JENKINS

CONTINUOUS INTEGRATION: It is the combination of continuous build and continuous test.

CONTINUOUS INTEGRATION = CONTINUOUS BUILD + CONTINUOUS TEST

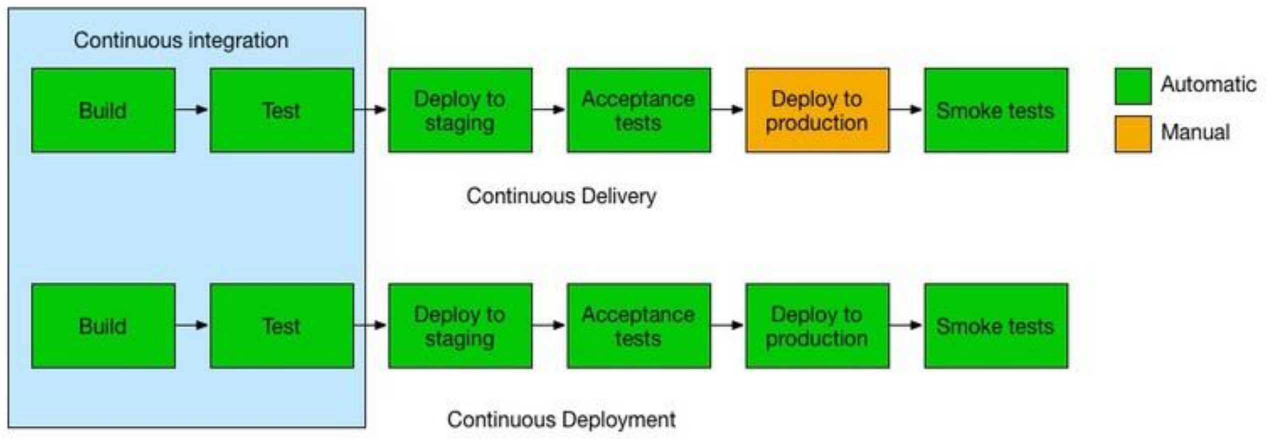
Whenever a developer commits the code using source code management like GIT, then the CI pipeline gets the changes of the code runs automatically build and unit test.

- Due to integrating the new code with old code, we can easily get to know the code is a success or failure.
- It finds the errors more quickly
- Delivery the products to client more frequently
- Developers don't need to manual tasks
- Reduces the developers time 20% to 30%

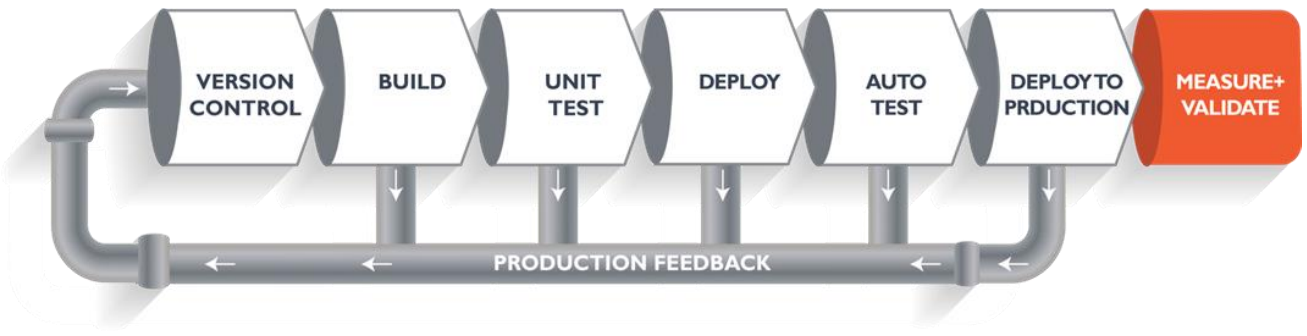
CD: CONTINUOUS DELIVERY/DEPLOYMENT:

Continuous Delivery is making it available for deployment. Anytime a new build artifact is available, the artifact is automatically placed in the desired environment and deployed.

Continuous Deployment is when you commit your code then it gets automatically tested, build and deploy on the production server.



CI/CD PIPELINE: A CI/CD pipeline is a set of automated steps and tasks that code changes go through, from the initial commit to deployment. These pipelines are typically defined and configured using CI/CD tools and scripts. A pipeline can include actions such as code compilation, testing, packaging, and deployment.



It looks like Software Development Life Cycle, but let's see how it works. Lets consider an example, if you are developing a web application.

Version Control: Here developers need to write code for web applications. So it needs to be committed using version control system like GIT or SVN.

Build: Lets consider your code is written in java, it needs to be compiled before execution. In this build step code gets compiled.

Unit Test: If the build step is completed, then move to testing phase in this step unit step will be done.

Deploy: If the test step is completed, then move to Deploy phase in this step you can deploy your code in dev, testing environment. Here you can see your application output.

Auto Test: Once our code is working fine in testing servers, then we need to do Automation testing using Selenium or Junit.

Deploy to Production: If everything is fine then you can directly deploy your code in production server.

NOTE: If we have error in Code then it will give feedback and it will be corrected, if we have error in Build then it will give feedback and it will be corrected, Pipeline will work like this until it reaches Deploy.

Because of this pipeline, Bugs will be reported fast and get rectified so entire development is fast.

JENKINS:

- Jenkins is an **open source** project written in **java** by Kohsuke Kawaguchi it runs on the **Window, Linux and Mac OS .**
- Jenkins is a widely used open-source automation tool that helps developers and teams automate and streamline various tasks related to building, testing, and deploying the

applications
- It is community-supported, Free to use, and the First choice for Continuous Integration.
- Consist of Plugins
- Automates the Entire Software Development Life Cycle (SDLC).
- It was originally developed by Sun Microsystem in 2004 as HUDSON.
- Hudson was an enterprise Edition we need to pay for it.
- The project was renamed Jenkins when Oracle brought the Microsystems.It can run on any major platform without Compatibility issues.
- Whenever developers write code, we integrate all the code of all developers at any point in time and we build, test, and deliver/deploy it to the client. This is called CI/CD.

Advantages:

- Jenkins follows Master-Slave Architecture.
- You can write your own plugin, can use the community plugin also.
- Jenkins master is going to assign a job to the slave.
- If Slaves are not available Jenkins itself does the job.
- By using the labels we can specify the jobs to the nodes.
- Jenkins automates repetitive and manual tasks in the software development process, reducing human error and saving time.
- Jenkins enables teams to continuously integrate code changes, making it easier to detect and fix integration issues early in the development cycle.
- Jenkins can be configured for high availability, ensuring continuous operation and minimal downtime.
- It integrates seamlessly with popular version control systems like Git, enabling efficient code management.

JENKINS ALTERNATIVES:

- BAMBOO
- HUSON
- TEAM CITY
- CIRCLE CI
- AWS CODE PIPELINE
- BUDDY
- SEMAPHORE
- GITLAB

JENKINS SETUP:

STEP-1: LAUCN AN EC2 INSTANCE WITH SEPARATE SECURITY GROUP

STEP-2: GO TO JENKINS.IO AND COPY PASTE THOSE 2 LINKS

STEP-3: INSTALL JAVA

STEP-4: INSTALL JENKINS

STEP-5: START THE JENKINS

links-1: **sudo wget -O /etc/yum.repos.d/jenkins.repo https://pkg.jenkins.io/redhat-stable/jenkins.repo**

link-2 : **sudo rpm --import https://pkg.jenkins.io/redhat-stable/jenkins.io-2023.key**

To install java11 : amazon-linux-extras install java-openjdk11 -y

To install jenkins : yum install jenkins -y

To start jenkins : systemctl start jenkins

To check jenkins status : systemctl status jenkins

To stop jenkins : systemctl stop jenkins

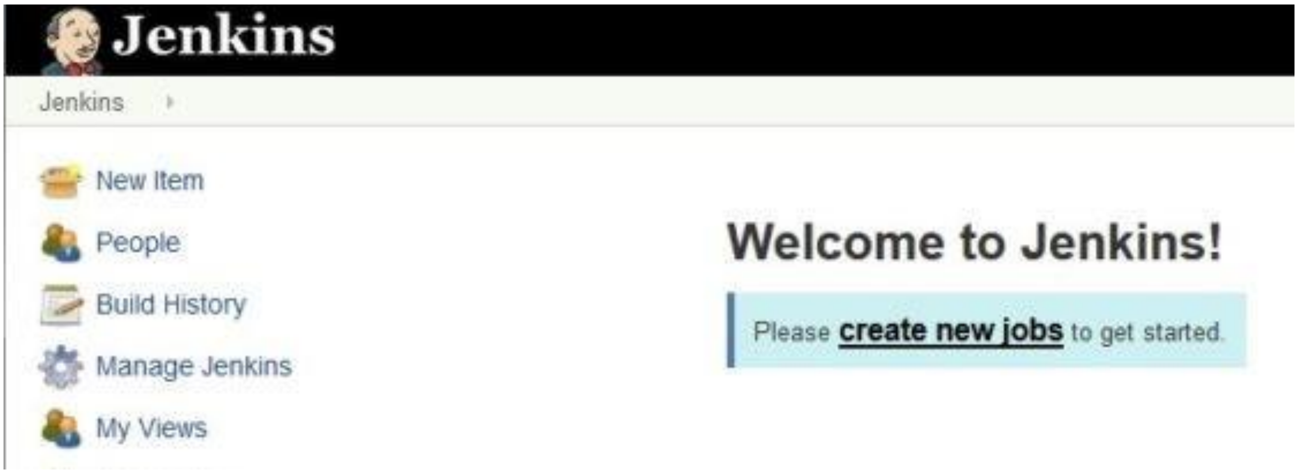
Connect to dashboard: copy the public IP address of the server and make a paste on the new tab with Jenkins port number (8080)

public_ip:8080

To unlock the Jenkins:

cat /var/lib/jenkins/secrets/initialAdminPassword

- Install suggested plugins
- Add user name, Password and mail id
- connect to dashboard

