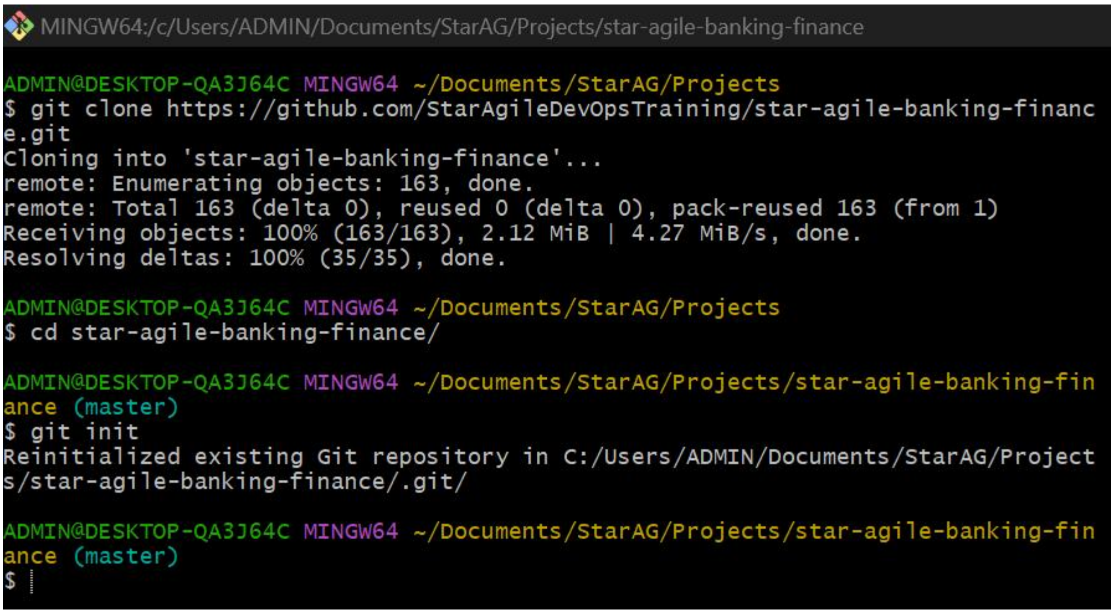
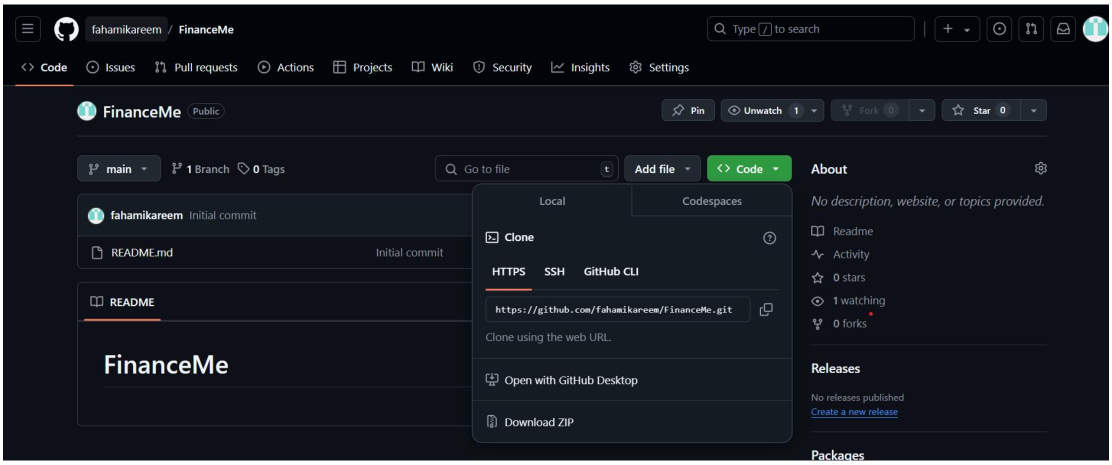
Project – Finance Me (Submitted by Fahami Kareem Edavana)

Git-Clone the project repository



```
MINGW64:/c/Users/ADMIN/Documents/StarAG/Projects/star-agile-banking-finance

ADMIN@DESKTOP-QA3J64C MINGW64 ~/Documents/StarAG/Projects
$ git clone https://github.com/StarAgileDevOpsTraining/star-agile-banking-financ
e.git
Cloning into 'star-agile-banking-finance'...
remote: Enumerating objects: 163, done.
remote: Total 163 (delta 0), reused 0 (delta 0), pack-reused 163 (from 1)
Receiving objects: 100% (163/163), 2.12 MiB | 4.27 MiB/s, done.
Resolving deltas: 100% (35/35), done.

ADMIN@DESKTOP-QA3J64C MINGW64 ~/Documents/StarAG/Projects
$ cd star-agile-banking-finance/

ADMIN@DESKTOP-QA3J64C MINGW64 ~/Documents/StarAG/Projects/star-agile-banking-fin
ance (master)
$ git init
Reinitialized existing Git repository in C:/Users/ADMIN/Documents/StarAG/Project
s/star-agile-banking-finance/.git/

ADMIN@DESKTOP-QA3J64C MINGW64 ~/Documents/StarAG/Projects/star-agile-banking-fin
ance (master)
$
```

Create new Github repository (FinanceMe) and connect

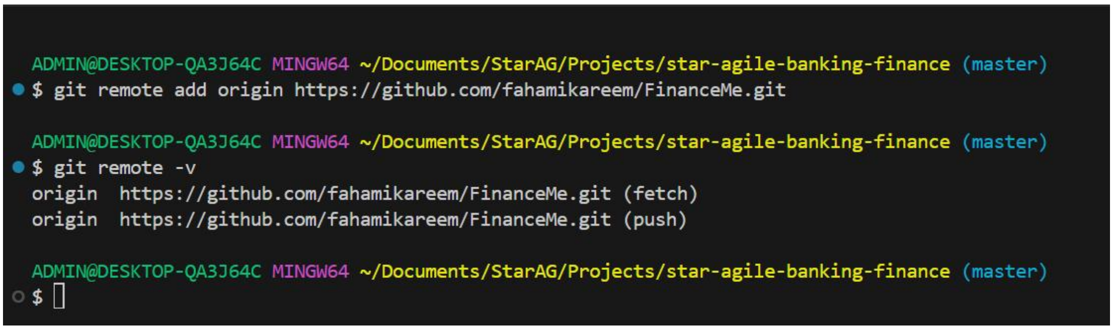


https://github.com/fahamikareem/FinanceMe.git

Clone using the web URL.

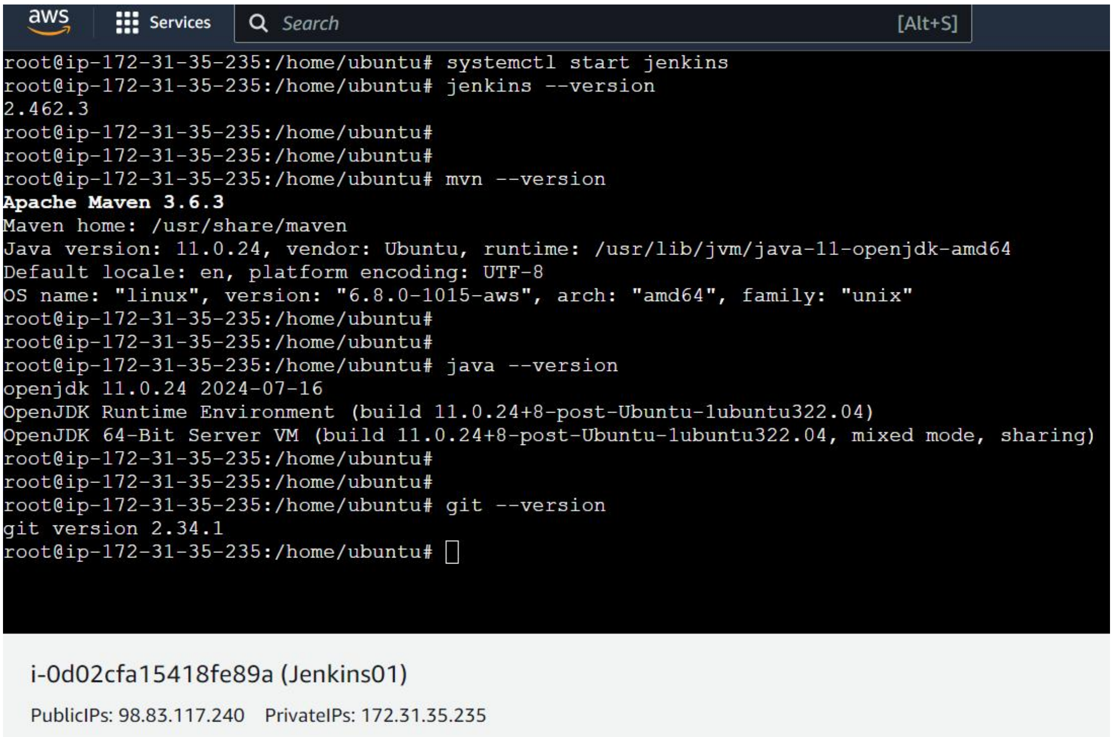
No description, website, or topics provided.

Add remote repository



```
ADMIN@DESKTOP-QA3J64C MINGW64 ~/Documents/StarAG/Projects/star-agile-banking-finance (master)
$ git remote add origin https://github.com/fahamikareem/FinanceMe.git

ADMIN@DESKTOP-QA3J64C MINGW64 ~/Documents/StarAG/Projects/star-agile-banking-finance (master)
$ git remote -v
origin  https://github.com/fahamikareem/FinanceMe.git (fetch)
origin  https://github.com/fahamikareem/FinanceMe.git (push)

ADMIN@DESKTOP-QA3J64C MINGW64 ~/Documents/StarAG/Projects/star-agile-banking-finance (master)
$
```

Launch an AWS instance with Jenkins, Maven, Java, Git,etc installed - .

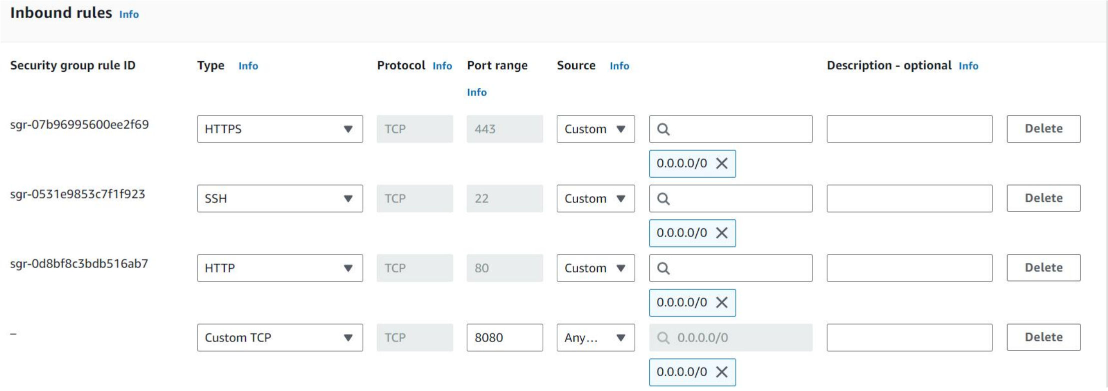


```
root@ip-172-31-35-235:/home/ubuntu# systemctl start jenkins
root@ip-172-31-35-235:/home/ubuntu# jenkins --version
2.462.3
root@ip-172-31-35-235:/home/ubuntu#
root@ip-172-31-35-235:/home/ubuntu#
root@ip-172-31-35-235:/home/ubuntu# mvn --version
Apache Maven 3.6.3
Maven home: /usr/share/maven
Java version: 11.0.24, vendor: Ubuntu, runtime: /usr/lib/jvm/java-11-openjdk-amd64
Default locale: en, platform encoding: UTF-8
OS name: "linux", version: "6.8.0-1015-aws", arch: "amd64", family: "unix"
root@ip-172-31-35-235:/home/ubuntu#
root@ip-172-31-35-235:/home/ubuntu#
root@ip-172-31-35-235:/home/ubuntu# java --version
openjdk 11.0.24 2024-07-16
OpenJDK Runtime Environment (build 11.0.24+8-post-Ubuntu-1ubuntu322.04)
OpenJDK 64-Bit Server VM (build 11.0.24+8-post-Ubuntu-1ubuntu322.04, mixed mode, sharing)
root@ip-172-31-35-235:/home/ubuntu#
root@ip-172-31-35-235:/home/ubuntu#
root@ip-172-31-35-235:/home/ubuntu# git --version
git version 2.34.1
root@ip-172-31-35-235:/home/ubuntu#
```

i-0d02cfa15418fe89a (Jenkins01)

