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Module-8: Jenkins Assignment - 1

You have been asked to:

Trigger a pipeline using Git when pushing on the Develop branch

Pipeline should pull git content to a folder

Answer:

Launched 2 EC2 instances t2.medium

1. Master
2. Slave

Allow all the traffic in the Security Group.

<input type="checkbox"/>	Name	Instance ID	Instance state	Instance type	Status check	Alarm status	Availability Zone	Public IPv4 DNS	Public IPv4 ...	Elastic IP
<input type="checkbox"/>	Jenkins-S1	i-0f14ba603a3690e22	Running	t2.medium	2/2 checks passed	View alarms	ap-south-1b	ec2-3-109-124-173.ap-...	3.109.124.173	–
<input type="checkbox"/>	Jenkins-M	i-02f27cbea1daf3d4d	Running	t2.medium	2/2 checks passed	View alarms	ap-south-1b	ec2-13-235-73-8.ap-so...	13.235.73.8	–

Login to each server(Master and Slave) and run the below commands

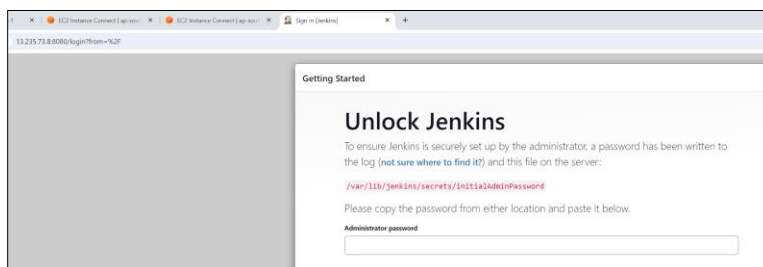
```
sudo apt update
sudo apt install openjdk-11-jdk -y
```

Install the Jenkins in the Master Node

```
sudo wget -O /usr/share/keyrings/jenkins-keyring.asc \
https://pkg.jenkins.io/debian/jenkins.io-2023.key
echo deb [signed-by=/usr/share/keyrings/jenkins-keyring.asc] \
https://pkg.jenkins.io/debian binary/ | sudo tee \
/etc/apt/sources.list.d/jenkins.list > /dev/null
sudo apt-get update
sudo apt-get install Jenkins -y
```

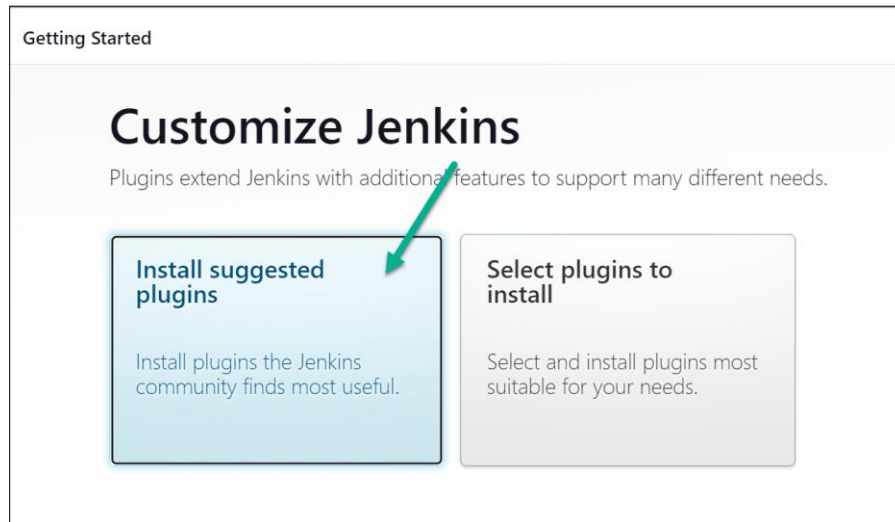
```
ubuntu@ip-172-31-3-54:~$ jenkins --version
2.441
```