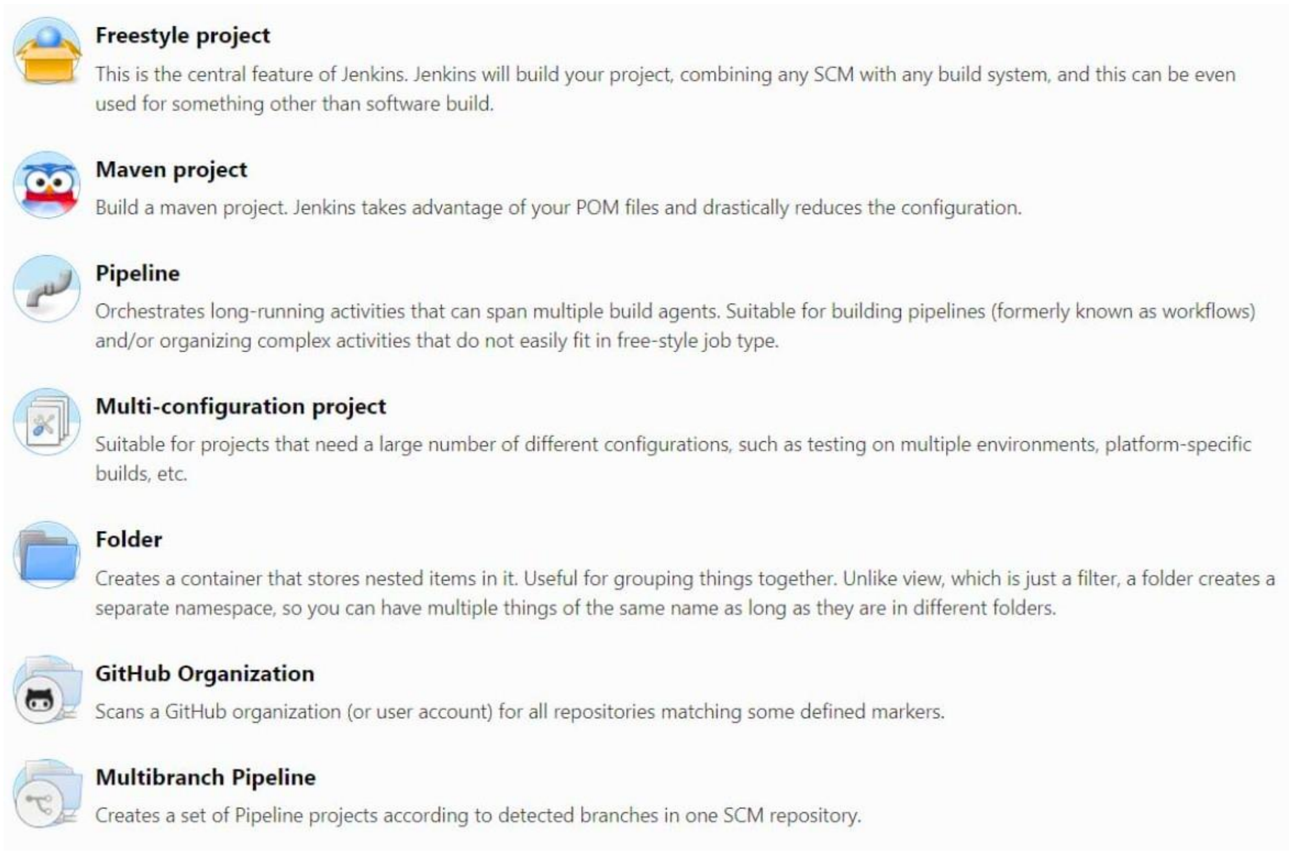


Welcome to Jenkins!

Please **create new jobs** to get started.

JOB: To perform some set of tasks we use a job in Jenkins.

- A Jenkins job is like a task or set of instructions that you create and configure in Jenkins to automate a specific action in your software development process.
- These actions can include things like compiling code, running tests, or deploying software.
- Jenkins jobs are used to define and manage the automation of these tasks, making it easier for developers to consistently and reliably execute them.



Freestyle project
This is the central feature of Jenkins. Jenkins will build your project, combining any SCM with any build system, and this can be even used for something other than software build.

Maven project
Build a maven project. Jenkins takes advantage of your POM files and drastically reduces the configuration.

Pipeline
Orchestrates long-running activities that can span multiple build agents. Suitable for building pipelines (formerly known as workflows) and/or organizing complex activities that do not easily fit in free-style job type.

Multi-configuration project
Suitable for projects that need a large number of different configurations, such as testing on multiple environments, platform-specific builds, etc.

Folder
Creates a container that stores nested items in it. Useful for grouping things together. Unlike view, which is just a filter, a folder creates a separate namespace, so you can have multiple things of the same name as long as they are in different folders.

GitHub Organization
Scans a GitHub organization (or user account) for all repositories matching some defined markers.

Multibranch Pipeline
Creates a set of Pipeline projects according to detected branches in one SCM repository.

PARAMETER TYPES:

- String: any combination of characters and numbers
- Choice: a pre-defined set of strings from which a user can pick a value
- Credentials: a pre-defined Jenkins credential
- File: the full path to a file on the filesystem
- Multi-line String: same as String, but allows newline characters

- Password: similar to the Credentials type, but allows us to pass a plain text parameter specific to the job or pipeline
- Run: an absolute URL to a single run of another job

FILE PARAMETER:

This is used when we want to build our local files.

General – > This Project is Parameterized – > Fille Parameter

CHOICE PARAMETER:

This parameter is used when we have multiple options to generate a build but need to use only on specific one.

General – > This Project is Parameterized – > Choice Parameter

STRING PARAMETER:

This parameter is used when we need to pass an parameter as input by default.

It can be any combination of characters and numbers.

General – > This Project is Parameterized – > String Parameter

MULTI STRING PARAMETER:

This will work as same as String Parameter but the difference is instead of one single line string we can use multiple strings at a time as a Parameters.

General – > This Project is Parameterized – > Multi-String Parameter

LINKED JOBS :

This is used when a job is linked with another job

TYPES:

Up stream and Down stream

Here for job-1 both job-2 & job-3 are Downstream

For job-2 upstream is job-1 and Downstream is job-3

for Job-3 Both Job-2 & job-1 are Upstream

JENKINS MASTER & SLAVE:

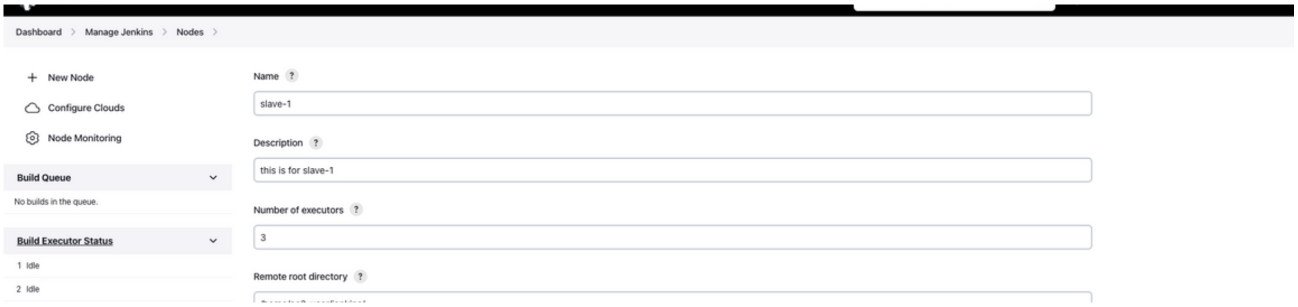
Jenkins Master-Slave architecture is a setup where you have one main Jenkins server (the "Master") that manages and controls multiple additional servers (the "Slaves").

- The Master server coordinates and schedules tasks.
- The Slave servers do the actual work, like building, testing, and deploying applications.

This architecture allows you to distribute the workload and run tasks in parallel, making your Jenkins setup more efficient and scalable. It's like having a boss (Master) who delegates tasks to a group of workers (Slaves) to get the job done faster.

STEPS TO IMPLEMENT JENKINS MASTER-SLAVE:

1. LAUNCH **3 INSTANCES** WITH **KEYPAIR** (PEM FILE)
   a. MASTER
   b. SLAVE-1
   c. SLAVE-3
2. SETUP **JENKINS IN MASTER**
3. install **JAVA11** on slaves (amazon-linux-extras install java-openjdk11 -y)
4. go to manage jenkins >> manage nodes and clouds >> new node --> give node name & select permanent agent



No builds in the queue.

1 Idle

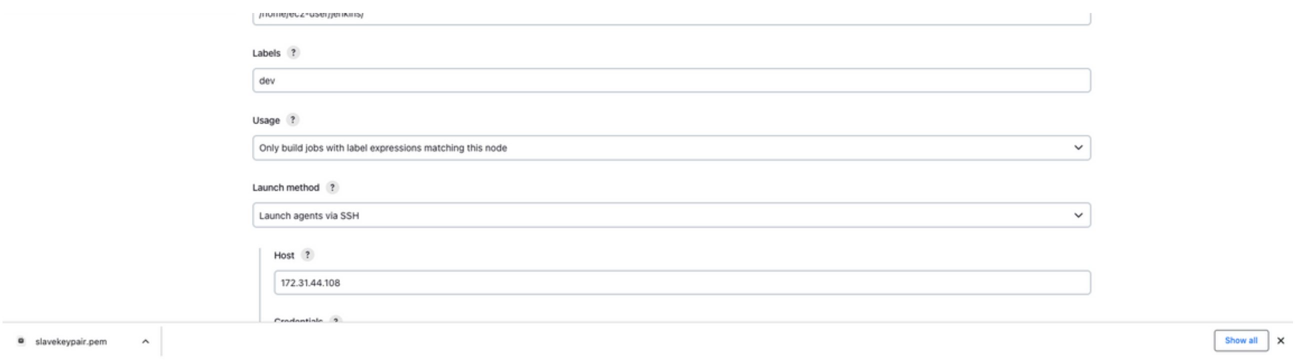
2 Idle

Name: slave-1

Description: this is for slave-1

Number of executors: 3

Remote root directory


/home/ec2-user/jenkins/

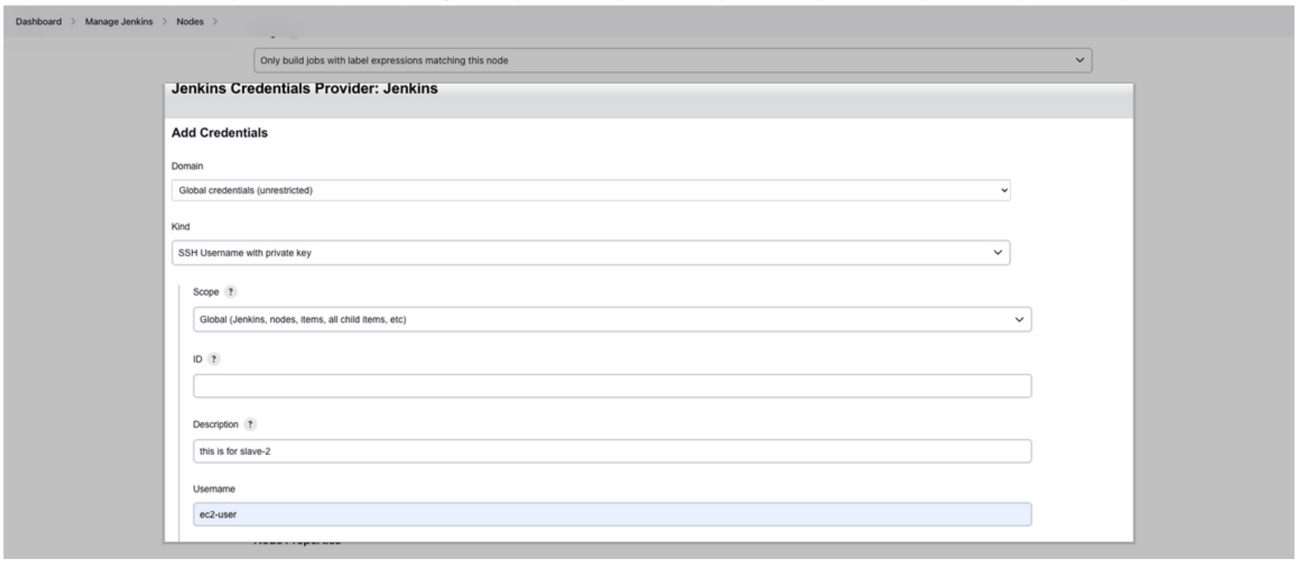
Labels: dev

Usage: Only build jobs with label expressions matching this node

Launch method: Launch agents via SSH

Host: 172.31.44.108

ADD CREDENTIALS:



Only build jobs with label expressions matching this node

Jenkins Credentials Provider: Jenkins

Add Credentials

Domain: Global credentials (unrestricted)

