

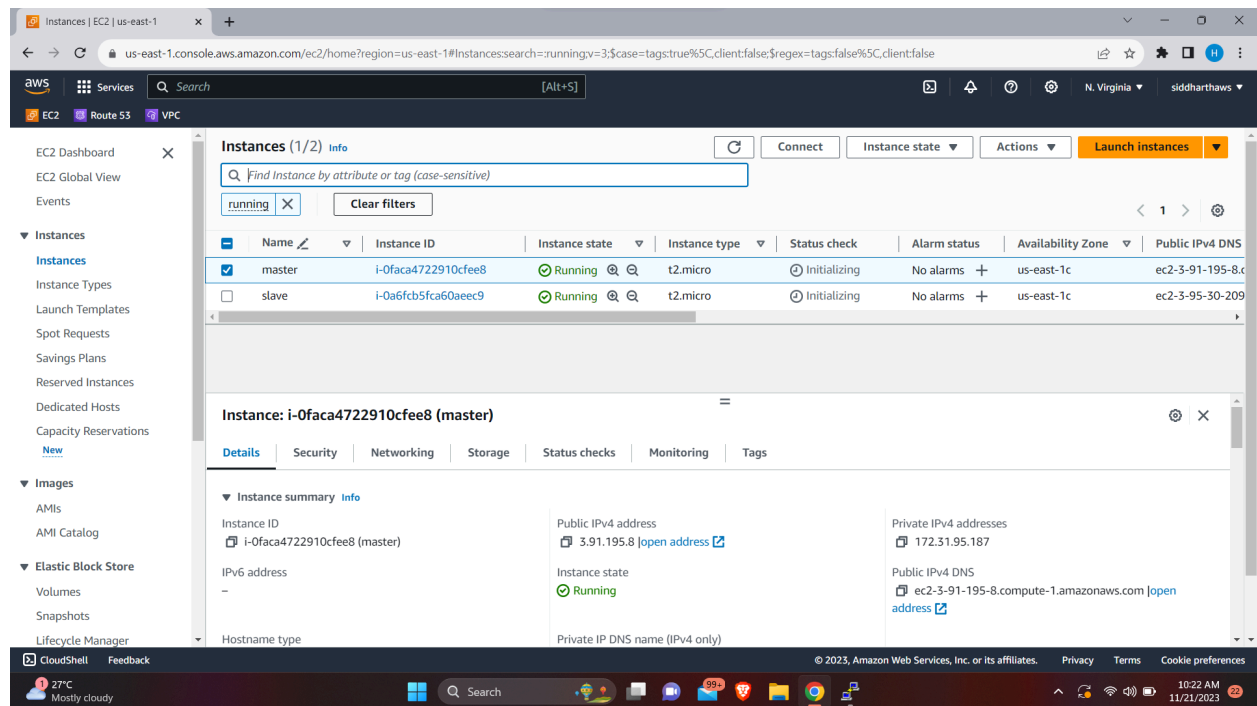
# MASTER/SLAVE SERVER CONFIGURATION

## Master and slave concept:

In some cases, files may have different code and require multiple builds and the Jenkins server cannot handle multiple builds simultaneously for this, the Master distributes the workload and allows us to run different builds on different environments each called a Slave.

## STEPS TO CONFIGURE MASTER AND SLAVE SERVER

Launch 2 instances - ubuntu 20.04 - choose keyfile - security group(all traffic) - name one server as master & another as slave.



Connect to the master server and install jenkins packages in it.

The screenshot shows the Jenkins Debian Packages page in a web browser. The page title is "Jenkins Debian Packages". Below the title, there is a paragraph explaining that this is the Debian package repository of Jenkins to automate installation and upgrade. It instructs to first add the key to the system (for the Weekly Release Line):

```
sudo wget -O /usr/share/keyrings/jenkins-keyring.asc \
https://pkg.jenkins.io/debian-stable/jenkins.io-2023.key
```

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-17-jre
sudo apt-get install jenkins
```

The apt packages were signed using this key:

```
pub  rsa4096 2023-03-27 [SC] [expires: 2026-03-26]
     63667EE74BBA1F0A08A698725BA31D57EF5975CA
uid           Jenkins Project
pub  rsa4096 2023-03-27 [SC] [expires: 2026-03-26]
```

The browser tabs show "Instances | EC2 | us-east-1", "Debian Jenkins Packages", and "pkg.jenkins.io/debian-stable/". The browser address bar shows "pkg.jenkins.io/debian-stable/". The browser navigation bar shows "Jenkins", "Blog", "Success Stories", "Documentation", "Plugins", "Community", "Subprojects", "Security", "About", and "Download".

