Path : /usr/lib/jvm/java-1.11.0-openjdk-amd64



On that page only, Go to MAVEN : Click on Add Maven



Name : MAVEN3



Then Click on **SAVE**

1. **Flow of Continuous Integration Pipeine:-**

Developer

(Jenkins) (Maven)

Github Fetch Code Build

Code Analysis (Sonarqube)

Upload Artifact (Nexus)

1. **Plugins for CI:-**

Goto Manage Jenkins > Manage Plugin :-

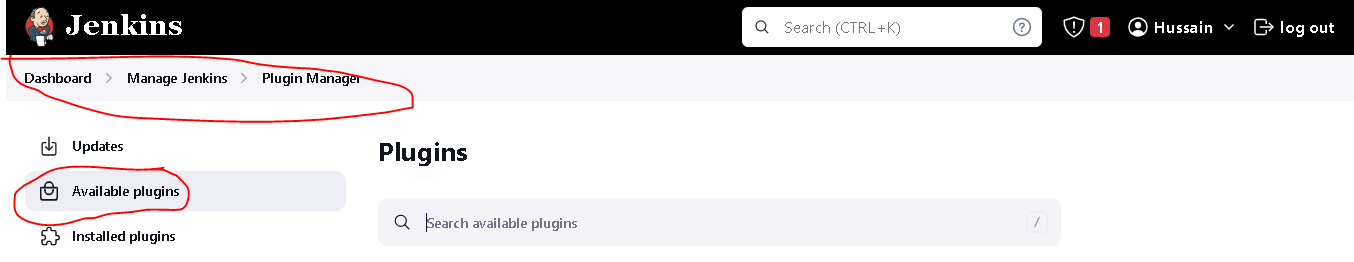
**Install these plugins:-**

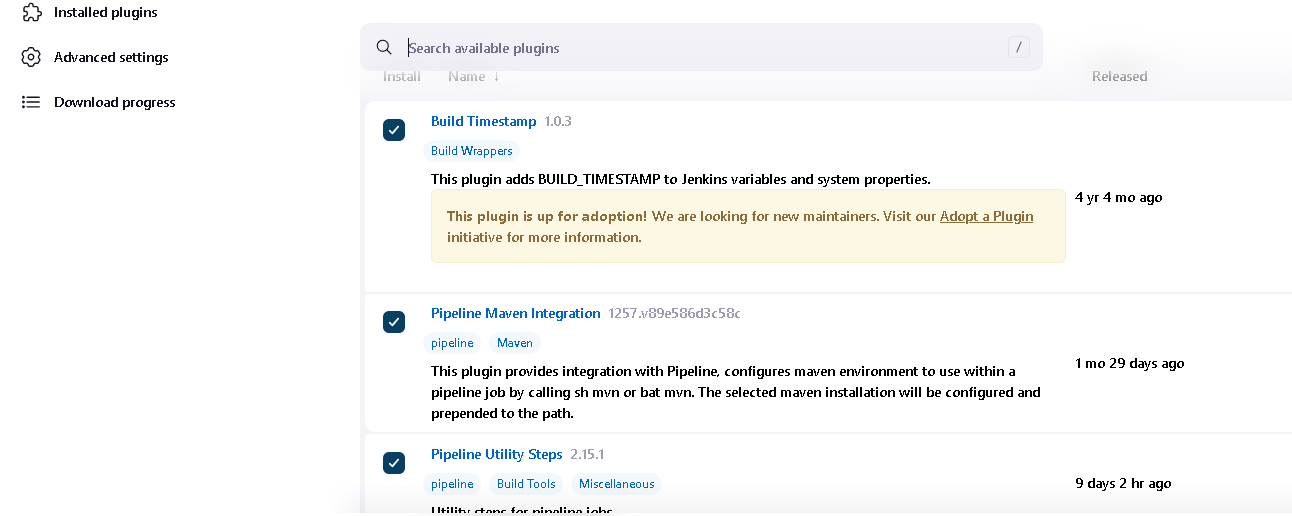
Build Timestamp - for versioning our artifact,

Pipeline Maven Integration,

Pipeline Utility Steps,

Git (if installed, then it won’t show)

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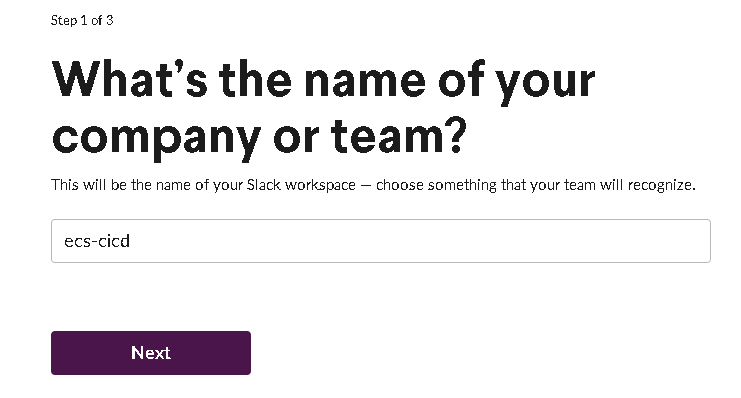
**Click Install without Restart**