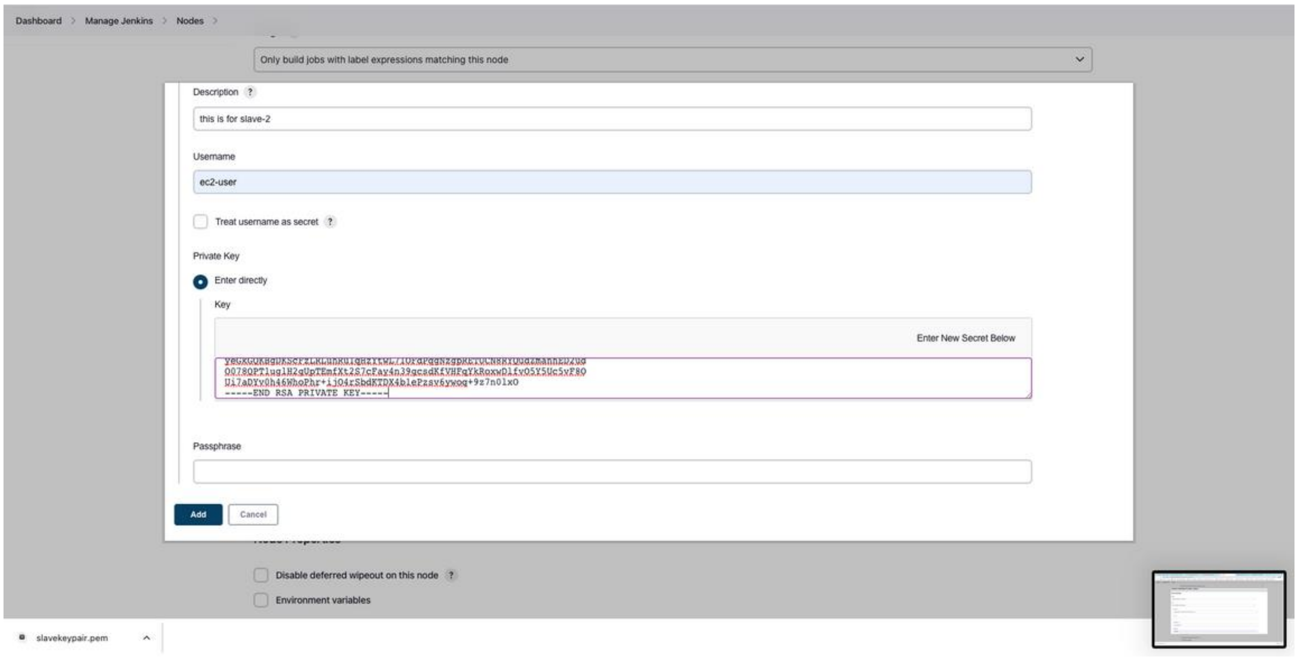
Kind: SSH Username with private key

Scope: Global (Jenkins, nodes, items, all child items, etc)

ID:

Description: this is for slave-2

Username: ec2-user



Only build jobs with label expressions matching this node

Description: this is for slave-2

Username: ec2-user

☐ Treat username as secret

Private Key

● Enter directly

Key

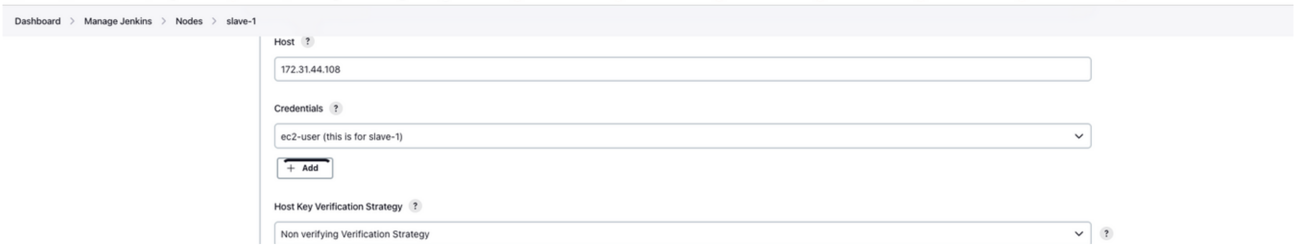
Enter New Secret Below

```
[illegible]
O078QPTlug1H2gUpTEmfXt2S7cFay4n39gcsdKfVHFqYkRoxwDlfvO5Y5Uc5vF8O
Ui7aDYv0h46WhoPhr+ijO4rSbdKTDX4blePzsv6ywoq+9z7n0lxO
-----END RSA PRIVATE KEY-----
```

Passphrase:

☐ Disable deferred wipeout on this node

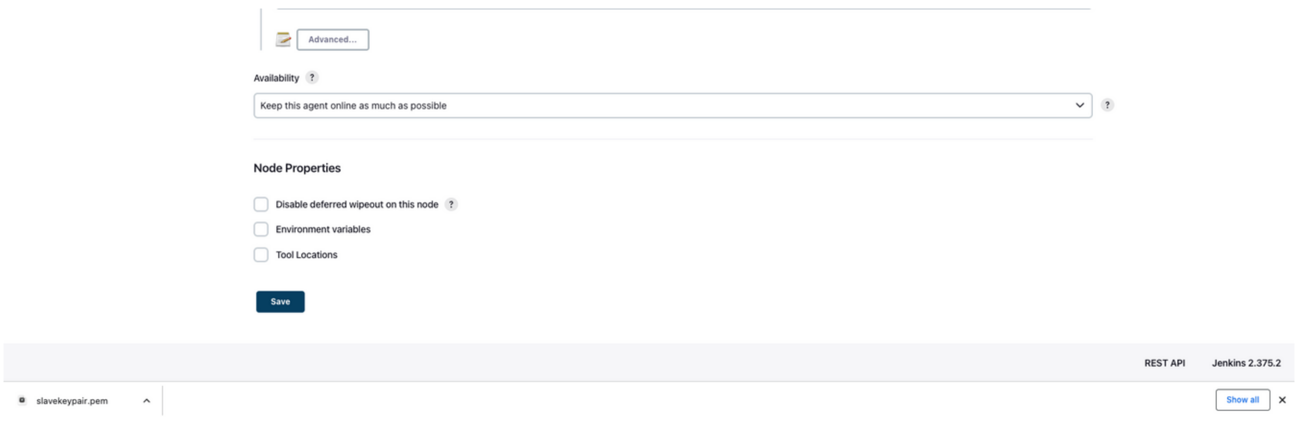
☐ Environment variables



Host: 172.31.44.108

Credentials: ec2-user (this is for slave-1)

Host Key Verification Strategy: Non verifying Verification Strategy



Advanced...

Availability ?

Keep this agent online as much as possible

Node Properties

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

Save

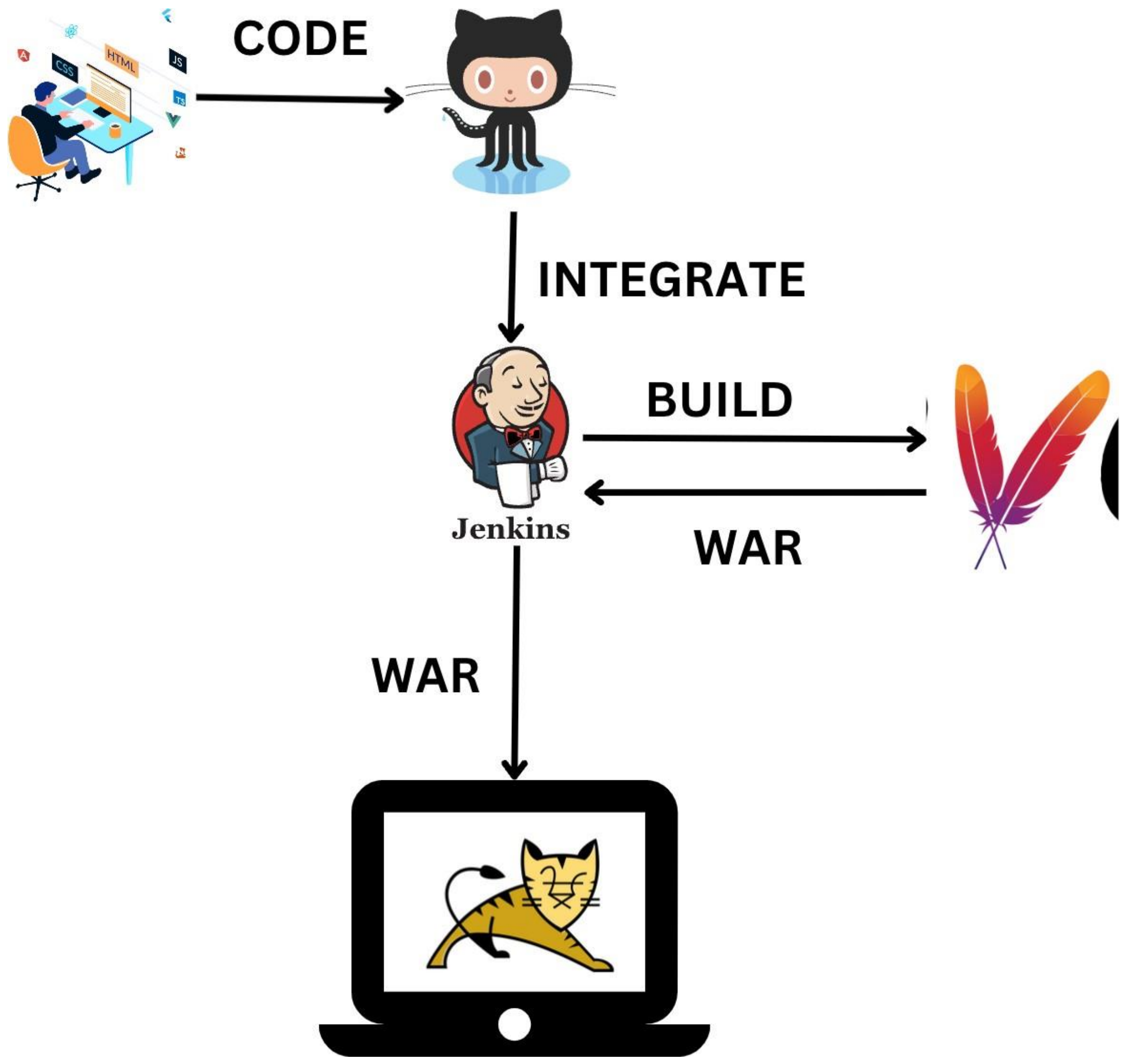
REST API Jenkins 2.375.2

slavekeypair.pem Show all

CLICK ON SAVE

JENKINS PROJECT:

DEPLOY A WAR FILE IN TOMCAT SERVER:



REQUIREMENTS:

- LAUNCH 2 SERVER (jenkins, prod)
- GET THE CODE FROM THE DEVELOPERS
- SETUP JENKINS IN JENKINS SERVER
- SETUP TOMCAT IN PROD SERVER

PROCEDURE:

STEP-1: LAUNCH 2 INSTANCES WITH 8080 PORT

STEP-2: SETUP JENKINS IN SERVER

```
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-2023.key

amazon-linux-extras install java-openjdk11 -y

yum install jenkins -y

 systemctl restart jenkins
```

STEP-3: FORK THE GITHUB (https://github.com/devops0014/one.git)

STEP-4: INSTALL GIT IN OUR SERVER

```
yum install git -y
```

STEP-5:

CREATE JOB AND INTEGRATE GIT TO JENKINS AND BUILD IT.