Connect to the slave server & install java in it.

```
ubuntu@ip-172-31-89-17:~$ sudo apt-get install fontconfig openjdk-17-jre
```

Login to jenkins dashboard using master server ip along with jenkins port no(8080)

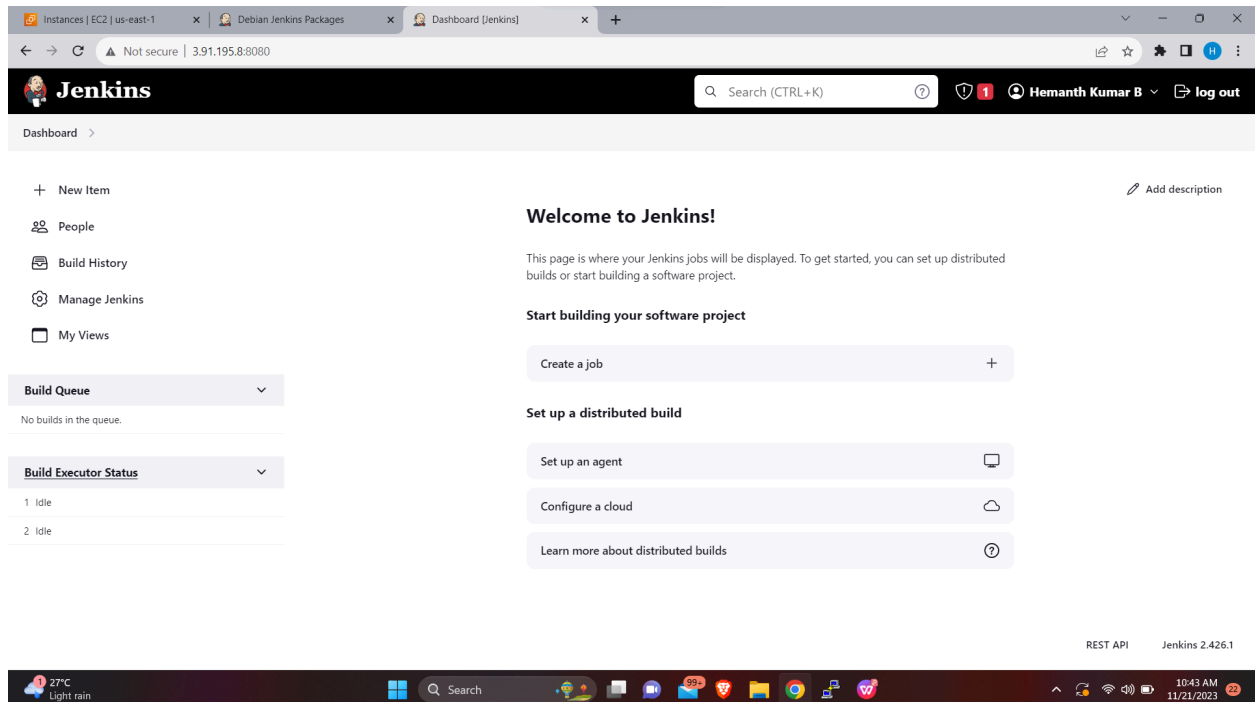
The screenshot shows the Jenkins Setup Wizard in a web browser. The page title is "Getting Started". The main heading is "Create First Admin User". The form has the following fields:

- Username: Hemanth
- Password: [masked]
- Confirm password: [masked]
- Full name: Hemanth Kumar B
- E-mail address: [masked]

At the bottom of the form, there are two buttons: "Skip and continue as admin" and "Save and Continue". The Jenkins version "Jenkins 2.426.1" is displayed at the bottom left of the form.

