JENKINS

Jenkins is a tool that is used for Automation, and it is an Open-source server that allows all the Developers to Build, Test and Deploy software.

- CONTINOUS INTEGRATION
- CONTINOUS DELIVER
- BUILD & TEST
- PLUGINS

HISTORY OF JENKINS

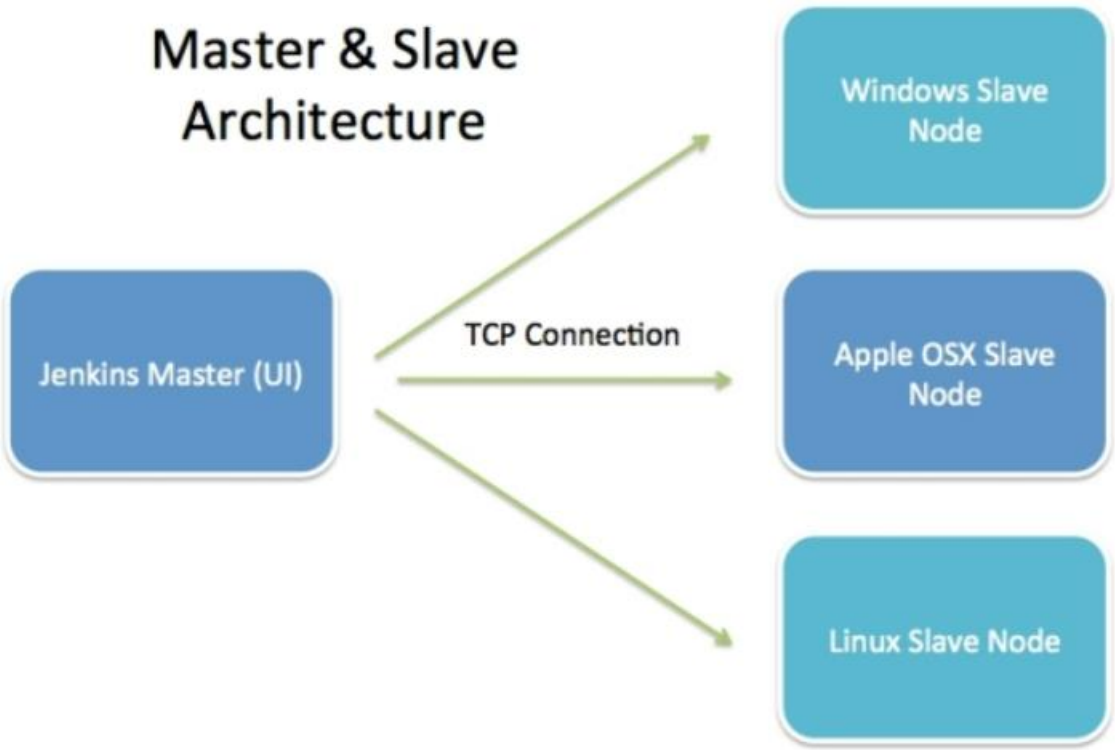
2004, Kohsuke Kawaguchi, Java developer, working at SUN Microsystems created an automation server called **Hudson** that automates build and test task