PublicIPs: 98.83.117.240 PrivateIPs: 172.31.35.235

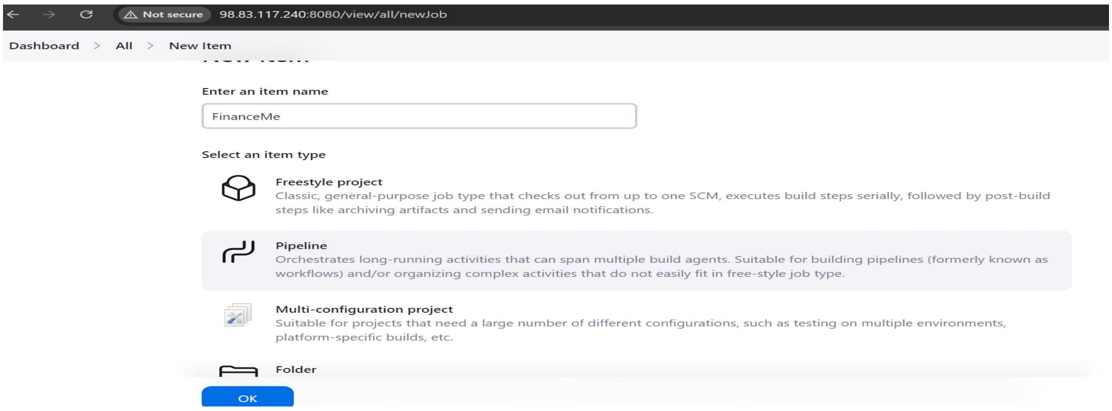
Edit Security-Inbound Rule to allow the traffic over the port 8089 for the Jenkins Server.



Inbound rules Info

Security group rule ID	Type Info	Protocol Info	Port range Info	Source Info		Description - optional Info	
sgr-07b96995600ee2f69	HTTPS	TCP	443	Custom	0.0.0.0/0		Delete
sgr-0531e9853c7f1f923	SSH	TCP	22	Custom	0.0.0.0/0		Delete
sgr-0d8bf8c3bdb516ab7	HTTP	TCP	80	Custom	0.0.0.0/0		Delete
–	Custom TCP	TCP	8080	Any...	0.0.0.0/0 0.0.0.0/0		Delete

Jenkins is Accessible now over port 8080 and finish the initial setup.
Create a new pipeline job -FinanceMe



Not secure
98.83.117.240:8080/view/all/newJob
Dashboard > All > New Item

Enter an item name

FinanceMe

Select an item type

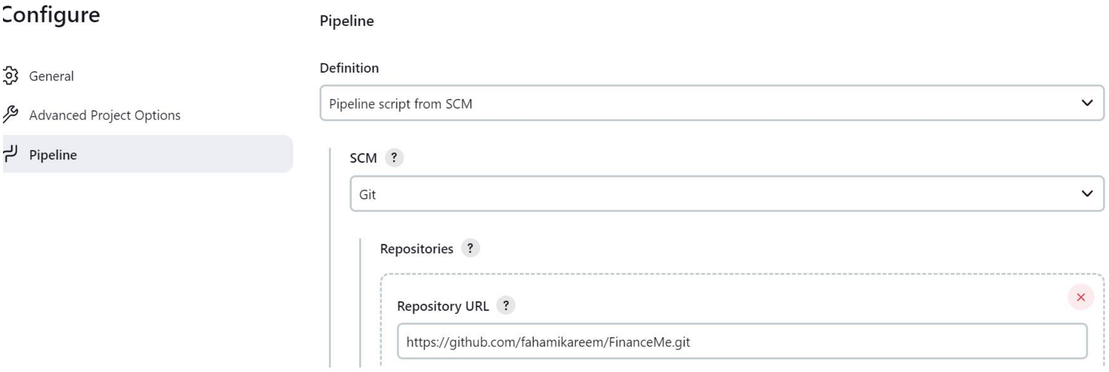
Freestyle project
Classic, general-purpose job type that checks out from up to one SCM, executes build steps serially, followed by post-build steps like archiving artifacts and sending email notifications.

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

Configure the pipeline-script URL (Github) and the path



Configure

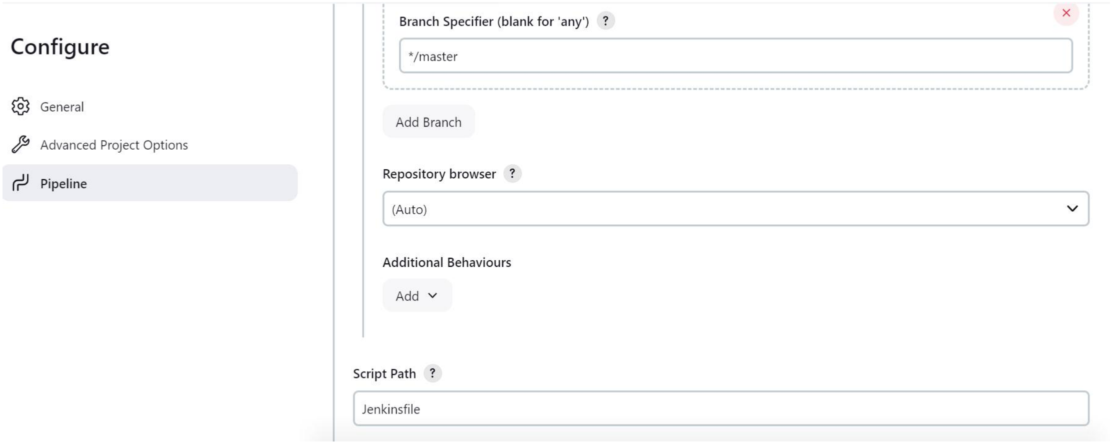
Pipeline

Definition: Pipeline script from SCM

SCM: Git

Repositories

Repository URL: https://github.com/fahamikareem/FinanceMe.git



Configure

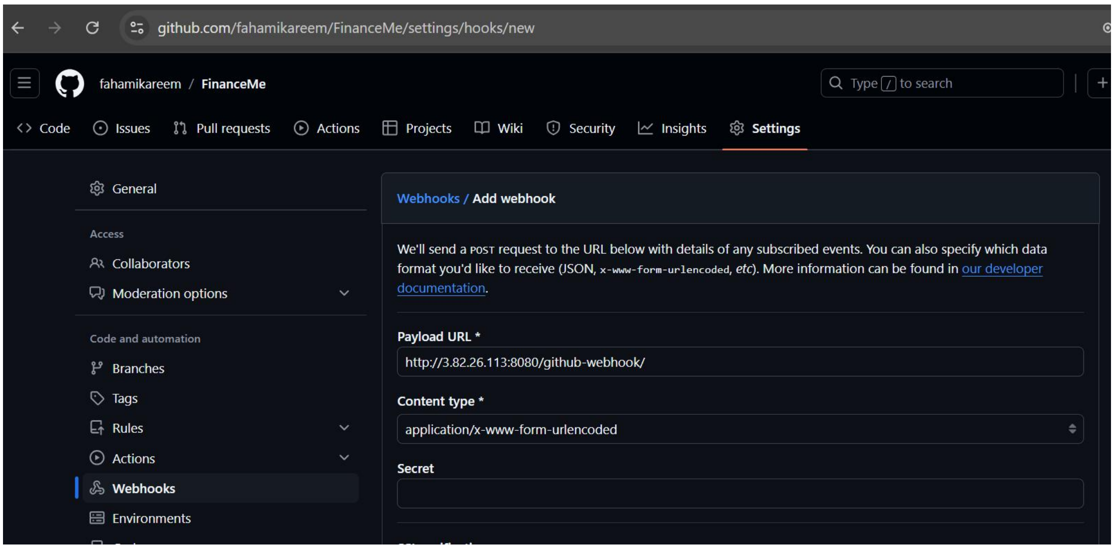
Branch Specifier (blank for 'any'): */master

Repository browser: (Auto)

Additional Behaviours

Script Path: Jenkinsfile

Add webhook in github repository settings -



github.com/fahamikareem/FinanceMe/settings/hooks/new

Webhooks / Add webhook

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.

Payload URL *: http://3.82.26.113:8080/github-webhook/

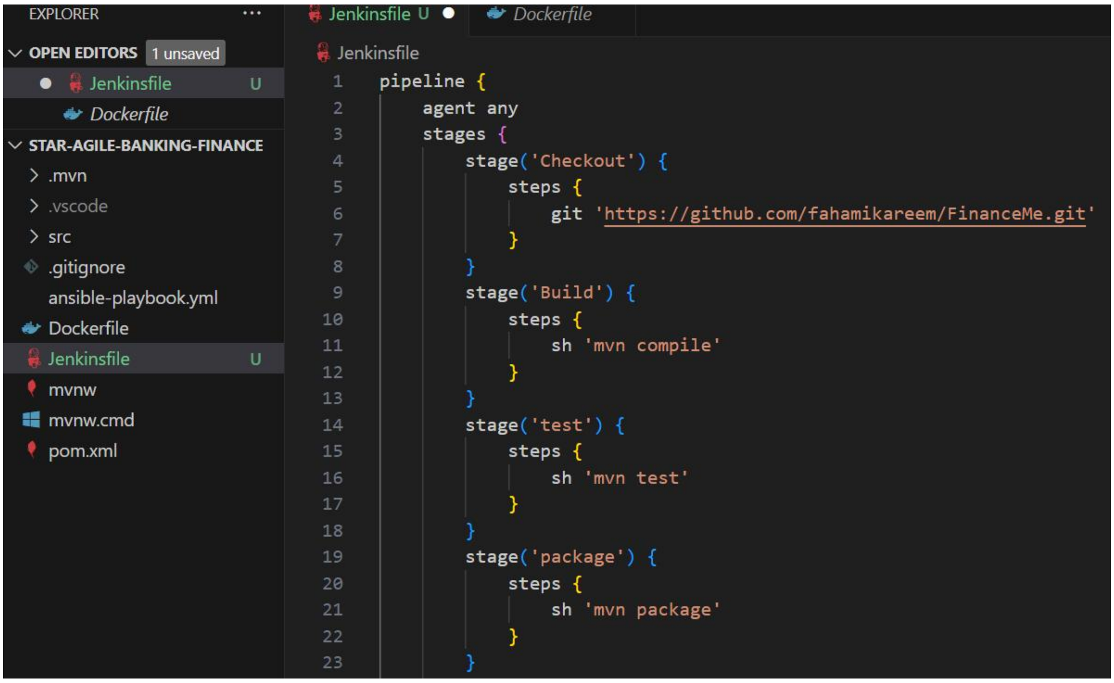
Content type *: application/x-www-form-urlencoded

Secret:

Define a fully automated CICD pipeline stages as below and write the pipeline-script accordingly -

