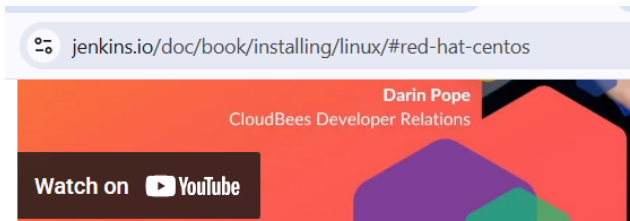


JENKINS 01

1 . Install Jenkins and run Jenkins on port number 8081.

- Open aws console
- Launch an ec2 instance
- Install Jenkins
- > browser search for Jenkins install for linux environment



You need to choose either the Jenkins Long Term Support release or the Jenkins weekly release.

Long Term Support release

A LTS (Long-Term Support) release is chosen every 12 weeks from a stream of regular releases as the stable release for that time period. It can be installed from the [redhat-stable](#) yum repository.

```
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/
sudo yum upgrade
# Add required dependencies for the jenkins package
sudo yum install fontconfig java-21-openjdk
sudo yum install jenkins
sudo systemctl daemon-reload
```

-
- Copy the command and paste in ec2 instance Jenkins will be installed

```

Version 2023.9.20251105:
Run the following command to upgrade to 2023.9.20251105:

dnf upgrade --releasever=2023.9.20251105

Release notes:
https://docs.aws.amazon.com/linux/al2023/release-notes/relnotes-2023.
20251105.html

Version 2023.9.20251110:
Run the following command to upgrade to 2023.9.20251110:

dnf upgrade --releasever=2023.9.20251110

Release notes:
https://docs.aws.amazon.com/linux/al2023/release-notes/relnotes-2023.
20251110.html

=====

Installed:
jenkins-2.528.1-1.1.noarch

Complete!

```

- `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`
- `sudo yum upgrade`
- `# Add required dependencies for the jenkins package`
- `Install java`
- `sudo dnf install java-17-amazon-corretto -y`

```

Complete!
[root@ip-10-0-1-110 ec2-user]# java -version
openjdk version "17.0.17" 2025-10-21 LTS
OpenJDK Runtime Environment Corretto-17.0.17.10.1 (build 17.0.17+10-LTS)
OpenJDK 64-Bit Server VM Corretto-17.0.17.10.1 (build 17.0.17+10-LTS, mixed mode, sharing)

```

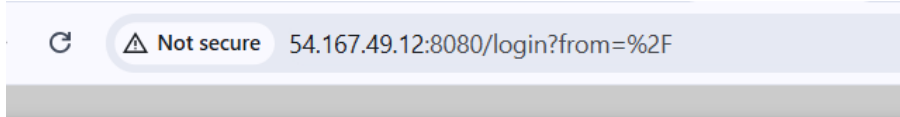
- `[root@ip-10-0-1-110 ec2-user]#`
- `sudo yum install jenkins`
- `systemctl start Jenkins`

- ```

[root@ip-10-0-1-110 ec2-user]# systemctl status jenkins.service
● jenkins.service - Jenkins Continuous Integration Server
 Loaded: loaded (/usr/lib/systemd/system/jenkins.service; disabled; pr
 Active: active (running) since Tue 2025-11-11 09:19:49 UTC; 4s ago
 Main PID: 3555 (java)
 Tasks: 40 (limit: 1053)
 Memory: 359.1M
 CPU: 20.439s
 CGroup: /system.slice/jenkins.service
 └─3555 /usr/bin/java -Djava.awt.headless=true -jar /usr/share

Nov 11 09:19:45 ip-10-0-1-110.ec2.internal jenkins[3555]: [LF]> This may a
Nov 11 09:19:45 ip-10-0-1-110.ec2.internal jenkins[3555]: [LF]>
Nov 11 09:19:45 ip-10-0-1-110.ec2.internal jenkins[3555]: [LF]> *****
Nov 11 09:19:45 ip-10-0-1-110.ec2.internal jenkins[3555]: [LF]> *****
Nov 11 09:19:45 ip-10-0-1-110.ec2.internal jenkins[3555]: [LF]> *****
Nov 11 09:19:49 ip-10-0-1-110.ec2.internal jenkins[3555]: 2025-11-11 09:19
Nov 11 09:19:49 ip-10-0-1-110.ec2.internal jenkins[3555]: 2025-11-11 09:19
Nov 11 09:19:49 ip-10-0-1-110.ec2.internal systemd[1]: Started jenkins.ser
Nov 11 09:19:50 ip-10-0-1-110.ec2.internal jenkins[3555]: 2025-11-11 09:19
Nov 11 09:19:50 ip-10-0-1-110.ec2.internal jenkins[3555]: 2025-11-11 09:19
lines 1-20/20 (END)

```



## Getting Started

# Unlock Jenkins

To ensure Jenkins is securely set up by the administrator, the administrator password has been written to the log ([not sure where to find](#)) and this file on the server:

```
/var/lib/jenkins/secrets/initialAdminPassword
```

Please copy the password from either location and paste it below.

