

Project Statement I

1. Set up Jenkins Environment

Master Node Setup:

```
root@jenkins-m:~# jenkins --version
2.479.2
root@jenkins-m:~# java --version
openjdk 17.0.13 2024-10-15
OpenJDK Runtime Environment (build 17.0.13+11-Ubuntu-2ubuntu120.04)
OpenJDK 64-Bit Server VM (build 17.0.13+11-Ubuntu-2ubuntu120.04, mixed mode, sharing)
root@jenkins-m:~# ansible --version
ansible [core 2.12.10]
  config file = /etc/ansible/ansible.cfg
  configured module search path = ['/root/.ansible/plugins/modules', '/usr/share/ansible/
plugins/modules']
  ansible python module location = /usr/lib/python3/dist-packages/ansible
  ansible collection location = /root/.ansible/collections:/usr/share/ansible/collections
  executable location = /usr/bin/ansible
  python version = 3.8.10 (default, Nov 7 2024, 13:10:47) [GCC 9.4.0]
  jinja version = 2.10.1
  libyaml = True
root@jenkins-m:~# git --version
git version 2.25.1
root@jenkins-m:~#
```

Slave Node Setup:

```
jenkins@slave-node:~$ python3 --version
Python 3.8.10
jenkins@slave-node:~$ git --version
git version 2.25.1
jenkins@slave-node:~$ ssh -V
OpenSSH_8.2p1 Ubuntu-4ubuntu0.11, OpenSSL 1.1.1f 31 Mar 2020
jenkins@slave-node:~$
```

Verify master node and slave node connection using agent.

Dashboard > Manage Jenkins > Nodes >

Nodes

Clouds

Build Queue

Build Executor Status

No builds in the queue.

0/2

0/2

S	Name ↓	Architecture	Clock Difference	Free Disk Space	Free Swap Space	Free Temp Space	Response Time
	Built-in Node	Linux (amd64)	In sync	5.80 GiB		5.80 GiB	0ms
	slave-node	Linux (amd64)	In sync	5.71 GiB		5.71 GiB	114ms
Data obtained		2 sec	2 sec	2 sec	1.9 sec	2 sec	1.9 sec

Icon: S M L

Legend

Jenkins

Search (CTRL+K)

sham chaudhari

log out

Dashboard >

New Item

Build History

Manage Jenkins

My Views

Build Queue

No builds in the queue.

All

S	W	Name ↓	Last Success	Last Failure	Last Duration
		slave-node-test	11 sec #1	N/A	0.68 sec

Icon: S M L

Jenkins Search (CTRL+K) sham chaudhari log out

Dashboard > slave-node-test

Status **slave-node-test** Add description

Changes
Workspace
Build Now
Configure
Delete Project
Rename

Builds
Filter
Today
#1 4:28 AM

Permalinks

- Last build (#1), 59 sec ago
- Last stable build (#1), 59 sec ago
- Last successful build (#1), 59 sec ago
- Last completed build (#1), 59 sec ago

Jenkins Search (CTRL+K) sham chaudhari log out

Dashboard > slave-node-test > #1 > Console Output

Status **Console Output** Download Copy View as plain text

Changes
Console Output
Edit Build Information
Delete build '#1'
Timings

```
Started by user sham chaudhari
Running as SYSTEM
Building remotely on slave-node (Slave) in workspace /home/jenkins/workspace/slave-node-test
[slave-node-test] $ /bin/sh -xe /tmp/jenkins3879687533841594719.sh
+ python3 --version
Python 3.8.10
+ git --version
git version 2.25.1
+ whoami
jenkins
+ pwd
/home/jenkins/workspace/slave-node-test
+ hostname
slave-node
Finished: SUCCESS
```

2. To add the Build Pipeline Plugin and Post-Build Task Plugin to Jenkins on your master VM.

Jenkins Search (CTRL+K) sham chaudhari log out

Dashboard > Manage Jenkins > Plugins

Plugins
Search: build pipeline plugin

Updates
Available plugins
Installed plugins
Advanced settings
Download progress

Build Pipeline Plugin 2.0.2 Enabled

This plugin renders upstream and downstream connected jobs that typically form a build pipeline. In addition, it offers the ability to define manual triggers for jobs that require intervention prior to execution, e.g. an approval process outside of Jenkins.
[Report an issue with this plugin](#)

Warning: The currently installed plugin version may not be safe to use. Please review the following security notices:

- Stored XSS vulnerability

This plugin is up for adoption! We are looking for new maintainers. Visit our [Adopt a Plugin](#) initiative for more information.