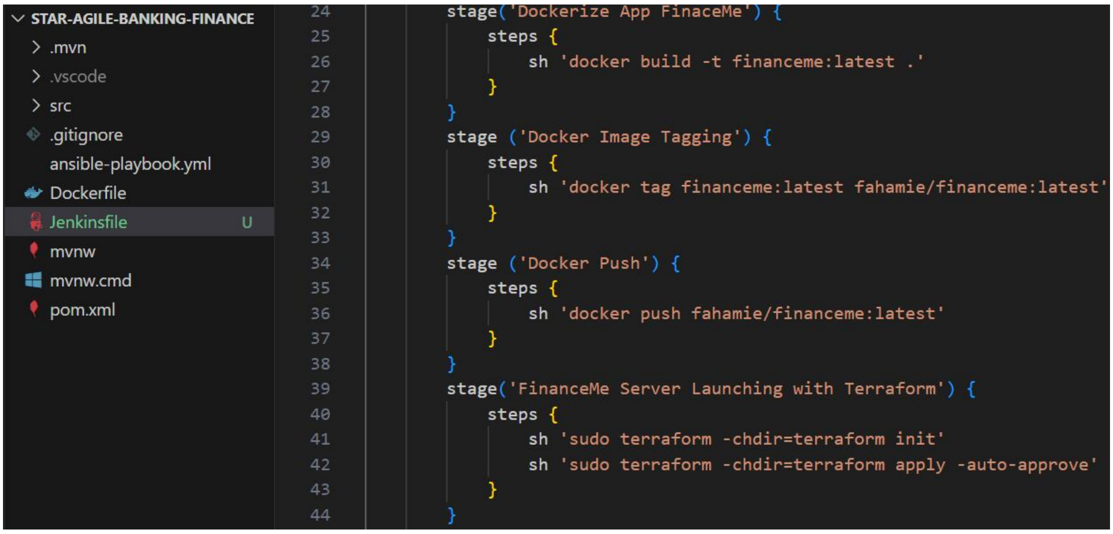
1, Git Checkout
2, Maven Compile, Test and Package
3, Containerize the App
4, Docker Push after tagging
5, Launch a new server using the terraform
6, Configure the server using Ansible playbook

Add Jenkins file in the project repository and write the pipeline script.
Below showing the stages - checkout, Build, Test and Package -



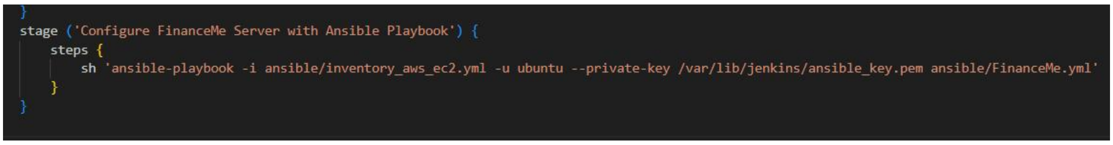
```
pipeline {
    agent any
    stages {
        stage('Checkout') {
            steps {
                git 'https://github.com/fahamikareem/FinanceMe.git'
            }
        }
        stage('Build') {
            steps {
                sh 'mvn compile'
            }
        }
        stage('test') {
            steps {
                sh 'mvn test'
            }
        }
        stage('package') {
            steps {
                sh 'mvn package'
            }
        }
```

Below showing the stages- Docker Image building, Image Tagging, Image Pushing, AppServer Launching by Terraform.



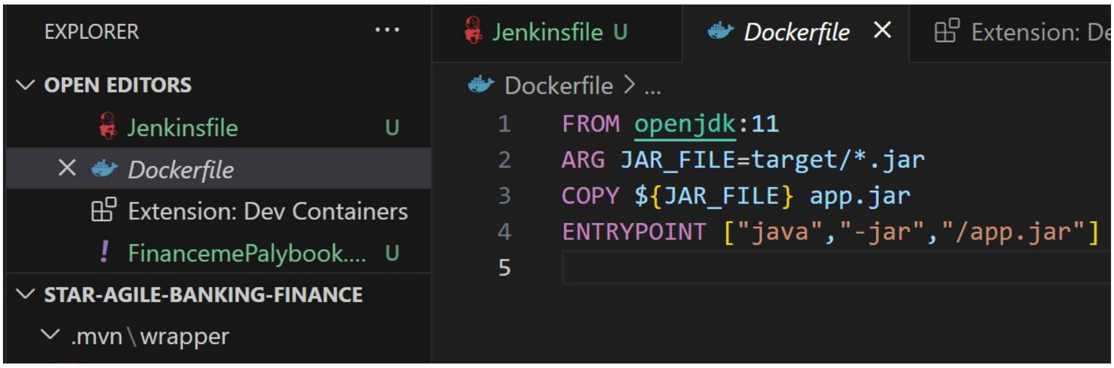
```
        stage('Dockerize App FinaceMe') {
            steps {
                sh 'docker build -t financeme:latest .'
            }
        }
        stage ('Docker Image Tagging') {
            steps {
                sh 'docker tag financeme:latest fahamie/financeme:latest'
            }
        }
        stage ('Docker Push') {
            steps {
                sh 'docker push fahamie/financeme:latest'
            }
        }
        stage('FinanceMe Server Launching with Terraform') {
            steps {
                sh 'sudo terraform -chdir=terraform init'
                sh 'sudo terraform -chdir=terraform apply -auto-approve'
            }
        }
```

Below showing the Stage - Server configuration with Ansible Playbook



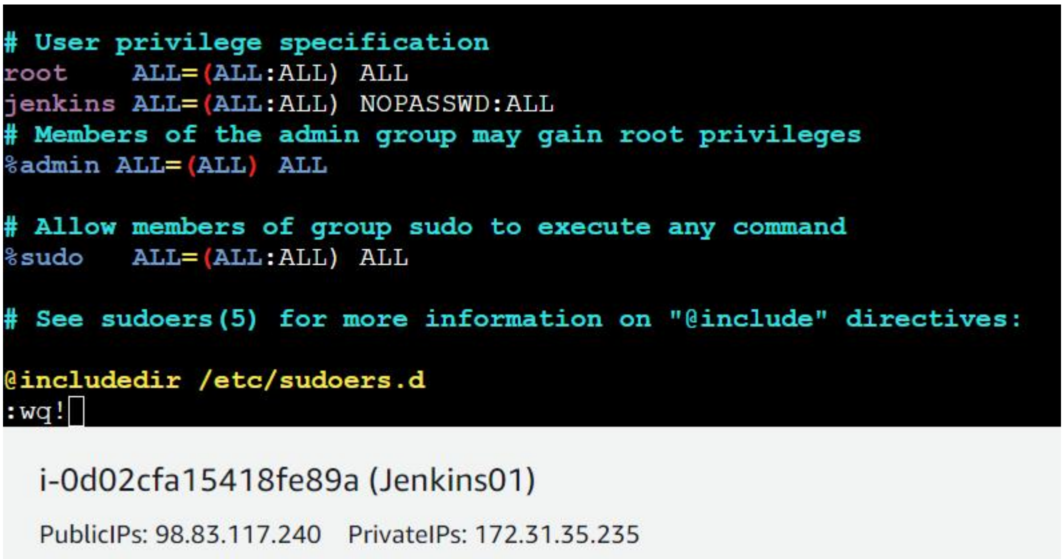
```
}
stage ('Configure FinanceMe Server with Ansible Playbook') {
    steps {
        sh 'ansible-playbook -i ansible/inventory_aws_ec2.yml -u ubuntu --private-key /var/lib/jenkins/ansible_key.pem ansible/FinanceMe.yml'
    }
}
```

Dockerfile needed for the stage ‘Dockerize App FinanceMe’



```
FROM openjdk:11
ARG JAR_FILE=target/*.jar
COPY ${JAR_FILE} app.jar
ENTRYPOINT ["java","-jar","/app.jar"]
```

Add jenkins user in sudoers (/etc/sudoers)

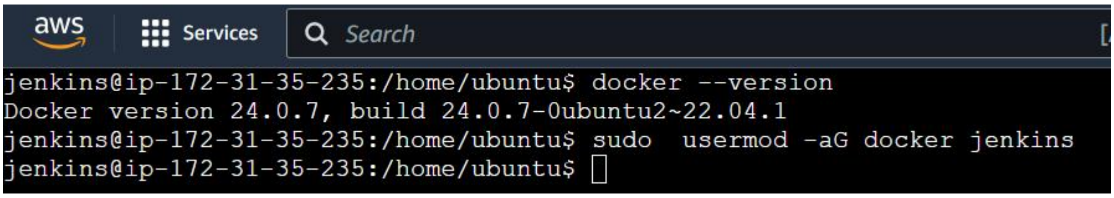


```
# User privilege specification
root    ALL=(ALL:ALL) ALL
jenkins ALL=(ALL:ALL) NOPASSWD:ALL
# Members of the admin group may gain root privileges
%admin ALL=(ALL) ALL

# Allow members of group sudo to execute any command
%sudo   ALL=(ALL:ALL) ALL

# See sudoers(5) for more information on "@include" directives:

@includedir /etc/sudoers.d
:wq!
```

i-0d02cfa15418fe89a (Jenkins01)

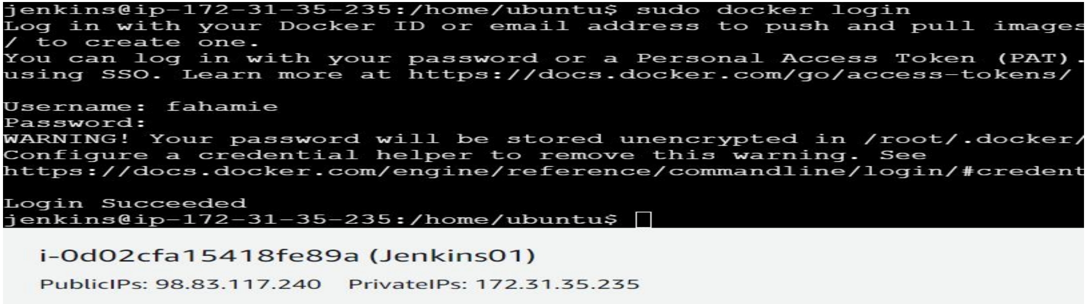
PublicIPs: 98.83.117.240 PrivateIPs: 172.31.35.235

Install docker in Jenkins server, add jenkins user in docker group



```
jenkins@ip-172-31-35-235:/home/ubuntu$ docker --version
Docker version 24.0.7, build 24.0.7-0ubuntu2~22.04.1
jenkins@ip-172-31-35-235:/home/ubuntu$ sudo  usermod -aG docker jenkins
jenkins@ip-172-31-35-235:/home/ubuntu$
```

Docker login to push the docker image.

