JENKINS INSTALLATION ON UBUNTU USING AWS

STEP 1: UBUNTU 20.04LT

T2.MICRO

SG: SSH ANYWHERE

ALL TRAFFIC ANYWHERE

KP NEW

LAUNCH

STEP2:copy public ip

Download putty & puttygen

Open puttygen--🡪 load pem key

Save

Open putty: host ip: public ip paste

Ssh-auth-upload ppk key

Login as ubuntu enter

STEP3: sudo suapt-get update

STEP4 : sudo apt-cache search openjdk

STEP5: sudo apt-get install openjdk-8-jdk

click Y

STEP 5 java -version (check java install or not)

STEP 6: OPEN BROWSER TYPE JENKINS DOWNLOAD

<https://pkg.jenkins.io/debian-stable/> (UBUNTU DEBIAN )

# Jenkins Debian Packages

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

curl -fsSL <https://pkg.jenkins.io/debian-stable/jenkins.io.key> | sudo tee \

/usr/share/keyrings/jenkins-keyring.asc > /dev/null

Then add a Jenkins apt repository entry:

echo deb [signed-by=/usr/share/keyrings/jenkins-keyring.asc] \

https://pkg.jenkins.io/debian-stable binary/ | sudo tee \

/etc/apt/sources.list.d/jenkins.list > /dev/null

Update your local package index, then finally install Jenkins:

sudo apt-get update

sudo apt-get install fontconfig openjdk-11-jre

sudo apt-get install jenkins

STEP 7: sudo service Jenkins status

Press q to quit enter

Step 8: goto browser paste ur public ip

127.0.0.0:8080

Copy above password

STEP 9: goto putty

Sudo cat paste above passwd

Copy passwd

Paste in browser

Step 10: install suggsted Jenkins

STEP 11: USERNAME…………..

Save and finish

Start Jenkins

Jenkins console

New job--🡪freestyle-🡪build now ---- SELECT SHELL SCRIPT

TYPE == echo “welcome” --🡪apply save

INSTALL PIPELINE PACKAGE

GO TO MANAGE PLUGINS

MANAGE ----TYPE PIPELINE---GO DOWN UNDER PIPELINE

WRITE SCRIPT

pipeline {

agent any

stages {

stage('build') {

steps {

echo "Hello World!"

}

}

}

}

-===============================================================

Sudo su sudo su

sudo yum -y install maven

sudo yum -y install git

df -h (is use to see disk space)

brower type Jenkins repo

<https://pkg.jenkins.io/redhat-stable/>

copy and run in terminal

yum install jenkins

sudo systemctl start jenkins

sudo systemctl status Jenkins

goto browser public ip:8080 in tab

copy above password

goto terminal type

cat above passwd paste here

copy password from terminal paste in tab

Step 10: install suggsted Jenkins

STEP 11: USERNAME…………..

Save and finish

Start Jenkins

Terminal -- cat /etc/os-release (gives os info)