The browser tabs show "Instances | EC2 | us-east-1", "Debian Jenkins Packages", and "Setup Wizard (Jenkins)". The browser address bar shows "Not secure | 3.91.195.8:8080". The browser navigation bar shows "Jenkins", "Blog", "Success Stories", "Documentation", "Plugins", "Community", "Subprojects", "Security", "About", and "Download".

## Successfully logged in to the jenkins dashboard



The screenshot shows the Jenkins Dashboard in a web browser. The browser tabs include 'Instances | EC2 | us-east-1', 'Debian Jenkins Packages', and 'Dashboard [Jenkins]'. The address bar shows 'Not secure | 3.91.195.8:8080'. The Jenkins logo is in the top left, and a search bar with 'Search (CTRL+K)' is in the top right. The user 'Hemanth Kumar B' is logged in, with a 'log out' button. The dashboard has a left sidebar with links: '+ New Item', 'People', 'Build History', 'Manage Jenkins', and 'My Views'. The main content area has a 'Welcome to Jenkins!' message and instructions on how to start building a software project. There are buttons for 'Create a job', 'Set up a distributed build', 'Set up an agent', 'Configure a cloud', and 'Learn more about distributed builds'. The bottom status bar shows 'REST API', 'Jenkins 2.426.1', and system information like '27°C Light rain' and '10:43 AM 11/21/2023'.

Dashboard >

+ New Item

People

Build History

Manage Jenkins

My Views

Build Queue

No builds in the queue.

Build Executor Status

1 Idle

2 Idle

Welcome to Jenkins!

This page is where your Jenkins jobs will be displayed. To get started, you can set up distributed builds or start building a software project.

Start building your software project

Create a job

Set up a distributed build

Set up an agent

Configure a cloud

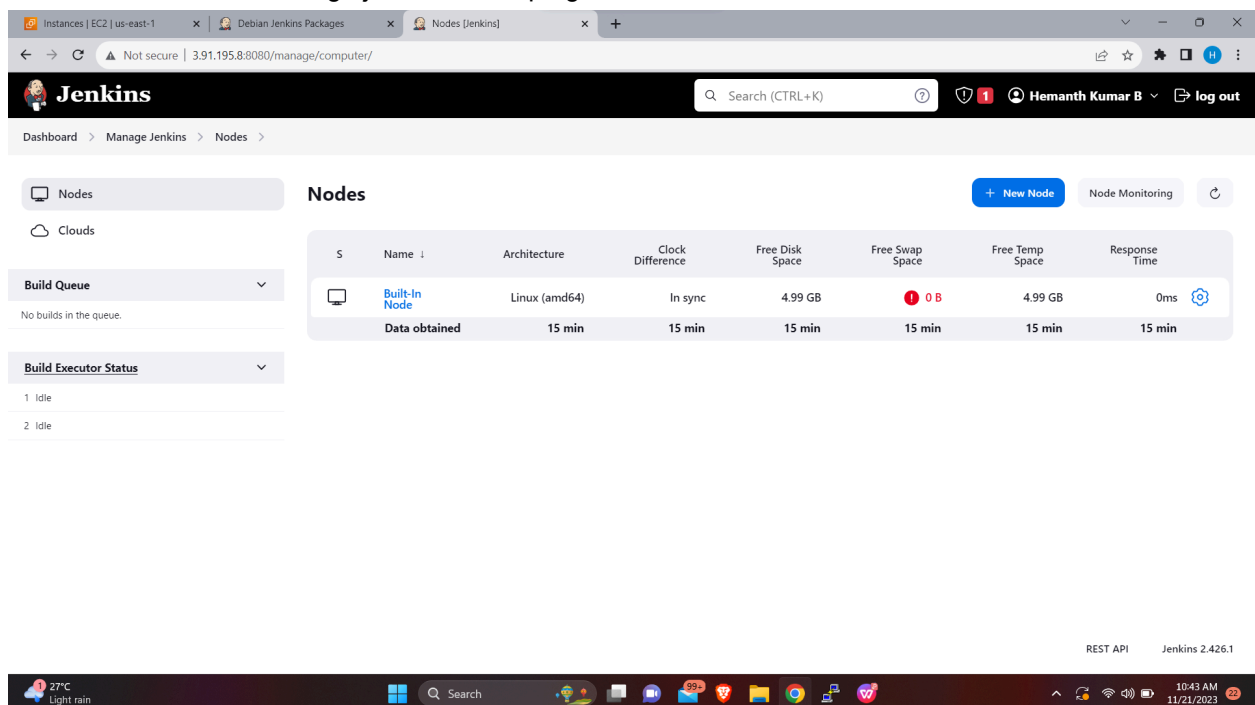
Learn more about distributed builds

REST API Jenkins 2.426.1

27°C Light rain

10:43 AM 11/21/2023

## In dashboard - select manage jenkins - set up agent



The screenshot shows the Jenkins 'Nodes' page. The browser tabs include 'Instances | EC2 | us-east-1', 'Debian Jenkins Packages', and 'Nodes [Jenkins]'. The address bar shows 'Not secure | 3.91.195.8:8080/manage/computer/'. The Jenkins logo is in the top left, and a search bar with 'Search (CTRL+K)' is in the top right. The user 'Hemanth Kumar B' is logged in, with a 'log out' button. The dashboard has a left sidebar with links: 'Nodes', 'Clouds', 'Build Queue', and 'Build