**Administrator password**

- 
- Now, navigate to default location of Jenkins = `/var/lib/Jenkins`
- Find secrets
- Go to secrets location and list them
- And cat the initial password

```
[root@ip-10-0-1-110 ec2-user]# ^C
[root@ip-10-0-1-110 ec2-user]# cd /var/lib/jenkins
[root@ip-10-0-1-110 jenkins]# ls
config.xml nodeMonitors.xml secrets
hudson.model.UpdateCenter.xml plugins updates
jenkins.telemetry.Correlator.xml secret.key userContent
jobs secret.key.not-so-secret users
[root@ip-10-0-1-110 jenkins]# cat secret
cat: secret: No such file or directory
[root@ip-10-0-1-110 jenkins]# cd secrets/
[root@ip-10-0-1-110 secrets]# ls
hudson.model.User.DIRNAMES jenkins.model.Jenkins.crumbSalt
initialAdminPassword master.key
[root@ip-10-0-1-110 secrets]# cat initialAdminPassword
a3c4d613227b4db08466902a3aebacca
[root@ip-10-0-1-110 secrets]#
```

- Now the copy the password and paste it in Jenkins page ,
- Now to change port number
- Navigate to this location.
- `sudo vi /usr/lib/systemd/system/jenkins.service`
- search for environment and change port number.
- 

```
IP address to listen on for HTTP requests.
The default is to listen on all interfaces (0.0.0.0).
#Environment="JENKINS_LISTEN_ADDRESS="

Port to listen on for HTTP requests. Set to -1 to disable.
To be able to listen on privileged ports (port numbers less than 1024),
add the CAP_NET_BIND_SERVICE capability to the AmbientCapabilities
directive below.
Environment="JENKINS_PORT=8081"

IP address to listen on for HTTPS requests. Default is disabled.
#Environment="JENKINS_HTTPS_LISTEN_ADDRESS="

Port to listen on for HTTPS requests. Default is disabled.
To be able to listen on privileged ports (port numbers less than 1024),
add the CAP_NET_BIND_SERVICE capability to the AmbientCapabilities
directive below.
#Environment="JENKINS_HTTPS_PORT=443"

Path to the keystore in JKS format (as created by the JDK's keytool).
Default is disabled.
#Environment="JENKINS_HTTPS_KEYSTORE=/path/to/keystore.jks"
```

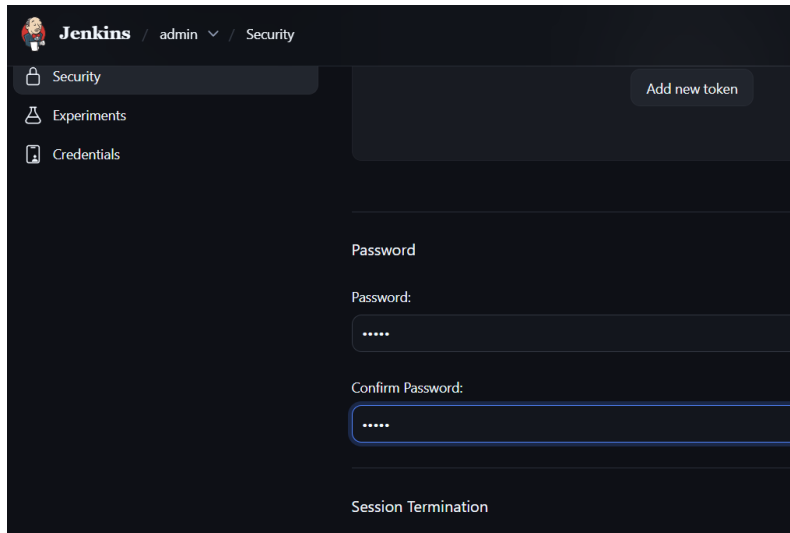
- Now restart Jenkins
- `Systemctl daemon-reload`
- Now,
- `Systemctl restart Jenkins`
- Now, Jenkins running on port number 8081
- Allow inbound rules form 8081 port in ec2