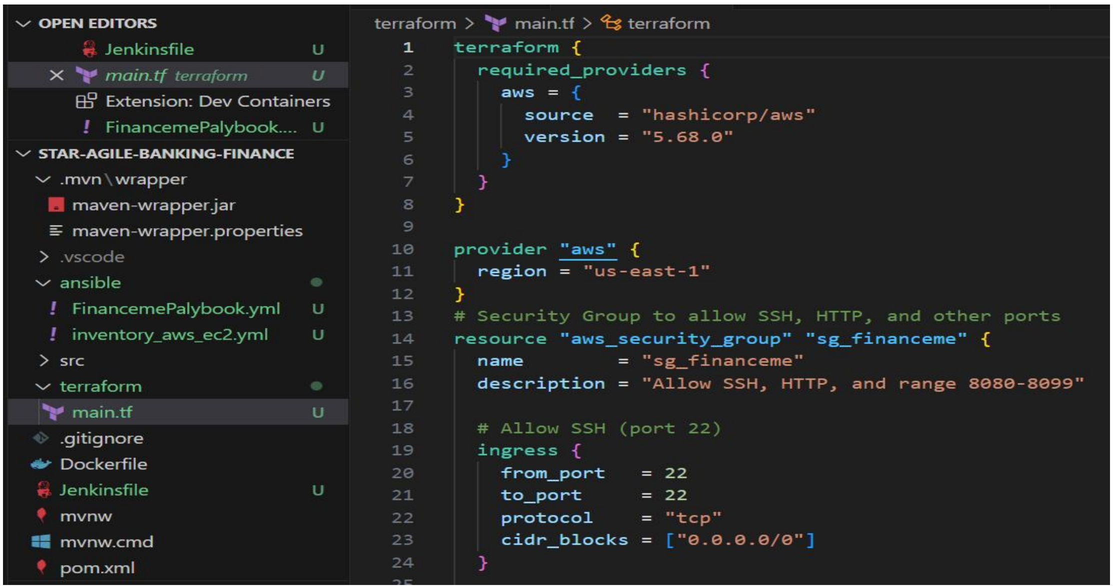


```
jenkins@ip-172-31-35-235:/home/ubuntu$ sudo docker login
Log in with your Docker ID or email address to push and pull images
/ to create one.
You can log in with your password or a Personal Access Token (PAT).
using SSO. Learn more at https://docs.docker.com/go/access-tokens/

Username: fahamie
Password:
WARNING! Your password will be stored unencrypted in /root/.docker/
Configure a credential helper to remove this warning. See
https://docs.docker.com/engine/reference/commandline/login/#credent

Login Succeeded
jenkins@ip-172-31-35-235:/home/ubuntu$
```

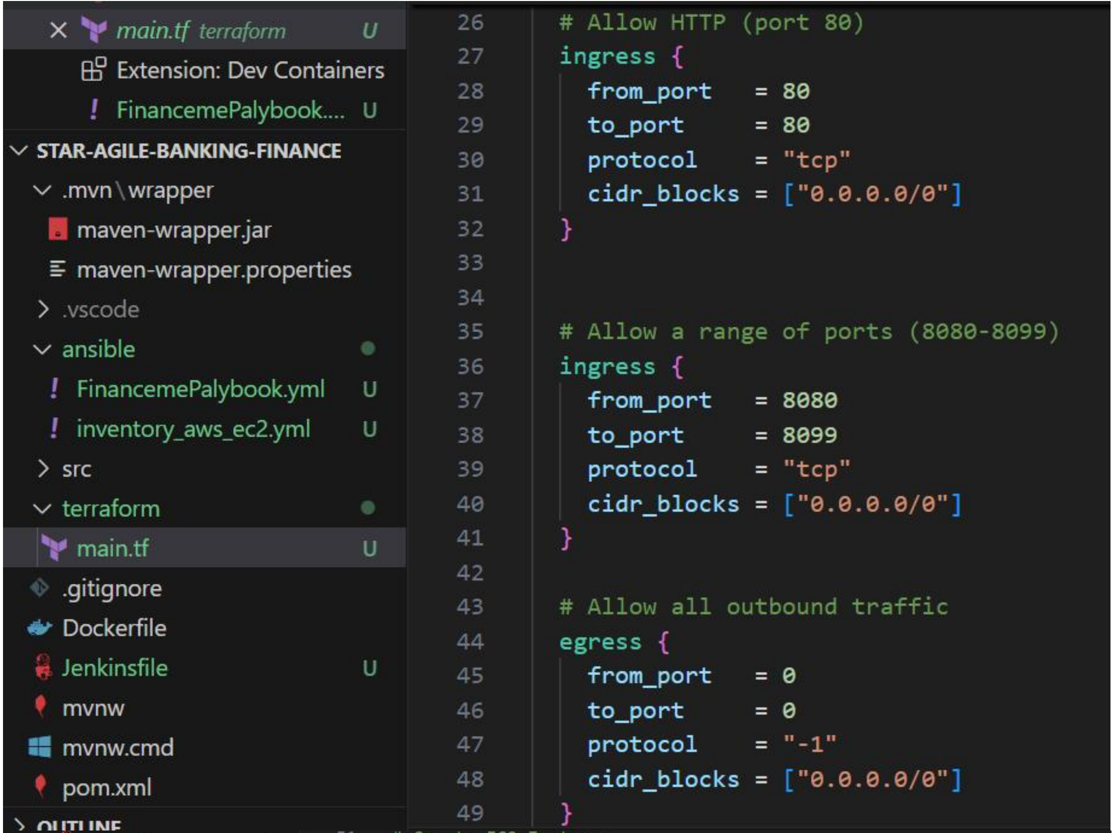
i-0d02cfa15418fe89a (Jenkins01)

PublicIPs: 98.83.117.240 PrivateIPs: 172.31.35.235

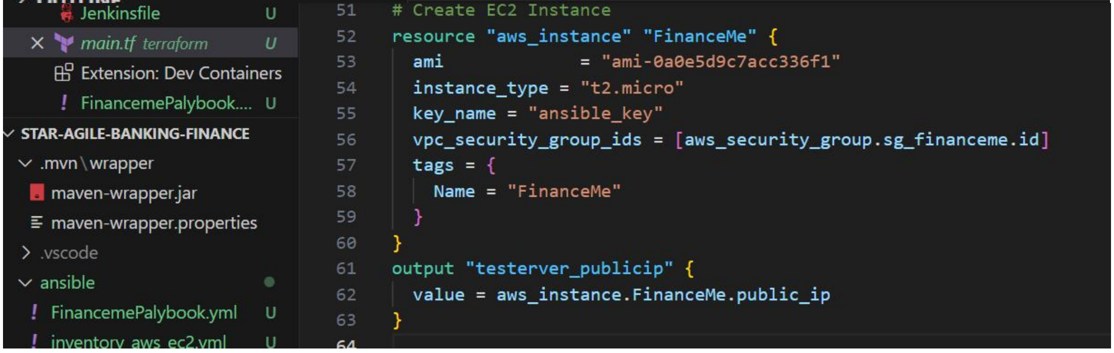
Steps needed for the stage - 'Launching FinaneMe Server'
1, Add Terraform file main.tf inside terraform folder



```
terraform {
  required_providers {
    aws = {
      source  = "hashicorp/aws"
      version = "5.68.0"
    }
  }
}

provider "aws" {
  region = "us-east-1"
}
# Security Group to allow SSH, HTTP, and other ports
resource "aws_security_group" "sg_financeme" {
  name        = "sg_financeme"
  description = "Allow SSH, HTTP, and range 8080-8099"

  # Allow SSH (port 22)
  ingress {
    from_port   = 22
    to_port     = 22
    protocol    = "tcp"
    cidr_blocks = ["0.0.0.0/0"]
  }
```

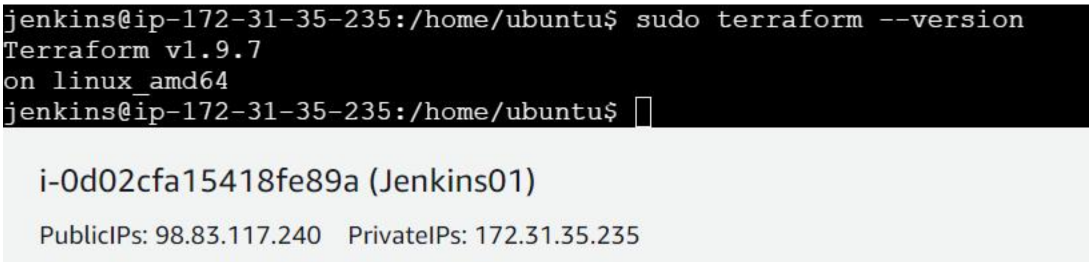


```
  # Allow HTTP (port 80)
  ingress {
    from_port   = 80
    to_port     = 80
    protocol    = "tcp"
    cidr_blocks = ["0.0.0.0/0"]
  }


  # Allow a range of ports (8080-8099)
  ingress {
    from_port   = 8080
    to_port     = 8099
    protocol    = "tcp"
    cidr_blocks = ["0.0.0.0/0"]
  }

  # Allow all outbound traffic
  egress {
    from_port   = 0
    to_port     = 0
    protocol    = "-1"
    cidr_blocks = ["0.0.0.0/0"]
  }
```



```
# Create EC2 Instance
resource "aws_instance" "FinanceMe" {
  ami           = "ami-0a0e5d9c7acc336f1"
  instance_type = "t2.micro"
  key_name = "ansible_key"
  vpc_security_group_ids = [aws_security_group.sg_financeme.id]
  tags = {
    Name = "FinanceMe"
  }
}
output "testerver_publicip" {
  value = aws_instance.FinanceMe.public_ip
}
```

Install Terraform in Jenkins Server

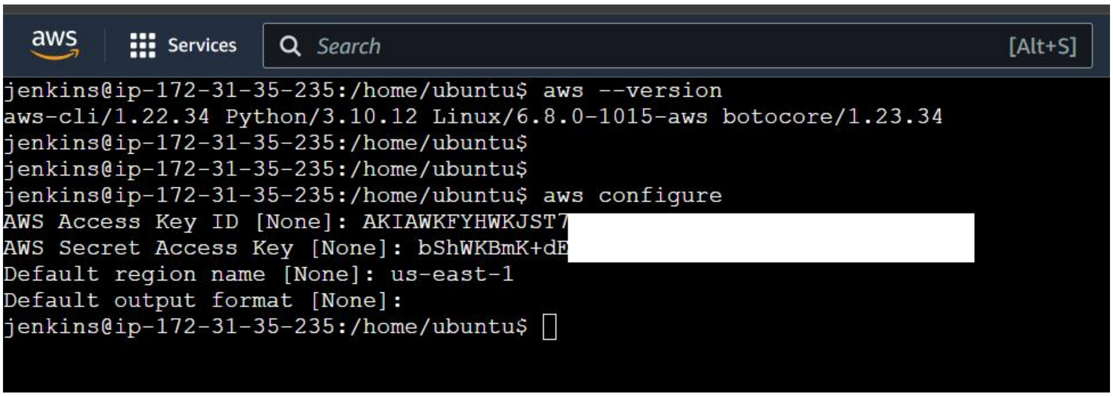


```
jenkins@ip-172-31-35-235:/home/ubuntu$ sudo terraform --version
Terraform v1.9.7
on linux_amd64
jenkins@ip-172-31-35-235:/home/ubuntu$
```

i-0d02cfa15418fe89a (Jenkins01)

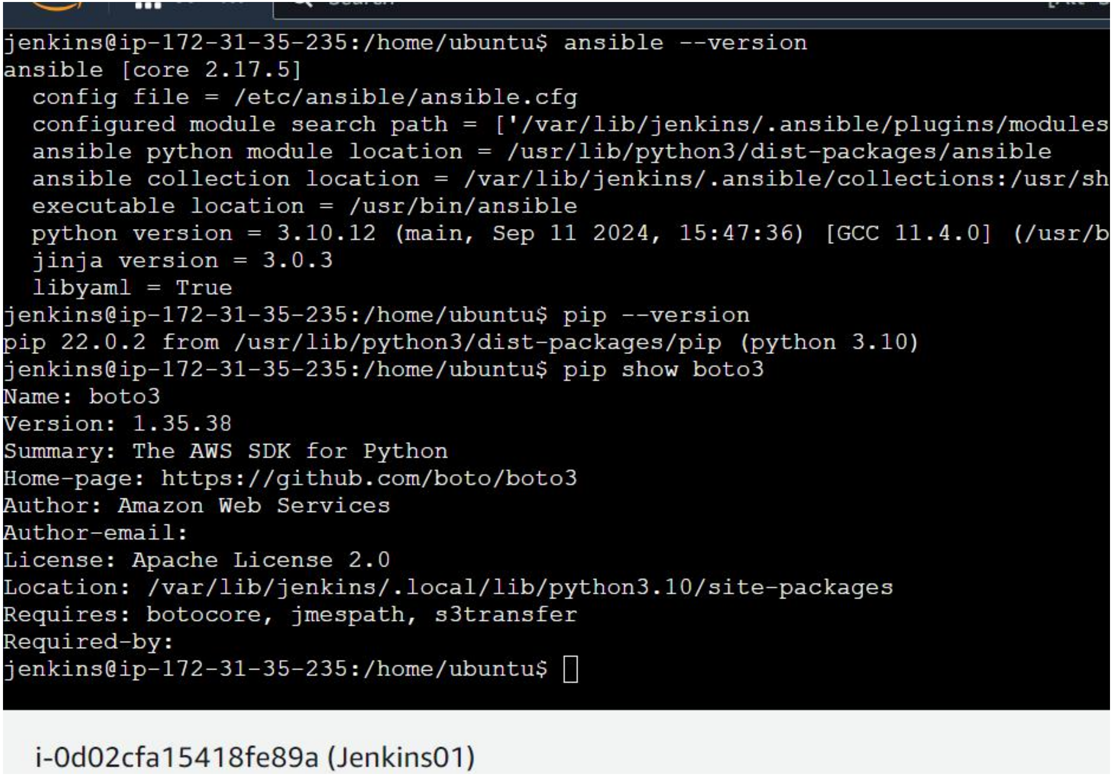
PublicIPs: 98.83.117.240 PrivateIPs: 172.31.35.235