Executor Status'. The main content area has a 'Nodes' section with a '+ New Node' button and a 'Node Monitoring' button. Below this is a table with columns: 'S', 'Name', 'Architecture', 'Clock Difference', 'Free Disk Space', 'Free Swap Space', 'Free Temp Space', and 'Response Time'. The table shows one node, 'Built-In Node', with a status of 'In sync' and a response time of '0ms'. The bottom status bar shows 'REST API', 'Jenkins 2.426.1', and system information like '27°C Light rain' and '10:43 AM 11/21/2023'.

Dashboard > Manage Jenkins > Nodes >

Nodes

+ New Node

Node Monitoring

S	Name	Architecture	Clock Difference	Free Disk Space	Free Swap Space	Free Temp Space	Response Time
	Built-In Node	Linux (amd64)	In sync	4.99 GB	0 B	4.99 GB	0ms
	Data obtained	15 min	15 min	15 min	15 min	15 min	15 min

REST API Jenkins 2.426.1

27°C Light rain

10:43 AM 11/21/2023

Create a node to sync the Master server and Slave server.  
Select a name - select permanent agent - create

Instances | EC2 | us-east-1 | Debian Jenkins Packages | Node1 Configuration [Jenkins] | JENKINS EMAIL NOTIFICATION

← → ↻ ⚠ Not secure | 3.91.195.8:8080/computer/Node1/configure

Dashboard > Nodes > Node1 > Configure

Status

Delete Agent

Configure

Build History

Load Statistics

Script Console

Log

System Information

Disconnect

Build Executor Status

built-in node (0 of 3 executors busy)

Name ?

Node1

Description ?

Plain text [Preview](#)

Number of executors ?

1

Remote root directory ?

/home/ubuntu/jenkins

Labels ?

slave1

Save

29°C Rain showers

Search

12:18 PM 11/21/2023

Instances | EC2 | us-east-1 | Debian Jenkins Packages | Node1 Configuration [Jenkins] | JENKINS EMAIL NOTIFICATION

← → ↻ ⚠ Not secure | 3.91.195.8:8080/computer/Node1/configure

Dashboard > Nodes > Node1 > Configure

Usage ?

Use this node as much as possible

Launch method ?

Launch agent by connecting it to the controller

☐ Disable WorkDir ?

Custom WorkDir path ?

Internal data directory ?

remoting

☐ Fail if workspace is missing ?

☒ Use WebSocket ?

Advanced

Save

29°C Rain showers

Search

12:19 PM 11/21/2023

Availability ?

Keep this agent online as much as possible

### Node Properties

- ☐ Disable deferred wipeout on this node ?
- ☐ Environment variables
- ☐ Tool Locations

Save

The created node will not be synced yet. To sync it, select the created node & copy the command & paste it in the slave server.

