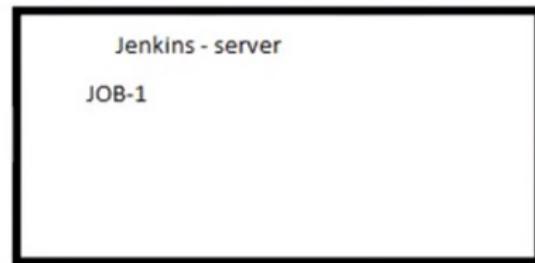


# Jenkins Integration Github

To Run a Job in Jenkins we have 6 different ways

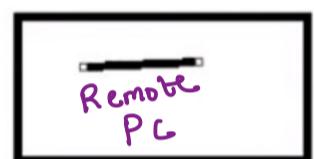
Way 1 → To Manually trigger the Job

Way 2 → Trigger build Remotely

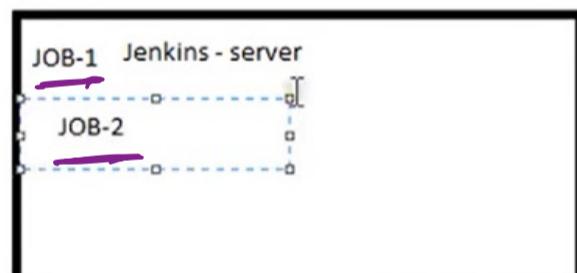


- 1 Manual  
2 Trigger builds remotely

from this system  
Running Job

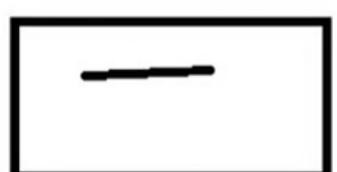


Way 3 Build After other project/Job are built



- 1 Manual  
2 Trigger builds remotely  
3 Build after other Projects are built

Here we have 2 Jobs  
Job1 and Job2  
So what we want is when Job1  
is completed, then Job2 is triggered.



Way 4 Build periodically

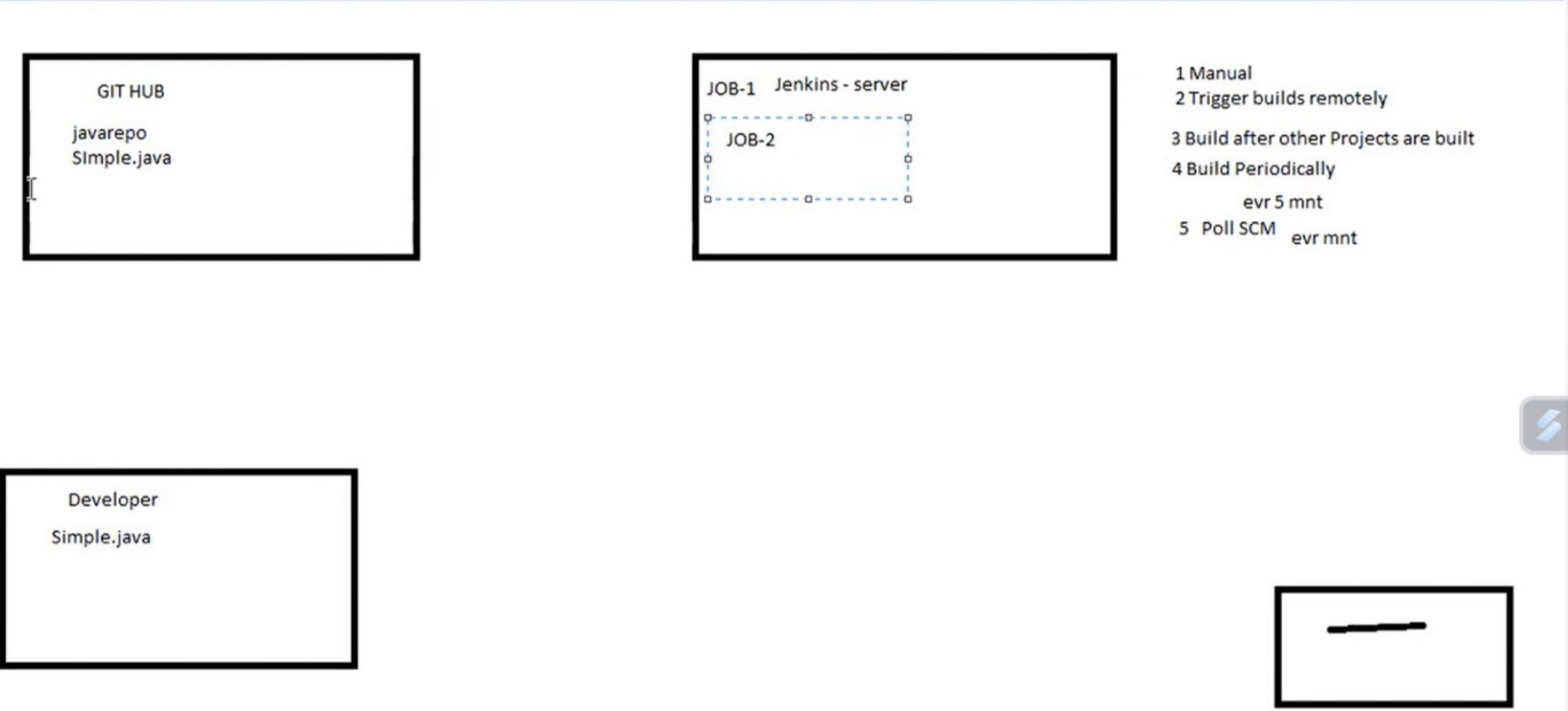
To Run Job on some specific time  
cron Job type