Install AWSCLI & add AWS credentials in jenkins server to run terraform -



```
jenkins@ip-172-31-35-235:/home/ubuntu$ aws --version
aws-cli/1.22.34 Python/3.10.12 Linux/6.8.0-1015-aws botocore/1.23.34
jenkins@ip-172-31-35-235:/home/ubuntu$
jenkins@ip-172-31-35-235:/home/ubuntu$
jenkins@ip-172-31-35-235:/home/ubuntu$ aws configure
AWS Access Key ID [None]: AKIAWKFYHWKJST7[redacted]
AWS Secret Access Key [None]: bShWKBmK+dE
Default region name [None]: us-east-1
Default output format [None]:
jenkins@ip-172-31-35-235:/home/ubuntu$
```

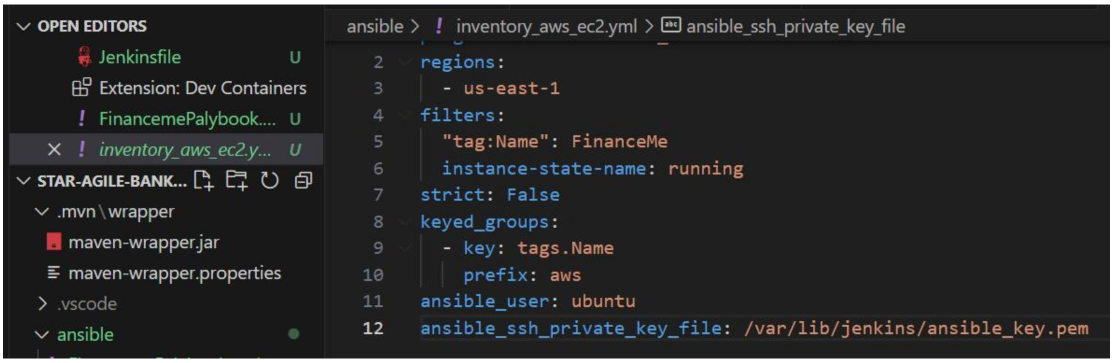
Steps needed for the stage ‘Configure FinanceMe Server with Ansible’
Install Ansible, pip, boto3, on Jenkins Server



```
jenkins@ip-172-31-35-235:/home/ubuntu$ ansible --version
ansible [core 2.17.5]
  config file = /etc/ansible/ansible.cfg
  configured module search path = ['/var/lib/jenkins/.ansible/plugins/modules
  ansible python module location = /usr/lib/python3/dist-packages/ansible
  ansible collection location = /var/lib/jenkins/.ansible/collections:/usr/sh
  executable location = /usr/bin/ansible
  python version = 3.10.12 (main, Sep 11 2024, 15:47:36) [GCC 11.4.0] (/usr/b
  jinja version = 3.0.3
  libyaml = True
jenkins@ip-172-31-35-235:/home/ubuntu$ pip --version
pip 22.0.2 from /usr/lib/python3/dist-packages/pip (python 3.10)
jenkins@ip-172-31-35-235:/home/ubuntu$ pip show boto3
Name: boto3
Version: 1.35.38
Summary: The AWS SDK for Python
Home-page: https://github.com/boto/boto3
Author: Amazon Web Services
Author-email:
License: Apache License 2.0
Location: /var/lib/jenkins/.local/lib/python3.10/site-packages
Requires: botocore, jmespath, s3transfer
Required-by:
jenkins@ip-172-31-35-235:/home/ubuntu$
```

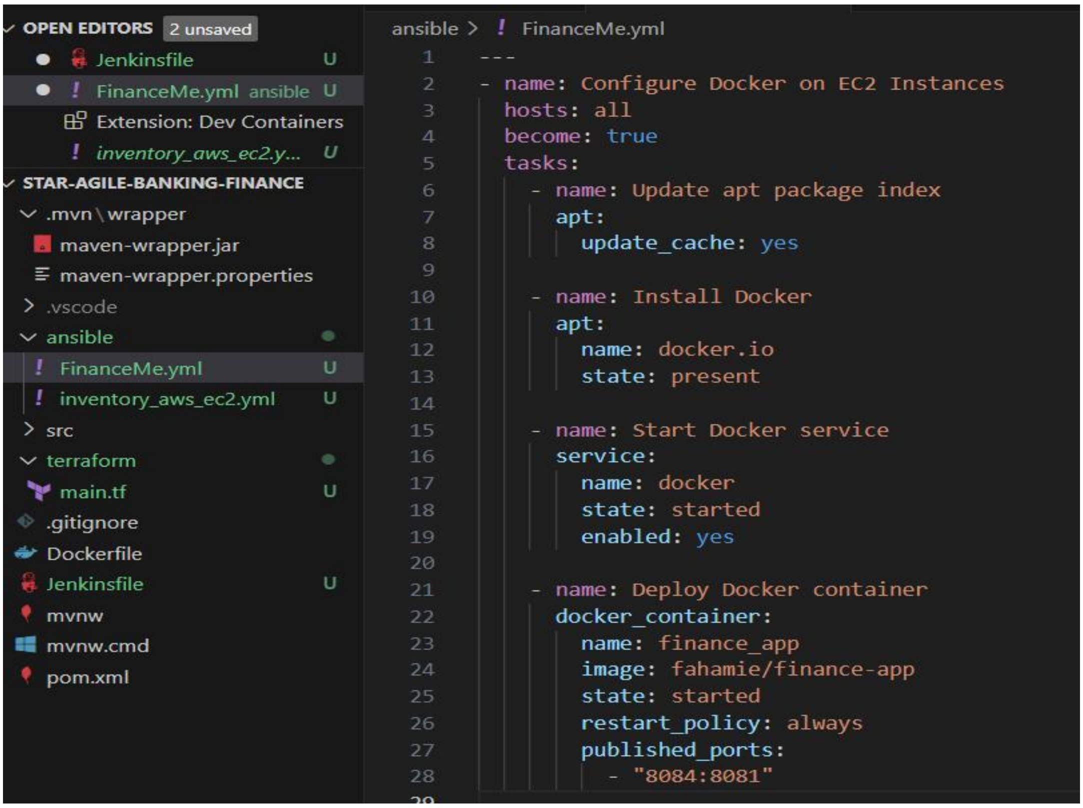
i-0d02cfa15418fe89a (Jenkins01)

Add Ansible Dynamic inventory (AWS)- inventory_aws_ec2.yml- under ‘ansible’ directory



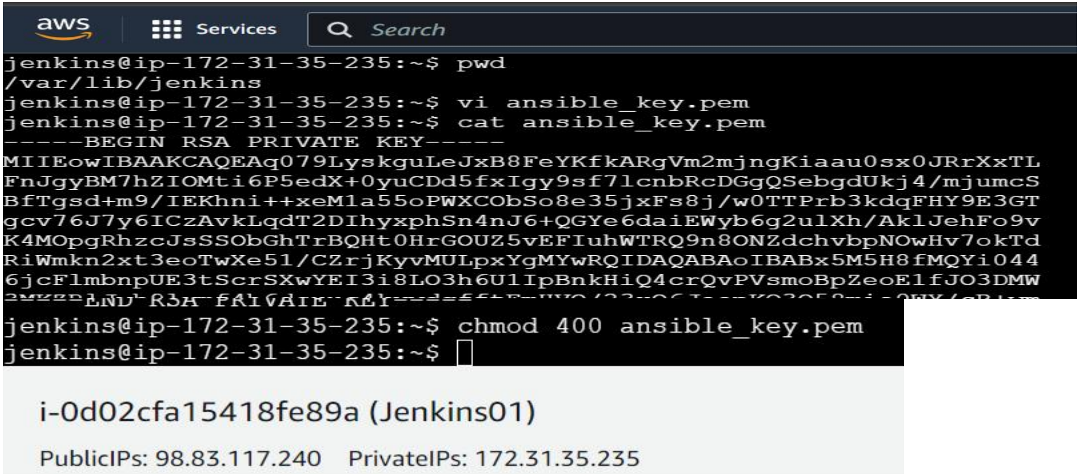
```yaml
regions:
  - us-east-1
filters:
  "tag:Name": FinanceMe
  instance-state-name: running
strict: False
keyed_groups:
  - key: tags.Name
    prefix: aws
ansible_user: ubuntu
ansible_ssh_private_key_file: /var/lib/jenkins/ansible_key.pem
```

Add the ansible-playbook file FinanceMe.yml file under the directory ansible



```yaml
---
- name: Configure Docker on EC2 Instances
  hosts: all
  become: true
  tasks:
    - name: Update apt package index
      apt:
        update_cache: yes

    - name: Install Docker
      apt:
        name: docker.io
        state: present

    - name: Start Docker service
      service:
        name: docker
        state: started
        enabled: yes

    - name: Deploy Docker container
      docker_container:
        name: finance_app
        image: fahamie/finance-app
        state: started
        restart_policy: always
        published_ports:
          - "8084:8081"
```

Copy the SSH private key to jenkins home folder and assign read only permission.