Jenkins Search (CTRL+K) sham chaudhari log out

Dashboard > Manage Jenkins > Plugins

Plugins
Search: post build task

Updates
Available plugins
Installed plugins
Advanced settings
Download progress

Post build task 1.9 Enabled

Allows to execute a batch/shell task depending on the build log output.
[Report an issue with this plugin](#)

3. Use the image devopsedu/webapp and add your PHP website to it using a Dockerfile.

Create the Dockerfile using base image devopsedu/webapp

```
1  # Use the devopsedu/webapp as the base image
2  FROM devopsedu/webapp
3
4  # Set the working directory in the container
5  WORKDIR /var/www/html
6
7  # Copy your PHP website files into the container
8  COPY website/ /var/www/html/
9
10 # Expose the default Apache port
11 EXPOSE 80
12
13 # Start the Apache server
14 CMD ["apachectl", "-D", "FOREGROUND"]
```


4. Push the PHP website and the Dockerfile to a git repository

The screenshot shows the GitHub interface for a repository named 'website' by user 'sham9394'. The repository is public and has 1 branch and 0 tags. The file list shows the following files and their commit history:

File	Commit	Time
content	first commit	7 minutes ago
template	first commit	7 minutes ago
Dockerfile	Create Dockerfile	5 minutes ago
config.php	first commit	7 minutes ago
functions.php	first commit	7 minutes ago
index.php	first commit	7 minutes ago
readme.md	first commit	7 minutes ago

JOB 1

Install and configure puppet agent on the slave node



Jenkins

?
🔔
👤
🛡️
👤 sham chaudhari
🔗 log out

Dashboard

+ New Item
 📅 Build History
 ⚙️ Manage Jenkins
 📋 My Views

Build Queue

No builds in the queue.

Build Executor Status

built-in node + 1 agent (0 of 4 executors busy)

All

jenkins pipeline

+

Add description

S	W	Name ↓	Last Success	Last Failure	Last Duration	
🟢	☁️	JOB 1	1 min 58 sec #4	8 min 38 sec #2	8.7 sec	▶️
🟢	☀️	slave-node-test	2 hr 23 min #2	N/A	0.86 sec	▶️


Icon:

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⋮



Jenkins

Search (CTRL+K) ?

🔔 🟡 🛡️ 🔴 2 👤 sham.chaudhari 📄 log out

Dashboard > JOB 1 >

Status

</> Changes

📁 Workspace

▶ Build Now

⚙️ Configure

🗑️ Delete Project

✎ Rename

✓ JOB 1

Install and configure puppet agent on the slave node (Job 1)

✎ Edit description

Permalinks

- [Last build \(#4\), 2 min 54 sec ago](#)
- [Last stable build \(#4\), 2 min 54 sec ago](#)
- [Last successful build \(#4\), 2 min 54 sec ago](#)
- [Last failed build \(#2\), 9 min 34 sec ago](#)
- [Last unsuccessful build \(#2\), 9 min 34 sec ago](#)
- [Last completed build \(#4\), 2 min 54 sec ago](#)

Builds

*** 🔍


🔍 Filter

/

Today






✓ #4 1:27 PM

✓ #3 1:24 PM



Jenkins

Search (CTRL+K)

 sham chaudhari  log out

Dashboard > JOB 1 > #4

Status

Changes


Console Output


Edit Build Information


Delete build '#4'

Timings


Previous Build

 **#4 (Dec 28, 2024, 1:27:29 PM)**

 Started by user [sham chaudhari](#)

 This run spent:

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

 No changes.

Add description

Keep this build forever

Started 3 min 13 sec ago
Took **8.7 sec** on [slave-node](#)

```

Dashboard > JOB 1 > #4 > Console Output
● puppetserver.service - puppetserver Service
   Loaded: loaded (/lib/systemd/system/puppetserver.service; disabled; vendor preset: enabled)
   Active: active (running) since Sat 2024-12-28 13:26:19 UTC; 1min 18s ago
   Process: 5535 ExecStart=/opt/puppetlabs/server/apps/puppetserver/bin/puppetserver start (code=exited, status=0/SUCCESS)
   Main PID: 5568 (java)
     Tasks: 60 (limit: 4915)
    Memory: 991.1M
   CGroup: /system.slice/puppetserver.service
           └─5568 /usr/bin/java -Xms2g -Xmx2g -Djruby.logger.class=com.puppetlabs.jruby_utils.jruby.Slf4jLogger -Dlogappender=F1 -
XX:CrashOnOutOfMemoryError -XX:ErrorFile=/var/log/puppetlabs/puppetserver/puppetserver_err_pid%p.log -cp
/opt/puppetlabs/server/apps/puppetserver/puppet-server-release.jar:/opt/puppetlabs/puppet/lib/ruby/vendor_ruby/facter.jar:/opt/puppetlabs/server/data/puppetserver/jars/* clojure.main -m
puppetlabs.trapperkeeper.main --config /etc/puppetlabs/puppetserver/conf.d --bootstrap-config
/etc/puppetlabs/puppetserver/services.d,/opt/puppetlabs/server/apps/puppetserver/config/services.d/ --restart-file
/opt/puppetlabs/server/data/puppetserver/restartcounter
           └─5730 /opt/puppetlabs/puppet/bin/ruby /opt/puppetlabs/server/data/puppetserver/dropsone/bin/dropsone submit

Dec 28 13:25:28 slave-node systemd[1]: Starting puppetserver Service...
Dec 28 13:25:43 slave-node puppetserver[5568]: WARNING: abs already refers to: #'clojure.core/abs in namespace: medley.core, being replaced
by: #'medley.core/abs
Dec 28 13:26:19 slave-node systemd[1]: Started puppetserver Service.
Finished: SUCCESS

```

JOB 2

Push an Ansible configuration on test server to install docker

Jenkins Dashboard

Search (CTRL+K)

sham chaudhari log out

Dashboard >

+ New Item

Build History

Manage Jenkins

My Views

Build Queue

No builds in the queue.

Build Executor Status

built-in node + 1 agent (0 of 2 executors busy)

jenkins pipeline

S	W	Name	Last Success	Last Failure	Last Duration
✓	☁	JOB 1	2 hr 18 min #4	2 hr 25 min #2	8.7 sec
✓	☁	JOB 2	2 min 10 sec #15	35 min #13	8 sec
✓	☀	slave-node-test	4 hr 40 min #2	N/A	0.86 sec

Icons: S M L

Jenkins Dashboard

Search (CTRL+K)

sham chaudhari log out

Dashboard > JOB 2 >

Status

✓ JOB 2

Edit description

Push an Ansible configuration on test server to install docker (Job 2)

Permalinks

- Last build (#15), 2 min 43 sec ago
- Last stable build (#15), 2 min 43 sec ago
- Last successful build (#15), 2 min 43 sec ago
- Last failed build (#13), 35 min ago
- Last unsuccessful build (#13), 35 min ago
- Last completed build (#15), 2 min 43 sec ago

Builds

Filter

Dashboard > JOB 2 > #19 > Console Output

```
+ ansible-playbook -i /etc/ansible/hosts install_docker.yml

PLAY [all] *****

TASK [Gathering Facts] *****
ok: [104.197.233.149]

TASK [Add Docker GPG key] *****
ok: [104.197.233.149]

TASK [Install basic list of packages] *****
ok: [104.197.233.149]

TASK [Add Docker APT repository] *****
ok: [104.197.233.149]

TASK [Update apt cache] *****
changed: [104.197.233.149]

TASK [Install Docker packages] *****
changed: [104.197.233.149]

PLAY RECAP *****
104.197.233.149      : ok=6   changed=2   unreachable=0   failed=0   skipped=0   rescued=0   ignored=0


Finished: SUCCESS
```

Verify:

```
root@slave-node:/home# docker --version
Docker version 27.4.1, build b9d17ea
root@slave-node:/home#
```

JOB 3

Pull the PHP website, and the Dockerfile from the git repo and build and deploy your PHP docker container.

**Jenkins**

Search (CTRL+K) ?

sham chaudhari log out

Dashboard >

+ New Item

Build History

Manage Jenkins

My Views

Build Queue

No builds in the queue.

Build Executor Status

Built-In Node 0/2


Slave-node (offline)

All +

S	W	Name ↓	Last Success	Last Failure	Last Duration	
✓	☁	JOB-1	52 min #4	1 hr 0 min #1	6.1 sec	▶
✓	☀	JOB-2	15 min #3	N/A	18 sec	▶
✓	☁	JOB-3	4 min 7 sec #8	11 min #4	50 sec	▶

Icon: S M L

Add description

**Jenkins**

Search (CTRL+K) ?

sham chaudhari log out

Dashboard > JOB-3 >

Status

Changes

Workspace

Build Now

Configure

Delete Project

Rename

Builds

Filter /

December 29, 2024

#8 6:00 AM

✓ JOB-3

Edit description

Pull the PHP website, and the Dockerfile from the git repo and build and deploy your PHP docker container

Permalinks

- Last build (#8), 4 min 56 sec ago
- Last stable build (#8), 4 min 56 sec ago
- Last successful build (#8), 4 min 56 sec ago
- Last failed build (#4), 12 min ago
- Last unsuccessful build (#4), 12 min ago
- Last completed build (#8), 4 min 56 sec ago

Dashboard > JOB-3 > #8

Status

Changes

Console Output

Edit Build Information

Delete build '#8'

Timings

Git Build Data

Previous Build

✓ #8 (Dec 29, 2024, 6:00:51 AM)

Add description

Keep this build forever

Started by user sham chaudhari

Started 5 min 25 sec ago

Took 50 sec on built-in

This run spent:

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

git

Revision: 2ce76cbb560d699734984a56d303a4c6ba594492

Repository: <https://github.com/sham9394/website.git>

- refs/remotes/origin/main

</>

No changes.