## Way 5 Poll SCM

It is like Job 4 only  
But in this way if any new commit is push by dev on github then this job will trigger

Let say we have set the job to run every 5 min  
so this job is not going to run every 5 min ,

Every 5 min this job will check whatever the github url is linked / associated with it like if any new commit came or not ,if he found then it will pull the code and run the job



## Way 6 GitHub hook Trigger for GITSCM Polling

This job will only trigger id dev push any commit to the GIT-HUB  
The difference between way5 is it is checking every 5min but here it is not like that.

## Lets move to practical part

To integrate github with jenkins we have to make a connection

The screenshot shows the GitHub settings interface for a repository named "Rizwan00792 / jenkins". The left sidebar has a navigation menu with options like Code, Issues, Pull requests, Actions, Projects, Wiki, Security, Insights, and Settings. The "Webhooks" option is highlighted in the "Actions" section. The main content area is titled "Webhooks" and contains the following text: "Webhooks allow external services to be notified when certain events happen. When the specified events happen, we'll send a POST request to each of the URLs you provide. Learn more in our [Webhooks Guide](#)". There is also a "Add webhook" button at the top right of the "Webhooks" section.

2

Settings Recent Deliveries

We'll send a POST request to the URL below with details of any subscribed events. You can also specify which data format you'd like to receive (JSON, x-www-form-urlencoded, etc). More information can be found in our developer documentation.

*Ip of Jenkins server*

Payload URL \* *extra syntax to add for integration*

`http://65.2.178.192:8080/github-webhook/`

Content type

application/json

Secret *we have to fetch from Jenkins*

If you've lost or forgotten this secret, you can change it, but be aware that any integrations using this secret will need to be updated. — [Change Secret](#)

Which events would you like to trigger this webhook?

Just the push event.

Send me everything.

Let me select individual events.

Active

3

Jenkins

Dashboard > rizwan > Configure

People Status Builds **Configure** 2 Credentials

Full Name ?  
rizwan

Description ?  
  
Plain text Preview

API Token

Current token(s) ?  
There are no registered tokens for this user.  
**Add new Token** 3

Dashboard > rizwan > Configure

Configure My Views Credentials

Plain text Preview

API Token

Current token(s) ?  
Token created on 2023-08-24T17:29:40.2 115d94bd581c566277d03176cb69ce2081  

**⚠ Copy this token now, because it cannot be recovered in the future.**

Add new Token

## API TOKEN

### Current token(s) ?

Token created on 2023-08-24T17:29:40.2: 115d94bd581c566277d03176cb69ce2081



⚠ Copy this token now, because it cannot be recovered in the future.

Add new Token

## Credentials

Credentials are only available to the user they belong to

E-mail 5 4  
Save Apply

### Payload URL \*

http://65.2.178.192:8080/github-webhook/

### Content type

application/json

### Secret

If you've lost or forgotten this secret, you can change it, but be aware that any integrations using this secret will need to be updated. — [Change Secret](#)

6

park token 4

### Which events would you like to trigger this webhook?

Just the push event.

Send me everything.

Let me select individual events.

Active

We will deliver event details when this hook is triggered.