ONCE WE BUILD THE JOB, FILES PRESENT IN MASTER BRANCH WILL COMES INTO CI SERVER

STEP-6: NEXT STEP IS BUILD THE SOURCE CODE WHICH ARE PRESENT IN CI SERVER. TO BUILD THE WE NEED TO USE MAVEN

INSTALL JAVA-1.8.0 & MAVEN IN OUR SERVER yum install java-1.8.0-openjdk -y

yum install maven -y

STEP-7:

CONFIGURE THE SAME JOB AND CLICK ON **BUILD STEP** AND SELECT **ADD BUILD STEP** SELECT **invoke top level maven target.**

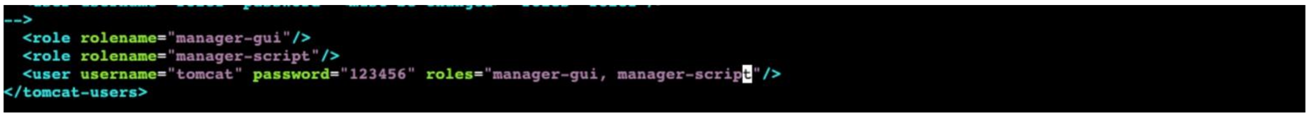
in the goal : **clean package**

SAVE THE JOB AND BUILD.

SO WE WILL GET A WAR FILE IN TARGET FOLDER.

STEP-8: SETUP THE TOMCAT SERVER IN PROD SERVER.

1. download tomcat file from dlcdn: wget https://dlcdn.apache.org/ tomcat/tomcat-9/v9.0.70/bin/apache-tomcat-9.0.70.tar.gz
2. untar the file: tar -zxvf apache-tomcat-9.0.70.tar.gz
3. go to the folder: cd apache-tomcat-9.0.70//webapps/manager/META-INF
4. open the context.xml in vim editor and make some change (delete 2 lines (21 and 22 lines))
5. go to three steps back: cd ../../../
6. and go to conf folder and open tomcat-user.xml file in vim editor



```
-->
  <role rolename="manager-gui"/>
  <role rolename="manager-script"/>
  <user username="tomcat" password="123456" roles="manager-gui, manager-script"/>
</tomcat-users>
```

7. go to one step back: cd ..

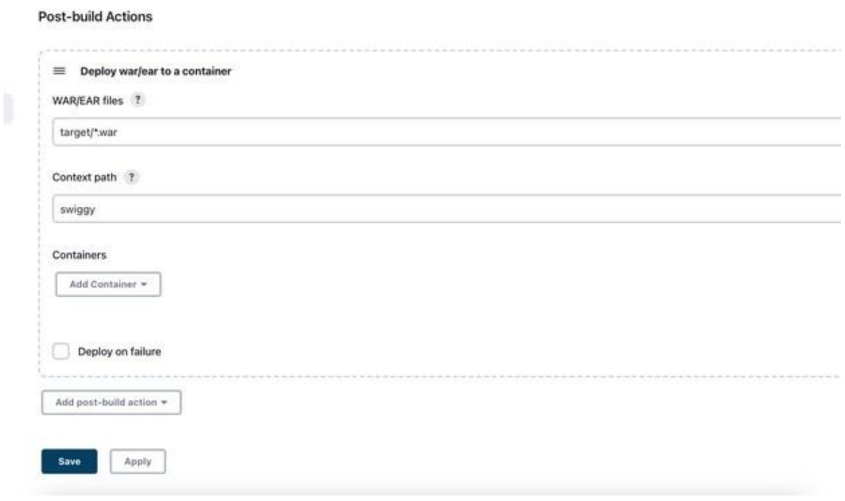
8. go to bin folder and execute startup.sh file

9. ./startup.sh

STEP-9: Go to manager apps and it will ask the user name and password enter it

STEP-10: go to jenkins dashboard

- install plugin (manage jenkins --> manage plugin --> available plugin --> deploy to container
- after installing the plugin go to our job and select post build actions --> add post build actions.
- select deploy war/ear to container


Post-build Actions

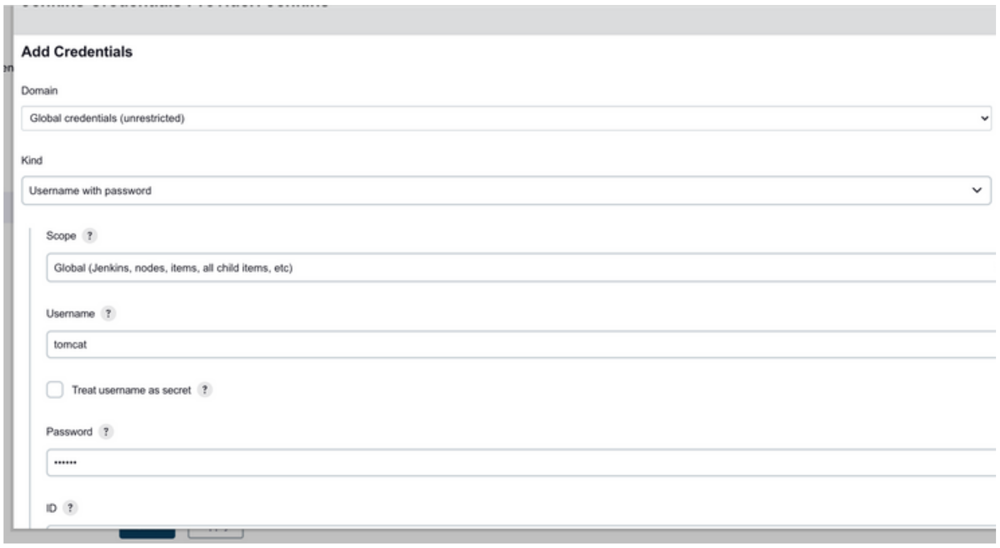
Deploy war/ear to a container

WAR/EAR files: target/*.war

Context path: swiggy

Containers

- click on add container(9th version). and add credentials (username & password of tomcat)


Add Credentials

Domain: Global credentials (unrestricted)

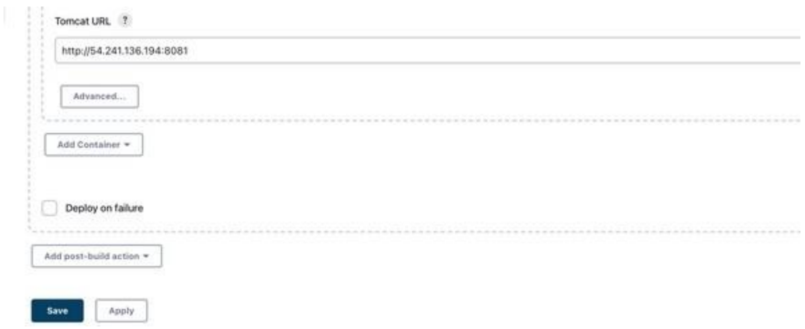
Kind: Username with password

Scope: Global (Jenkins, nodes, items, all child items, etc)

Username: tomcat

Password: ••••••

- add tomcat url


Tomcat URL: http://54.241.136.194:8081

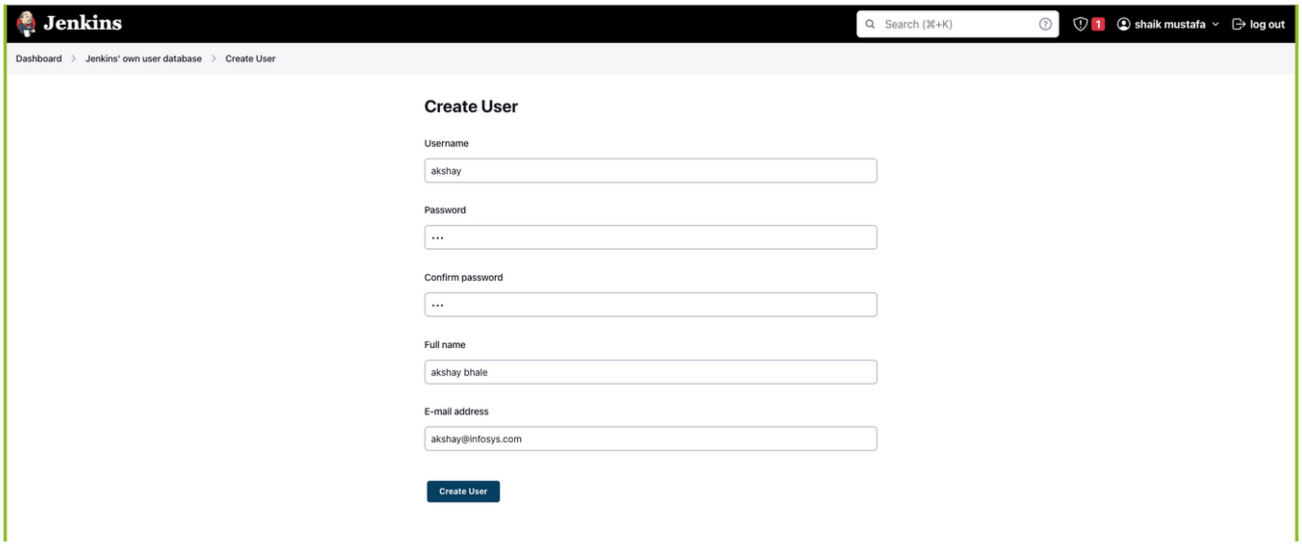
- save and build the job and go to tomcat

you will see swiggy folder. click on the folder you can access the client application.

Jenkins User Management:

It is the process of controlling and organizing the individuals who can access and use Jenkins, the automation tool. It involves tasks like creating user accounts, setting permissions, and managing who can do what within Jenkins. User management ensures that the right people have the appropriate level of access and control over Jenkins while maintaining security and organization in the software development process.

- INSTALL PLUGIN (role-based authorization strategy). INSTALL WITHOUT RESTART & RESTART JENKINS
- go to manage jenkins and select manage users.
- create user



Create User

Username: akshay

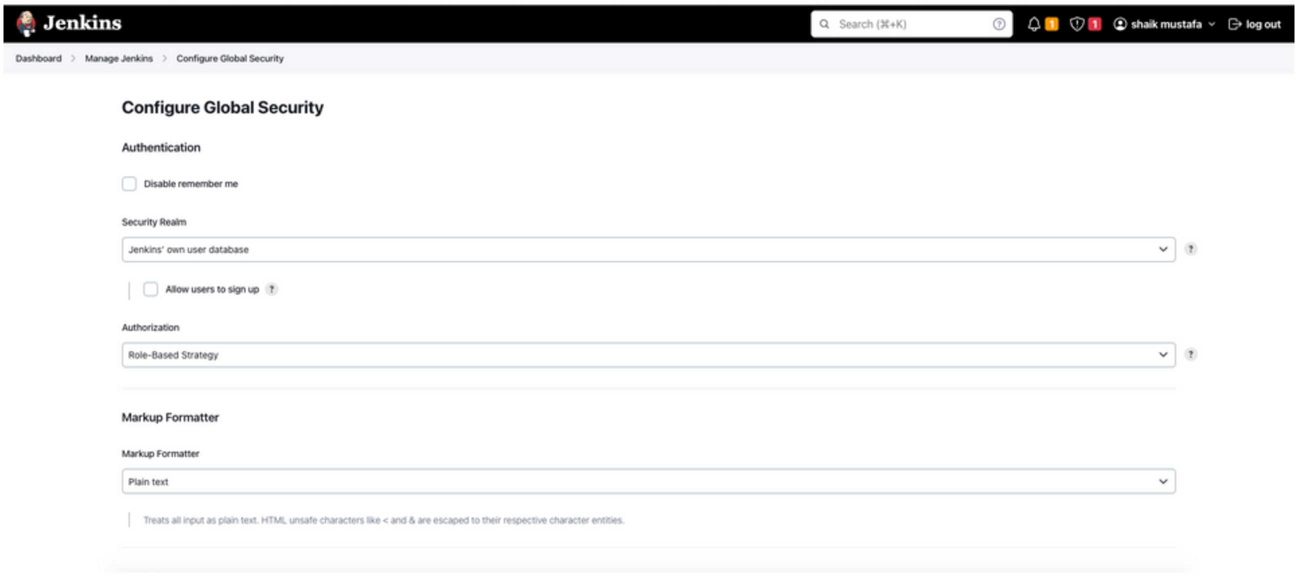
Password: •••

Confirm password: •••

Full name: akshay bhale

E-mail address: akshay@infosys.com

- 4. Go to manage jenkins >> config global security and change the authorization to role based strategy and save it