The screenshot shows the Jenkins web interface in a browser. The address bar indicates the URL is 3.91.195.8:8080/computer/Node1/. The page title is "Jenkins". The navigation bar includes a search bar, a user profile for "Hemanth Kumar B", and a "log out" button. The main content area is titled "Agent Node1" and includes a "Mark this node temporarily offline" button and an "Add description" link. On the left sidebar, there are links for "Status", "Delete Agent", "Configure", "Build History", "Load Statistics", and "Log". The "Build Executor Status" section is expanded, showing the "Agent Node1" status. The "Run from agent command line: (Unix)" section contains the following commands:

```
curl -sO http://3.91.195.8:8080/jnlpJars/agent.jar
java -jar agent.jar -jnlpUrl http://3.91.195.8:8080/computer/Node1/jenkins-agent.jnlp -secret 6710816b14ac0f83fa363b3d57fb3761ed15543b6fa598a0e8fe8d06bf563e03 -workDir "/home/ubuntu/jenkins"
```

The "Run from agent command line: (Windows)" section contains the following commands:

```
curl.exe -sO http://3.91.195.8:8080/jnlpJars/agent.jar
java -jar agent.jar -jnlpUrl http://3.91.195.8:8080/computer/Node1/jenkins-agent.jnlp -secret 6710816b14ac0f83fa363b3d57fb3761ed15543b6fa598a0e8fe8d06bf563e03 -workDir "/home/ubuntu/jenkins"
```

The "Or run from agent command line, with the secret stored in a file: (Unix)" section contains the following commands:

```
echo 6710816b14ac0f83fa363b3d57fb3761ed15543b6fa598a0e8fe8d06bf563e03 > secret-file
curl -sO http://3.91.195.8:8080/jnlpJars/agent.jar
java -jar agent.jar -jnlpUrl http://3.91.195.8:8080/computer/Node1/jenkins-agent.jnlp -secret @secret-file -workDir "/home/ubuntu/jenkins"
```

The bottom of the screenshot shows a Windows taskbar with the date and time as 11:12 AM on 11/21/2023.

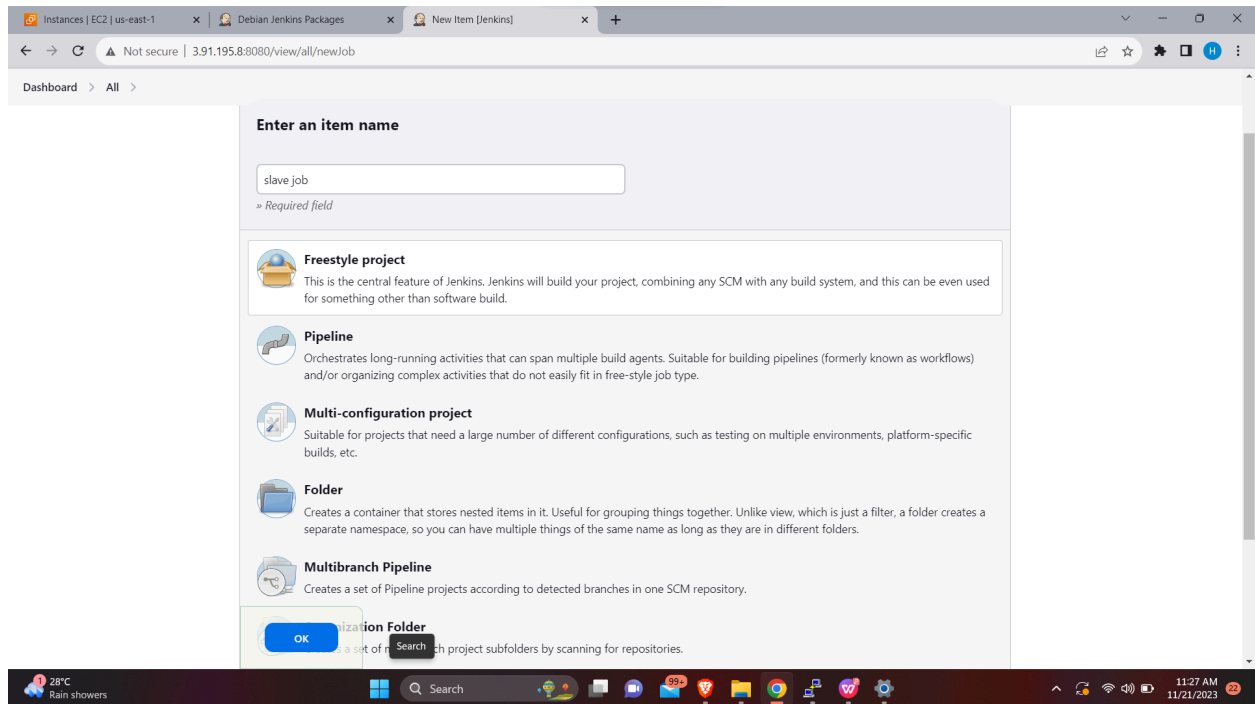
```
root@ip-172-31-89-17: ~
root@ip-172-31-89-17:~# curl -sO http://3.91.195.8:8080/jnlpJars/agent.jar
root@ip-172-31-89-17:~# java -jar agent.jar -jnlpUrl http://3.91.195.8:8080/computer/Node1/jenkins-agent.jnlp -secret 6710816b14ac0f83fa363b3d57fb376led15543b6fa598a0e8fe8d06bf563e03 -workDir "/home/ubuntu/jenkins"