Update webhook

Delete webhook

Rizwan00792 / jenkins

Type ⌘ to search

Code Issues Pull requests Actions Projects Wiki Security Insights Settings

### General

#### Access

#### Collaborators

#### Moderation options

#### Code and automation

##### Branches

##### Tags

##### Rules

##### Actions

##### Webhooks

### Webhooks

Add webhook

Webhooks allow external services to be notified when certain events happen. When the specified events happen, we'll send a POST request to each of the URLs you provide. Learn more in our [Webhooks Guide](#).

http://65.2.178.192:8080/github-we... (push)

Edit Delete

It should look like this

Dashboard > **a**

+ New Item **b** Add description

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 ↗

Dashboard > All >

**c** Enter an item name *Any name*

first-job » Required field

**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.

**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 namespace, so you can have multiple things of the same name as long as they are in different folders.

OK

Jenkins

Dashboard > first-job > Configuration **d**

Configure General Enabled

General

Description

Plain text [Preview](#)

Discard old builds ?  
 GitHub project  
 This project is parameterized ?  
 Throttle builds ?  
 Execute concurrent builds if necessary ?

Save Apply

## Configure

General Source Code Management

Source Code Management None

Build Triggers Build Environment Build Steps Post-build Actions

**Git** ? e

Repositories ?

Repository URL ?  x

Please enter Git repository.

Credentials ? - none - Add Advanced

Save Apply

Put the Github Repo URL

## Source Code Management

None

**Git** ?

Repositories ?

Repository URL ? x

https://github.com/Rizwan00792/jenkins.git

! Failed to connect to repository : Error performing git command: git ls-remote -h https://github.com/Rizwan00792/jenkins.git HEAD

Credentials ? - none -

Because Git package is not install in Jenkins server

So we have to do first

we have Install and Come back

Advanced

**Git** ?

Repositories ?

Repository URL ? x

https://github.com/Rizwan00792/jenkins.git

Credentials ? - none -

Advanced

Add Repository

Put the Github Repo URL

## Build Steps

Add build step ▾

Apply  
↓  
Save

## Post-build Actions

Add post-build action ▾

Save

Apply

5 we have trigger the Job Manually

Dashboard > first-job >

**Project first-job**

Status Changes Workspace Build Now Configure Delete Project Rename

Permalinks

- Last build (#1), 18 sec ago
- Last stable build (#1), 18 sec ago
- Last successful build (#1), 18 sec ago
- Last completed build (#1), 18 sec ago

Build History trend Filter builds... /

#1 Aug 24, 2023, 5:52 PM Atom feed for all Atom feed for failures

Dashboard > first-job > #1 > Console Output

**Console Output**

Status Changes Console Output View as plain text Edit Build Information Delete build '#1' Git Build Data

```
Started by user rizwan
Running as SYSTEM
Building in workspace /var/lib/jenkins/workspace/first-job
The recommended git tool is: NONE
No credentials specified
Cloning the remote Git repository
Cloning repository https://github.com/Rizwan00792/jenkins.git
> git init /var/lib/jenkins/workspace/first-job # timeout=10
Fetching upstream changes from https://github.com/Rizwan00792/jenkins.git
> git --version # timeout=10
> git --version # 'git version 2.40.1'
> git fetch --tags --force --progress -- https://github.com/Rizwan00792/jenkins.git +refs/heads/*:refs/remotes/origin/* # timeout=10
> git config remote.origin.url https://github.com/Rizwan00792/jenkins.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 ac61692e1c6c2020c85e137a5c560cc54a825581 (refs/remotes/origin/master)
> git config core.sparsecheckout # timeout=10
> git checkout -f ac61692e1c6c2020c85e137a5c560cc54a825581 # timeout=10
Commit message: "Update sample.java"
First time build. Skipping changelog.
Finished: SUCCESS
```

Now we want to trigger Job Remotely

6

The screenshot shows the Jenkins job configuration page for 'first-job'. The 'Build Triggers' section is highlighted with a red box around the first option: 'Trigger builds remotely (e.g., from scripts)'. A handwritten note 'Select this' is written next to this option. Below it, other trigger options are listed: 'Build after other projects are built', 'Build periodically', 'GitHub hook trigger for GITScm polling', and 'Poll SCM'.