Access the Jenkins using Master node public IP address

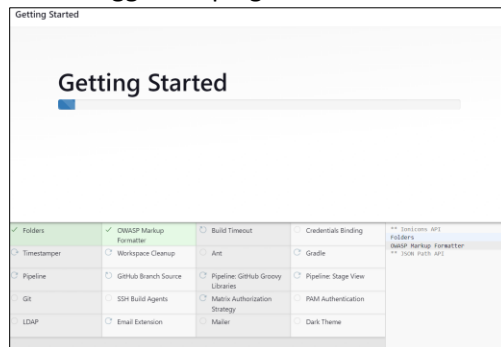


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```
sudo cat /var/lib/jenkins/secrets/initialAdminPassword
```



Install suggested plugins



Create the user and provide the password (remember the password for further login).

The image shows the 'Create First Admin User' form in Jenkins. The form has the following fields:

- Username**: administrator
- Password**: [Redacted]
- Confirm password**: [Redacted]
- Full name**: Ravi Kumar
- E-mail address**: aravikumar48@gmail.com

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Skip and continue as admin

Save and Continue

Click **Save and Continue**

Getting Started

Instance Configuration

Jenkins URL:

The Jenkins URL is used to provide the root URL for absolute links to various Jenkins resources. That means this value is required for proper operation of many Jenkins features including email notifications, PR status updates, and the BUILD_URL environment variable provided to build steps.

The proposed default value shown is **not saved yet** and is generated from the current request, if possible. The best practice is to set this value to the URL that users are expected to use. This will avoid confusion when sharing or viewing links.


Getting Started

Jenkins is ready!




Your Jenkins setup is complete.

Start using Jenkins


Manage Jenkins → Nodes → New Node


 **Jenkins**

Search (CTRL+K)


   Ravi Kumar

Dashboard > Manage Jenkins > Nodes >

 Nodes

 Clouds

Nodes



+ New Node

 Configure Monitor

S	Name ↓	Architecture	Clock Difference	Free Disk Space	Free Swap Space	Free Temp Space	Response Time
---	--------	--------------	------------------	-----------------	-----------------	-----------------	---------------

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Dashboard > Manage Jenkins > Nodes > New node

New node

Node name

Type

☒ 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.

Create

Click **Create**

Name


Description

Plain text [Preview](#)

Number of executors

Remote root directory

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Usage ?
Use this node as much as possible
Launch method ?
Launch agents via SSH
Host ?
172.31.27.122
Credentials ?
- none -
+ Add ▴
 Jenkins
Host Key Verification Strategy ?
Known hosts file Verification Strategy

credentials cannot be found

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Kind

SSH Username with private key

Scope ?

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

ID ?

Description ?

Username

ubuntu

☐ Treat username as secret ?

Private Key

☒ Enter directly

Key


JCS1qQKBGESXORpww17MpeFMQpy0ch3K8EBOCBYy1oF8nCSw/Bc05S86YALJg9HF
e3aUnEUQ6U3YvyYIEFaNrdWndzfzXmRCtqjppduuHz/j2KpK6ZNUI7/gEFpm8Po7
qDp/f1VBhsr9rJGxeAmrcFfVMEsIY30WsiKRZSOx8DafJBCAMiX
-----END RSA PRIVATE KEY-----

Passphrase

Add Cancel

Click Add

Select the drop-down credentials and click Save.

S	Name ↓	Architecture	Clock Difference	Free Disk Space
	Built-In Node	Linux (amd64)	In sync	4.94 GiB
	jenkins-s	Linux (amd64)	In sync	5.32 GiB
Data obtained		32 ms	31 ms	27 ms

```
ubuntu@ip-172-31-27-122:~$ mkdir Git
ubuntu@ip-172-31-27-122:~$ cd Git/
ubuntu@ip-172-31-27-122:~/Git$ git init
Initialized empty Git repository in /home/ubuntu/Git/.git/
ubuntu@ip-172-31-27-122:~/Git$ touch masterfile
ubuntu@ip-172-31-27-122:~/Git$ ls
Masterfile

git add Masterfile
git status
git commit -m "Adds new masterfile"
git branch develop
git branch

    develop
* master

ubuntu@ip-172-31-27-122:~/Git$ git checkout develop
Switched to branch 'develop'
ubuntu@ip-172-31-27-122:~/Git$ git branch
* develop
  Master

ubuntu@ip-172-31-27-122:~/Git$ git add .
ubuntu@ip-172-31-27-122:~/Git$ git status
On branch develop
Changes to be committed:
  (use "git restore --staged <file>..." to unstage)
    new file:   developfile1

ubuntu@ip-172-31-27-122:~/Git$ git commit -m "Adds new file
developfile1"
[develop b830e66] Adds new file developfile1
Committer: Ubuntu <ubuntu@ip-172-31-27-122.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, 0 insertions(+), 0 deletions(-)
create mode 100644 developfile1
```

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Go to GitHub and create the repository