Configure Global Security

Authentication

☐ Disable remember me

Security Realm: Jenkins' own user database

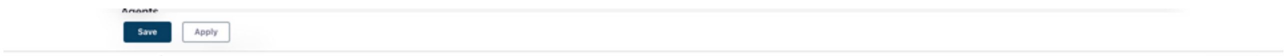
☐ Allow users to sign up

Authorization: Role-Based Strategy

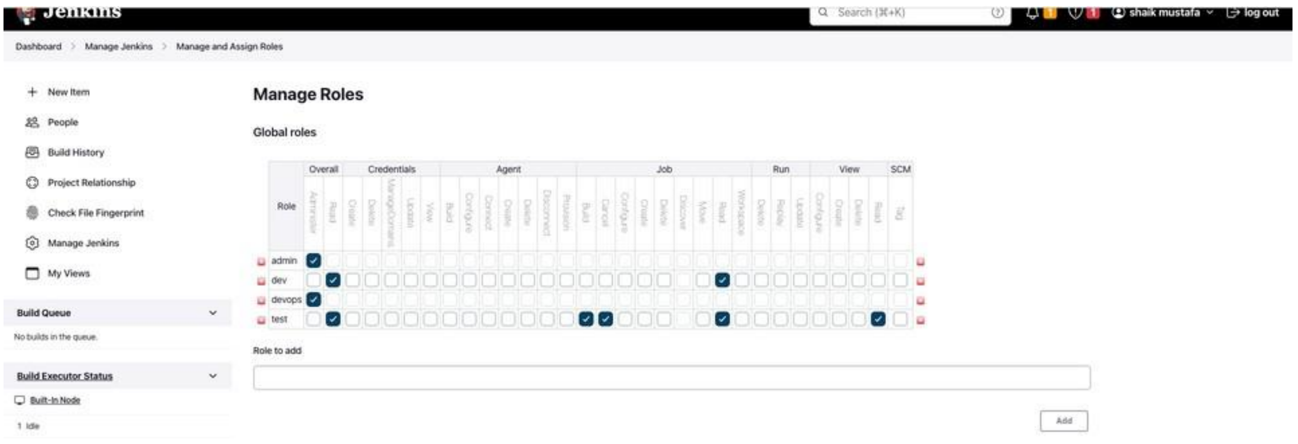
Markup Formatter

Markup Formatter: Plain text

Treats all input as plain text. HTML unsafe characters like < and & are escaped to their respective character entities.



- Go to manage jenkins >> manage and assign roles and select manage roles.



Manage Roles

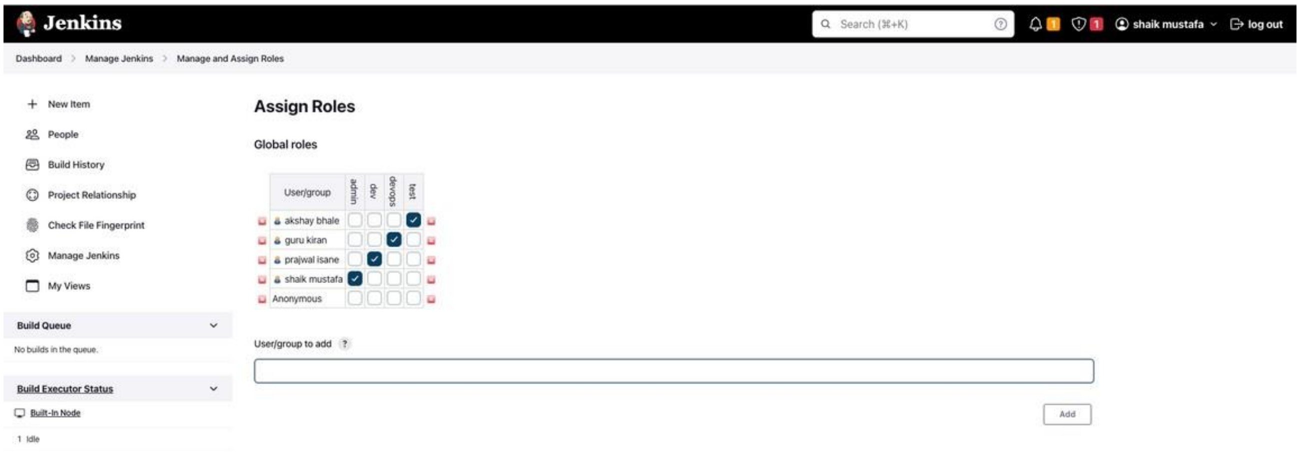
Global roles

Role	Overall		Credentials					Agent							Job									Run			View				SCM
	Administer	Read	Create	Delete	ManageDomains	Update	View	Build	Configure	Connect	Create	Delete	Disconnect	Provision	Build	Cancel	Configure	Create	Delete	Discover	Move	Read	Workspace	Delete	Replay	Update	Configure	Create	Delete	Read	Tag
admin	✓																														
dev		✓																				✓									
devops	✓																														
test		✓													✓	✓						✓								✓	

Role to add

Add

- Go to assign roles



Assign Roles

Global roles

User/group	admin	dev	devops	test
akshay bhale				✓
guru kiran			✓	
prajwal isane		✓		
shaik mustafa	✓			
Anonymous				

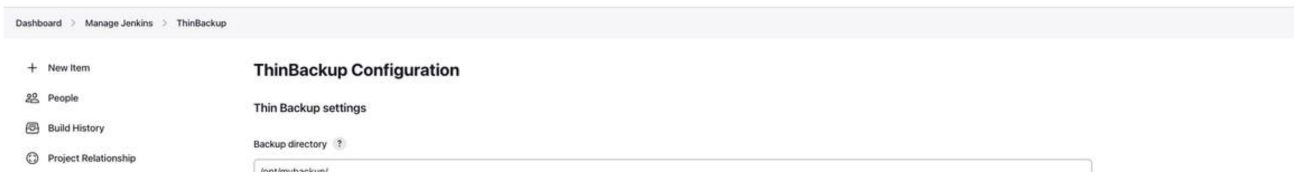
User/group to add ?

Add

JENKINS BACKUP:

Whatever we execute via Jenkins or perform any setting in Jenkins, it stores in the form of backup in Jenkins home directory. This backup includes data and configuration-related settings like job configurations and plugins, plugin configurations, build logs, etc. So, it's essential to take the backup of this prominent information to use this backup in the future if required.

- INSTALL PLUGIN (THINBACKUP).
- create a folder in opt directory: mkdir /opt/mybackup
- change owners of the folder: chown jenkins:jenkins /opt/mybackup
- give full permissions to the folder: chmod 777 /opt/mybackup
- go to manage jenkins and select thinbackup and click on settings.

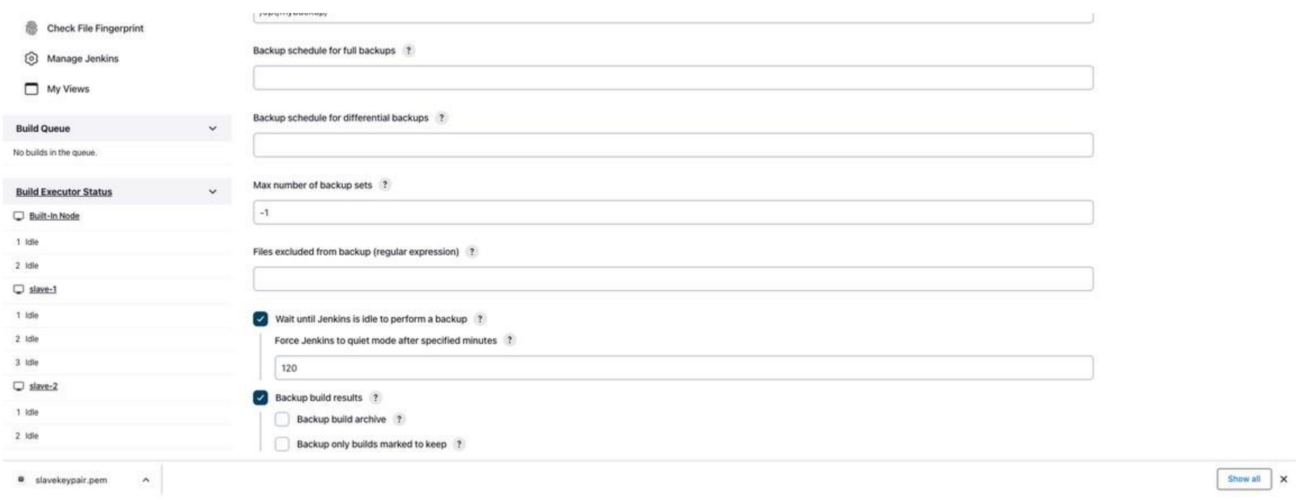


ThinBackup Configuration

Thin Backup settings

Backup directory ?

/opt/mybackup/



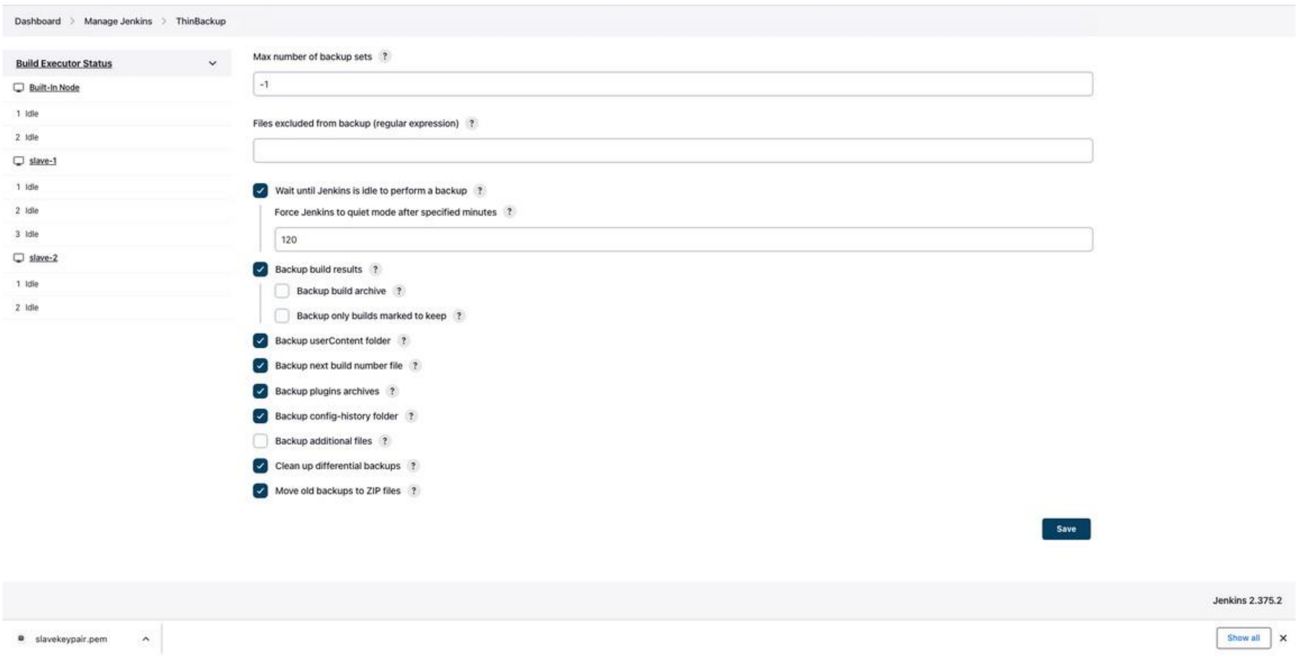
Backup schedule for full backups

Backup schedule for differential backups

Max number of backup sets: -1

Files excluded from backup (regular expression)