The screenshot shows the Jenkins job configuration page for 'first-job'. The 'Trigger builds remotely (e.g., from scripts)' checkbox is checked and highlighted with a blue box. A handwritten note 'give any value' points to the 'Authentication Token' input field, which contains '120343jd8382'. Another note says 'It is telling us how to trigger build Remotely we are not doing for now'. Below the token field, instructions for triggering the build via URL are provided: 'Use the following URL to trigger build remotely: JENKINS\_URL/job/first-job/build?token=TOKEN\_NAME or /buildWithParameters?token=TOKEN\_NAME'. The 'Build Environment' section and 'Save' button are also visible.

we are going to build Job periodically

7

The screenshot shows the Jenkins job configuration page for 'first-job'. The 'Build periodically' checkbox is checked and highlighted with a red box. Below it, the 'Schedule' field contains a cron expression: '\*\*\*\*\*'. A handwritten note 'Cron set' is written near the schedule field. A large red box highlights the cron expression and the explanatory text below it: 'This field follows the syntax of cron (with minor differences). Specifically, each line consists of 5 fields separated by TAB or whitespace: MINUTE HOUR DOM MONTH DOW'. Below this, detailed explanations for each cron field are provided: 'MINUTE Minutes within the hour (0-59)', 'HOUR The hour of the day (0-23)', 'DOM The day of the month (1-31)', 'MONTH The month (1-12)', and 'DOW The day of the week (0-7) where 0 and 7 are Sunday'. A note at the bottom states: 'To specify multiple values for one field, the following operators are available. In the order of precedence,' followed by two bullet points: '\* specifies all valid values' and 'M-N specifies a range of values'.

**Project first-job**

- Status
- </> Changes
- Workspace
- Build Now
- Configure
- Delete Project
- Rename

**Permalinks**

- Last build (#3), 12 min ago
- Last stable build (#3), 12 min ago
- Last successful build (#3), 12 min ago
- Last completed build (#3), 12 min ago

**Build History** trend ▾

#4 Aug 24, 2023, 6:07 PM

*Job triggered automatically*

8

**POLL SCM****Configure**

- General
- Source Code Management
- Build Triggers**
- Build Environment
- Build Steps
- Post-build Actions

GitHub hook trigger for GITScm polling ?

Poll SCM ?

Schedule ?

\*\*\*\*\*

This field follows the syntax of cron (with minor differences). Specifically, each line consists of 5 fields separated by TAB or whitespace:

MINUTE HOUR DOM MONTH DOW

MINUTE Minutes within the hour (0–59)  
HOUR The hour of the day (0–23)  
DOM The day of the month (1–31)  
MONTH The month (1–12)  
DOW The day of the week (0–7) where 0 and 7 are Sunday.

To specify multiple values for one field, the following operators are available. In the order of precedence,

- \* specifies all valid values
- M-N specifies a range of values
- M-N/X or \*/X steps by intervals of X through the specified range or whole valid range
- A,B,...,Z enumerates multiple values

Here the job will not trigger because we know it will only trigger when new commit is present otherwise it will only check

Now instead of making changes on github will follow the more standard way

Will take one more ec2

We have clone the code

```
[root@ip-172-31-40-184 ~]# git clone https://github.com/Rizwan00792/jenkins.git
Cloning into 'jenkins' ...
remote: Enumerating objects: 9, done.
remote: Counting objects: 100% (9/9), done.
remote: Compressing objects: 100% (6/6), done.
remote: Total 9 (delta 0), reused 0 (delta 0), pack-reused 0
Receiving objects: 100% (9/9), done.
[root@ip-172-31-40-184 ~]# cd jenkins/
[root@ip-172-31-40-184 jenkins]# ll
total 8
-rw-r--r--. 1 root root 9 Aug 24 18:21 README.md
-rw-r--r--. 1 root root 141 Aug 24 18:21 sample.java
[root@ip-172-31-40-184 jenkins]# cat sample.java
// Your First Program

class HelloWorld {
    public static void main(String[] args) {
        System.out.println("Hello, World!");
    }
}
[root@ip-172-31-40-184 jenkins]#
```

```
// Your First Program

class HelloWorld {
    public static void main(String[] args) {
        System.out.println("Hello, Rizwan");
    }
}
~
```

*Change code*

```
[root@ip-172-31-40-184 jenkins]# vim sample.java
[root@ip-172-31-40-184 jenkins]# git commit -m "first message" sample.java
[master 2ac65dc] first message
Committer: root <root@ip-172-31-40-184.ap-south-1.compute.internal> Code commit
Your name and email address were configured automatically based
on your username and hostname. Please check that they are accurate.
You can suppress this message by setting them explicitly. Run the
following command and follow the instructions in your editor to edit
your configuration file:

git config --global --edit
```

After doing this, you may fix the identity used for this commit with:

```
git commit --amend --reset-author
```

1 file changed, 1 insertion(+), 1 deletion(-)  
[root@ip-172-31-40-184 jenkins]#

```
[root@ip-172-31-40-184 jenkins]# git commit --amend --reset-author
[master 3e39688] first message
Committer: root <root@ip-172-31-40-184.ap-south-1.compute.internal>
Your name and email address were configured automatically based
on your username and hostname. Please check that they are accurate.
You can suppress this message by setting them explicitly. Run the
following command and follow the instructions in your editor to edit
your configuration file:
```

```
git config --global --edit
```