2011, Oracle who owned Sun Microsystems, Renamed it as **Jenkins**

ADVANTAGES OF JENKINS

- OPEN SOURCE
- EASY INSTALLATION
- 1000 OR MORE PLUGINS
- PORTABLE
- PLATFORM INDEPENDENT
- EASY SUPPORT

MASTER SLAVE ARCHITECTURE



JENKINS MASTER

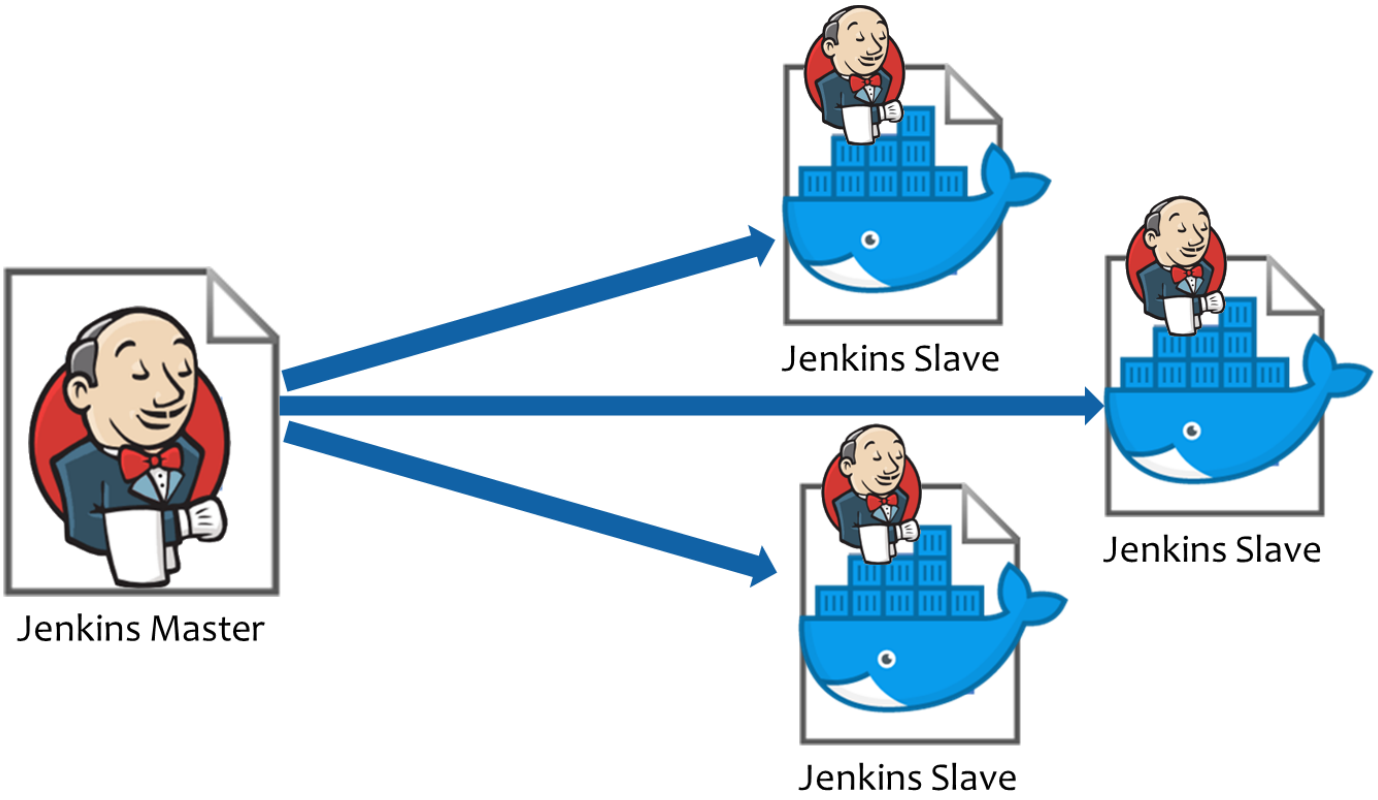
The main server of Jenkins is the Jenkins Master which runs on **8080** Port

- By default, one node (slave) is configured and running in Jenkins server
- can add more nodes using IP address, user name and password
- Scheduling build jobs
- Dispatching builds to the nodes/slaves for the actual execution.
- Monitor the nodes/slaves (possibly taking them online and offline as required).
- Recording and presenting the build results.

JENKINS SLAVE

Jenkins slave is used to execute the build jobs dispatched by the master.