- [✓] Wait until Jenkins is idle to perform a backup
  - Force Jenkins to quiet mode after specified minutes: 120
- [✓] Backup build results
  - [ ] Backup build archive
  - [ ] Backup only builds marked to keep



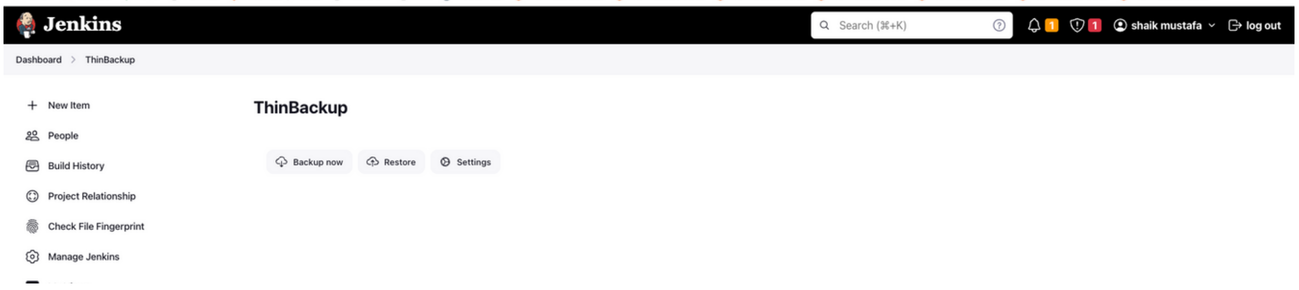
Max number of backup sets: -1

Files excluded from backup (regular expression)

- [✓] Wait until Jenkins is idle to perform a backup
  - Force Jenkins to quiet mode after specified minutes: 120
- [✓] Backup build results
  - [ ] Backup build archive
  - [ ] Backup only builds marked to keep
- [✓] Backup userContent folder
- [✓] Backup next build number file
- [✓] Backup plugins archives
- [✓] Backup config-history folder
- [ ] Backup additional files
- [✓] Clean up differential backups
- [✓] Move old backups to ZIP files

- click on **backup now**
- go and check in **/opt/mybackup folder**, you will get all the config files of jenkins in our folder.

if you want to restore those files, click on restore option



WHAT IS JENKINS FILE?

If we are writing the entire jenkins pipeline in a text format. It contains the steps that are required for running the jenkins pipeline.

It is used to create a pipeline for **build and deploy** the code. This Jenkins file uses **groovy syntax**.

These jenkins file will written in 2 ways

1. Declarative pipeline
2. Scripted Pipeline

Declarative pipeline: It is a **recent feature** of the jenkins pipeline which helps us to write the pipeline in a easier way. It will starts with the word **pipeline**

Scripted pipeline: It is a **traditional way** of writing a jenkins pipeline as a code. It starts with the word **node**

SINGLE STAGE PIPELINE:

```
pipeline {

    agent any

    stages {

        stage ("stage-1") {

            steps {

                echo "hai this is my first stage"

            }

        }

    }

}
```

pipeline : A Pipeline is a user-defined model of a CD pipeline. A Pipeline's code defines your entire build process, which typically includes stages for building an application, testing it and then delivering it.

agent : it defines that, in which server the pipeline will gets executes.

stage : stage in jenkins file contains of unique tasks such as build, test, Deploy etc..

step : It tells the jenkins what exactly needs to be done.

ex: executing a build command or linux command etc..

MULTI-STAGE PIPELINE:

```
pipeline {
   agent any
   stages {
      stage ("MUSTAGA") {
         steps {
            echo "hello Mustafa"
         }
      }
      stage ("devops") {
         steps {
            echo "we are learning devops"
         }
      }
      stage ("aws") {
         steps {
            echo "we are learning aws also"
         }
      }
   }
}
```

PIPELINE AS A CODE: YOU CAN RUN COMMANDS HERE

```
pipeline {
  agent any
  stages {
     stage('CMD') {
        steps {
           sh 'touch file1'
           sh 'pwd'
        }
     }
  }
}
```

MULTIPLE COMMANDS OVER SINGLE LINE:

```
pipeline {
  agent any
  stages {
     stage('CMD') {
        steps {
           sh  '''
           touch file2
           pwd
           date
           whoami
           '''
        }
      }
  }
}
```

ENVIRONMENT VARIABLES:

```
pipeline {
  agent any
  environment {
     name = 'raham'
  }
  stages {
     stage('ENV') {
        steps {
              echo "hai my name is $name"
        }
     }
  }
}
  pipeline {
     agent any
     environment {
        name = 'raham'
     }
     stages {
        stage('ENV1') {
           steps {

              sh 'echo "${name}"'
           }
        }
        stage('ENV2') {
           environment {
              name = 'shaik'
           }
           steps {
              sh 'echo "${name}"'
            }
          }
    }
  }
```

PIPELINE TO GET A SOURCE CODE TO DEV SERVER:

```
pipeline {
    agent {
        node {
            label 'dev'
        }
    }
    stages {

        stage ("git") {
            steps {
                git "https://github.com/devops0014/devoprepoforpractice.git"
            }
        }
    }
}
```

PIPELINE WITH PARAMETERS:

STRING:

```
pipeline {
    agent any
    parameters {
        string (name: "aws", defaultValue: "EC2", description: "i am unsing aws cloud")
    }
    stages {
        stage ("stage-1") {
            steps {
                echo "hai i am using parameters"
            }
        }
    }
}
```

BOOLEAN:

```
pipeline {
    agent any
    parameters {
        booleanParam (name: "jenkins", defaultValue: true, description: "")
    }

    stages {
        stage('Hello') {
            steps {
                echo ' i am using boolean parameter'
            }
        }
    }
}
```

CHOICE:

```
pipeline {
    agent any
    parameters {
        choice (name: "branch", choices : ["one", "two", "three", "four"], description: "this is cp")
    }
    stages {
        stage('Hello') {
            steps {
                echo 'Hello World'
            }
        }
    }
}
```

PIPELINE WITH POST BUILD ACTIONS:

ALWAYS:

```
pipeline {
   agent any

   stages {
       stage('Hello') {
           steps {
               echo 'Hello World
           }
       }
   }
   post{
       always {
               echo 'THIS WILL BE PRINTED ANYWAY'
           }
       }
}
```

SUCCESS:

```
pipeline {
  agent any

  stages {
     stage('Hello') {
        steps {
           echo 'Hello World
        }
     }
  }
  post{
     success {
           echo 'THIS WILL BE PRINTED IF THE BUILD GETS SUCCESS'
        }
     }
}
```

FAILURE:

```
pipeline {
  agent any

  stages {
     stage('Hello') {
        steps {
           echo 'Hello World
        }
     }
  }
  post{
     failure {
            echo 'THIS WILL BE PRINTED EVEN IF THE BUILD GETS FAILURE'
        }
    }
}
```

SUCCESS, ALWAYS, FAILURE:

```
pipeline {
    agent any

    stages {
        stage('Hello') {
            steps {
                ech 'Hello World'
            }
        }
    }
    post {
        always {
            echo "this will gets printed anyway"
        }
        success {
            echo "this will be printed if the build gets success"
        }
        failure {
            echo "this will be printed even if the build gets failure"
        }
    }
}
```

INPUT IN JENKINS FILE:

```
pipeline {
   agent any

   stages {
      stage('deploy') {
         input {
            message "can i deploy"
            ok "yes you can"
         }
         steps {
            echo 'our code is deployed'
         }
      }
   }
}
```

JENKINS FILE TO DEPLOY THE CODE IN TOMCAT SERVER:

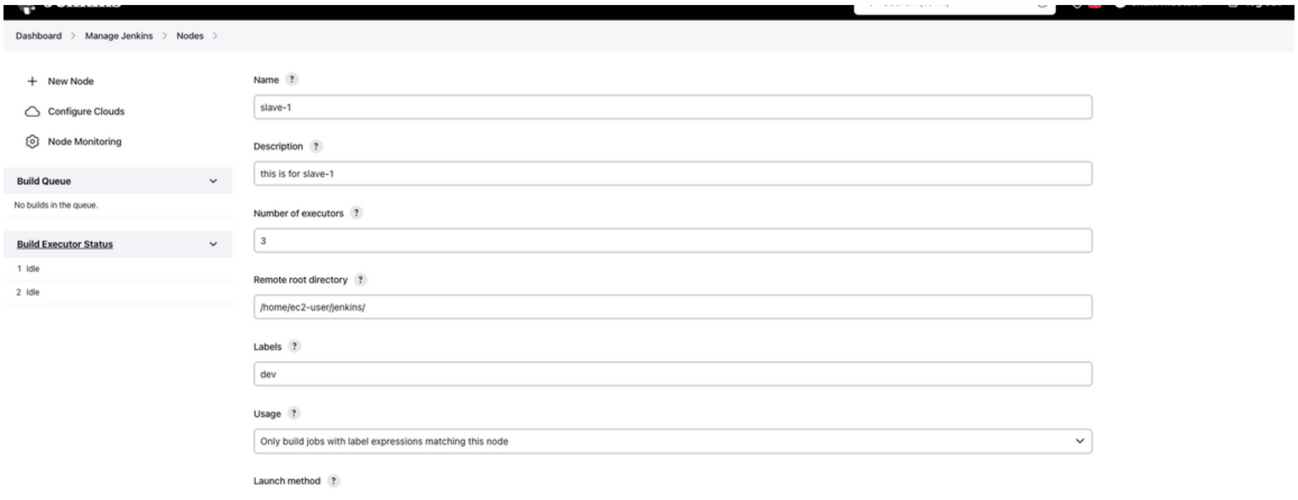
```
pipeline {
   agent any
   stages {
      stage ("code") {
         steps {
            git "https://github.com/devops0014/myweb-01.git"
         }
      }
      stage ("build") {
         steps {
            sh 'mvn clean package'
         }
      }

      stage ("deploy") {

         steps {

            sh "cp /var/lib/jenkins/workspace/pipeline-1/target/*.war /opt/apache-tomcat-
9.0.71/webapps"

         }

      }

   }

}
```

CHANGE TOMCAT PORT NUMBER:

- To stop the tomcat: ./shutdown.sh
- Go to conf folder and open server.xml file in vim editor
- Change the port number in 69 line from 8080 to 8081
- and save & exit from the file
- Go to one step back cd ..
- Go to bin folder again and execute startup.sh file

JENKINS JOB TO DEPLOY A WEBAPP IN CLIENT SERVER:

1. LAUNCH AN **TWO INSTANCES** WITH **8080 PORT** AND **PEM FILE.** (JENKINS & PROD SERVER)
2. SETUP **JENKINS IN JENKINS SERVER**
3. INSTALL **JAVA-11 IN PROD SERVER**
4. CEATE A NODE : go to manage jenkins >> manage nodes and clouds >> new node --> give node name & select permanent agent.