```
git remote add origin https://github.com/techarkit/jenkins.git
git push -all
```


Username for 'https://github.com': USERNAME@gmail.com

Password for 'https:// @gmail.com@github.com': TOKENVALUE

Go to Jenkins Dashboard → Create Job

Enter an item name

» Required field

 **Freestyle project**

Classic, general-purpose job type that checks out from up to one SCM, executes build steps serially, followed by post-build steps like archiving artifacts and sending email notifications.

☒ **GitHub project**

Project url ?

Advanced ▾

☒ **Restrict where this project can be run** ?

Label Expression ?

Label **jenkins-s** matches 1 node. Permissions or other restrictions provide

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Git ?

Repositories ?

Repository URL ?

`https://github.com/techarkit/jenkins.git`

Credentials ?

- none -

+ Add ▾

Advanced ▾

Branches to build ?

Branch Specifier (blank for 'any') ?

`*/develop`

Add Branch

Build Triggers

☐ Trigger builds remotely (e.g., from scripts) ?

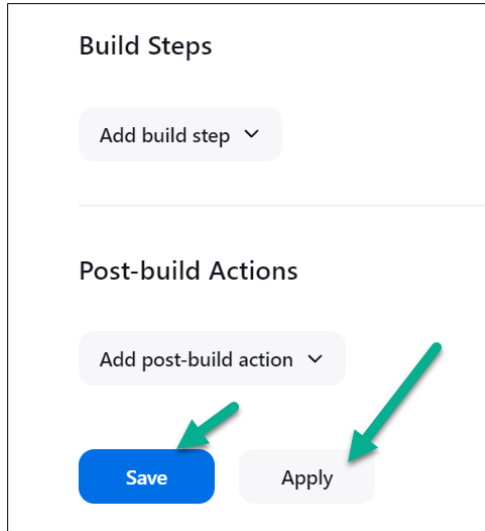
☐ Build after other projects are built ?

☐ Build periodically ?

☒ GitHub hook trigger for GITScm polling ?

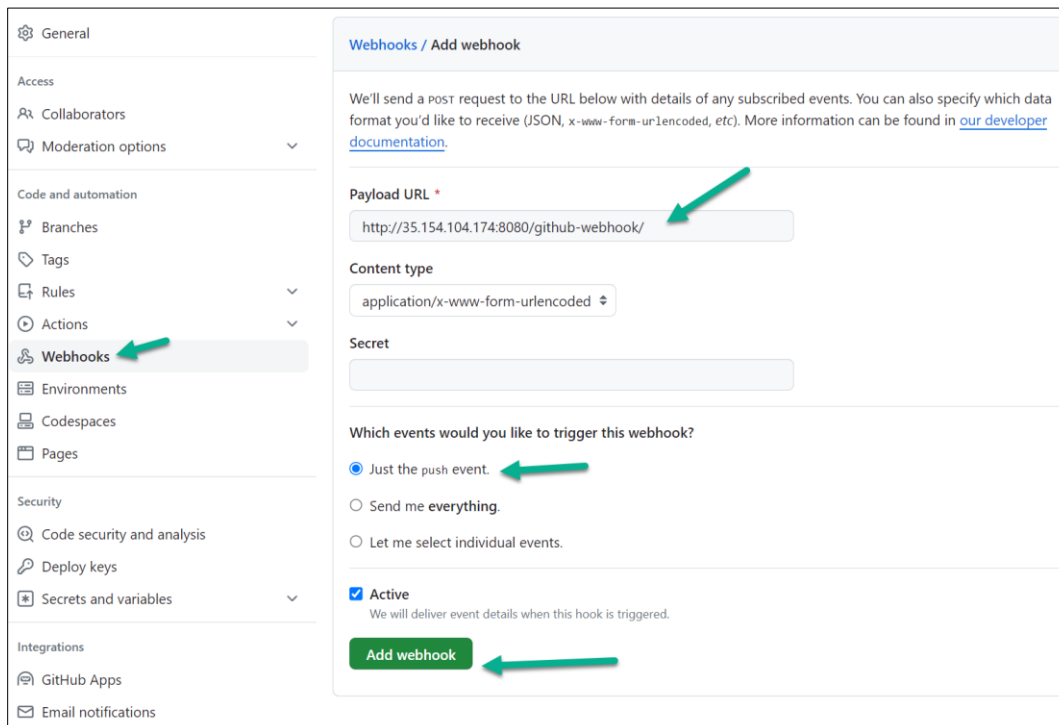
☐ Poll SCM ?

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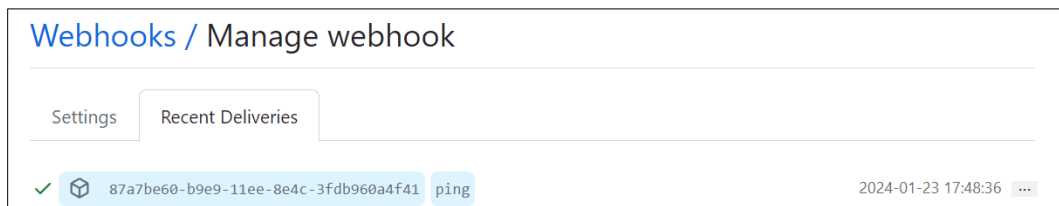


The image shows a Jenkins configuration interface. At the top, there is a section titled "Build Steps" with a button labeled "Add build step" and a dropdown arrow. Below this is a section titled "Post-build Actions" with a button labeled "Add post-build action" and a dropdown arrow. At the bottom of the "Post-build Actions" section, there are two buttons: "Save" (in blue) and "Apply" (in light gray). Two green arrows point to these buttons: one points to "Save" and the other points to "Apply".

In GitHub add the webhook and paste your Jenkins URL in webhook as mentioned below.



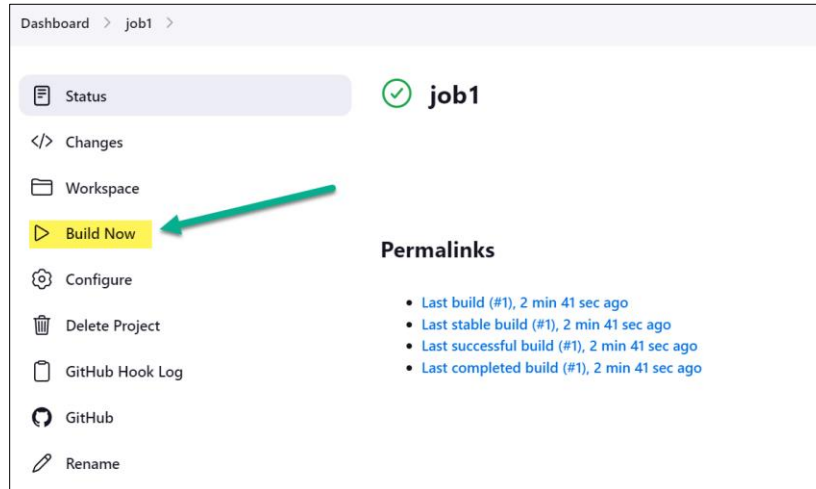
The image shows the GitHub "Webhooks / Add webhook" configuration page. On the left is a sidebar with navigation links: General, Access, Collaborators, Moderation options, Code and automation, Branches, Tags, Rules, Actions, Webhooks (highlighted with a green arrow), Environments, Codespaces, Pages, Security, Code security and analysis, Deploy keys, Secrets and variables, Integrations, GitHub Apps, and Email notifications. The main content area is titled "Webhooks / Add webhook" and contains the following fields: "Payload URL" (with a green arrow pointing to the input field containing "http://35.154.104.174:8080/github-webhook/"), "Content type" (set to "application/x-www-form-urlencoded"), "Secret" (empty text field), "Which events would you like to trigger this webhook?" (with radio buttons for "Just the push event." (selected with a green arrow), "Send me everything.", and "Let me select individual events."), "Active" (checked checkbox with a green arrow), and "Add webhook" (green button with a green arrow pointing to it).



The image shows the GitHub "Webhooks / Manage webhook" page. It has two tabs: "Settings" and "Recent Deliveries". The "Recent Deliveries" tab is active, showing a table of webhook deliveries. The table has two columns: "Status" and "Delivery". The first row shows a successful delivery with a green checkmark, a webhook ID "87a7be60-b9e9-11ee-8e4c-3fdb960a4f41", a "ping" event, and a timestamp "2024-01-23 17:48:36".

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In Jenkins run the Build now.



Check the Slave1 Node Does the job1 folder is created and files are transferred