Jenkins- execute shell- cat /etc/os-release

# Master and Slave Node

# 

|  |
| --- |
|  |
| Steps to install masterNode |
|  | ------------------------------ |
|  | sudo yum -y install openjdk-8-jdk |
|  | sudo yum -y install git |
|  | sudo yum -y install maven |
|  | sudo yum -y wget ( if needed) |
|  |  |
|  | Steps to install Jenkins |
|  | ------------------------------ |
|  | sudo wget -O /etc/yum.repos.d/jenkins.repo https://pkg.jenkins.io/redhat-stable/jenkins.repo |
|  | sudo rpm --import https://pkg.jenkins.io/redhat-stable/jenkins.io.key |
|  | sudo yum -y install jenkins |
|  | sudo systemctl start jenkins |
|  | sudo systemctl enable --now jenkins |
|  |  |
|  | Steps to install Docker Amazon linux2 |
|  |  |
|  | sudo yum update -y |
|  | sudo amazon-linux-extras install docker |
|  | sudo service docker start |
|  | sudo usermod -a -G docker ec2-user |
|  | sudo usermod -a -G docker jenkins |
|  | docker info |
|  |  |
|  |  |
|  | How to enable shell console for jenkins user ? |
|  | ---------------------------------------------------------------- |
|  | Open a file using vi editor |
|  | sudo vi /etc/passwd |
|  | for jenkins user change to /bin/bash |
|  |  |
|  | How to give sudo permissions for jenkins user in Centos machine in Master Node? |
|  | ---------------------------------------------------------------- |
|  | Open a file using vi editor |
|  | 1) sudo vi /etc/sudoers |
|  | 2) add below line in sudoers file |
|  | jenkins ALL=(ALL) NOPASSWD: ALL |
|  | 3)sudo systemctl restart jenkins |
|  |  |
|  |  |
|  | Steps to install SlaveNode |
|  | ------------------------------ |
|  | Change to Root user |
|  | ------------------------------ |
|  | sudo su - |
|  | sudo yum -y install openjdk-8-jdk |
|  | sudo yum -y install maven ( if u install maven ,automatically java will install in machine) |
|  | sudo yum -y install git |
|  |  |
|  |  |
|  | How to create new user in Centos ? |
|  | ------------------------------ |
|  | sudo useradd Jenkins  id Jenkins (shows id and grp id) |
|  | pwd |
|  | cd |
|  | cd |
|  |  |
|  | How to give sudo permissions for jenkins user in Centos machine in Slave Node? |
|  | ---------------------------------------------------------------- |
|  | Open a file using vi editor |
|  | 1) sudo vi /etc/sudoers |
|  | 2) add below line in sudoers file |
|  | jenkins ALL=(ALL) NOPASSWD: ALL |
|  |  |
|  |  |
|  | How to check current working directory ? |
|  | ---------------------------------------- |
|  | pwd - /var/lib/jenkins ( Home directory for jenkins in slave node) |
|  | mkdir ~/.ssh  ls -al (able to see hidden files of .ssh) |
|  | chmod 700 ~/.ssh |
|  | cd ~/.ssh  ls ( as of now no keys) |
|  | ssh-keygen -t rsa -C "The access key for Jenkins slaves" |
|  | Type enter button for every question so that it will create default private key(id\_rsa) and public key(id\_rsa.pub)  ls -l (displays keys) |
|  | cat id\_rsa.pub > ~/.ssh/authorized\_keys ( copy public key to authorized key) check ls -l |
|  | chmod 600 ~/.ssh/authorized\_keys |
|  | cat id\_rsa ( Copy private key and paste in jenkins node slave) |
|  |  |
|  | How to setup slave node in jenkins |
|  | -------------------------------------------------------------------------------- |
|  |  |
|  |  |
|  | Saveid jenkinsudo  Scripts to deploy website from GitHub |
|  | ---------------------------------------- |
|  | sudo yum install -y httpd |
|  | sudo systemctl restart httpd |
|  | sudo rm -rf /var/www/\* |
|  | sudo rm -rf /var/www/html/.git |
|  | sudo git clone https://github.com/javaexpresschannel/staticwebsitehosting.git /var/www/html/ |
|  |  |

Diagram

Description automatically generated

Jenkins has powerful feature of master slave architecture which enables distributed builds. This article we will learn how to establish slave nodes on Ubuntu machines and integrate with Jenkins Master.

**Let us learn more about Jenkins master and slave:**

**Jenkins Master**

Your main Jenkins server is the Master. The Master’s job is to handle:

* Scheduling build jobs.
* Dispatching builds to the slaves for the actual execution.
* Monitor the slaves (possibly taking them online and offline as required).
* Recording and presenting the build results.
* A Master instance of Jenkins can also execute build jobs directly.

**Jenkins Slave**

A Slave is a Java executable that runs on a remote machine. Following are the characteristics of Jenkins Slaves:

* It hears requests from the Jenkins Master instance.
* Slaves can run on a variety of operating systems.
* The job of a Slave is to do as they are told to, which involves executing build jobs dispatched by the Master.
* You can configure a project to always run on a particular Slave machine, or a particular type of Slave machine, or simply let Jenkins pick the next available Slave.

Let us see how to configure slave nodes on Ubuntu EC2. If you like to learn [how to setup Jenkins Master](https://www.coachdevops.com/2020/04/install-jenkins-ubuntu-1804-setup.html) on Ubuntu EC2 instance, click [here](https://www.coachdevops.com/2020/04/install-jenkins-ubuntu-1804-setup.html).

Jenkins Master uses SSH keys to communicate with slave. You need to create ssh keys in Jenkins master by executing below command.  
  
**Pre-requisites:**

* [Jenkins Master is already setup and running](https://www.coachdevops.com/2020/04/install-jenkins-ubuntu-1804-setup.html)
* Create a new EC2 instance for Slave

Steps involved:

1. Setup new EC2 instance for slave

AWS -EC2- T2 MICRO-UBUNTU 20.4/UBUNTO 18.04- TAG SLAVE-EC2- SG SSH – KP NEW-LAUNCH

GIT BASH SSH CLIENT

2. Create jenkins user and Install Java, Maven in Slave node

3. upload public keys from master to slave node.