1. **Slack Setup:-**

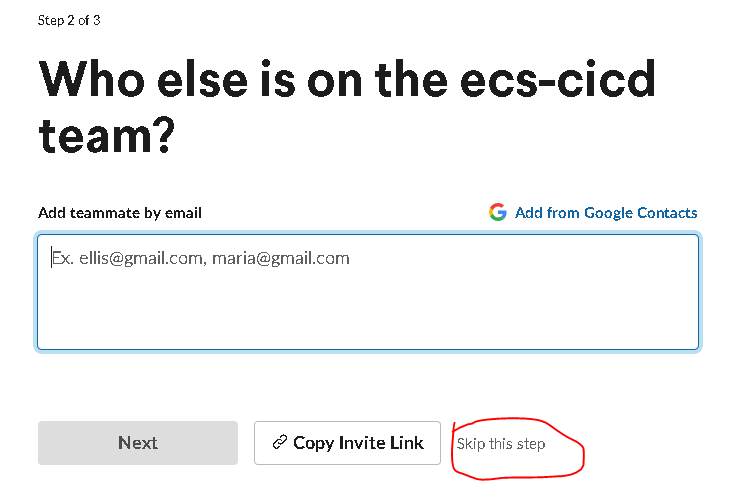
Slack setup is used to get the notification whether our build job pass or fail.

Go to **Slack** in google or in application on your local machine **> Sign Up** with your gmail account.

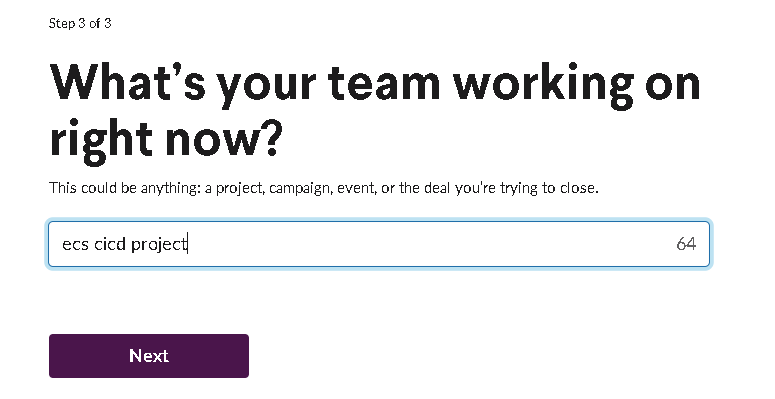
Give a **Workspace Name** : ecs-cicd

 Click Next

Add Teammates mail id’s or skip this step (I’m skipping this step for now).