```
ubuntu@ip-172-31-27-122:~/jenkins/workspace/job1$ ls
developfile1  masterfile
ubuntu@ip-172-31-27-122:~/jenkins/workspace/job1$ pwd
/home/ubuntu/jenkins/workspace/job1
```

Now push the code to the GitHub repo it should trigger the CI/CD pipeline

```
touch file1
git add .
git commit -m "Adds new file file1"
git push --all
Username for 'https://github.com': aravikumar48@gmail.com
Password for 'https://aravikumar48@gmail.com@github.com':
```

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Status

</> Changes

Workspace

Build Now

Configure

Delete Project

GitHub Hook Log

GitHub

Rename

✓ job1

Permalinks

- Last build (#2), 1 min 54 sec ago
- Last stable build (#2), 1 min 54 sec ago
- Last successful build (#2), 1 min 54 sec ago
- Last completed build (#2), 1 min 54 sec ago

Build History

trend

Filter...

✓ #2

Jan 23, 2024, 12:31 PM

✓ #1

Jan 23, 2024, 12:24 PM

Atom feed for all

Atom feed for failures

General

Webhooks / Manage webhook

Access

Collaborators

Moderation options

Code and automation

Branches

Tags

Rules

Actions

Webhooks

Environments

Settings

Recent Deliveries

✓ 524c1160-b9eb-11ee-8e64-1c3f8b1a2938 push 2024-01-23 18:01:25

✓ 87a7be60-b9e9-11ee-8e4c-3fdb96ea4f41 ping 2024-01-23 17:48:36

That conclude build job has been triggered.