## 2 . Secure Jenkins server

- 

Copy password from

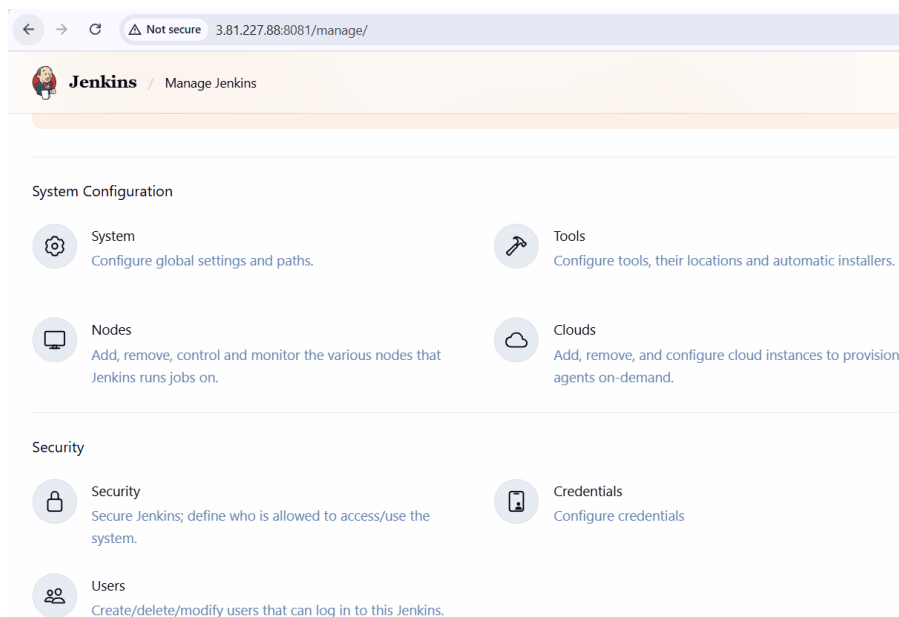
```
sudo cat /var/lib/jenkins/secrets/initialAdminPassword
```



- Add new password and user name and save it

## 3 . Create users called DevOps, Testing in Jenkins with Limited access.

- Login to Jenkins
- Navigate to manage Jenkins








- Select user for creating user
- Add user name , password and member name

## Users 3

+ Create User

These users can log into Jenkins. This is a sub set of [this list](#), which also contains auto-created users who really just made some commits on some projects and have no direct Jenkins access.

| User ID ↓                                                                                                 | Name     |                                                                                                                                                                         |
|-----------------------------------------------------------------------------------------------------------|----------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|  <a href="#">admin</a>   | admin    |                                                                                      |
|  <a href="#">Devops</a>  | teammate |   |
|  <a href="#">testing</a> | teammate |   |

- User created.
- Now giving limited acces to devops and tester
- Navigate to manage Jenkins > and the n security and find for authorization and select > project-based matrix authorization strategy

## Jenkins / Manage Jenkins ▾ / Security

☐ Disable "Keep me signed in" ?

### Security Realm

Jenkins' own user database

☐ Allow users to sign up ?

### Authorization

Logged-in users can do anything

Anyone can do anything

Legacy mode

Logged-in users can do anything

Matrix-based security

Project-based Matrix Authorization Strategy

ins / Manage Jenkins / Security

PERMISSIONS OWN USER DATABASE

☐ Allow users to sign up ?

Authorization

Project-based Matrix Authorization Strategy

| User/group          | Overall                  | Credentials                         |                          |                          |                                                   |                          | Agent                    |                          |                          |                          |                          | Job                      |                          |                          |                          |                          | Run                      |                          |                          |                          |                          |                                     |                          |                          |                          |                          |                          |  |
|---------------------|--------------------------|-------------------------------------|--------------------------|--------------------------|---------------------------------------------------|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|-------------------------------------|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|--|
|                     | 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                |  |
| Anonymous           |                          |                                     |                          |                          | Credentials/ManageDomains for group authenticated |                          |                          |                          |                          |                          |                          |                          |                          |                          |                          |                          |                          |                          |                          |                          |                          |                                     |                          |                          |                          |                          |                          |  |
| Authenticated Users | <input type="checkbox"/> | <input type="checkbox"/>            | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/>                          | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/>            | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |  |
| teammate            | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/>                          | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |  |
| teammate            | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/>                          | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |  |

Add user... Add group... ?