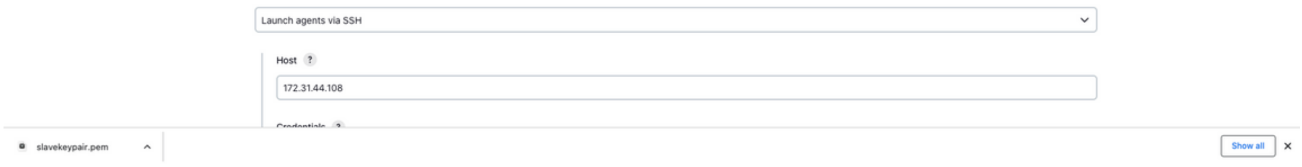

Dashboard > Manage Jenkins > Nodes >

New Node
Configure Clouds
Node Monitoring

Build Queue
No builds in the queue.

Build Executor Status
1 Idle
2 Idle

Name: slave-1
Description: this is for slave-1
Number of executors: 3
Remote root directory: /home/ec2-user/jenkins/
Labels: dev
Usage: Only build jobs with label expressions matching this node
Launch method

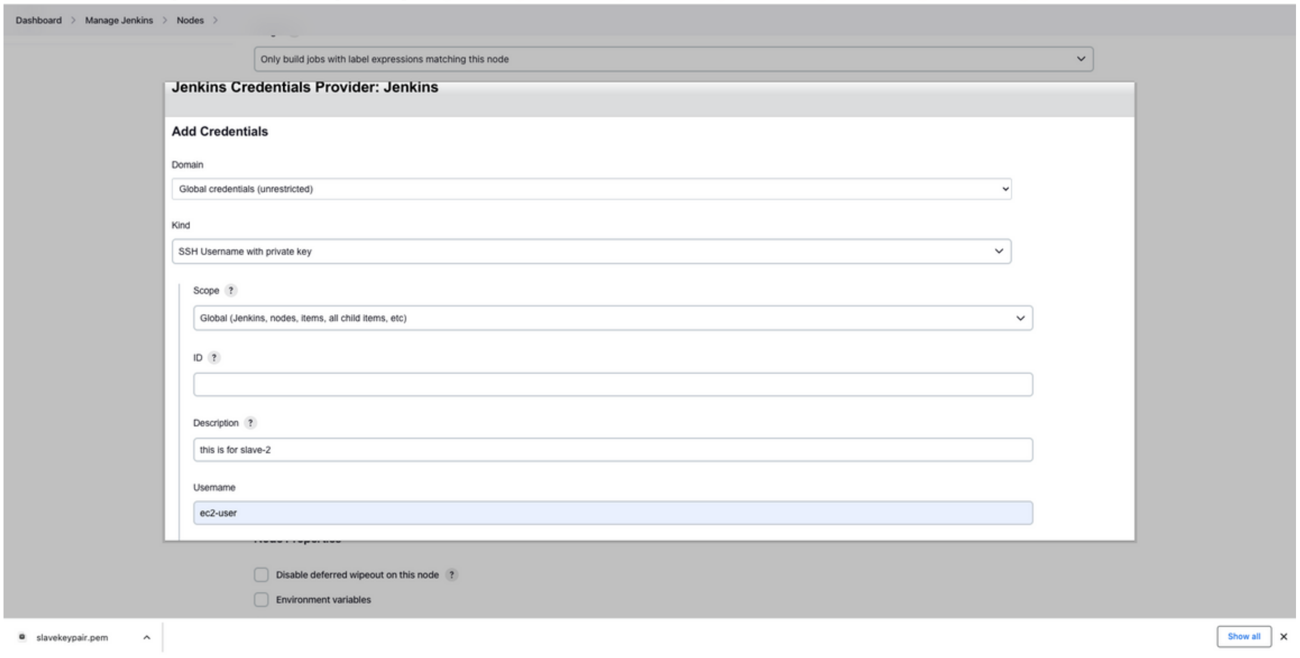

Launch agents via SSH

Host

172.31.44.108

slavekeypair.pem

ADD CREDENTIALS


Dashboard > Manage Jenkins > Nodes >

Only build jobs with label expressions matching this node

Jenkins Credentials Provider: Jenkins

Add Credentials

Domain

Global credentials (unrestricted)

Kind

SSH Username with private key

Scope

Global (Jenkins, nodes, items, all child items, etc)

ID

Description

this is for slave-2

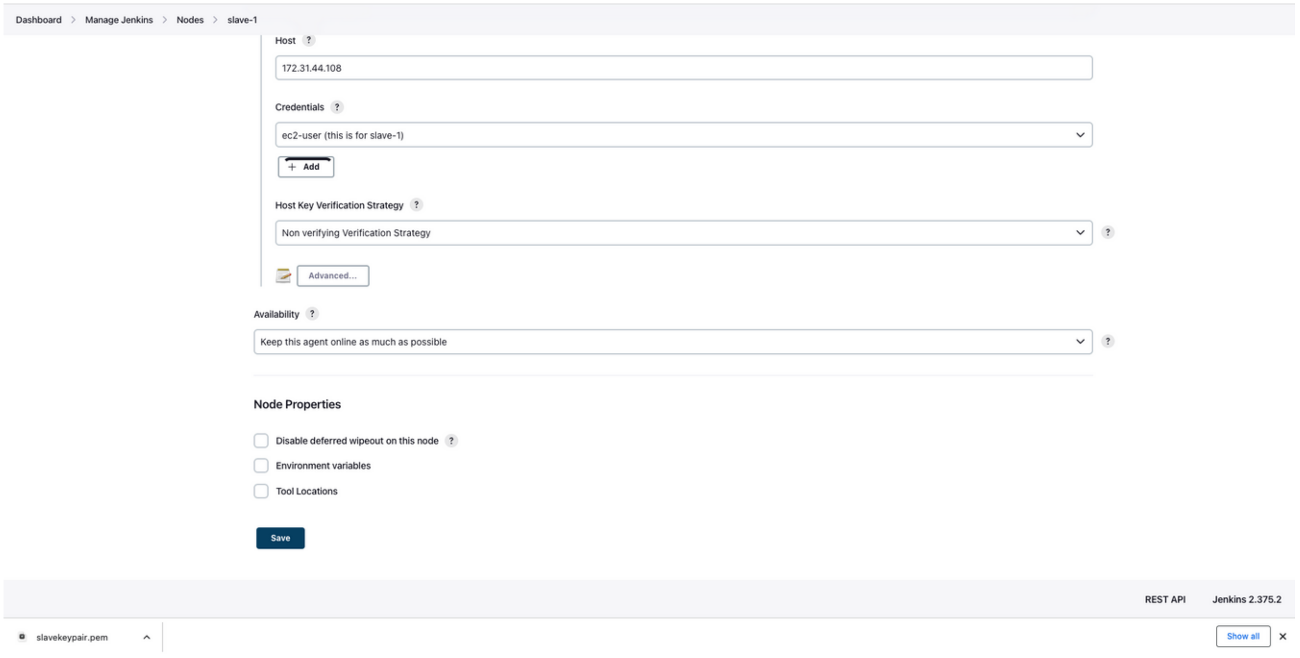
Username

ec2-user

Disable deferred wipeout on this node

Environment variables

slavekeypair.pem


Dashboard > Manage Jenkins > Nodes > slave-1

Host

172.31.44.108

Credentials

ec2-user (this is for slave-1)

Host Key Verification Strategy

Non verifying Verification Strategy

Availability

Keep this agent online as much as possible

Node Properties

Disable deferred wipeout on this node

Environment variables

Tool Locations

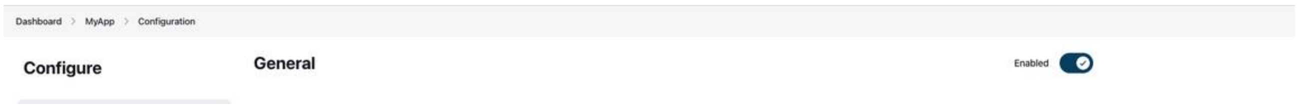
Save

REST API Jenkins 2.375.2

slavekeypair.pem

- SETUP THE TOMCAT IN PROD SERVER (dont need to change the port number).
- INSTALL PLUGIN: go to manage jenkins >> manage plugins >> available plugin >> deploy to container.

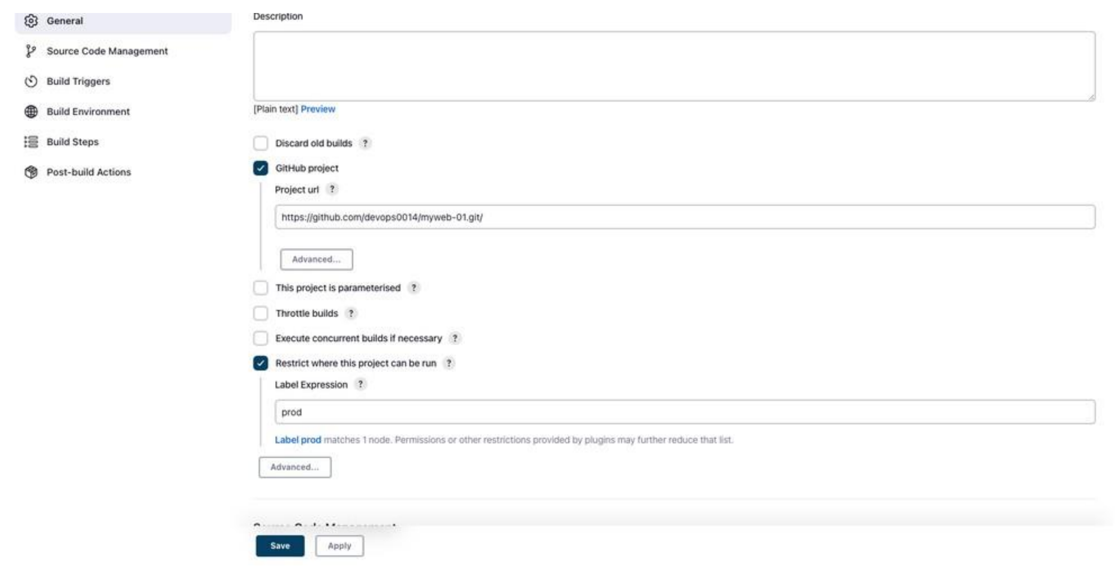
CREATE A JOB IN FREE STLE:


Dashboard > MyApp > Configuration

Configure

General

Enabled



Description

[Plain text] Preview

- [ ] Discard old builds ?
- [x] GitHub project

Project url ?

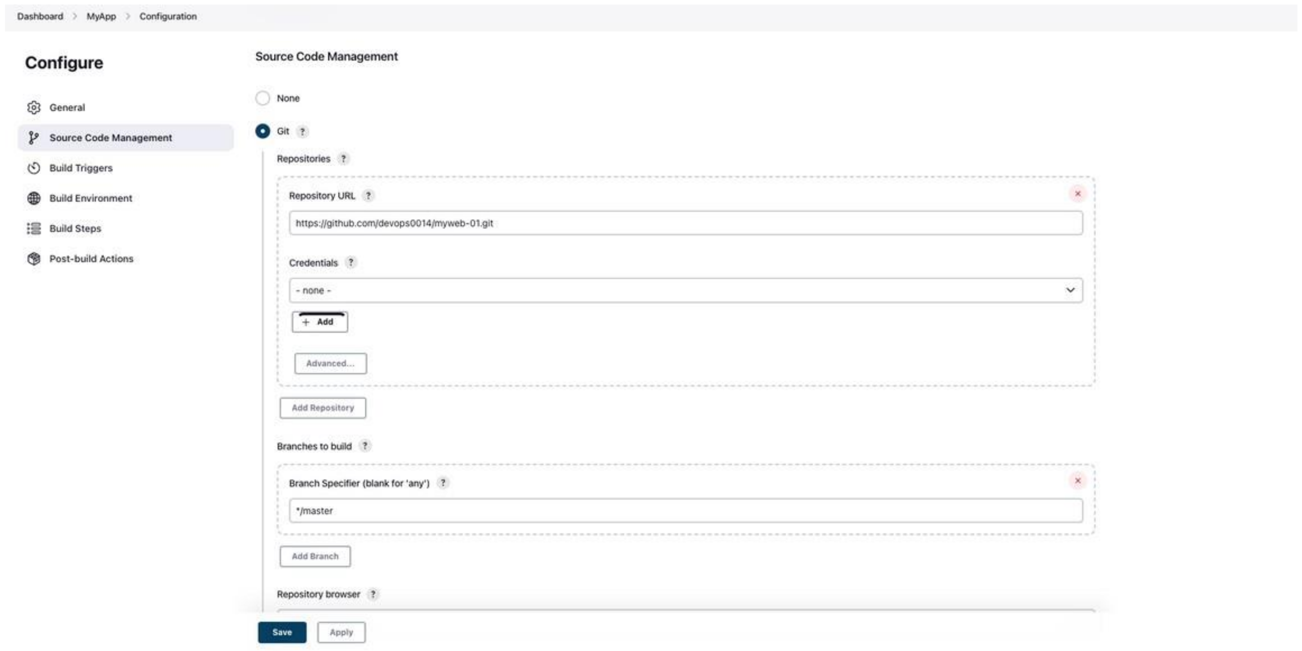
https://github.com/devops0014/myweb-01.git/

- [ ] This project is parameterised ?
- [ ] Throttle builds ?
- [ ] Execute concurrent builds if necessary ?
- [x] Restrict where this project can be run ?

Label Expression ?

prod

Label prod matches 1 node. Permissions or other restrictions provided by plugins may further reduce that list.



Source Code Management

○ None

● Git ?

Repositories ?

Repository URL ?

https://github.com/devops0014/myweb-01.git

Credentials ?

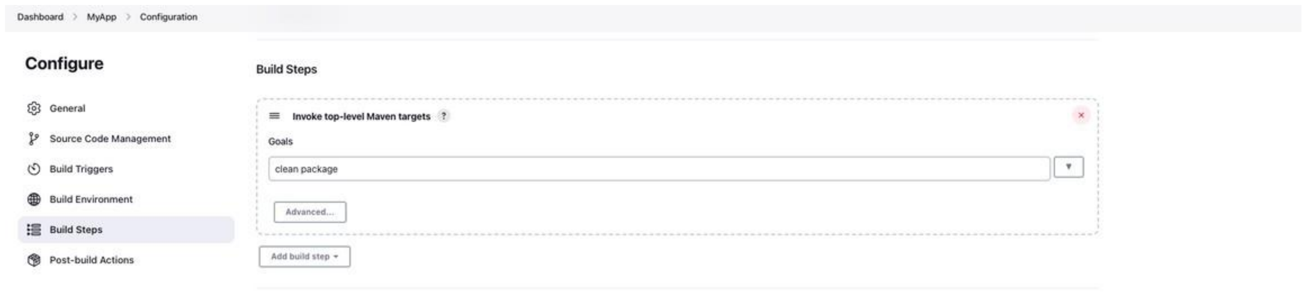
- none -

Branches to build ?

Branch Specifier (blank for 'any') ?

*/master

Repository browser ?

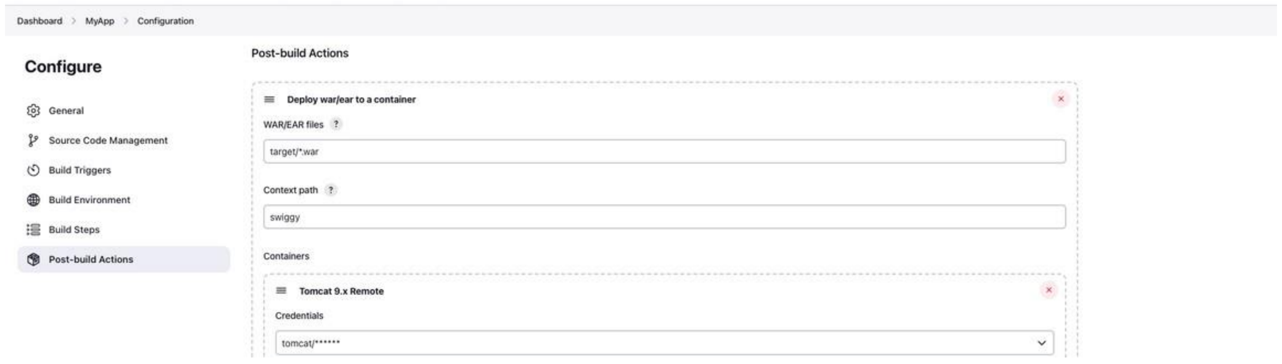


Build Steps

Invoke top-level Maven targets ?

Goals

clean package



Post-build Actions

Deploy war/ear to a container

WAR/EAR files ?

target/*.war

Context path ?

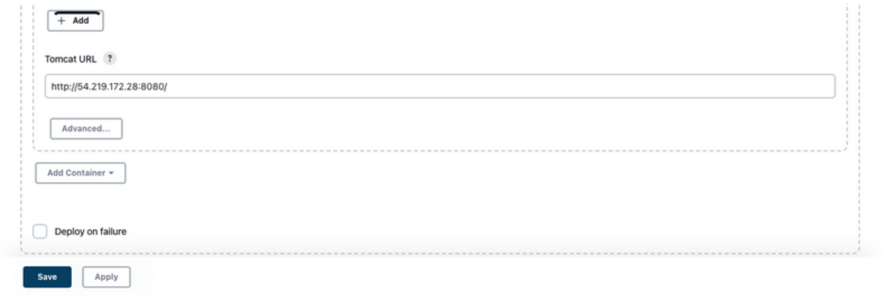
swiggy

Containers

Tomcat 9.x Remote

Credentials

tomcat/******



Tomcat URL

http://54.219.172.28:8080/

Deploy on failure

SAVE & BUILD

SOME ADDITIONAL TOPICS:

JENKINS POST BUILD ACTIONS:

```
pipeline {
  agent any

  stages {
    stage('Hello') {
      steps {
        eco 'Hello World'
      }
      post {
        always {
          echo "this will be printed anyways"
        }
      }
    }
  }
  post {
    always {
        echo "This block always runs."
    }
    changed {
        echo "This block runs when the current status is different than the previous one."
    }
    flxed {
        echo "This block runs when the current status is success and the previous one was failed or unstable."
    }
    regression {
        echo "This block runs when the current status is anything except success but the previous one was successful."
    }
    unstable {
        echo "This block runs if the current status is marked unstable."
    }
    aborted {
        echo "This block runs when the build process is aborted."
    }
    failure {
        echo "This block runs when the build is failed."
    }
    success {
        echo "This block runs when the build is succeeded."
    }
    unsuccessful {
        echo "This block runs when the current status is anything except success."
      }
   }
}
```

JENKINS WHEN CONDITION:

```
pipeline {
   agent any
   stages {
      stage("Test") {
         when {
            equals(actual: currentBuild.number, expected: 5)
         }
         steps {
            echo "Hello World!"
         }
      }
   }
}
```

Note: In the above pipeline, when the build id is 5, then only stage will gets executed.

WHEN NOT:

```
pipeline {
    agent any
    stages {
        stage("Test") {
            when {
                not {
                    branch "master"
                }
            }
            steps {
                echo "Test stage."
            }
        }
    }
}
```

ALL OF:

```
pipeline {
    agent any
    stages {
        stage("Deploy") {
            when {
                allOf {
                    branch "master"
                    environment(name: "ENV", value: "production")
                    tag "release-*"
            }
          }
          steps {
            echo "Deploy to production."
          }
        }
      }
    }
```

ANY OF:

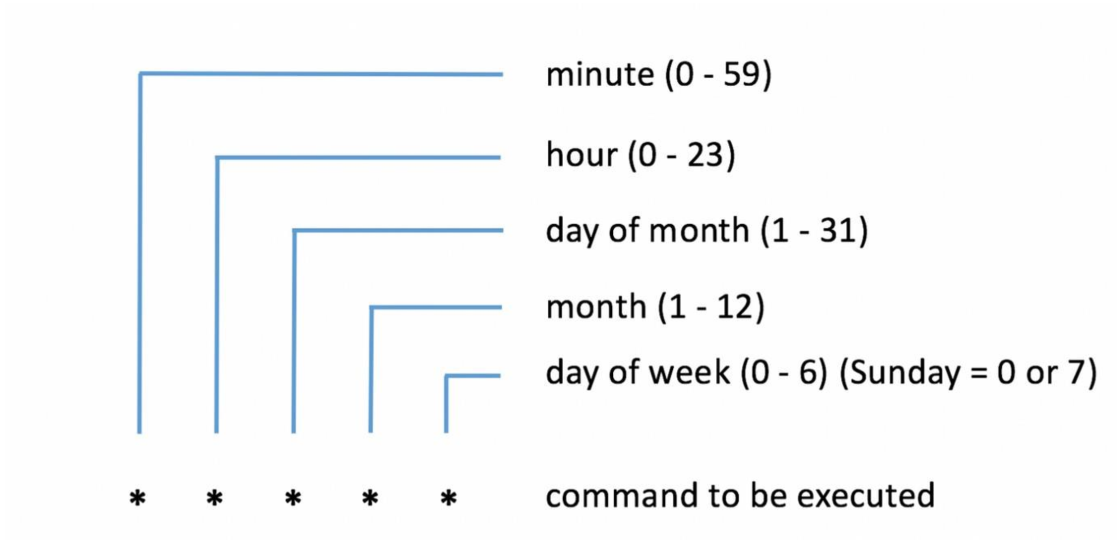
```
pipeline {
    agent any
    stages {
        stage("NewFeature") {
            when {
                anyOf {
                    branch "feature"
                    changelog ".*new feature.*"
                }
            }
            steps {
                echo "Test new feature."
            }
        }
    }
}
```

BUILD PERIODICALLY:

```
pipeline {
  agent any
  triggers {
    cron "* * * * *"
  }
  stages {
    stage("Test") {
      steps {
        echo "Hello World!"
      }
    }
  }
}
```

CRON JOB IN FREE STYLE:

We can schedule the jobs that need to be run at a particular intervals.


minute (0 - 59)
hour (0 - 23)
day of month (1 - 31)
month (1 - 12)
day of week (0 - 6) (Sunday = 0 or 7)
* * * * * command to be executed

Build Triggers -- > Build periodically -- > * * * * * -- > save

If you want to make it customize then we can use cron syntax generator.

JENKINS PORT NUMBER CHANGE:

1. cd /usr/lib/systemd/system
2. vim jenkins.service
3. change port number in line 67
4. systemctl daemon-reload
5. systemctl restart jenkins