4. verify ssh connection from master to slave

5. Register slave node in Jenkins master

6. Run build jobs in Jenkins slave

### Slave node configuration

(You need to t2.small Ubuntu instance for this slave)  
**only port 22 needs to be open**

**Change Host Name to Slave**  
sudo hostnamectl set-host1name Slave

**Install Java**

sudo apt-get update  
sudo apt-get install default-jdk -y

**Install Maven**  
sudo apt-get install maven -y  
  
**Create User as Jenkins**

sudo useradd -m jenkins

sudo -u jenkins mkdir /home/jenkins/.ssh

[](https://4.bp.blogspot.com/-PQnb5PVZRRM/W8uWUpjeSMI/AAAAAAAAAiE/g7oSRjPeBK4G5UHRqhVr-FX7AOFE-OpqwCLcBGAs/s1600/Screen+Shot+2018-10-20+at+3.55.18+PM.png)

MASTER JENKINS $ ssh-keygen

No (already exit)  
  
**Add SSH Keys from Master to Slave**  
Execute the below command in Jenkins master EC2.  
sudo cat ~/.ssh/id\_rsa.pub  
  
Copy the output of the above command:

[](https://1.bp.blogspot.com/-CD3Ub0L1V_8/XDavoX_VHOI/AAAAAAAAAtA/dykVY-o9fJAAzMHCknyW65X3fPeiZ5C9wCLcBGAs/s1600/Screen+Shot+2019-01-09+at+8.35.52+PM.png)

**Now Login to Slave node and execute the below command**  
sudo -u jenkins vi /home/jenkins/.ssh/authorized\_keys

This will be empty file, now copy the public keys from master into above file.

Once you pasted the public keys in the above file in Slave, come out of the file by entering :wq!

### Now go into master node

ssh jenkins@***slave\_node\_ip***

[](https://3.bp.blogspot.com/-llz-y_A9Ib4/W8uXf4rD3gI/AAAAAAAAAiQ/AOJx6oEbR70wXLSb5i5954W8gQT-sdl-gCLcBGAs/s1600/Screen+Shot+2018-10-20+at+4.00.18+PM.png)

this is to make sure master is able to connect slave node. once you are successfully logged into slave, type exit to come out of slave.

$hostname

exit

[](https://2.bp.blogspot.com/-vQKiBE8reeI/W8uXwvD7sOI/AAAAAAAAAiY/Kmik1zMVG6YIeWchNYN3vnvrsK5gZnggQCLcBGAs/s1600/Screen+Shot+2018-10-20+at+4.01.31+PM.png)



$sudo cp ~/.ssh/known\_hosts /var/lib/Jenkins/.ssh

### Register slave node in Jenkins:

Now to go Jenkins Master, manage jenkins, manage nodes- new node

Node name – my-slave ok click

No of execution 1

Remote root directory /home/Jenkins

Lable my-slave

Usage- use this node as much as possible

Lunch method: launch agent via ssh

Host- ip address pf slave node

Credential – add-SSH username with private key (choose option)

Username – Jenkins( we have created user Jenkins)

Private key – select enter directly=add key

Slave node run this cmd -- sudo cat ~/.ssh/id\_rsa

Copy key and paste above in Jenkins privatekey

Description: my Jenkins privatekey added-- click on add

Credentials select from dropdown as u created “my Jenkins privatekey added”

Host key verification strategy---- manually trusted key verification strategy (select)

Save

Click on my-slave -logs

Configured slave node to master

Run job on slave node

Pick a existing job freestyle project run on slave node now

Jenkins-configure-general tab up- select restrict where this project can be run-my-slave

Save – build now

Pipeline- select existing pipeline or create new pipeline

Build now- check console output it runs on slave node

[Graphical user interface, text, application, chat or text message

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Click on new node. give name and check permanent agent.  
give name and no of executors as 1. enter /home/jenkins as remote directory.  
select launch method as Launch slaves nodes via SSH.  
enter Slave node ip address as Host.

[Table

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click on credentials. Enter user name as jenkins. Make jenkins as lowercase as it is shown.  
 Kind as SSH username with private key. enter private key of master node directly by executing below command:

[Graphical user interface, text, application, email

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sudo cat ~/.ssh/id\_rsa  
(Make sure you copy the whole key including the below without missing anything)  
-----BEGIN RSA PRIVATE KEY-----  
-----  
-----END RSA PRIVATE KEY-----  
  
click Save.  
select Host key verification strategy as "manually trusted key verification strategy".  
  
Click Save.  
Click on launch agent..make sure it connects to agent node.

[Graphical user interface, application, Teams

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Now you can kick start building the jobs, you will see Jenkins master runs jobs in slave nodes.