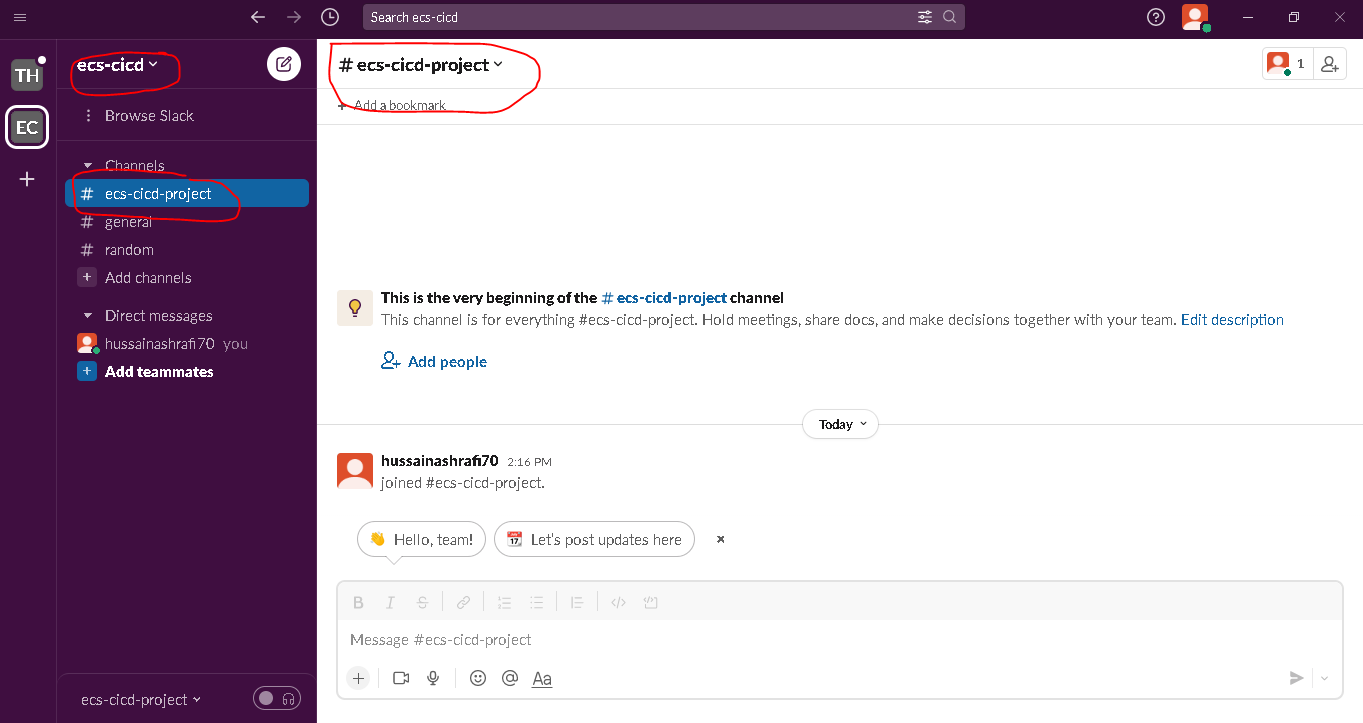


Give a **channel name** : ecs-cicd-project

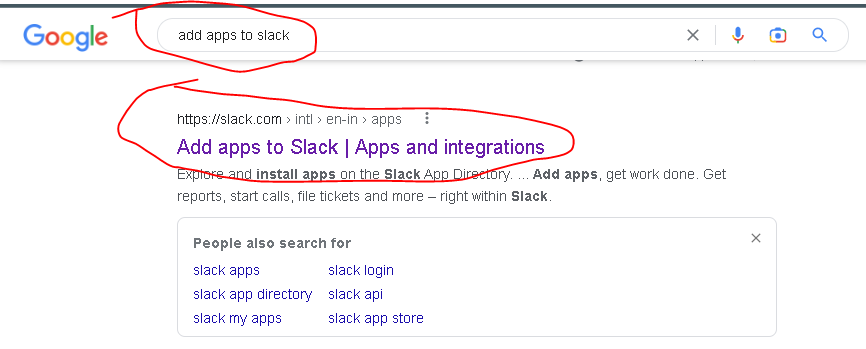


Click **Next**

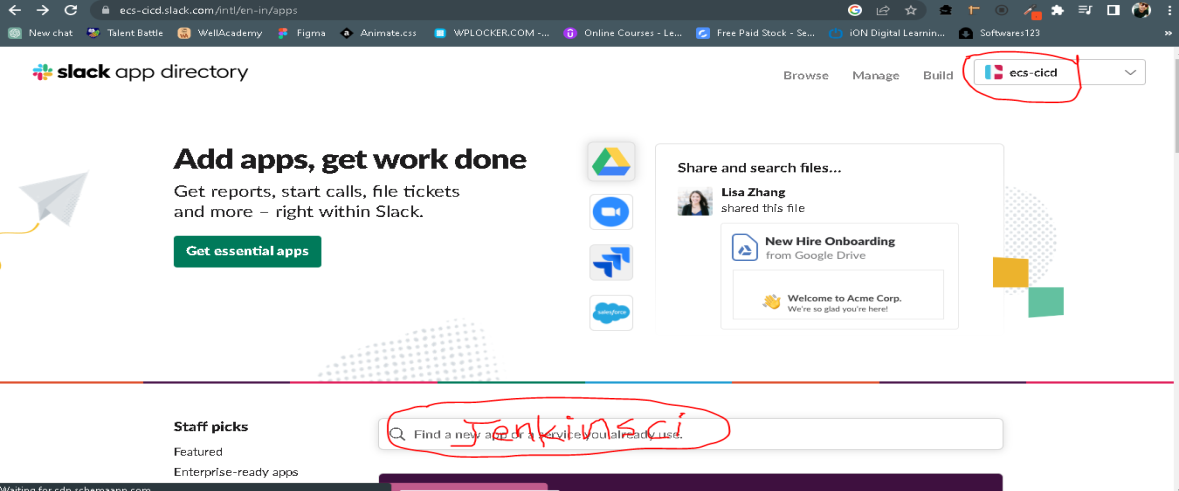
You will see the Dashboard like below:-



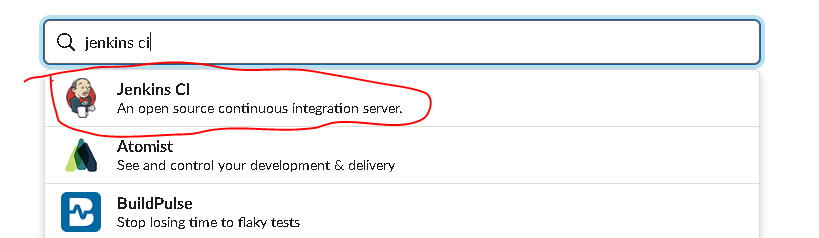
Now, go to Google > Type add apps to slack > Click on Adds apps to slack link | Apps and integrations