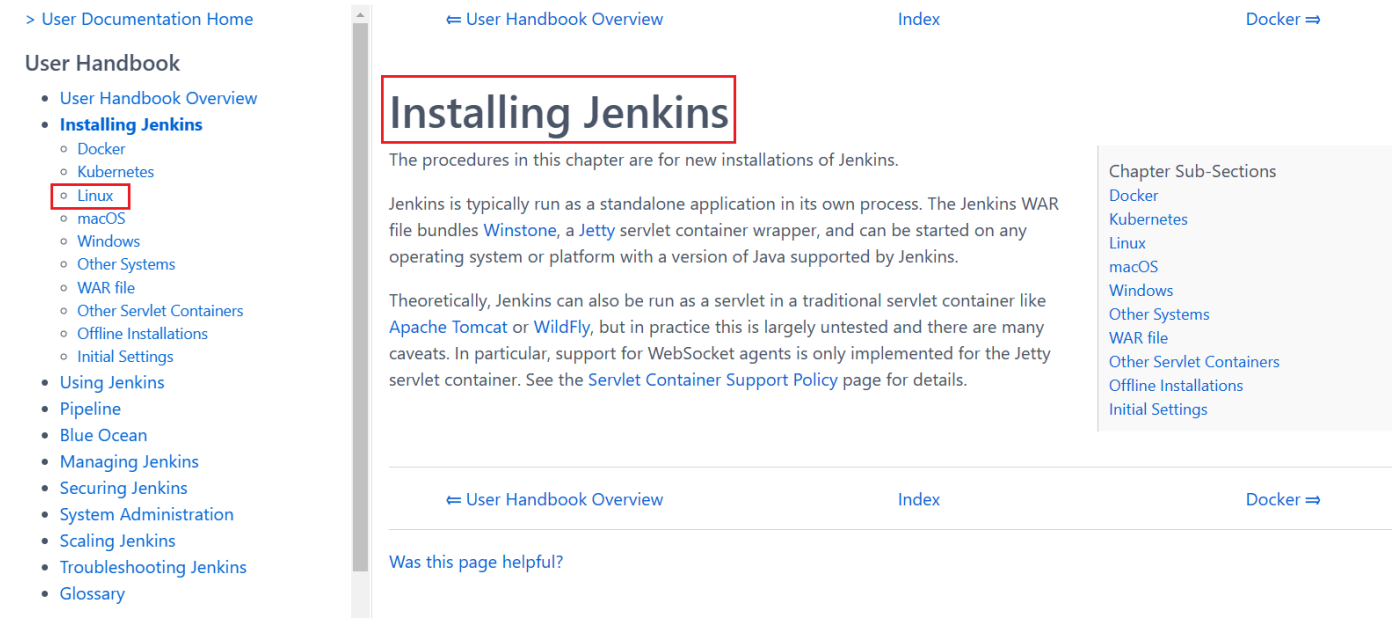
- Configure a project to always run on a particular slave machine, or particular type of slave machine



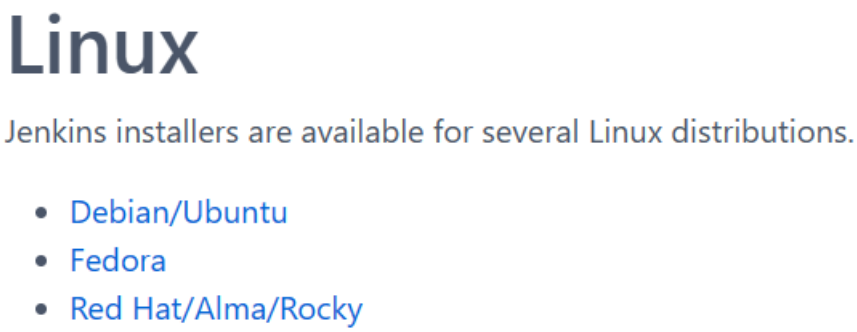
INSTALLATION OF JENKINS

To install **JENKINS** in **LINUX** server (Example: AMAZON LINUX)

[Java is a pre-requisite for Jenkins, Java to be installed in server before installing Jenkins]