Dashboard > JOB-3 > #8 > Console Output

status

Console Output

Download

Copy

view as plain text

</> Changes

Console Output

Edit Build Information

Delete build '#8'

Timings

Git Build Data

Previous Build

Started by user [sham chaudhari](#)

Running as SYSTEM

Building on the built-in node in workspace /var/lib/jenkins/workspace/JOB-3

The recommended git tool is: NONE

No credentials specified

> git rev-parse --resolve-git-dir /var/lib/jenkins/workspace/JOB-3/.git # timeout=10

Fetching changes from the remote Git repository

> git config remote.origin.url <https://github.com/sham9394/website.git> # timeout=10

Fetching upstream changes from <https://github.com/sham9394/website.git>

> git --version # timeout=10

> git --version # 'git version 2.25.1'

> git fetch --tags --force --progress -- <https://github.com/sham9394/website.git> +refs/heads/*:refs/remotes/origin/* # timeout=10

> git rev-parse refs/remotes/origin/main^{commit} # timeout=10

Checking out Revision 2ce76cbb560d699734984a56d303a4c6ba594492 (refs/remotes/origin/main)

> git config core.sparsecheckout # timeout=10

> git checkout -f 2ce76cbb560d699734984a56d303a4c6ba594492 # timeout=10

Commit message: "update Dockerfile"

> git rev-list --no-walk 2ce76cbb560d699734984a56d303a4c6ba594492 # timeout=10

[JOB-3] \$ /bin/sh -xe /tmp/jenkins15211684761236012731.sh

+ cd /var/lib/jenkins/workspace/JOB-3

+ docker build -t my-php-app .

DEPRECATED: The legacy builder is deprecated and will be removed in a future release.

Install the buildx component to build images with BuildKit:

<https://docs.docker.com/go/buildx/>

Dashboard > JOB-3 > #8 > Console Output

Sending build context to Docker daemon 238.7MB

Step 1/5 : FROM devopsedu/webapp

---> 0ef91240e173

Step 2/5 : WORKDIR /var/www/html

---> Using cache

---> a45b6da9ea0f

Step 3/5 : COPY ./ /var/www/html/

---> 4da40235805c

Step 4/5 : EXPOSE 80

---> Running in 73c9f38befde

Removing intermediate container 73c9f38befde

---> 66c201a87ee2

Step 5/5 : CMD ["apachectl", "-D", "FOREGROUND"]

---> Running in 2903e56f1549

Removing intermediate container 2903e56f1549

---> 74657ef9c52a

Successfully built 74657ef9c52a

Successfully tagged my-php-app:latest

+ docker save my-php-app

+ gzip

+ scp my-php-app.tar.gz root@34.66.0.106:/tmp

+ ssh root@34.66.0.106

Pseudo-terminal will not be allocated because stdin is not a terminal.

Welcome to Ubuntu 20.04.6 LTS (GNU/Linux 5.15.0-1073-gcp x86_64)

* Documentation: <https://help.ubuntu.com>

* Management: <https://landscape.canonical.com>

Dashboard > JOB-3 > #8 > Console Output

System information as of Sun Dec 29 06:01:23 UTC 2024

System load: 0.02 Processes: 166

Usage of /: 43.0% of 9.51GB Users logged in: 1

Memory usage: 6% IPv4 address for ens4: 10.128.0.24

Swap usage: 0%

* Strictly confined Kubernetes makes edge and IoT secure. Learn how MicroK8s just raised the bar for easy, resilient and secure K8s cluster deployment.

<https://ubuntu.com/engage/secure-kubernetes-at-the-edge>

Expanded Security Maintenance for Applications is not enabled.

7 updates can be applied immediately.

To see these additional updates run: apt list --upgradable

Enable ESM Apps to receive additional future security updates.

See <https://ubuntu.com/esm> or run: sudo pro status

New release '22.04.5 LTS' available.

Run 'do-release-upgrade' to upgrade to it.

Loaded image: my-php-app:latest

0187be8070947e4ff2294abc0589f224f4d417b5737560ad46e6e47820cfb6c9

Finished: SUCCESS

Related actions

5. automated through Jenkins by creating a pipeline: using Build Pipeline Plugin.

5. automated through Jenkins by creating a pipeline: using Build Pipeline Plugin.