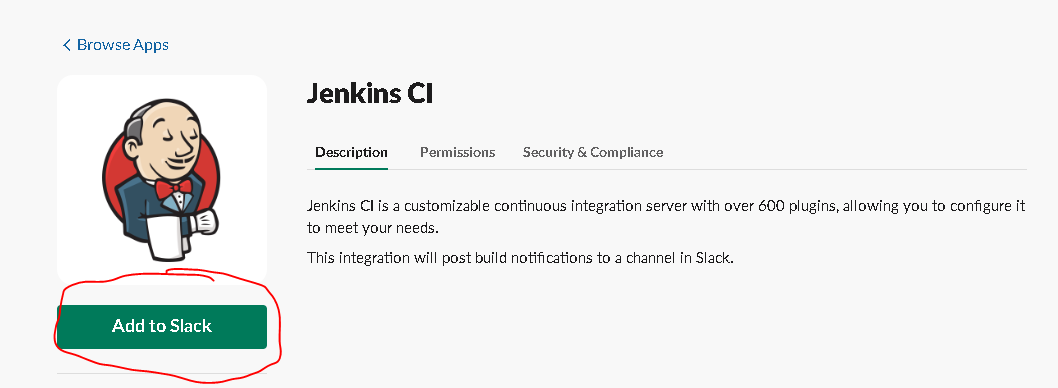
You will automatically redirected to your created workspace(ecs-cicd) and in search bar, type Jenkins ci



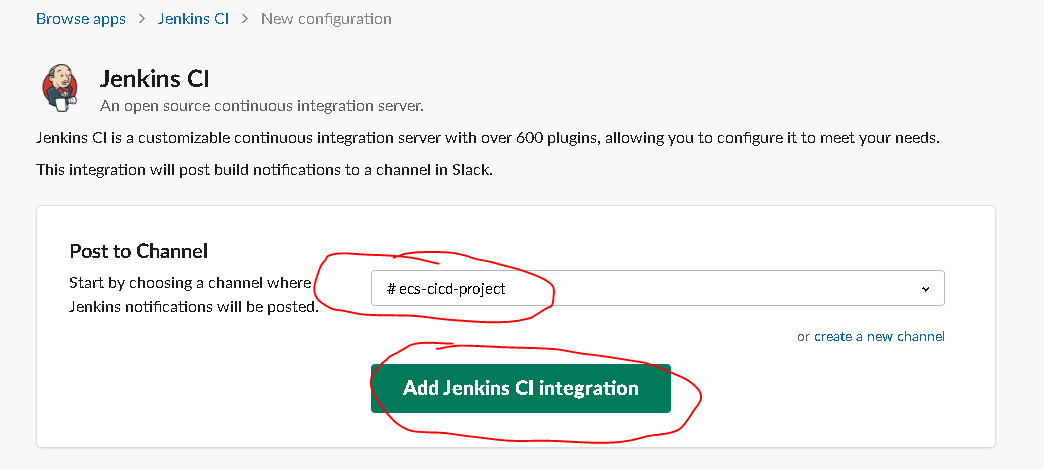
Click on Jenkins Ci



Click on **Add to Slack**

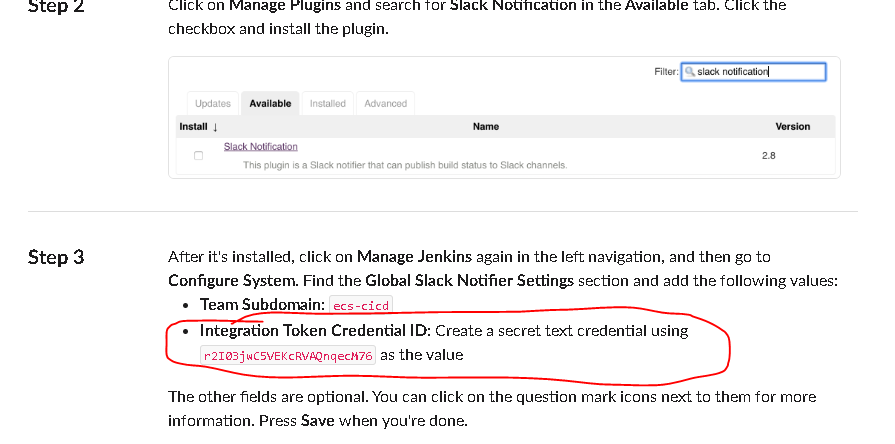


Now, **Choose our channel** : ecs-cicd-project



Click **Add Jenkins CI Integration**

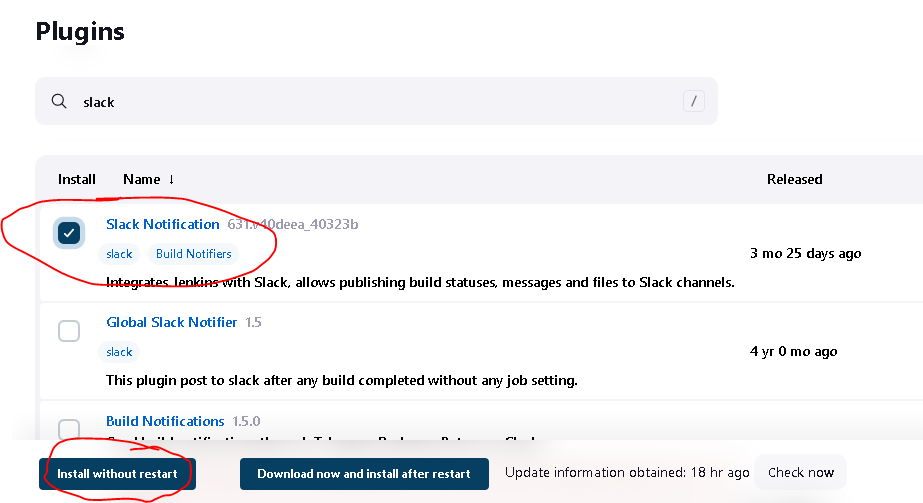
**In Step 3, Copy the Integration Token & paste somewhere(notepad)**