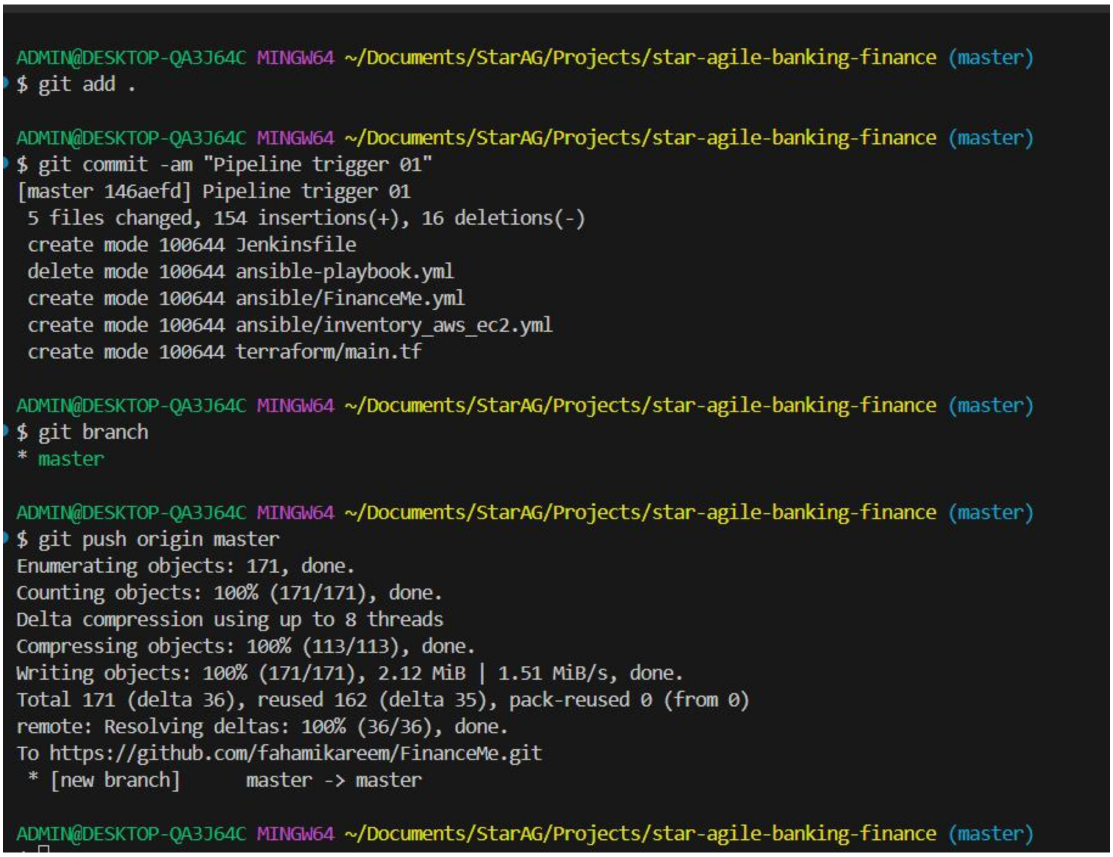


```
jenkins@ip-172-31-35-235:~$ pwd
/var/lib/jenkins
jenkins@ip-172-31-35-235:~$ vi ansible_key.pem
jenkins@ip-172-31-35-235:~$ cat ansible_key.pem
-----BEGIN RSA PRIVATE KEY-----
MIIEowIBAAKCAQEAq079LyskguLeJxB8FeYKfkARgVm2mjngKiaau0sx0JRrXxTL
FnJgyBM7hZIOMti6P5edX+0yuCDd5fxIgy9sf7lcnbRcDGgQSebgdUkj4/mjumcS
BfTgsd+m9/IEKhni++xeM1a55oPWXCObSo8e35jxFs8j/w0TTPrb3kdqFHY9E3GT
gcv76J7y6ICzAvkLqdT2DIhyxphSn4nJ6+QGYe6daiEWyb6g2ulXh/AklJehFo9v
K4MOpgRhzcJsSSObGhTrBQHt0HrGOUZ5vEFIuhWTRQ9n8ONZdchvbpNOwHv7okTd
RiWmkn2xt3eoTwXe51/CZrjKyvMULpxYgMYwRQIDAQABAoIBABx5M5H8fMQYi044
6jcFlmbnpUE3tScrSXwYEI3i8LO3h6U1IpBnkHiQ4crQvPVsmoBpZeoE1fJO3DMW
-----END RSA PRIVATE KEY-----
jenkins@ip-172-31-35-235:~$ chmod 400 ansible_key.pem
jenkins@ip-172-31-35-235:~$ 
```

i-0d02cfa15418fe89a (Jenkins01)

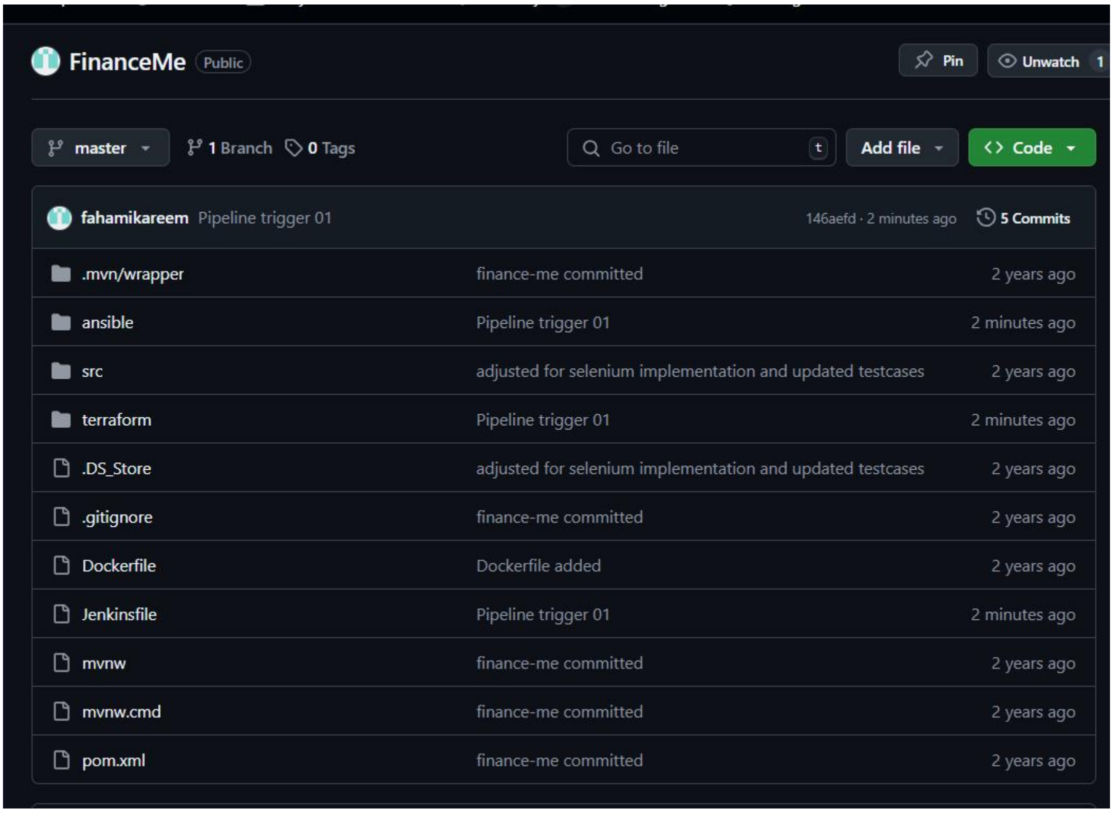
PublicIPs: 98.83.117.240 PrivateIPs: 172.31.35.235

Git Commit & Push



```
ADMIN@DESKTOP-QA3J64C MINGW64 ~/Documents/StarAG/Projects/star-agile-banking-finance (master)
$ git add .

ADMIN@DESKTOP-QA3J64C MINGW64 ~/Documents/StarAG/Projects/star-agile-banking-finance (master)
$ git commit -am "Pipeline trigger 01"
[master 146aefd] Pipeline trigger 01
 5 files changed, 154 insertions(+), 16 deletions(-)
 create mode 100644 Jenkinsfile
 delete mode 100644 ansible-playbook.yml
 create mode 100644 ansible/FinanceMe.yml
 create mode 100644 ansible/inventory_aws_ec2.yml
 create mode 100644 terraform/main.tf

ADMIN@DESKTOP-QA3J64C MINGW64 ~/Documents/StarAG/Projects/star-agile-banking-finance (master)
$ git branch
* master

ADMIN@DESKTOP-QA3J64C MINGW64 ~/Documents/StarAG/Projects/star-agile-banking-finance (master)
$ git push origin master
Enumerating objects: 171, done.
Counting objects: 100% (171/171), done.
Delta compression using up to 8 threads
Compressing objects: 100% (113/113), done.
Writing objects: 100% (171/171), 2.12 MiB | 1.51 MiB/s, done.
Total 171 (delta 36), reused 162 (delta 35), pack-reused 0 (from 0)
remote: Resolving deltas: 100% (36/36), done.
To https://github.com/fahamikareem/FinanceMe.git
 * [new branch]      master -> master

ADMIN@DESKTOP-QA3J64C MINGW64 ~/Documents/StarAG/Projects/star-agile-banking-finance (master)
```

Verify the Github FinanceMe master branch

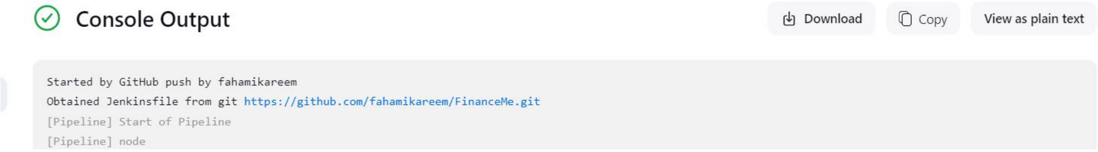


fahamikareem Pipeline trigger 01 146aefd · 2 minutes ago 5 Commits

.mvn/wrapper	finance-me committed	2 years ago
ansible	Pipeline trigger 01	2 minutes ago
src	adjusted for selenium implementation and updated testcases	2 years ago
terraform	Pipeline trigger 01	2 minutes ago
.DS_Store	adjusted for selenium implementation and updated testcases	2 years ago
.gitignore	finance-me committed	2 years ago
Dockerfile	Dockerfile added	2 years ago
Jenkinsfile	Pipeline trigger 01	2 minutes ago
mvnw	finance-me committed	2 years ago
mvnw.cmd	finance-me committed	2 years ago
pom.xml	finance-me committed	2 years ago

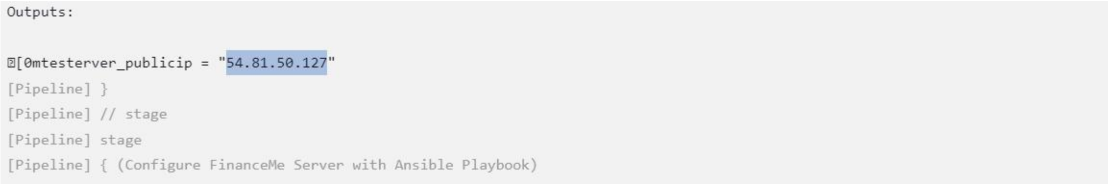
FinanceMe job console output captures -

Job Initiated -



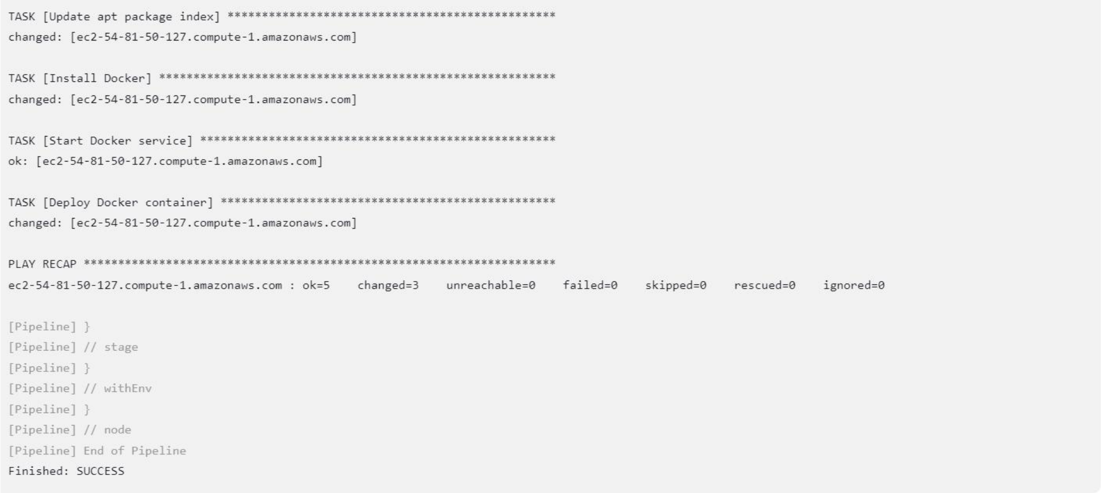
```
Started by GitHub push by fahamikareem
Obtained Jenkinsfile from git https://github.com/fahamikareem/FinanceMe.git
[Pipeline] Start of Pipeline
[Pipeline] node
```