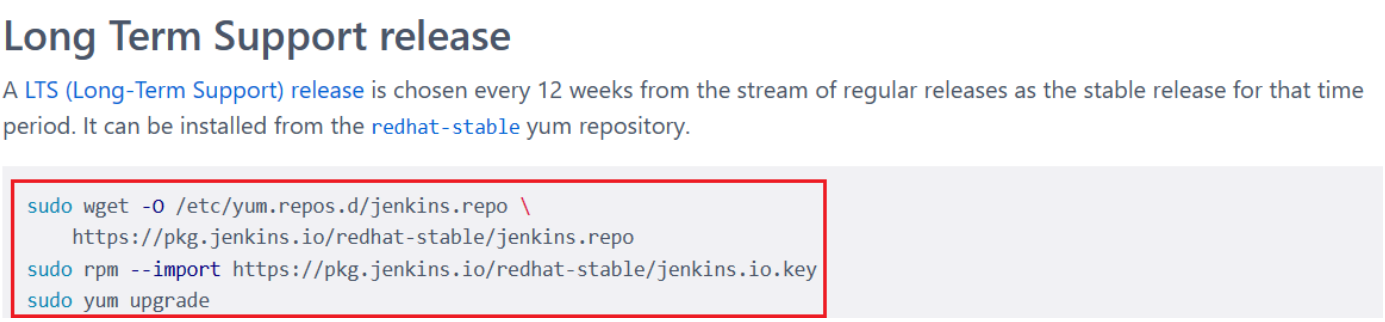
Decide which flavour of Linux to be installed



[Creating below example with Amazon Linux server]

STEP 1: Create a EC2 Instance (Name: Jenkins) with ALL TCP enabled in Security Group

STEP 2: Login as "**ec2-user**" and enter the below commands



```
login as: ec2-user
Authenticating with public key "ANSIBLE0703" from agent

       __|  __|_  )
       _|  (     /   Amazon Linux 2 AMI
      ___|\___|___|

https://aws.amazon.com/amazon-linux-2/
[ec2-user@ip-172-31-61-216 ~]$ sudo su - root
[root@ip-172-31-61-216 ~]# sudo wget -O /etc/yum.repos.d/jenkins.repo \
> https://pkg.jenkins.io/redhat-stable/jenkins.repo
--2023-03-13 18:25:44--  https://pkg.jenkins.io/redhat-stable/jenkins.repo
Resolving pkg.jenkins.io (pkg.jenkins.io)... 146.75.34.133, 2a04:4e42:78::645
Connecting to pkg.jenkins.io (pkg.jenkins.io)|146.75.34.133|:443... connected.
HTTP request sent, awaiting response... 200 OK
Length: 85
Saving to: '/etc/yum.repos.d/jenkins.repo'

100%[=====================================================================================================================>] 85          --.-K/s   in 0s

2023-03-13 18:25:44 (5.60 MB/s) - '/etc/yum.repos.d/jenkins.repo' saved [85/85]
```

```
[root@ip-172-31-61-216 ~]# sudo rpm --import https://pkg.jenkins.io/redhat-stable/jenkins.io.key
```

```
[root@ip-172-31-61-216 ~]# sudo yum upgrade
Loaded plugins: extras_suggestions, langpacks, priorities, update-motd
amzn2-core
jenkins
jenkins/primary_db
No packages marked for update
```

STEP 3: Once above steps are completed, install **JAVA** using below commands:

```
[root@ip-172-31-61-216 ~]# sudo yum install java -y
Loaded plugins: extras_suggestions, langpacks, priorities, update-motd
Resolving Dependencies
--> Running transaction check
---> Package java-17-amazon-corretto.x86_64 1:17.0.6+10-1.amzn2.1 will be installed
--> Processing Dependency: java-17-amazon-corretto-headless(x86-64) = 1:17.0.6+10-1.amzn2.1 for package: 1:java-17-amazon-corretto-17.0.6+10-1.amzn2.1.x86_64
--> Processing Dependency: giflib for package: 1:java-17-amazon-corretto-17.0.6+10-1.amzn2.1.x86_64
--> Processing Dependency: libXtst for package: 1:java-17-amazon-corretto-17.0.6+10-1.amzn2.1.x86_64
--> Processing Dependency: libXrandr for package: 1:java-17-amazon-corretto-17.0.6+10-1.amzn2.1.x86_64
--> Processing Dependency: libXrender for package: 1:java-17-amazon-corretto-17.0.6+10-1.amzn2.1.x86_64
--> Processing Dependency: libXt for package: 1:java-17-amazon-corretto-17.0.6+10-1.amzn2.1.x86_64
--> Processing Dependency: libXinerama for package: 1:java-17-amazon-corretto-17.0.6+10-1.amzn2.1.x86_64
--> Processing Dependency: libXi for package: 1:java-17-amazon-corretto-17.0.6+10-1.amzn2.1.x86_64
--> Processing Dependency: libX11 for package: 1:java-17-amazon-corretto-17.0.6+10-1.amzn2.1.x86_64
--> Running transaction check
---> Package giflib.x86_64 0:4.1.6-9.amzn2.0.2 will be installed
```