And **Scroll Down** & click **Save Settings**

**Now, Come to Jenkins Dashboard**

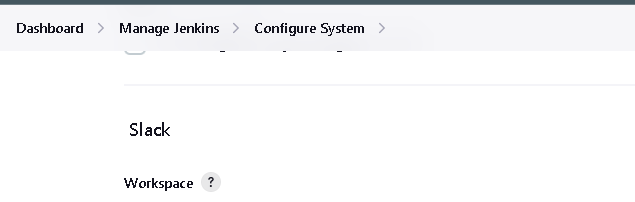
Go to Manage Jenkins > Manage Plugins > Install **Slack Notification**



Click on **Install without restart**

Now Goto Manage Jenkins > configure System >

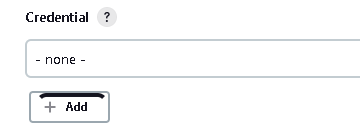
Scroll Down, you will see the Slack settings



Give our **workspace name**: ecs-cicd



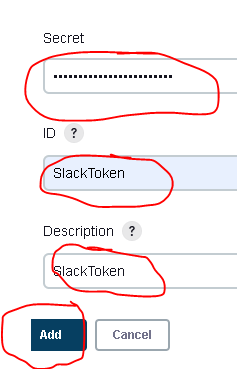
Click on Add to add Credentails



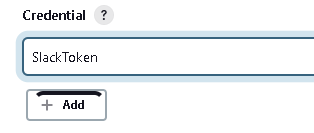
Select **kind** : Secret Text



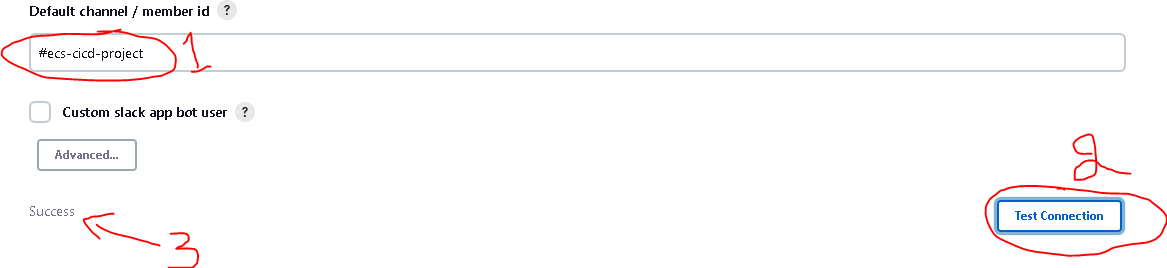
Paste our Slack token from Notepad that we copied earlier & Give any ID name, description. Click on **Add**



Now **Select** SlackToken



Give our channel name: #ecs-cicd-project



Click on **Test Connection**, you will get the success msg(means your successfully configured..!)

Now Click on **Sav**

1. **Docker Installation on Jenkins Server:-**

Connect to Jenkins server via SSH

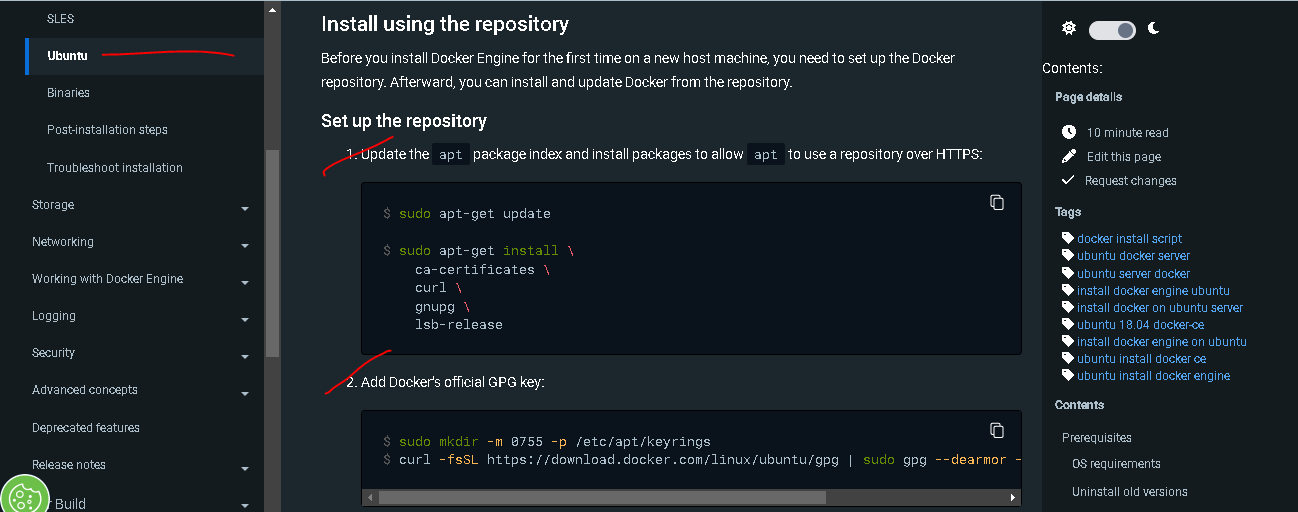


Be the Root user :- sudo su

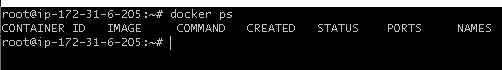


Now go to this link -> <https://docs.docker.com/engine/install/ubuntu/>

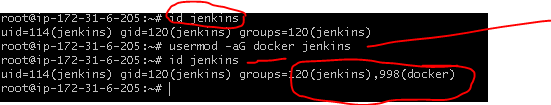
Install Docker as per the documentation:-



Once it is installed, validate the docker :- docker ps



Now, add our **Jenkins** **user** to the **Docker** **Group**. So that the Jenkins will use the docker.