Terraform Output captures the public IP of the instance -



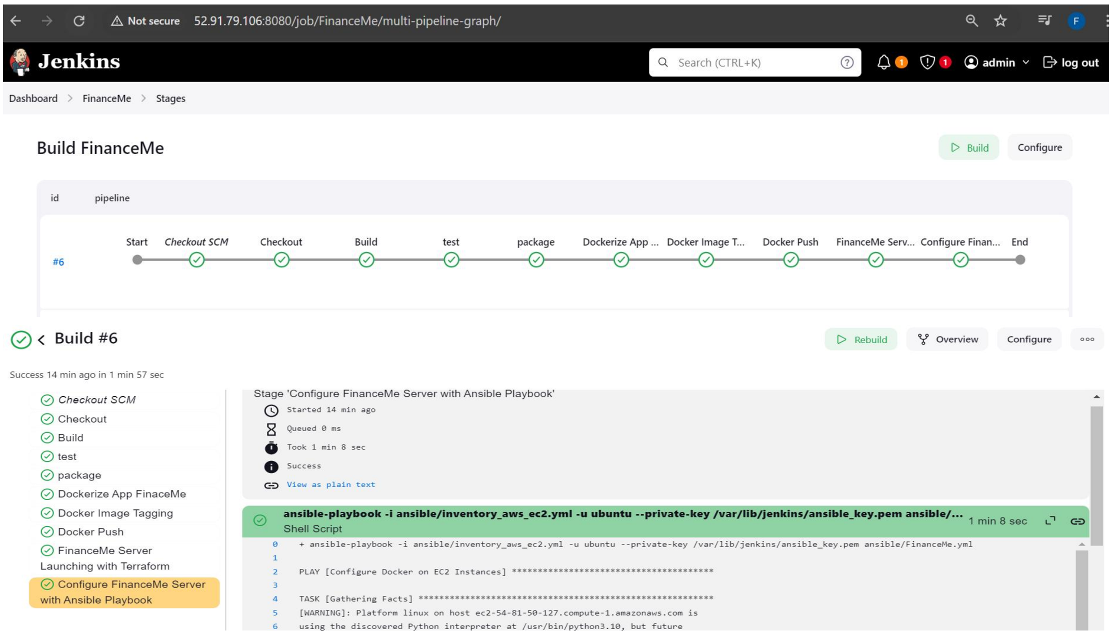
```
Outputs:

[0mtesterver_publicip = "54.81.50.127"
[Pipeline] }
[Pipeline] // stage
[Pipeline] stage
[Pipeline] { (Configure FinanceMe Server with Ansible Playbook)
```

Finished : Success



```
TASK [Update apt package index] ************************************************
changed: [ec2-54-81-50-127.compute-1.amazonaws.com]

TASK [Install Docker] **********************************************************
changed: [ec2-54-81-50-127.compute-1.amazonaws.com]

TASK [Start Docker service] ****************************************************
ok: [ec2-54-81-50-127.compute-1.amazonaws.com]

TASK [Deploy Docker container] *************************************************
changed: [ec2-54-81-50-127.compute-1.amazonaws.com]

PLAY RECAP *********************************************************************
ec2-54-81-50-127.compute-1.amazonaws.com : ok=5    changed=3    unreachable=0    failed=0    skipped=0    rescued=0    ignored=0

[Pipeline] }
[Pipeline] // stage
[Pipeline] }
[Pipeline] // withEnv
[Pipeline] }
[Pipeline] // node
[Pipeline] End of Pipeline
Finished: SUCCESS
```

Below pipeline-overview indicates a successful completion of a fully automated pipeline job -



Build FinanceMe

Build #6

Success 14 min ago in 1 min 57 sec

- ✓ *Checkout SCM*
- ✓ Checkout
- ✓ Build
- ✓ test
- ✓ package
- ✓ Dockerize App FinaceMe
- ✓ Docker Image Tagging
- ✓ Docker Push
- ✓ FinanceMe Server Launching with Terraform
- ✓ Configure FinanceMe Server with Ansible Playbook

Stage 'Configure FinanceMe Server with Ansible Playbook'

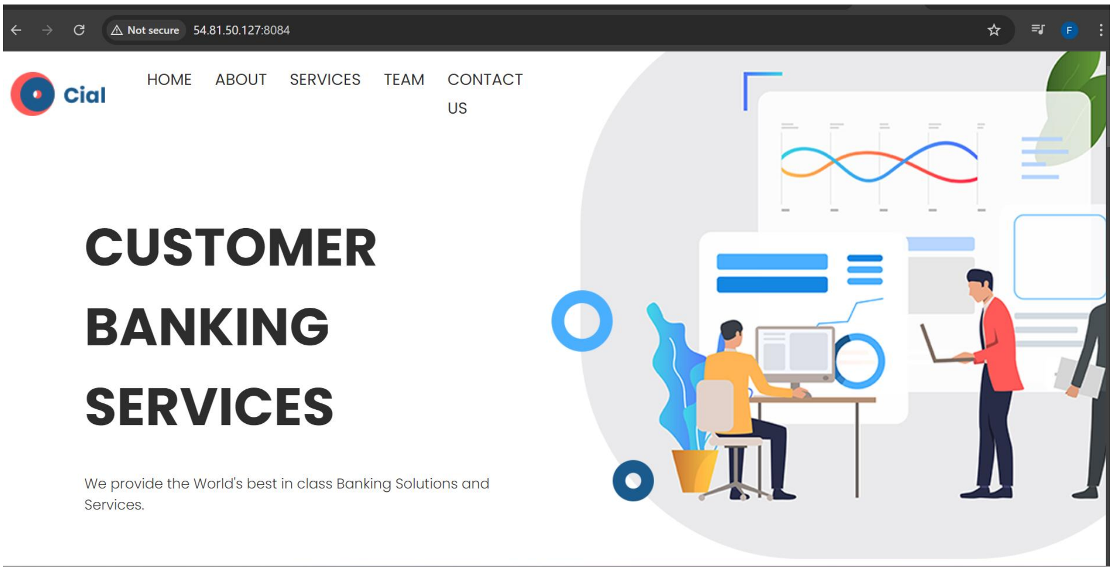
```
Started 14 min ago
Queued 0 ms
Took 1 min 8 sec
Success
View as plain text
```

ansible-playbook -i ansible/inventory_aws_ec2.yml -u ubuntu --private-key /var/lib/jenkins/ansible_key.pem ansible/... 1 min 8 sec

Shell Script

```
+ ansible-playbook -i ansible/inventory_aws_ec2.yml -u ubuntu --private-key /var/lib/jenkins/ansible_key.pem ansible/FinanceMe.yml

PLAY [Configure Docker on EC2 Instances] ***************************************

TASK [Gathering Facts] *********************************************************
[WARNING]: Platform linux on host ec2-54-81-50-127.compute-1.amazonaws.com is
using the discovered Python interpreter at /usr/bin/python3.10, but future
```

Project Goal: Proposed FinanceMe application is accessible over the port 8084 (as exposed) by a single click of Git Push.

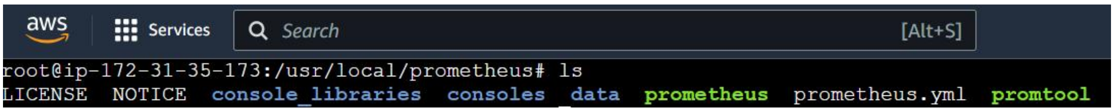


CUSTOMER BANKING SERVICES

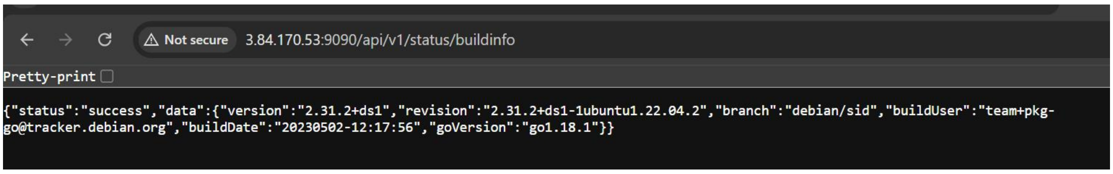
We provide the World's best in class Banking Solutions and Services.

FinanceMe Application Server System Resources Monitoring (CPU, Memory, Disk Space)

Install Prometheus on FinanceMe Server:

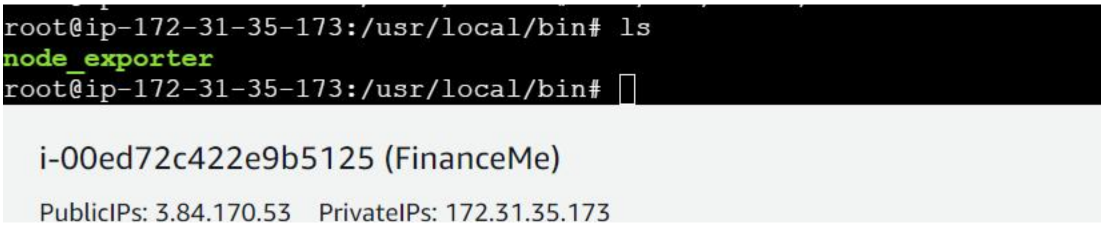


```
root@ip-172-31-35-173:/usr/local/prometheus# ls
LICENSE  NOTICE  console_libraries  consoles  data  prometheus  prometheus.yml  promtool
```



{"status":"success","data":{"version":"2.31.2+ds1","revision":"2.31.2+ds1-1ubuntu1.22.04.2","branch":"debian/sid","buildUser":"team+pkg-go@tracker.debian.org","buildDate":"20230502-12:17:56","goVersion":"go1.18.1"}}

Install Node Exporter on FinanceMe Server to get the information of system resources.

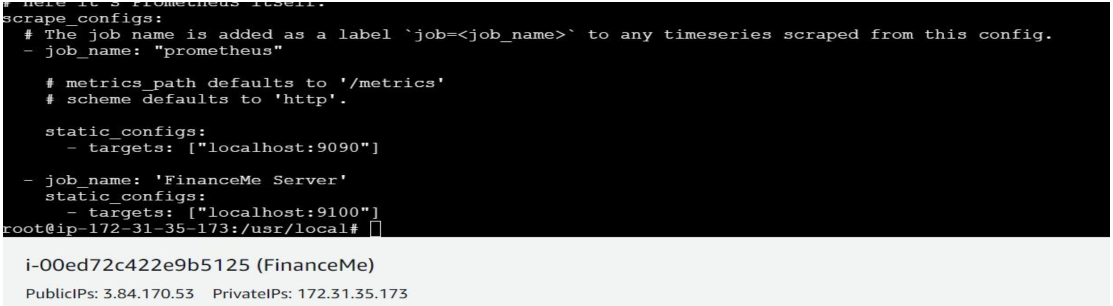


```
root@ip-172-31-35-173:/usr/local/bin# ls
node_exporter
root@ip-172-31-35-173:/usr/local/bin# 
```

i-00ed72c422e9b5125 (FinanceMe)

PublicIPs: 3.84.170.53   PrivateIPs: 172.31.35.173

Add the job ‘FinaceMe Server’ targets port 9100 (for Node Exporter

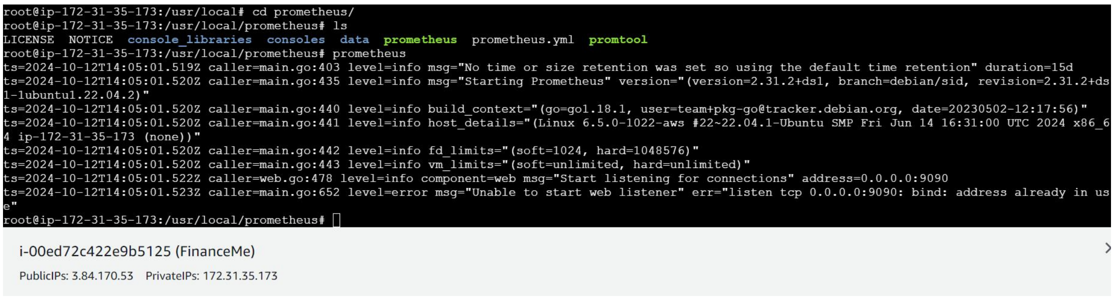


```
# Here it's Prometheus itself.
scrape_configs:
  # The job name is added as a label `job=<job_name>` to any timeseries scraped from this config.
  - job_name: "prometheus"

    # metrics_path defaults to '/metrics'
    # scheme defaults to 'http'.

    static_configs:
      - targets: ["localhost:9090"]

  - job_name: 'FinanceMe Server'
    static_configs:
      - targets: ["localhost:9100"]
root@ip-172-31-35-173:/usr/local# 
```

i-00ed72c422e9b5125 (FinanceMe)