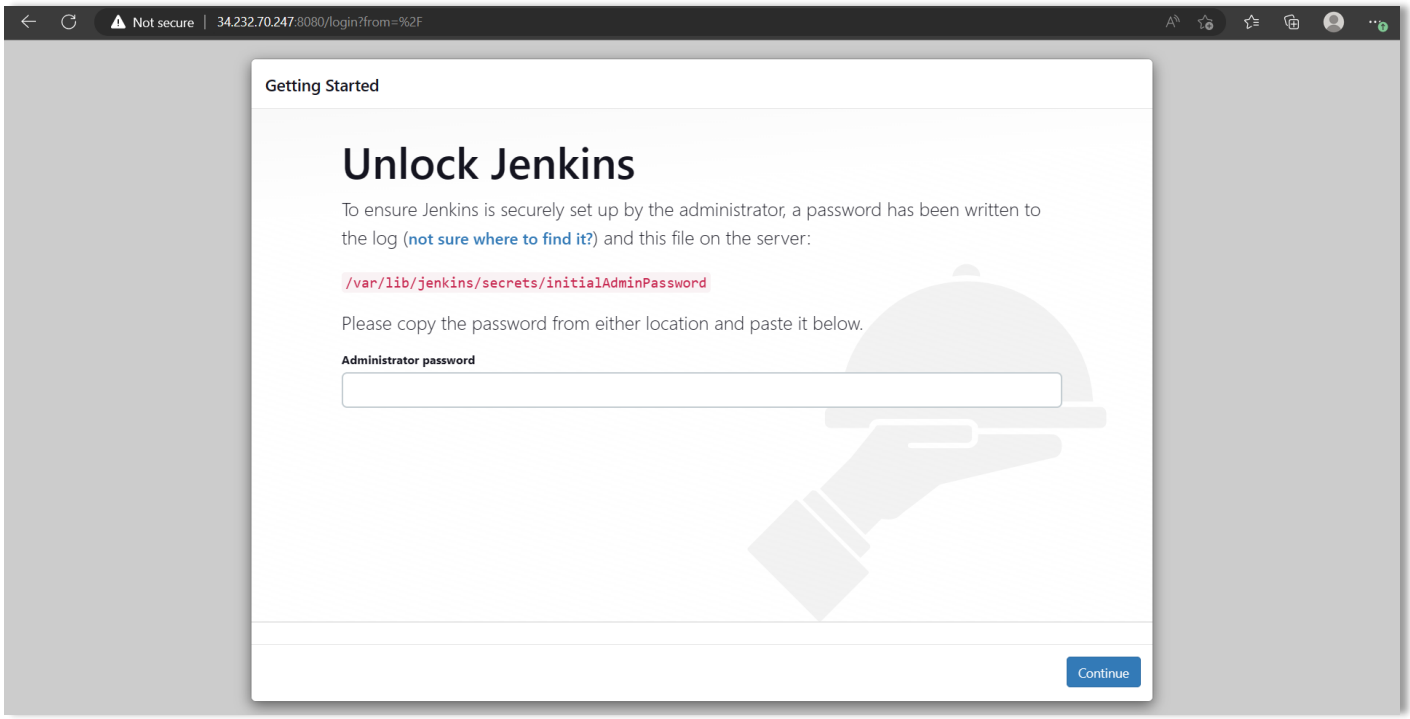
STEP 4: Install **JENKINS**

```
[root@ip-172-31-61-216 ~]# sudo yum install jenkins
Loaded plugins: extras_suggestions, langpacks, priorities, update-motd
Resolving Dependencies
--> Running transaction check
---> Package jenkins.noarch 0:2.387.1-1.1 will be installed
--> Finished Dependency Resolution

Dependencies Resolved

==============================================================================================================================================================
 Package                              Arch                               Version                                   Repository                           Size
==============================================================================================================================================================
Installing:
 jenkins                              noarch                             2.387.1-1.1                               jenkins                              94 M

Transaction Summary
==============================================================================================================================================================
Install  1 Package

Total download size: 94 M
Installed size: 94 M
Is this ok [y/d/N]: y
Downloading packages:
jenkins-2.387.1-1.1.noarch.rpm                                                                                                   |  94 MB  00:00:08
Running transaction check
Running transaction test
Transaction test succeeded
Running transaction
  Installing : jenkins-2.387.1-1.1.noarch                                                                                                             1/1
  Verifying  : jenkins-2.387.1-1.1.noarch                                                                                                             1/1

Installed:
  jenkins.noarch 0:2.387.1-1.1

Complete!
```

STEP 5: Start **JENKINS** and check the **STATUS**

```
[root@ip-172-31-61-216 ~]# sudo systemctl enable jenkins
Created symlink from /etc/systemd/system/multi-user.target.wants/jenkins.service to /usr/lib/systemd/system/jenkins.service.
[root@ip-172-31-61-216 ~]# sudo systemctl start jenkins
[root@ip-172-31-61-216 ~]# sudo systemctl status jenkins
● jenkins.service - Jenkins Continuous Integration Server
   Loaded: loaded (/usr/lib/systemd/system/jenkins.service; enabled; vendor preset: disabled)
   Active: active (running) since Mon 2023-03-13 18:30:33 UTC; 24min ago
 Main PID: 4375 (java)
   CGroup: /system.slice/jenkins.service
           └─4375 /usr/bin/java -Djava.awt.headless=true -jar /usr/share/java/jenkins.war --webroot=%C/jenkins/war --httpPort=8080

Mar 13 18:30:05 ip-172-31-61-216.ec2.internal jenkins[4375]: 3a26b0da435141329c8cca72f4c6b0fa
Mar 13 18:30:05 ip-172-31-61-216.ec2.internal jenkins[4375]: This may also be found at: /var/lib/jenkins/secrets/initialAdminPassword
Mar 13 18:30:05 ip-172-31-61-216.ec2.internal jenkins[4375]: ************************************************************
Mar 13 18:30:05 ip-172-31-61-216.ec2.internal jenkins[4375]: ************************************************************
Mar 13 18:30:05 ip-172-31-61-216.ec2.internal jenkins[4375]: ************************************************************
Mar 13 18:30:33 ip-172-31-61-216.ec2.internal jenkins[4375]: 2023-03-13 18:30:33.187+0000 [id=31]        INFO        jenkins.InitReactorRunner$1#onA...ization
Mar 13 18:30:33 ip-172-31-61-216.ec2.internal jenkins[4375]: 2023-03-13 18:30:33.213+0000 [id=25]        INFO        hudson.lifecycle.Lifecycle#onRe...running
Mar 13 18:30:33 ip-172-31-61-216.ec2.internal systemd[1]: Started Jenkins Continuous Integration Server.
Mar 13 18:30:33 ip-172-31-61-216.ec2.internal jenkins[4375]: 2023-03-13 18:30:33.315+0000 [id=47]        INFO        h.m.DownloadService$Downloadabl...staller
Mar 13 18:30:33 ip-172-31-61-216.ec2.internal jenkins[4375]: 2023-03-13 18:30:33.316+0000 [id=47]        INFO        hudson.util.Retrier#start: Perf...empt #1
Hint: Some lines were ellipsized, use -l to show in full.
```

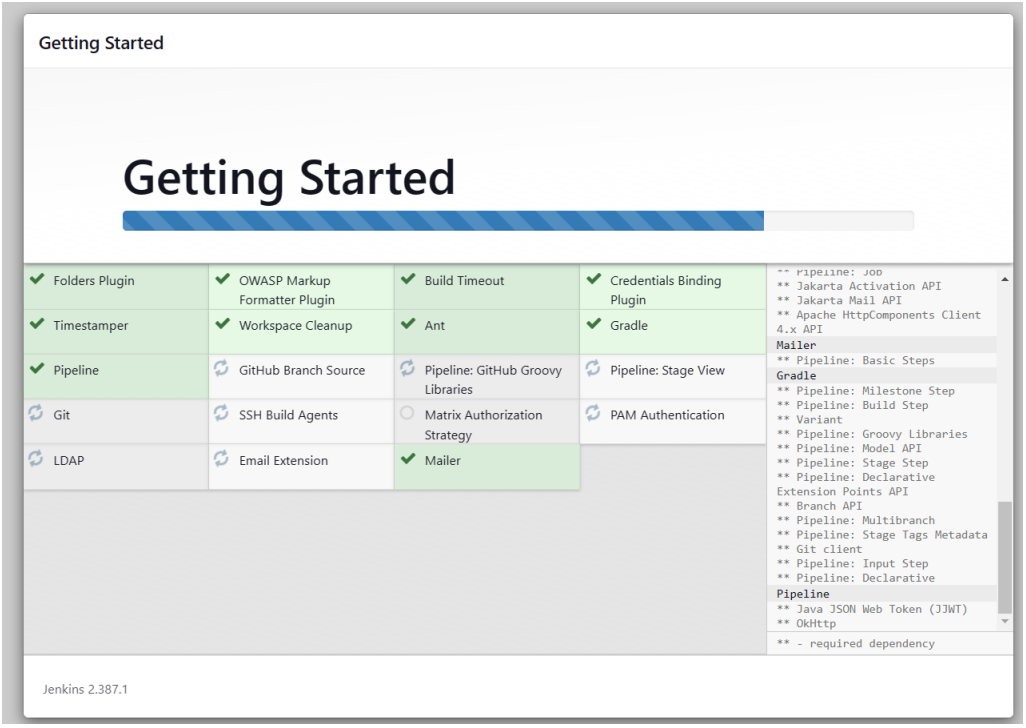
STEP 6: Once Jenkins is installed, enter **<IPADDRESS>:8080** in the Browser
[**JENKINS DEFAULT PORT #: 8080**]



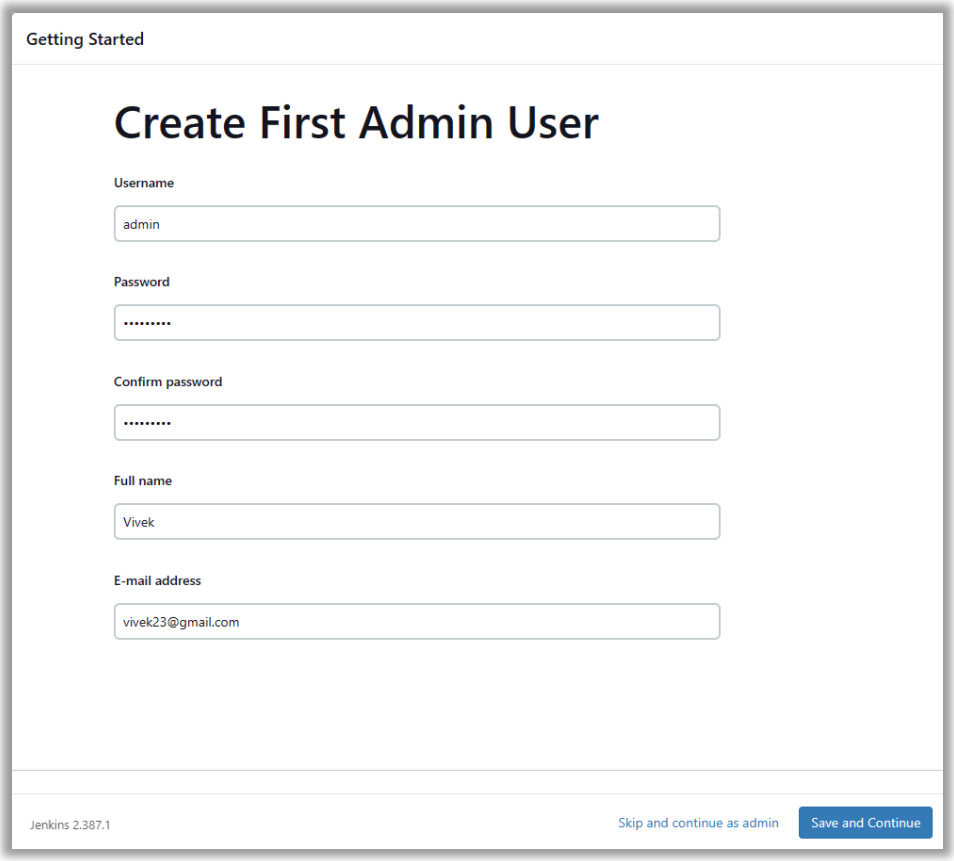
STEP 7: Enter the **InitialAdminPassword** from the mentioned path

```
[root@ip-172-31-61-216 ~]# cat /var/lib/jenkins/secrets/initialAdminPassword
3a26b0da435141329c8cca72f4c6b0fa
[root@ip-172-31-61-216 ~]#
```

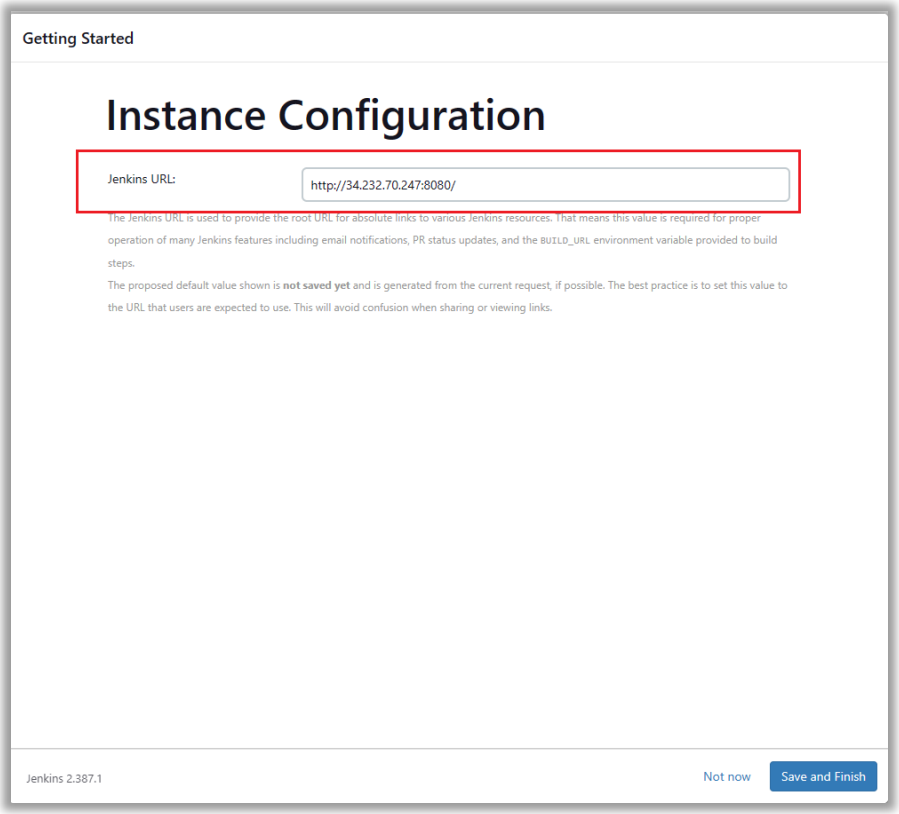
STEP 8: Select the **PLUGINS** (Select Default options)



STEP 9: Enter Username & Password as per your convenience



STEP 10: Click SAVE and FINISH



JENKINS IS INSTALLED!!!