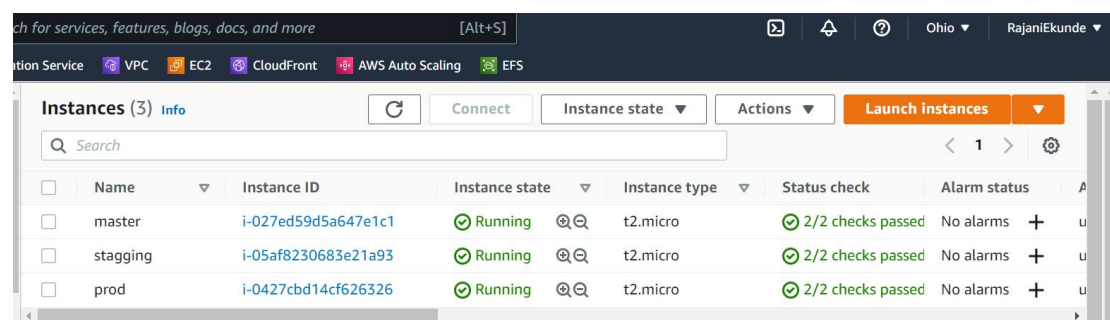


A guide to build a CI/CD pipeline for automated deployment of web application using Git and Jenkins.

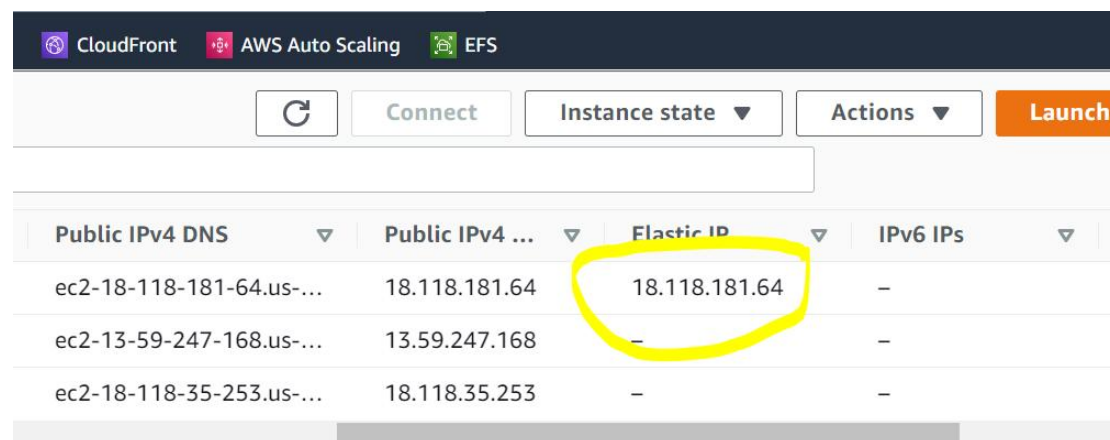
I have used docker as a containerization tool here. Fetched the code from GitHub (Version Control Web Based Platform).

Need to add all the dependencies required .

Created 3 Ubuntu 20.04 instances, assigned elastic IP to master instance



Name	Instance ID	Instance state	Instance type	Status check	Alarm status
master	i-027ed59d5a647e1c1	Running	t2.micro	2/2 checks passed	No alarms
staging	i-05af8230683e21a93	Running	t2.micro	2/2 checks passed	No alarms
prod	i-0427cbd14cf626326	Running	t2.micro	2/2 checks passed	No alarms



Public IPv4 DNS	Public IPv4 ...	Elastic IP	IPv6 IPs
ec2-18-118-181-64.us-...	18.118.181.64	18.118.181.64	-
ec2-13-59-247-168.us-...	13.59.247.168	-	-
ec2-18-118-35-253.us-...	18.118.35.253	-	-

Install java jdk on all three instances and install Jenkins on only master and apt-get update -y

Using the commands connected the nodes to Jenkins

Referred this link for commands :

<https://linuxize.com/post/how-to-install-jenkins-on-ubuntu-20-04/>

Git configuration:

This screenshot shows the GitHub repository page for 'rajani103 / logic-jenkins-project'. The repository is public and forked from 'suhasini7131/logic-jenkins-project'. The main branch is 'master', which is 9 commits ahead and 3 commits behind the upstream 'master'. The repository contains two files: 'dockerfile' (1st commit, 6 hours ago) and 'index.html' (Update index.html, 11 minutes ago). The repository has 0 stars, 0 watchers, and 28 forks. The 'About' section is empty. The 'Releases' section shows no published releases. A green button 'Add a README' is visible at the bottom of the repository overview.