- 
- Gave read acces to devops and tresting users

#### 4 . Configure labels and restrict the jobs to execute based on label only.

- Navigate to manage Jenkins
- Open nodes
- Add label name as devops
- Now downloads pulgins for node js
- And go free style project and restrict where this project can be run

/ first-job / Configuration

Plain text [Preview](#)

Management

ions

☐ Enable project-based security

☐ 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 ?

devops




Label devops matches 1 node. Permissions or other restrictions provide

Advanced ▾

- \

## Nodes

+ New Node

| S                                                                                 | Name ↓        | Architecture  | Clock Difference | Free Disk Space | Free Swap Space                                                                         | Free Temp Space                                                                                |
|-----------------------------------------------------------------------------------|---------------|---------------|------------------|-----------------|-----------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------|
|  | Built-In Node | Linux (amd64) | In sync          | 5.39 GiB        |  0 B |  447.91 MiB |
|                                                                                   | Data obtained | 27 min        | 27 min           | 27 min          | 27 min                                                                                  | 27 min                                                                                         |

5 . Create Three sample jobs using the below

URL. [https://github.com/betawins/Techie\\_horizon\\_Login\\_app.git](https://github.com/betawins/Techie_horizon_Login_app.git)

- Add git in to Jenkins
- Install git in terminal
- Now, give git path in tools
- /user/bin/git
- Copy the git repo
- Add to source code management

## Source Code Management

Connect and manage your code repository to automatically pull the latest code for y

☐ None

☒ Git ?

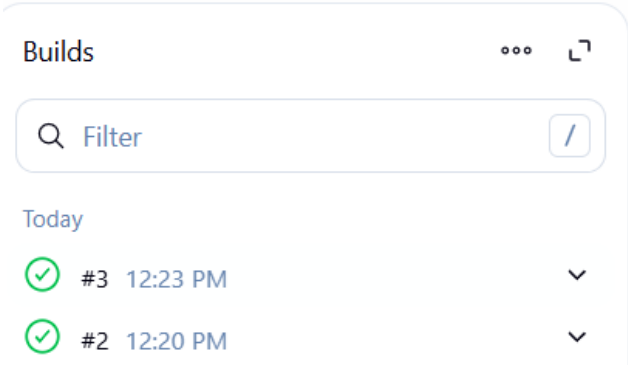
Repositories ?

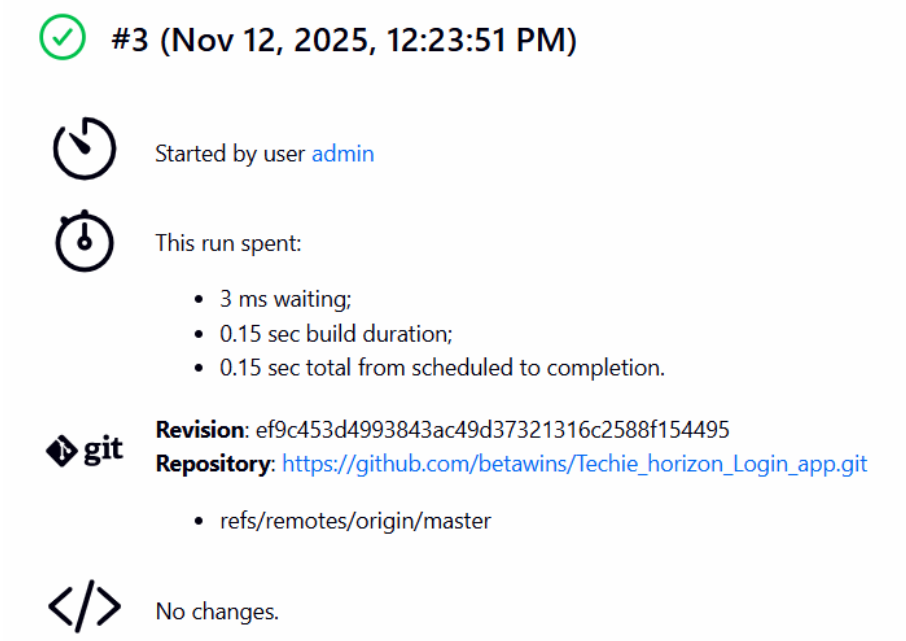
Repository URL ?