Nov 21, 2023 5:49:05 AM org.jenkinsci.remoting.engine.WorkDirManager initializeWorkDir
INFO: Using /home/ubuntu/jenkins/remoting as a remoting work directory
Nov 21, 2023 5:49:05 AM org.jenkinsci.remoting.engine.WorkDirManager setupLogging
INFO: Both error and output logs will be printed to /home/ubuntu/jenkins/remoting
Nov 21, 2023 5:49:05 AM hudson.remoting.jnlp.Main createEngine
INFO: Setting up agent: Node1
Nov 21, 2023 5:49:05 AM hudson.remoting.Engine startEngine
INFO: Using Remoting Versions: 3160.vd76b_9ddkl0cc
Nov 21, 2023 5:49:05 AM org.jenkinsci.remoting.engine.WorkDirManager initializeWorkDir
INFO: Using /home/ubuntu/jenkins/remoting as a remoting work directory
Nov 21, 2023 5:49:06 AM hudson.remoting.jnlp.Main$CuiListener status
INFO: WebSocket connection open
Nov 21, 2023 5:49:06 AM hudson.remoting.jnlp.Main$CuiListener status
INFO: Connected
```

Now the created node will be in sync with the master.

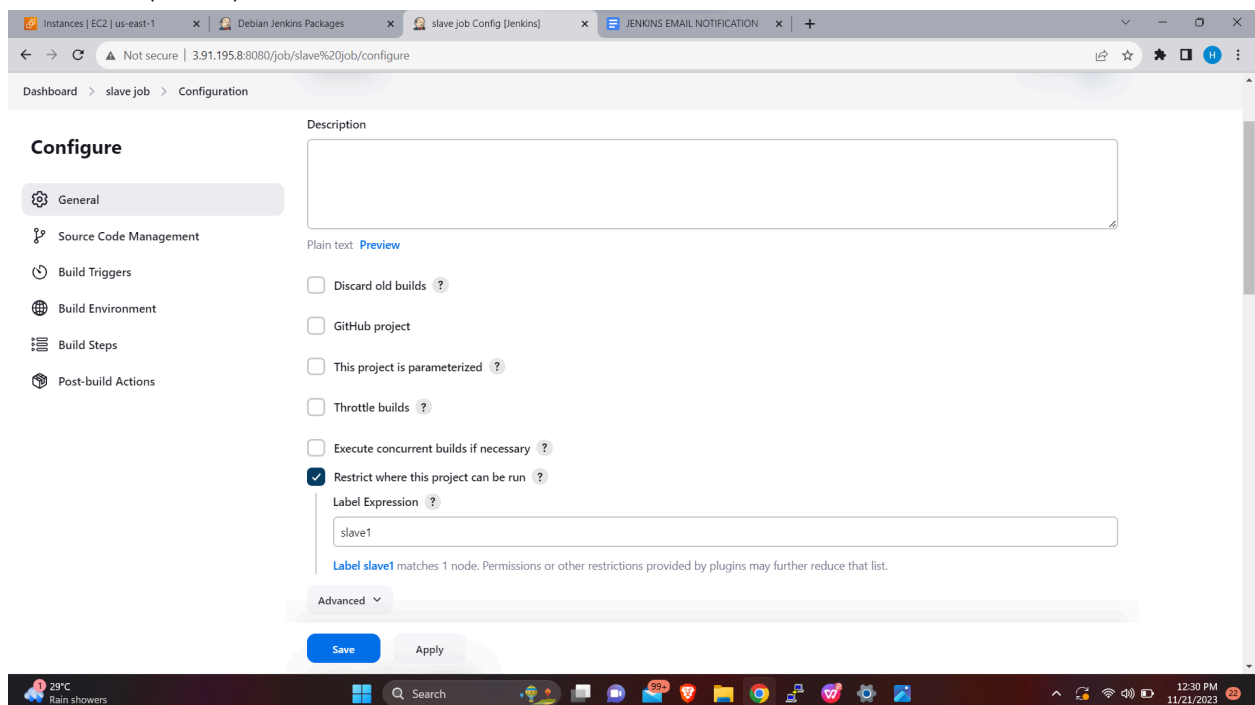
**Nodes**

S	Name	Architecture	Clock Difference	Free Disk Space	Free Swap Space	Free Temp Space	Response Time
	Built-In Node	Linux (amd64)	In sync	4.78 GB	1 0 B	4.78 GB	0ms
	Node1	Linux (amd64)	In sync	5.25 GB	1 0 B	5.25 GB	118ms
Data obtained		4 min 3 sec	4 min 3 sec	4 min 3 sec	4 min 3 sec	4 min 3 sec	4 min 3 sec

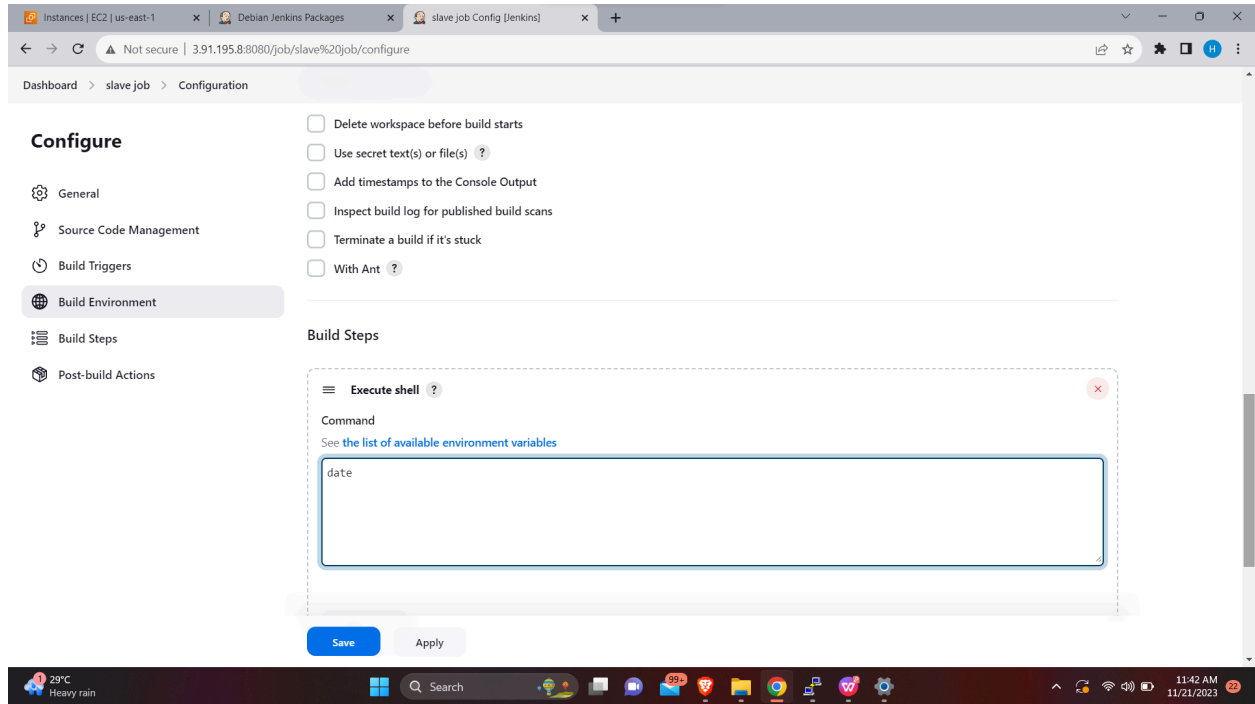
In Dashboard - New items - Enter Item name (slave job) choose Freestyle project - save



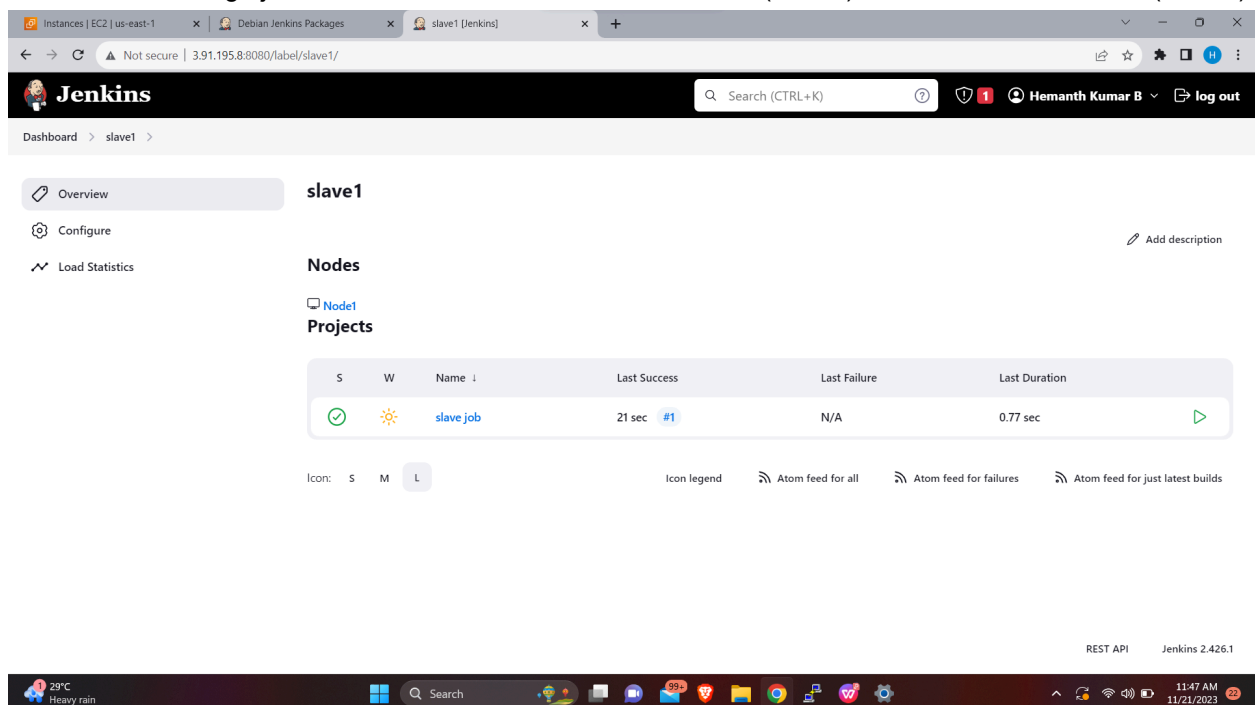
In Configure - general - Choose Restrict where this project can be run - In label Expression - Choose The created(slave1) label.



In build Steps - Create a Execute Shell - Save.



Now Ensure the Created Project is properly executed in the Node1 slave server.  
Dashboard - Manage jenkins - Nodes - choose the created node(node1) - select the created label(slave1)



Successfully configured Master/Slave server. Managed both master and slave server (In sync) with help of creating Node in jenkins dashboard web server.