Added a web hook:

This screenshot shows the 'Settings' page for the 'rajani103 / logic-jenkins-project' repository, specifically the 'Webhooks' section. The 'General' tab is selected in the left sidebar. The 'Webhooks' section explains that webhooks allow external services to be notified when certain events happen. A single webhook is configured with the URL 'http://18.118.181.648080/github-w... (push)'. The 'Add webhook' button is visible in the top right corner of the section.

Jobs configuration :

Manage nodes and clouds

Refresh
status

S	Name ↓	Architecture	Clock Difference	Free Disk Space	Free Swap Space	Free Temp Space	Response Time
	Built-In Node	Linux (amd64)	In sync	26.23 GB	 0 B	26.23 GB	0ms 
	prod	Linux (amd64)	In sync	26.65 GB	 0 B	26.65 GB	35ms 
	staging	Linux (amd64)	In sync	26.66 GB	 0 B	26.66 GB	19ms 
Data obtained		2 min 0 sec	2 min 0 sec	2 min 0 sec	2 min 0 sec	2 min 0 sec	2 min 0 sec

Connected the servers(staging and prod):

```
root@staging: /home/ubuntu
Aug 22, 2022 5:41:26 AM hudson.remoting.jnlp.Main$CuiListener status
INFO: Locating server among [http://18.118.181.64:8080/]
Aug 22, 2022 5:41:26 AM org.jenkinsci.remoting.engine.JnlpAgentEndpointResolver
resolve
INFO: Remoting server accepts the following protocols: [JNLP4-connect, Ping]
Aug 22, 2022 5:41:26 AM hudson.remoting.jnlp.Main$CuiListener status
INFO: Agent discovery successful
Agent address: 18.118.181.64
Agent port: 41995
Identity: 4d:39:83:80:e8:b4:b9:24:0e:a5:9a:e6:2a:b7:3f:39
Aug 22, 2022 5:41:26 AM hudson.remoting.jnlp.Main$CuiListener status
INFO: Handshaking
Aug 22, 2022 5:41:26 AM hudson.remoting.jnlp.Main$CuiListener status
INFO: Connecting to 18.118.181.64:41995
Aug 22, 2022 5:41:26 AM hudson.remoting.jnlp.Main$CuiListener status
INFO: Trying protocol: JNLP4-connect
Aug 22, 2022 5:41:26 AM org.jenkinsci.remoting.protocol.impl.BIONetworkLayer$Reader
run
INFO: Waiting for ProtocolStack to start.
Aug 22, 2022 5:41:26 AM hudson.remoting.jnlp.Main$CuiListener status
INFO: Remote identity confirmed: 4d:39:83:80:e8:b4:b9:24:0e:a5:9a:e6:2a:b7:3f:39
Aug 22, 2022 5:41:26 AM hudson.remoting.jnlp.Main$CuiListener status
INFO: Connected
```

```
root@prod: /home/ubuntu
Aug 22, 2022 5:43:56 AM hudson.remoting.jnlp.Main$CuiListener status
INFO: Locating server among [http://18.118.181.64:8080/]
Aug 22, 2022 5:43:56 AM org.jenkinsci.remoting.engine.JnlpAgentEndpointResolver
resolve
INFO: Remoting server accepts the following protocols: [JNLP4-connect, Ping]
Aug 22, 2022 5:43:56 AM hudson.remoting.jnlp.Main$CuiListener status
INFO: Agent discovery successful
  Agent address: 18.118.181.64
  Agent port: 41995
  Identity: 4d:39:83:80:e8:b4:b9:24:0e:a5:9a:e6:2a:b7:3f:39
Aug 22, 2022 5:43:56 AM hudson.remoting.jnlp.Main$CuiListener status
INFO: Handshaking
Aug 22, 2022 5:43:56 AM hudson.remoting.jnlp.Main$CuiListener status
INFO: Connecting to 18.118.181.64:41995
Aug 22, 2022 5:43:56 AM hudson.remoting.jnlp.Main$CuiListener status
INFO: Trying protocol: JNLP4-connect
Aug 22, 2022 5:43:56 AM org.jenkinsci.remoting.protocol.impl.BIONetworkLayer$Rea
der run
INFO: Waiting for ProtocolStack to start.
Aug 22, 2022 5:43:56 AM hudson.remoting.jnlp.Main$CuiListener status
INFO: Remote identity confirmed: 4d:39:83:80:e8:b4:b9:24:0e:a5:9a:e6:2a:b7:3f:39
Aug 22, 2022 5:43:56 AM hudson.remoting.jnlp.Main$CuiListener status
INFO: Connected
```

Connect Jenkins through public IP of master and :8080 on browser and use password from master putty

Added nodes for Staging and prod and configured them

Dashboard >

+ New item

People

Build History

Manage Jenkins

My Views

New View

Build Queue

No builds in the queue.