**Install** **AWSCLI** for future purpose while delivering the artefact

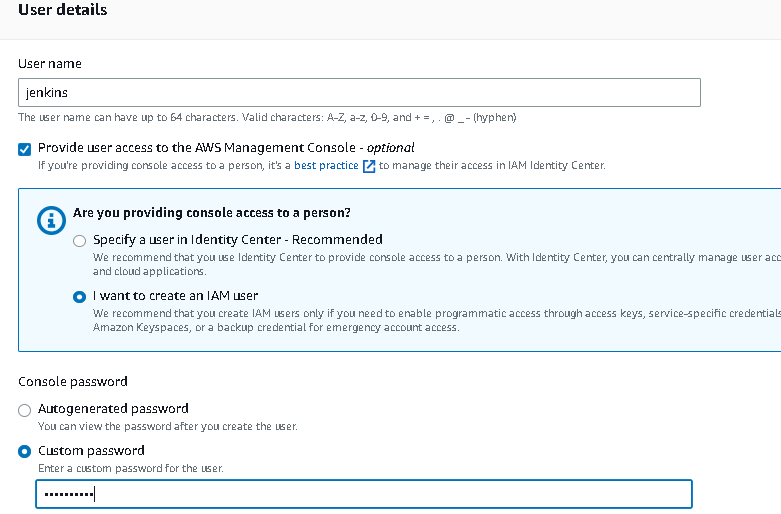


Now **reboot** the server



Now, Come to AWS Console > IAM > Add Users

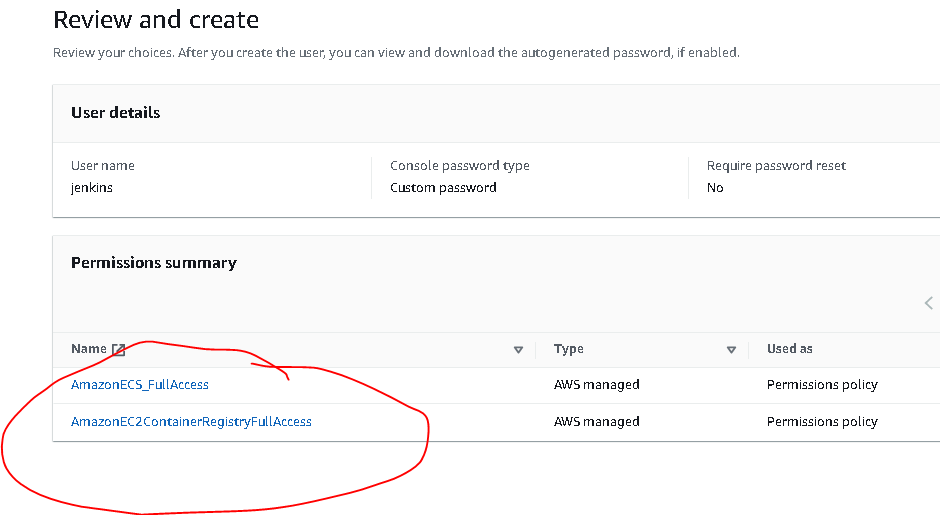
User Name : jenkins



Click **Next**

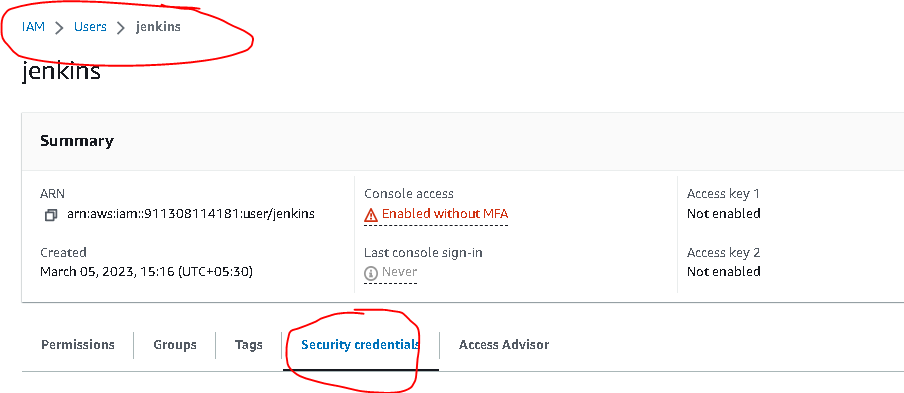
**Now add permissions:-**

AmazonEC2\_FullAccess & AmazonEC2ContainerRegistryFullAccess

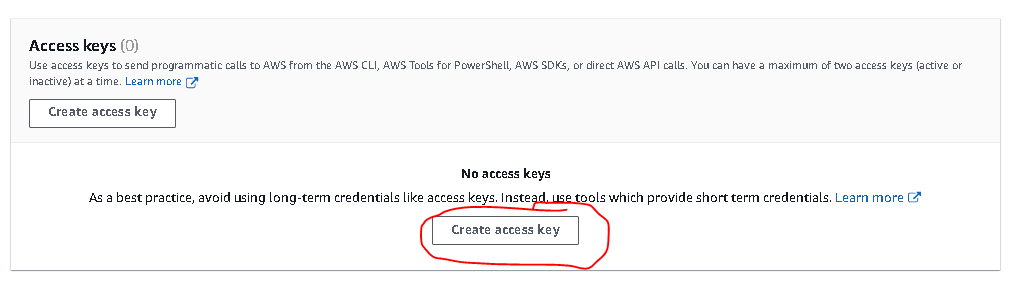


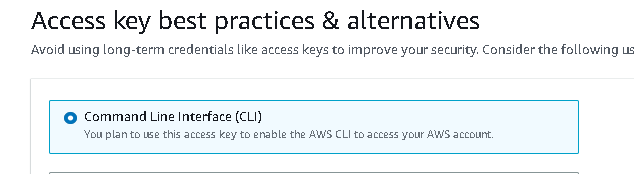
Click **Create User**

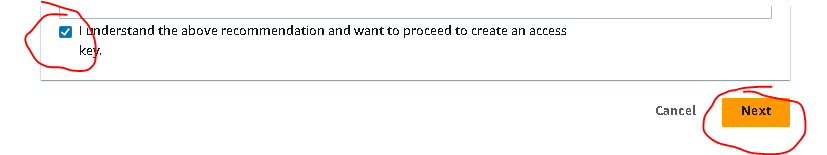
Now, Click our user (jenkins) > Security Credentails



Click on **Create Access Key**

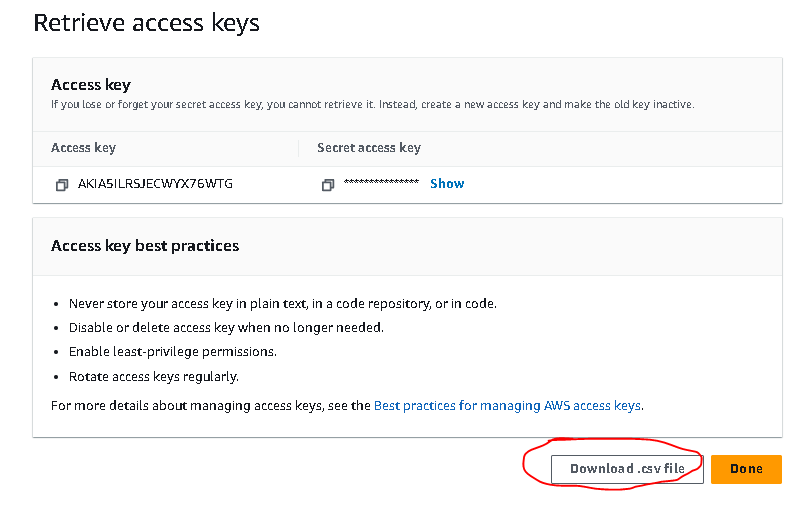






Click Next > Click Create > Download the CSV file > Done

Note:- Keep it safe the CSV file somewhere

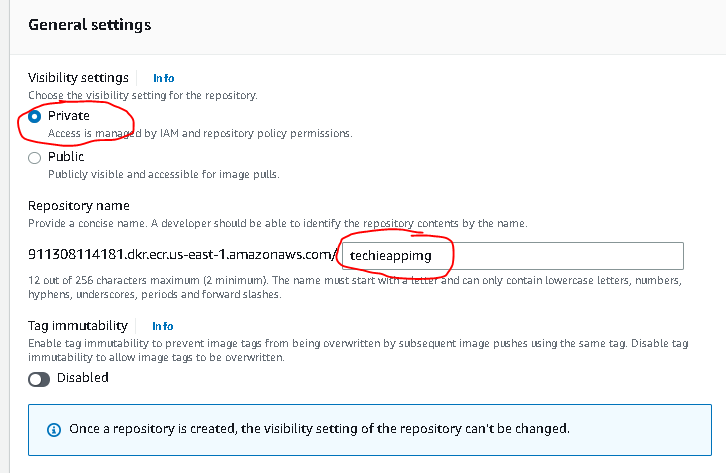


Now, Goto **AWS ECR**(Elastic Container Resgistry)