[https://github.com/betawins/Techie\\_horizon\\_Login\\_app.git](https://github.com/betawins/Techie_horizon_Login_app.git)

- Sechudle a build
- Start building now



- 


The screenshot shows the Jenkins 'Builds' page for a job. At the top, there's a search bar labeled 'Filter' with a magnifying glass icon and a slash icon. Below it, the word 'Today' is displayed. Two build entries are listed: build #3 at 12:23 PM and build #2 at 12:20 PM. Both entries have a green checkmark icon to their left and a downward arrow icon to their right.
- 

Build #3 (Nov 12, 2025, 12:23:51 PM)


Started by user [admin](#)

This run spent:

  - 3 ms waiting;
  - 0.15 sec build duration;
  - 0.15 sec total from scheduled to completion.

 **Revision:** ef9c453d4993843ac49d37321316c2588f154495  
**Repository:** [https://github.com/betawins/Techie\\_horizon\\_Login\\_app.git](https://github.com/betawins/Techie_horizon_Login_app.git)

  - refs/remotes/origin/master

 No changes.
- Create 3 jobs
- Navigate to Jenkins
- Create a new item
- Add name
- Select the - restrict where this project can be run

☐ Enable project-based security
 ☐ 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 ?
 

devops

 Label `devops` matches 1 node. Permissions or other restrictions provided by the label

Advanced ▾

- Add git repo
- Add branch
- Add time stamps, terminate if it stuck

All +

| S | W | Name ↓    | Last Success    | Last Failure | Last Duration |
|---|---|-----------|-----------------|--------------|---------------|
| ✓ | ☀ | build     | 3 min 46 sec #1 | N/A          | 0.23 sec      |
| ✓ | ☀ | deploy    | 5.6 sec #1      | N/A          | 16 ms         |
| ✓ | ☁ | first-job | 10 min #3       | 21 min #1    | 0.15 sec      |
| ✓ | ☀ | test      | 1 min 11 sec #1 | N/A          | 0.19 sec      |

## 6 . Create one Jenkins job using git hub Private repository.

- Connect Jenkins and github
- By generating ssh keygen
- Switch to Jenkins user
- `sudo su – Jenkins`
- now. Generate key
- `ssh-keygen -t rsa -b 4096 -C "jenkins"`
- save the key
- to view the key

- `cat ~/.ssh/id_rsa.pub`



```

enter same passphrase again.
Your identification has been saved in /home/ec2-user/.ssh/id_rsa
Your public key has been saved in /home/ec2-user/.ssh/id_rsa.pub
The key fingerprint is:
SHA256:7OeVLBcVlQT0uEKQI3dYZDalir228x+YW8LBW3VnBMc jenkins
The key's randomart image is:
+---[RSA 4096]-----+
| . =Oo*B@|
| . =Bo* *E|
| o.oBoo..|
| . ..+*. |
| S o*oo |
| . . ++..|
| . o =. .|
| o + |
| . |
+-----[SHA256]-----+
[ec2-user@ip-10-0-1-110 ~]$ cat ~/.ssh/id_rsa.pub

```

- now copy key and paste in github deploy
- now Jenkins ,
- go to manage Jenkins
- credentials add git repo
- and add secret key to it

#### Credentials

| T                                                                                   | P                                                                                   | Store ↓ | Domain   | ID                                   | Name |
|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|---------|----------|--------------------------------------|------|
|  |  | System  | (global) | 58670c12-0222-4f46-87d9-fda93cf8640f | git  |

- now create a job add git repo
- add ssh git in the section
- apply and save it
- start building



## Console Output

```
Started by user admin
Running as SYSTEM
Building in workspace /var/lib/jenkins/workspace/jenkins
The recommended git tool is: NONE
Warning: CredentialId "github" could not be found.
> /usr/bin/git rev-parse --resolve-git-dir /var/lib/jenkins/workspace/jenkins/.git # timeout
Fetching changes from the remote Git repository
> /usr/bin/git config remote.origin.url git@github.com:kamal-kkk/local-to-github.git # timeo
Fetching upstream changes from git@github.com:kamal-kkk/local-to-github.git
> /usr/bin/git --version # timeout=10
> git --version # 'git version 2.50.1'
> /usr/bin/git fetch --tags --force --progress -- git@github.com:kamal-kkk/local-to-github.g
> /usr/bin/git rev-parse refs/remotes/origin/master^{commit} # timeout=10
Checking out Revision b1aeaf26c71ef741cc806cd3f3441ba43cdd3d16 (refs/remotes/origin/master)
> /usr/bin/git config core.sparsecheckout # timeout=10
> /usr/bin/git checkout -f b1aeaf26c71ef741cc806cd3f3441ba43cdd3d16 # timeout=10
Commit message: "your update"
First time build. Skipping changelog.
Finished: SUCCESS
```