Build Executor Status

Build-In Node

All +

S	W	Name	Last Success	Last Failure	Last Duration
✓	🔧	build-prod	1 hr 6 min #10	1 hr 30 min #5	1 sec ▶
✓	🔧	build-web	1 hr 6 min #9	3 hr 50 min #1	1 sec ▶
✓	🔧	gitpull	1 hr 6 min #12	N/A	0.3 sec ▶

Icon: S M L

Icon legend

Atom feed for all

Atom feed for failures

Atom feed for just latest builds

Shell code for build-web

Build

 **Execute shell** 



Command

See [the list of available environment variables](#)

```
sudo docker rm -f $(sudo docker ps -a -q)
sudo docker build /home/ubuntu/jenkins/workspace/gitpull -t website
sudo docker run -d -it -p 82:80 website
```

Shell code for build-prod

Build

 **Execute shell** 

Command

See [the list of available environment variables](#)

```
sudo docker rm -f $(sudo docker ps -a -q)
sudo docker build /home/ubuntu/jenkins/workspace/build-prod -t website
sudo docker run -it -p 82:80 -d website
```

Containers created :

On tagging:

```
root@staging:/home/ubuntu/jenkins/workspace/build-web# docker ps
CONTAINER ID   IMAGE     COMMAND                  CREATED        STATUS
PORTS         NAMES
697e45d14123   website   "/bin/sh -c 'apachec... 25 minutes ago Up 25 minutes
0.0.0.0:82->80/tcp, :::82->80/tcp   heuristic_wu
```

On prod:

```
root@prod:/home/ubuntu/jenkins/workspace# docker ps
CONTAINER ID   IMAGE     COMMAND                  CREATED        STATUS
PORTS         NAMES
be2e9c7dbd85   website   "/bin/sh -c 'apachec... 27 minutes ago Up 27 minutes
0.0.0.0:82->80/tcp, :::82->80/tcp   relaxed_goldberg
root@prod:/home/ubuntu/jenkins/workspace#
```

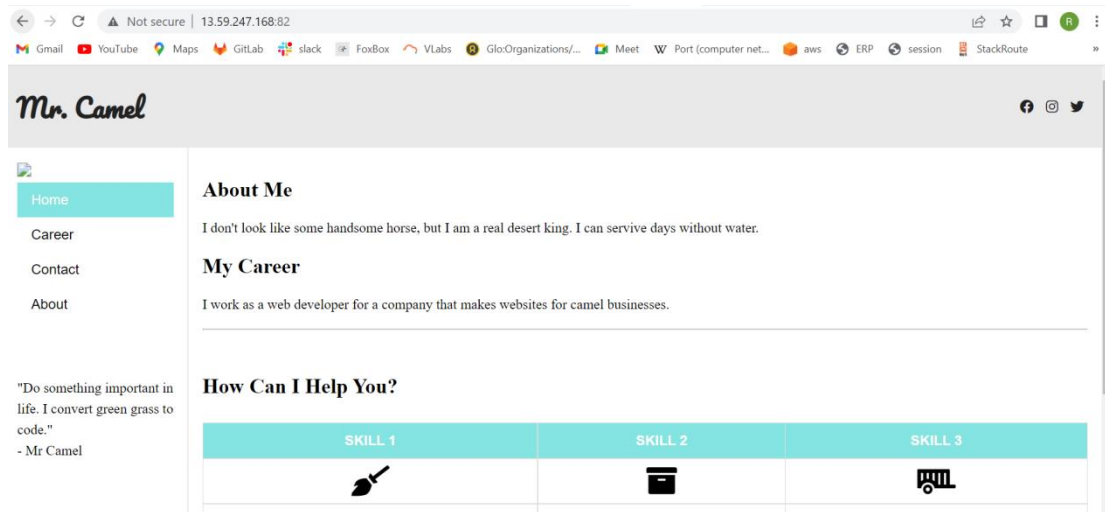
Output on both the ports, able to access the webpage:

On tagging

The screenshot shows a web browser window with the address bar displaying '18.118.35.253:82'. The website has a header with the name 'Mr. Camel' and social media icons. A left sidebar contains navigation links: Home, Career, Contact, and About. The main content area includes sections for 'About Me' (describing the user as a 'desert king'), 'My Career' (describing the user as a 'web developer'), and 'How Can I Help You?' which features a table of skills.

SKILL 1	SKILL 2	SKILL 3

On prod:



Design view of complete pipeline:

