Module 6

Jenkins Assignment - 1

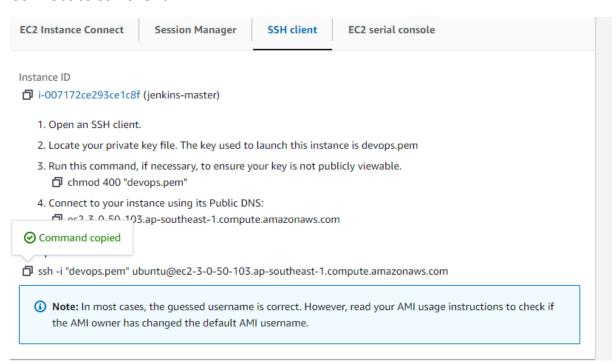
Tasks To Be Performed:

- 1. Trigger a pipeline using Git when push on develop branch
- 2. Pipeline should pull Git content to a folder

Launch 2 instances for Jenkins master and slave



Connect to ssh client



Update the machine

```
ubuntu@jenkins-master:~$ sudo apt update
Hit:1 http://ap-southeast-1.ec2.archive.ubuntu.com/ubuntu noble InRelease
Hit:2 http://ap-southeast-1.ec2.archive.ubuntu.com/ubuntu noble-updates InRelease
Hit:3 http://ap-southeast-1.ec2.archive.ubuntu.com/ubuntu noble-backports InRelease
Ign:4 https://pkg.jenkins.io/debian-stable binary/ InRelease
Hit:5 https://pkg.jenkins.io/debian-stable binary/ Release
Hit:6 http://security.ubuntu.com/ubuntu noble-security InRelease
Reading package lists... Done
Building dependency tree... Done
Reading state information... Done
35 packages can be upgraded. Run 'apt list --upgradable' to see them.
ubuntu@jenkins-master:~$
```

Install java and Jenkins in master server

```
sudo apt-get update -y
sudo apt-get install openjdk-17-jdk -y
sudo wget -0 /usr/share/keyrings/jenkins-keyring.asc \
   https://pkg.jenkins.io/debian-stable/jenkins.io-2023.key
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
sudo apt-get update
sudo apt-get install jenkins -y
```

Execute the shell script

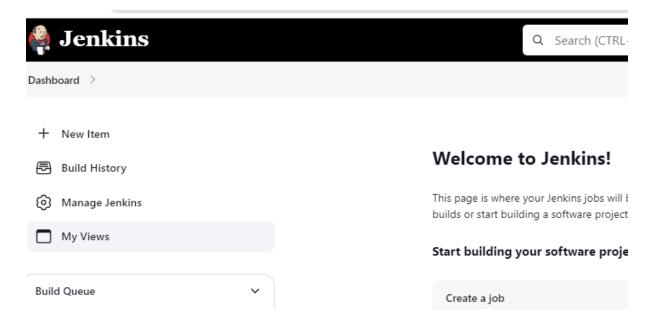
```
ubuntu@jenkins-master:~$ sudo nano install.sh
ubuntu@jenkins-master:~$ ubuntu@jenkins-master:~$ bash install.sh
```

Check the Jenkins version and Java version

```
ubuntu@jenkins-master:~$ jenkins --version

2.452.2
ubuntu@jenkins-master:~$ java --version
openjdk 17.0.11 2024-04-16
OpenJDK Runtime Environment (build 17.0.11+9-Ubuntu-1)
OpenJDK 64-Bit Server VM (build 17.0.11+9-Ubuntu-1, mixed mode, sharing)
```

Connect to the Jenkins



Connect to Jenkins slave machine

```
C:\Users\Ruchitha>cd downloads
C:\Users\Ruchitha\Downloads>ssh -i "devops.pem" ubuntu@ec2-3-0-181-119.ap-southeast-1.compute.amazonaws.com
```

Update the machine and install only java

```
ubuntu@ip-172-31-18-80:~$ sudo apt update
Hit:1 http://ap-southeast-1.ec2.archive.ubuntu.com/ubuntu noble InRelease
Get:2 http://ap-southeast-1.ec2.archive.ubuntu.com/ubuntu noble-updates InRelease [126 kB]
Hit:3 http://ap-southeast-1.ec2.archive.ubuntu.com/ubuntu noble-backports InRelease
Hit:4 http://security.ubuntu.com/ubuntu noble-security InRelease
Fetched 126 kB in 1s (212 kB/s)
Reading package lists... Done
Building dependency tree... Done
Reading state information... Done
35 packages can be upgraded. Run 'apt list --upgradable' to see them.
ubuntu@ip-172-31-18-80:~$
```

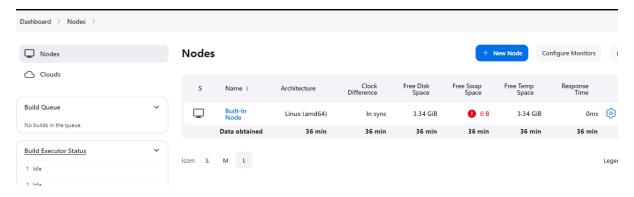
ubuntu@slave:~\$ sudo apt-get install openjdk-17-jdk -y

```
ubuntu@jenkins-slave:~$ java --version
openjdk 17.0.11 2024-04-16
OpenJDK Runtime Environment (build 17.0.11+9-Ubuntu-1)
OpenJDK 64-Bit Server VM (build 17.0.11+9-Ubuntu-1, mixed mode, sharing)
ubuntu@jenkins-slave:~$
```

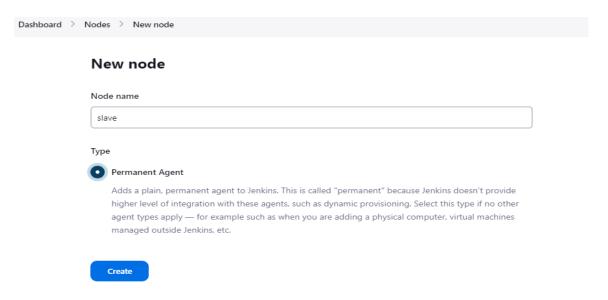
Install the plugin - ssh agent

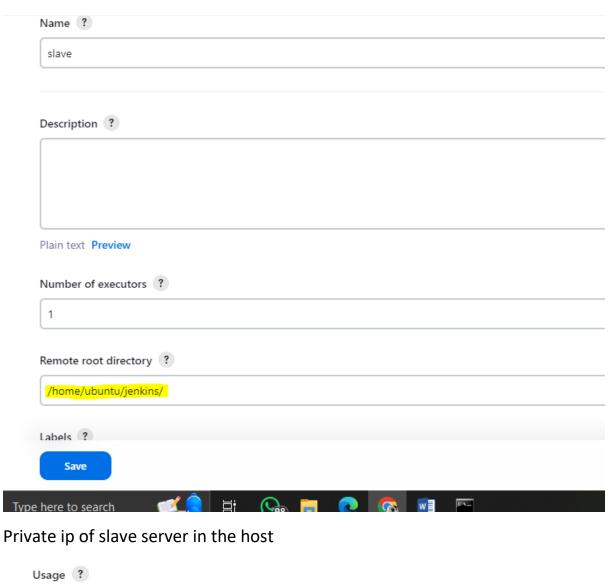


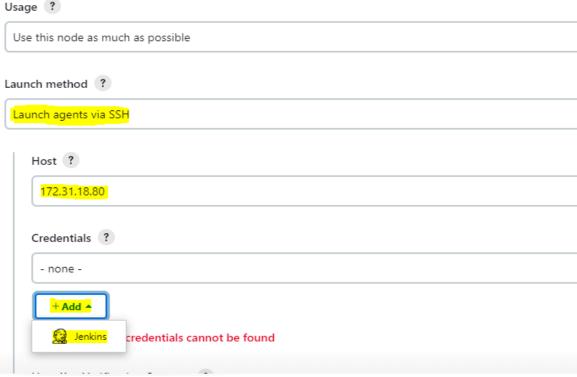
Built in node is automatically created



Now create a new node for slave



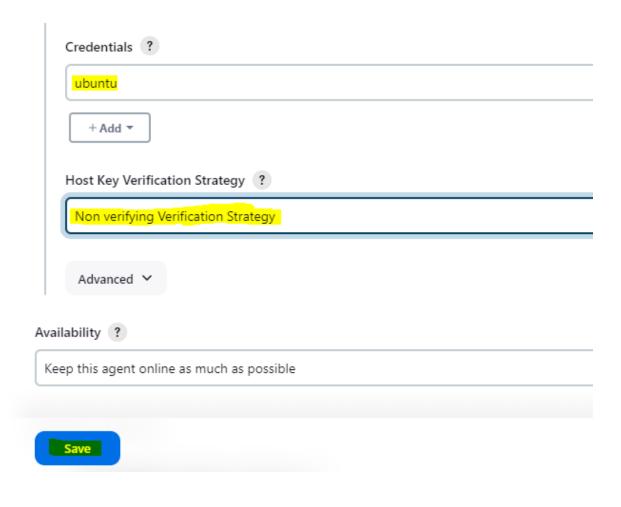


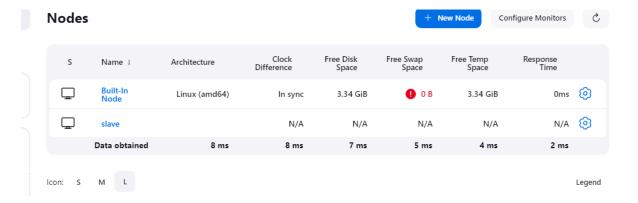


Jenkins Credentials Provider: Jenkins

Add Credentials

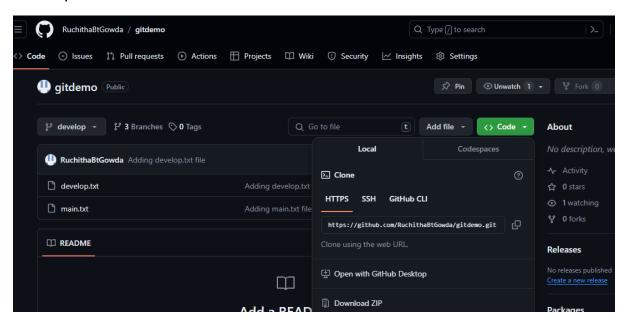
omain	
Global credentials (unrestricted)	
nd	
SSH Username with private key	
Scope ?	
Global (Jenkins, nodes, items, all child items, etc)	
ID (?)	
2	
Username	
ubuntu	
Treat username as secret ?	
Private Key	
Enter directly	
Key	
	En
BEGIN RSA PRIVATE KEY MIIEOgIBAAKCAQEAgIWvZRQ3Wkll8XwC/7+tQaTVKGVeg/EJ	





https://github.com/RuchithaBtGowda/gitdemo.git

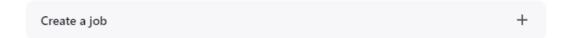
develop branch



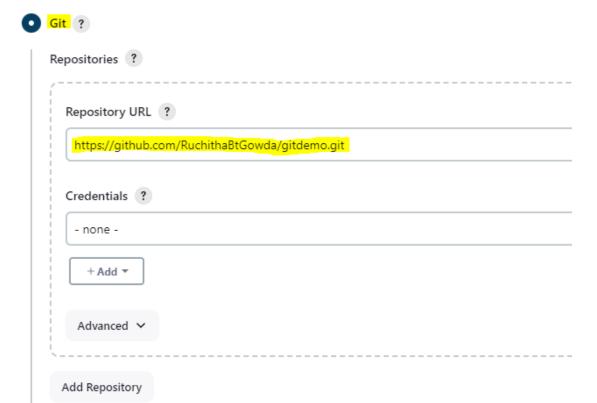
Create a new job for test

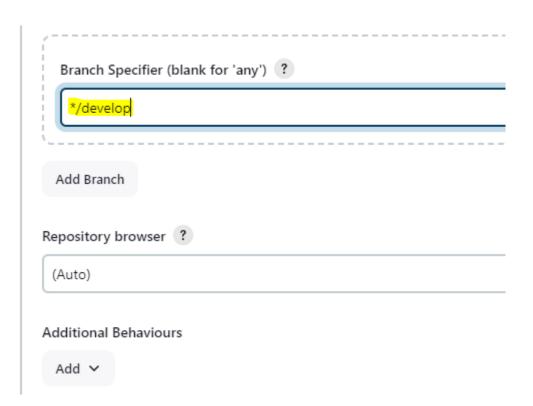
builds or start building a software project.

Start building your software project

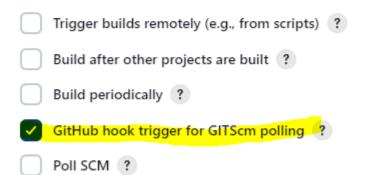


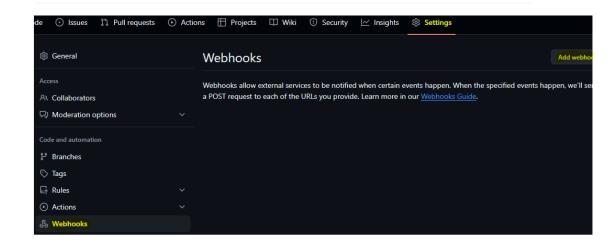
Enter an item name test-job » Required field Freestyle project Classic, general-purpose job type that checks out from up to one SCM, executes build ste archiving artifacts and sending email notifications. **Pipeline** Orchestrates long-running activities that can span multiple build agents. Suitable for build 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 ОК Discard old builds ? GitHub project This project is parameterized ? Throttle builds ? Execute concurrent builds if necessary ? Restrict where this project can be run ? Label Expression ? slave Label slave matches 1 node. Permissions or other restrictions provided Advanced V

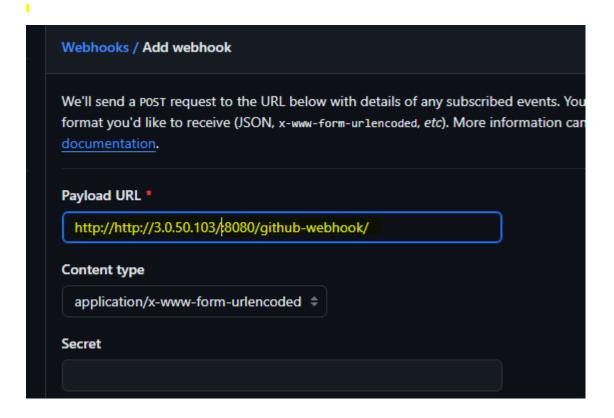


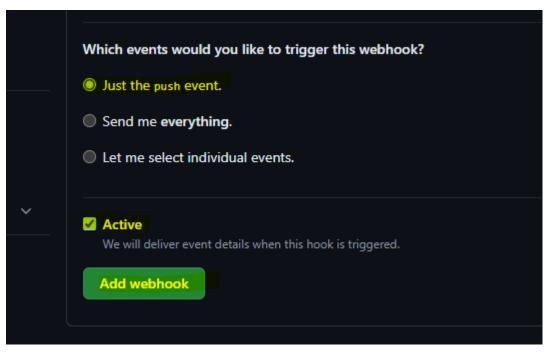


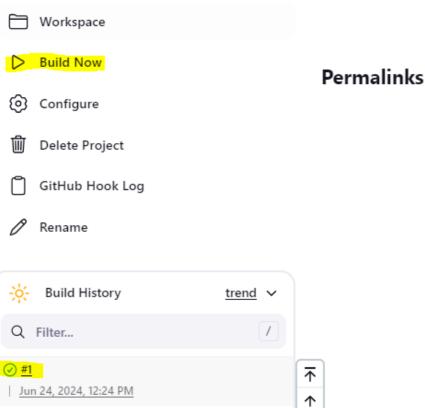
Build Triggers









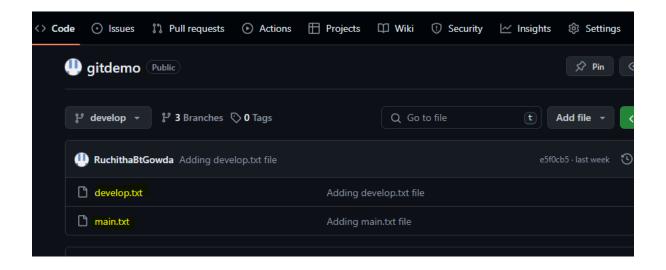


Atom feed for all Atom feed for failures

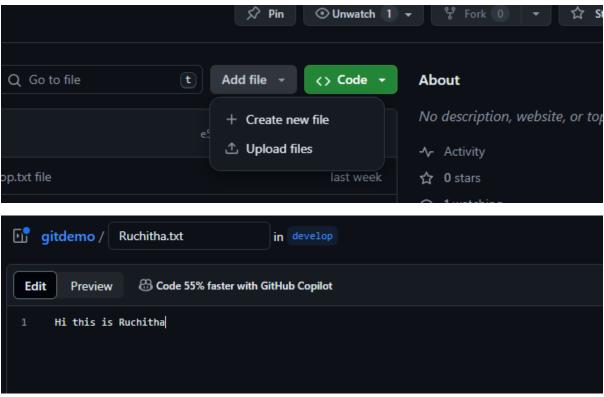
```
Started by user Ruchitha Bt Gowda
Running as SYSTEM
Building remotely on slave in workspace /home/ubuntu/jenkins/workspace/test-job
The recommended git tool is: NONE
No credentials specified
Cloning the remote Git repository
Cloning repository https://github.com/RuchithaBtGowda/gitdemo.git
 > git init /home/ubuntu/jenkins/workspace/test-job # timeout=10
Fetching upstream changes from https://github.com/RuchithaBtGowda/gitdemo.git
 > git --version # timeout=10
 > git --version # 'git version 2.43.0'
 > git fetch --tags --force --progress -- https://github.com/RuchithaBtGowda/gitdemo.git +refs/he
 > git config remote.origin.url https://github.com/RuchithaBtGowda/gitdemo.git # timeout=10
 > git config --add remote.origin.fetch +refs/heads/*:refs/remotes/origin/* # timeout=10
Avoid second fetch
 > git rev-parse refs/remotes/origin/develop^{commit} # timeout=10
Checking out Revision e5f0cb520618691b704dc72d2ad2b4b5d593f532 (refs/remotes/origin/develop)
> git config core.sparsecheckout # timeout=10
> git checkout -f e5f0cb520618691b704dc72d2ad2b4b5d593f532 # timeout=10
Commit message: "Adding develop.txt file"
First time build. Skipping changelog.
Finished: SUCCESS
```

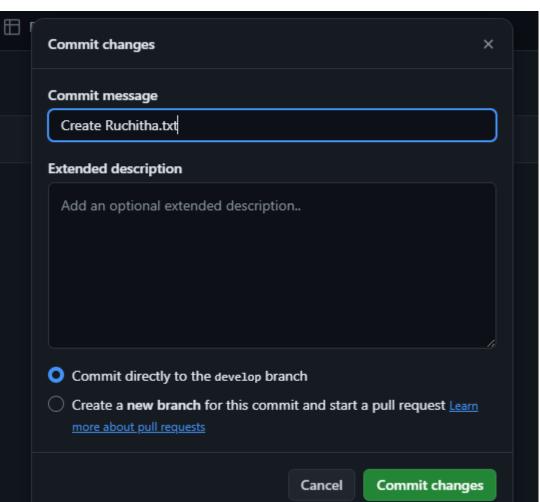
Check it on the slave machine

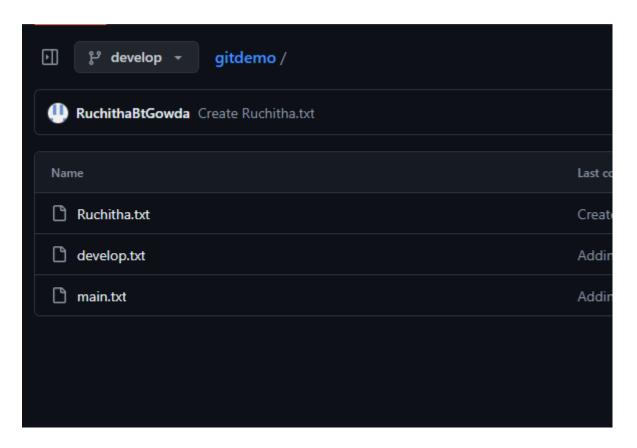
```
ubuntu@jenkins-slave:~/jenkins$ cd /home/ubuntu/jenkins/workspace/test-job
ubuntu@jenkins-slave:~/jenkins/workspace/test-job$ ls
develop.txt main.txt
ubuntu@jenkins-slave:~/jenkins/workspace/test-job$
```



Create new file



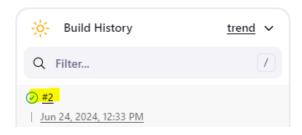








- (Configure
- Delete Project
- GitHub Hook Log
- Rename



Permalinks

- Last build (#1), 7 min 10 sec ago
- Last stable build (#1), 7 min 10 sec ago
- Last successful build (#1), 7 min 10 sec ago
- Last completed build (#1), 7 min 10 sec ago

✓ Console Output ☐

```
Started by user Ruchitha Bt Gowda
Running as SYSTEM
Building remotely on slave in workspace /home/ubuntu/jenkins/workspace/test-job
The recommended git tool is: NONE
No credentials specified
 > git rev-parse --resolve-git-dir /home/ubuntu/jenkins/workspace/test-job/.git # timeout=10
Fetching changes from the remote Git repository
 > git config remote.origin.url https://github.com/RuchithaBtGowda/gitdemo.git # timeout=10
Fetching upstream changes from https://github.com/RuchithaBtGowda/gitdemo.git
> git --version # timeout=10
> git --version # 'git version 2.43.0'
 > git fetch --tags --force --progress -- https://github.com/RuchithaBtGowda/gitdemo.git +refs/heads/*:refs/remote
# timeout=10
 > git rev-parse refs/remotes/origin/develop^{commit} # timeout=10
Checking out Revision 2c23d536291b108776325c9bd8ce6858361e1345 (refs/remotes/origin/develop)
> git config core.sparsecheckout # timeout=10
> git checkout -f 2c23d536291b108776325c9bd8ce6858361e1345 # timeout=10
Commit message: "Create Ruchitha.txt"
> git rev-list --no-walk e5f0cb520618691b704dc72d2ad2b4b5d593f532 # timeout=10
```

Check the new file reflected after triggering the job

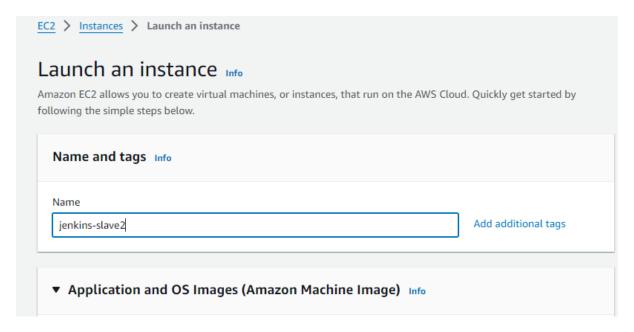
```
ubuntu@jenkins-slave:~/jenkins$ cd /home/ubuntu/jenkins/workspace/test-job ubuntu@jenkins-slave:~/jenkins/workspace/test-job$ ls develop.txt main.txt ubuntu@jenkins-slave:~/jenkins/workspace/test-job$ ls Ruchitha.txt develop.txt main.txt ubuntu@jenkins-slave:~/jenkins/workspace/test-job$ ubuntu@jenkins-slave:~/jenkins/workspace/test-job$
```

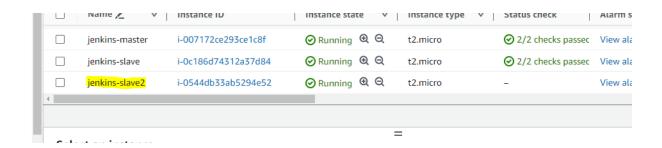
Jenkins Assignment - 2

Tasks To Be Performed:

- Add 2 nodes to Jenkins master
- 2. Create 2 jobs with the following jobs:
 - a. Push to test
 - b. Push to prod
- 3. Once a push is made to test branch, copy Git files to test server
- 4. Once a push is made to master branch, copy Git files to prod server

Launch another instance for as slave 2

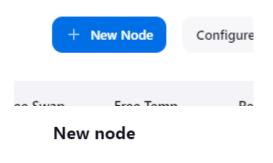




```
Microsoft Windows [Version 10.0.19045.4529]
(c) Microsoft Corporation. All rights reserved.
C:\Users\Ruchitha>cd downloads
C:\Users\Ruchitha\Downloads>ssh -i "devops.pem" ubuntu@ec2-18-140-54-231.ap-southeast-1.compute.
```

Sudo apt-get update sudo apt-get install openjdk-17-jdk -y

create new node for slave2



Node name

slave2

Туре

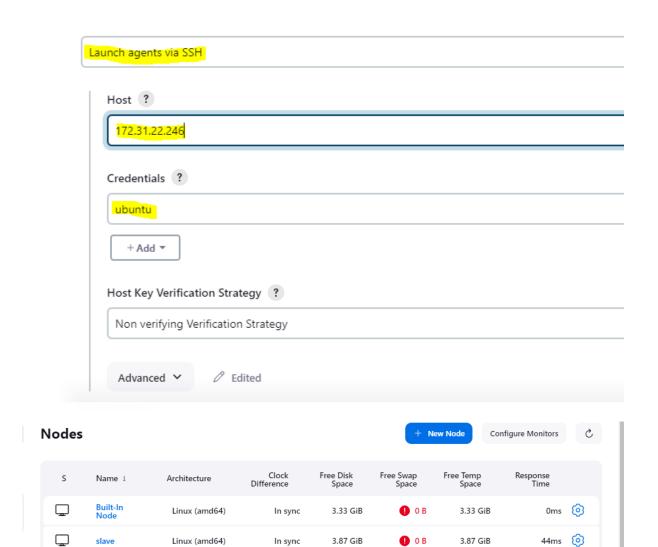
Permanent Agent

Adds a plain, permanent agent to Jenkins. This is called "permanent" because Jenkins doesn't provide higher level of integration with these agents, such as dynamic provisioning. Select this type if no other agent types apply — for example such as when you are adding a physical computer, virtual machines managed outside Jenkins, etc.

Opy Existing Node

Q Type for suggestions

Create



slave

slave2

Data obtained

 \Box

Linux (amd64)

Linux (amd64)

7.5 sec

In sync

In sync

7.5 sec

3.87 GiB

4.18 GiB

7.5 sec

① B

0 B

7.5 sec

3.87 GiB

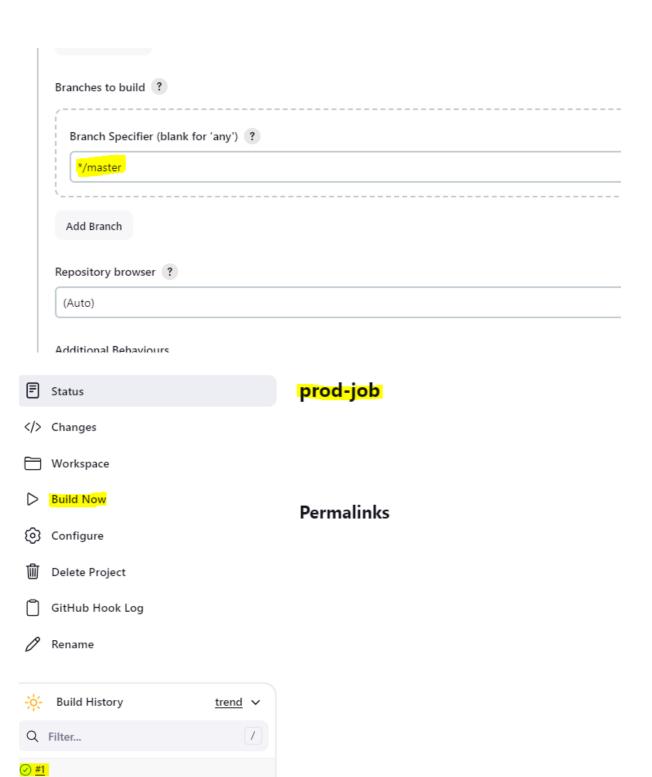
4.18 GiB

7.5 sec

96ms 🧿

7.5 sec

Enter an item name prod-job » Required field Freestyle project Classic, general-purpose job type that checks out from up to one SCM, executes build steps serially, follow archiving artifacts and sending email notifications. **Pipeline** Orchestrates long-running activities that can span multiple build agents. Suitable for building pipelines (fc 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 envi None Git ? Repositories ? Repository URL ? https://github.com/RuchithaBtGowda/gitdemo.git Credentials ? - none -+ Add ▼ Advanced > Add Repository

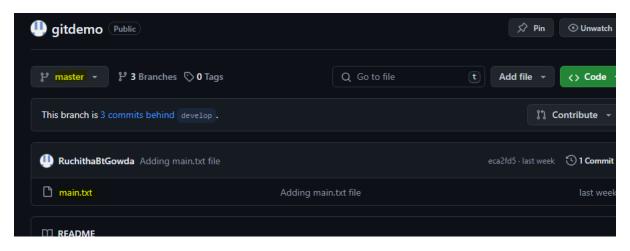


```
Started by user Ruchitha Bt Gowda
Running as SYSTEM
Building remotely on slave2 in workspace /home/ubuntu/jenkins/workspace/prod-job
The recommended git tool is: NONE
No credentials specified
Cloning the remote Git repository
Cloning repository https://github.com/RuchithaBtGowda/gitdemo.git
> git init /home/ubuntu/jenkins/workspace/prod-job # timeout=10
Fetching upstream changes from https://github.com/RuchithaBtGowda/gitdemo.git
 > git --version # timeout=10
 > git --version # 'git version 2.43.0'
 > git fetch --tags --force --progress -- https://github.com/RuchithaBtGowda/gitdemo.git +refs/heads/*:refs/remotes/origi
 > git config remote.origin.url https://github.com/RuchithaBtGowda/gitdemo.git # timeout=10
 > git config --add remote.origin.fetch +refs/heads/*:refs/remotes/origin/* # timeout=10
Avoid second fetch
 > git rev-parse refs/remotes/origin/master^{commit} # timeout=10
Checking out Revision eca2fd5ec7e4432496cfe66f77b3f5bc461dfe49 (refs/remotes/origin/master)
> git config core.sparsecheckout # timeout=10
> git checkout -f eca2fd5ec7e4432496cfe66f77b3f5bc461dfe49 # timeout=10
Commit message: "Adding main.txt file"
 > git rev-list --no-walk eca2fd5ec7e4432496cfe66f77b3f5bc461dfe49 # timeout=10
```

Reflected in slave2 machine

```
ubuntu@slave2:~$ cd /home/ubuntu/jenkins/workspace/prod-job
ubuntu@slave2:~/jenkins/workspace/prod-job$ ls
main.txt
ubuntu@slave2:~/jenkins/workspace/prod-job$
```

main.txt file which is present in master branch

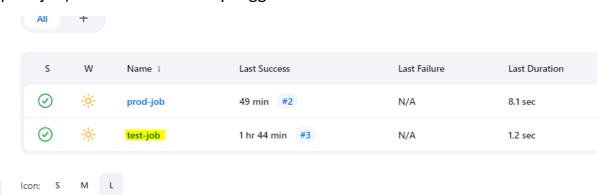


Jenkins Assignment - 3

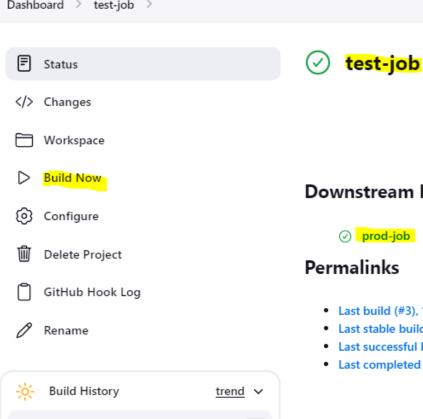
Tasks To Be Performed:

- 1. Create a pipeline in Jenkins
- Once push is made to "develop" a branch in Git, trigger job "test". This will copy Git files to test node
- 3. If test job is successful, then prod job should be triggered
- 4. Prod jobs should copy files to prod node

For test job which has develop branch we need to add the downstream project (prod job) which automatically triggers



Build Steps Add build step V Post-build Actions ■ Build other projects ? Projects to build prod-job, Trigger only if build is stable Trigger even if the build is unstable Trigger even if the build fails Apply Dashboard > test-job >



Q Filter...

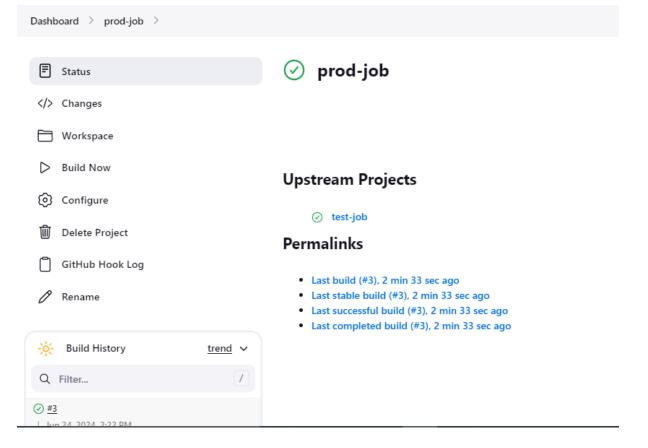
#4

Downstream Projects

Permalinks

- Last build (#3), 1 hr 46 min ago
- Last stable build (#3), 1 hr 46 min ago
- Last successful build (#3), 1 hr 46 min ago
- · Last completed build (#3), 1 hr 46 min ago

```
Started by user Ruchitha Bt Gowda
Running as SYSTEM
Building remotely on slave in workspace /home/ubuntu/jenkins/workspace/test-job
The recommended git tool is: NONE
No credentials specified
> git rev-parse --resolve-git-dir /home/ubuntu/jenkins/workspace/test-job/.git # timeout=10
Fetching changes from the remote Git repository
 > git config remote.origin.url https://github.com/RuchithaBtGowda/gitdemo.git # timeout=10
Fetching upstream changes from https://github.com/RuchithaBtGowda/gitdemo.git
 > git --version # timeout=10
 > git --version # 'git version 2.43.0'
 > git fetch --tags --force --progress -- https://github.com/RuchithaBtGowda/gitdemo.git +refs/heads/*:refs/remote
 > git rev-parse refs/remotes/origin/develop^{commit} # timeout=10
Checking out Revision 87712a10824eea118dd80bf60525188f73ef5e99 (refs/remotes/origin/develop)
> git config core.sparsecheckout # timeout=10
 > git checkout -f 87712a10824eea118dd80bf60525188f73ef5e99 # timeout=10
Commit message: "Create a.txt"
> git rev-list --no-walk 87712a10824eea118dd80bf60525188f73ef5e99 # timeout=10
Triggering a new build of prod-job
Finished: SUCCESS
```



⊘ Console Output □

```
Started by upstream project "test-job" build number 4
originally caused by:
 Started by user Ruchitha Bt Gowda
Running as SYSTEM
Building remotely on slave2 in workspace /home/ubuntu/jenkins/workspace/prod-job
The recommended git tool is: NONE
No credentials specified
 > git rev-parse --resolve-git-dir /home/ubuntu/jenkins/workspace/prod-job/.git # timeout=10
Fetching changes from the remote Git repository
 > git config remote.origin.url https://github.com/RuchithaBtGowda/gitdemo.git # timeout=10
Fetching\ upstream\ changes\ from\ https://github.com/RuchithaBtGowda/gitdemo.git\\
 > git --version # timeout=10
 > git --version # 'git version 2.43.0'
 > git fetch --tags --force --progress -- https://github.com/RuchithaBtGowda/gitdemo.git +refs/heads/*:refs/remotes/
 > git rev-parse refs/remotes/origin/master^{commit} # timeout=10
Checking \ out \ Revision \ eca 2fd 5ec 7e44 32496cfe 66f77b 3f5bc 461dfe 49 \ (refs/remotes/origin/master)
 > git config core.sparsecheckout # timeout=10
 > git checkout -f eca2fd5ec7e4432496cfe66f77b3f5bc461dfe49 # timeout=10
Commit message: "Adding main.txt file"
 > git rev-list --no-walk eca2fd5ec7e4432496cfe66f77b3f5bc461dfe49 # timeout=10
Finished: SUCCESS
```