AWS > ECR > Get Started

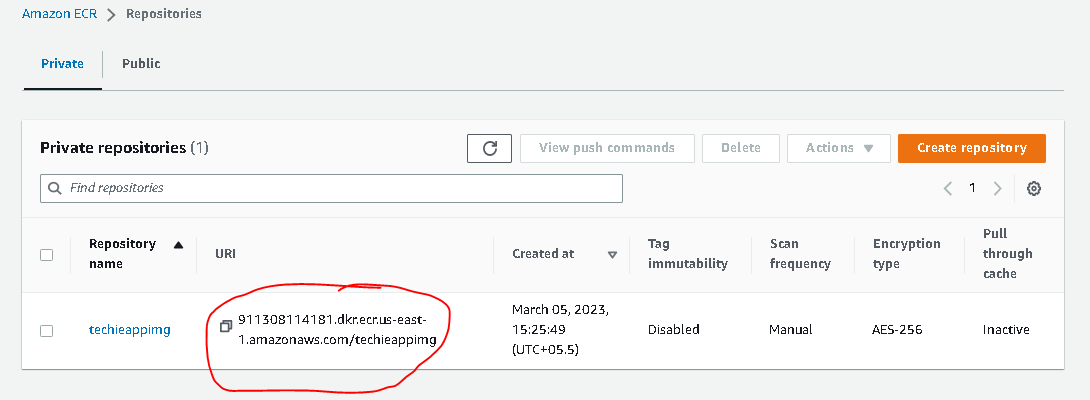
Keep it private

Repo Name : techieappimg



Click on **Create Repository**

Copy the URI & store it somewhere in notepad

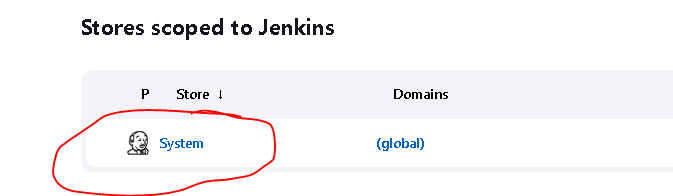


Now go to Jenkins Dashboard > Manage Jenkins > Manage Plugins > Available

Install these plugins :

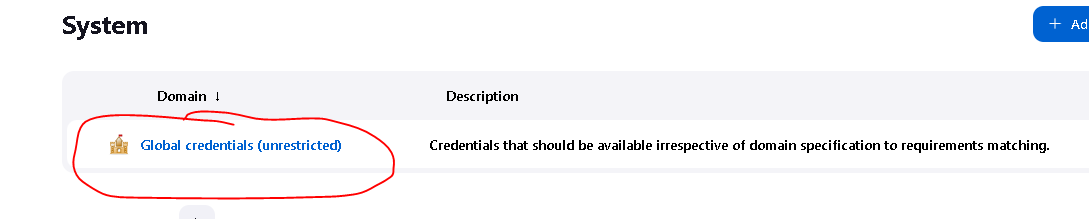
* Docker
* Docker Pipeline
* Amazon ECR
* Amazon web services SDK:All
* Cloudbees docker build and publish

Now Go to Manage Jenkins > Manage Credentials >



Click on System/Jenkins(in some systems)

Click on Global Credentials



Click on **Add Credentials**

Select **Kind : AWS Credentials**

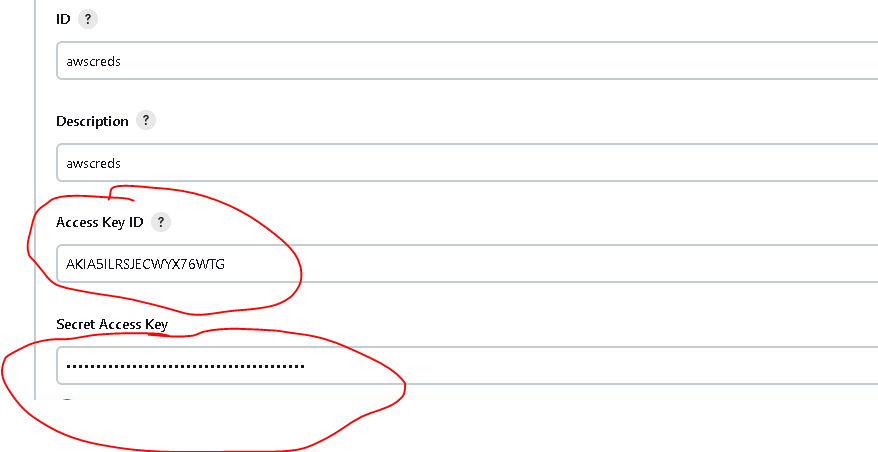


ID: awscreds (any name but remember)

Desc : awscreds (any desc)

Access Key : paste it which was downloaded earlier when we created the user Jenkins

Secret Key : paste it which was downloaded earlier when we created the user Jenkins



Click **Create**

1. Docker CICD Code
2. AWS ECS Setup Manually
3. AWS ECS with Jenkins Pipeline