After doing this, you may fix the identity used for this commit with:

```
git commit --amend --reset-author
```

1 file changed, 1 insertion(+), 1 deletion(-)  
[root@ip-172-31-40-184 jenkins]#

```
first message
# Please enter the commit message for your changes. Lines starting
# with '#' will be ignored, and an empty message aborts the commit.
#
# Committer: root <root@ip-172-31-40-184.ap-south-1.compute.internal>
#
# On branch master
# Your branch is ahead of 'origin/master' by 1 commit.
#   (use "git push" to publish your local commits)
#
# Changes to be committed:
#       modified:   sample.java
#
~
```

*Just save this one*

:wq!

```
[root@ip-172-31-40-184 jenkins]# git push origin master
Username for 'https://github.com': khanrizwanrk147@gmail.com
Password for 'https://khanrizwanrk147@gmail.com@github.com':
remote: Support for password authentication was removed on August 13, 2021.
remote: Please see https://docs.github.com/en/get-started/getting-started-with-git/about-remote-repositories#cloning-with-https-urls
remote: for more information.
fatal: Authentication failed for 'https://github.com/Rizwan00792/jenkins.git'
[root@ip-172-31-40-184 jenkins]#
```

Even though After providing Right details Authentication fail , because github has stop this  
Now How to Resolve this

For this go to Github

Settings / Developer Settings

Some of the scopes you've selected are included in other scopes. Only the minimum set of necessary scopes has been saved.

Personal access tokens (classic)

Generate new token ▾ Revoke all

Tokens you have generated that can be used to access the GitHub API.

Make sure to copy your personal access token now. You won't be able to see it again!

ghp\_sZbR6nGn1AVzXMdeGXIVu7xaytZnxW1KDGs4 [Copy](#) [Delete](#)

Personal access tokens (classic) function like ordinary OAuth access tokens. They can be used instead of a password for Git over HTTPS, or can be used to authenticate to the API over Basic Authentication.

use it as a password when you are pushing the Code

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```
[root@ip-172-31-40-184 jenkins]# git push origin master
Username for 'https://github.com': khanrizwanrk147@gmail.com
Password for 'https://khanrizwanrk147@gmail.com@github.com':
Enumerating objects: 8, done.
Counting objects: 100% (8/8), done.
Compressing objects: 100% (6/6), done.
Writing objects: 100% (6/6), 624 bytes | 624.00 KiB/s, done.
Total 6 (delta 2), reused 0 (delta 0), pack-reused 0
remote: Resolving deltas: 100% (2/2), completed with 1 local object.
To https://github.com/Rizwan00792/jenkins.git
 ac61692..8f575f6 master → master
[root@ip-172-31-40-184 jenkins]#
```

Successfully  
push

Dashboard > first-job >

Status

Project first-job

</> Changes

Workspace

Build Now

Configure

Delete Project

Git Polling Log

Rename

Build History trend ▾

Filter builds... #2 (pending—In the quiet period. Expires in 1.2 sec) #1 Aug 25, 2023, 4:25 PM

Permalinks

As soon as New commit push after 10 - 15 sec Job gets trigger

Atom feed for all Atom feed for failures

## ✓ Console Output

```
Started by an SCM change
Running as SYSTEM
Building in workspace /var/lib/jenkins/workspace/first-job
The recommended git tool is: NONE
No credentials specified
> git rev-parse --resolve-git-dir /var/lib/jenkins/workspace/first-job/.git # timeout=10
Fetching changes from the remote Git repository
> git config remote.origin.url https://github.com/Rizwan00792/jenkins.git # timeout=10
Fetching upstream changes from https://github.com/Rizwan00792/jenkins.git
> git --version # timeout=10
> git --version # 'git version 2.40.1'
> git fetch --tags --force --progress -- https://github.com/Rizwan00792/jenkins.git +refs/heads/*:refs/remotes/origin/* # timeout=10
> git rev-parse refs/remotes/origin/master^{commit} # timeout=10
Checking out Revision 51aa04686028248a0c04fc8d1f5930c2c49f3642 (refs/remotes/origin/master)
> git config core.sparsecheckout # timeout=10
> git checkout -f 51aa04686028248a0c04fc8d1f5930c2c49f3642 # timeout=10
Commit message: "3rd commit commit"
> git rev-list --no-walk 8f575f652e41fc509e98b9e2835f25d179112b37 # timeout=10
Finished: SUCCESS
```