PublicIPs: 3.84.170.53   PrivateIPs: 172.31.35.173

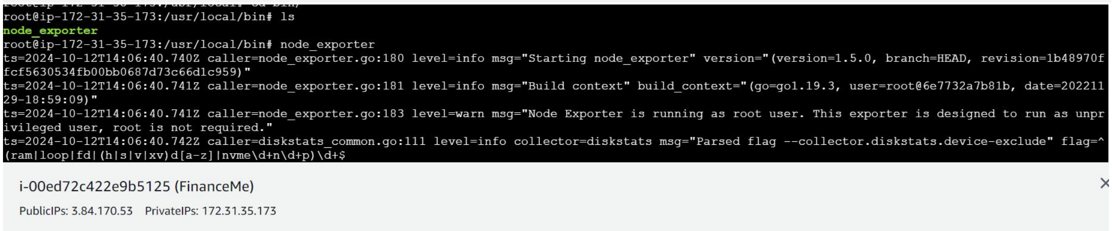
Start Prometheus and Node Exporter



```
root@ip-172-31-35-173:/usr/local# cd prometheus/
root@ip-172-31-35-173:/usr/local/prometheus# ls
LICENSE  NOTICE  console_libraries  consoles  data  prometheus  prometheus.yml  promtool
root@ip-172-31-35-173:/usr/local/prometheus# prometheus
ts=2024-10-12T14:05:01.519Z caller=main.go:403 level=info msg="No time or size retention was set so using the default time retention" duration=15d
ts=2024-10-12T14:05:01.520Z caller=main.go:435 level=info msg="Starting Prometheus" version="(version=2.31.2+ds1, branch=debian/sid, revision=2.31.2+ds
1-1ubuntu1.22.04.2)"
ts=2024-10-12T14:05:01.520Z caller=main.go:440 level=info build_context="(go=go1.18.1, user=team+pkg-go@tracker.debian.org, date=20230502-12:17:56)"
ts=2024-10-12T14:05:01.520Z caller=main.go:441 level=info host_details="(Linux 6.5.0-1022-aws #22~22.04.1-Ubuntu SMP Fri Jun 14 16:31:00 UTC 2024 x86_6
4 ip-172-31-35-173 (none))"
ts=2024-10-12T14:05:01.520Z caller=main.go:442 level=info fd_limits="(soft=1024, hard=1048576)"
ts=2024-10-12T14:05:01.520Z caller=main.go:443 level=info vm_limits="(soft=unlimited, hard=unlimited)"
ts=2024-10-12T14:05:01.522Z caller=web.go:478 level=info component=web msg="Start listening for connections" address=0.0.0.0:9090
ts=2024-10-12T14:05:01.523Z caller=main.go:652 level=error msg="Unable to start web listener" err="listen tcp 0.0.0.0:9090: bind: address already in us
e"
root@ip-172-31-35-173:/usr/local/prometheus# 
```

i-00ed72c422e9b5125 (FinanceMe)

PublicIPs: 3.84.170.53   PrivateIPs: 172.31.35.173

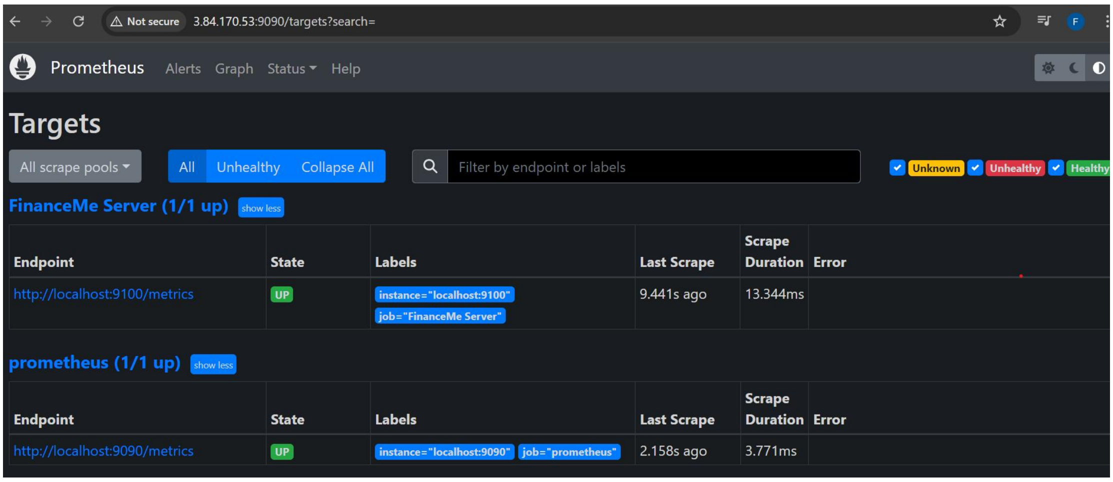


```
root@ip-172-31-35-173:/usr/local/bin# ls
node_exporter
root@ip-172-31-35-173:/usr/local/bin# node_exporter
ts=2024-10-12T14:06:40.740Z caller=node_exporter.go:180 level=info msg="Starting node_exporter" version="(version=1.5.0, branch=HEAD, revision=1b48970f
fcf5630534fb00bb0687d73c66d1c959)"
ts=2024-10-12T14:06:40.741Z caller=node_exporter.go:181 level=info msg="Build context" build_context="(go=go1.19.3, user=root@6e7732a7b81b, date=202211
29-18:59:09)"
ts=2024-10-12T14:06:40.741Z caller=node_exporter.go:183 level=warn msg="Node Exporter is running as root user. This exporter is designed to run as unpr
ivileged user, root is not required."
ts=2024-10-12T14:06:40.742Z caller=diskstats_common.go:111 level=info collector=diskstats msg="Parsed flag --collector.diskstats.device-exclude" flag=^
(ram|loop|fd|(h|s|v|xv)d[a-z]|nvme\d+n\d+p)\d+$
```

i-00ed72c422e9b5125 (FinanceMe)

PublicIPs: 3.84.170.53   PrivateIPs: 172.31.35.173

Verify with browser over ports 9090, 9100



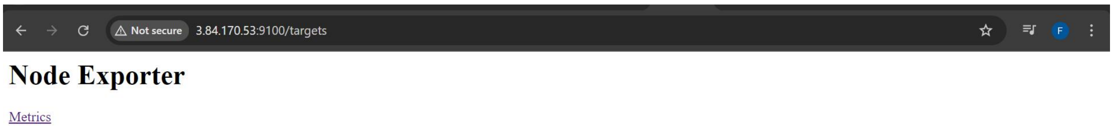
Targets

FinanceMe Server (1/1 up) show less

Endpoint	State	Labels	Last Scrape	Scrape Duration	Error
http://localhost:9100/metrics	UP	instance="localhost:9100" job="FinanceMe Server"	9.441s ago	13.344ms	

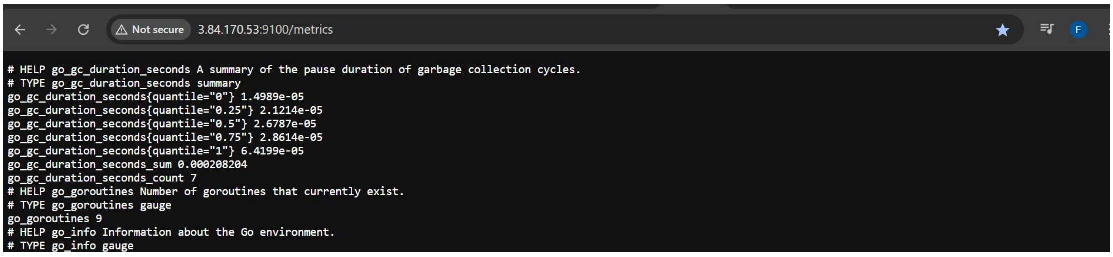
prometheus (1/1 up) show less

Endpoint	State	Labels	Last Scrape	Scrape Duration	Error
http://localhost:9090/metrics	UP	instance="localhost:9090" job="prometheus"	2.158s ago	3.771ms	



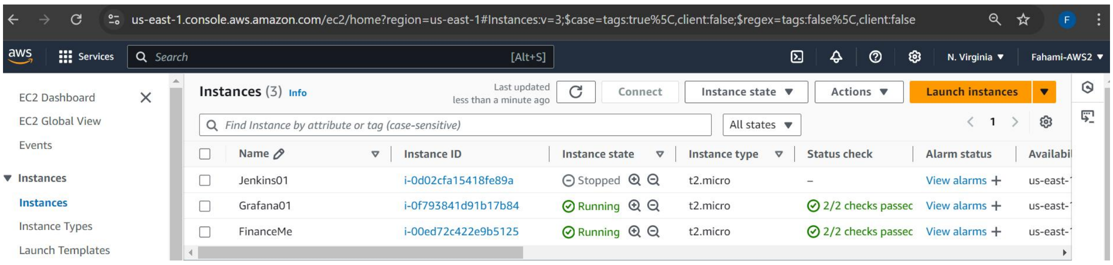
Node Exporter

Metrics

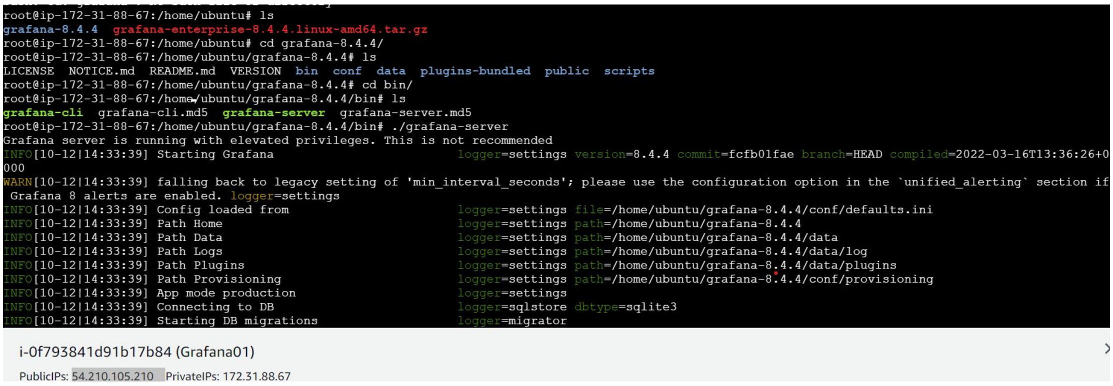


```
# HELP go_gc_duration_seconds A summary of the pause duration of garbage collection cycles.
# TYPE go_gc_duration_seconds summary
go_gc_duration_seconds{quantile="0"} 1.4989e-05
go_gc_duration_seconds{quantile="0.25"} 2.1214e-05
go_gc_duration_seconds{quantile="0.5"} 2.6787e-05
go_gc_duration_seconds{quantile="0.75"} 2.8614e-05
go_gc_duration_seconds{quantile="1"} 6.4199e-05
go_gc_duration_seconds_sum 0.000208204
go_gc_duration_seconds_count 7
# HELP go_goroutines Number of goroutines that currently exist.
# TYPE go_goroutines gauge
go_goroutines 9
# HELP go_info Information about the Go environment.
# TYPE go_info gauge
```

Launch an EC2 instance with Grafana Installed


us-east-1.console.aws.amazon.com/ec2/home?region=us-east-1#Instances:v=3;$case=tags:true%5C,client:false;$regex=tags:false%5C,client:false
Services
Search
[Alt+S]
N. Virginia ▼
Fahami-AWS2 ▼
EC2 Dashboard
EC2 Global View
Events
▼ Instances
Instances
Instance Types
Launch Templates
Instances (3) Info
Last updated less than a minute ago
Connect
Instance state ▼
Actions ▼
Launch instances ▼
Find Instance by attribute or tag (case-sensitive)
All states ▼

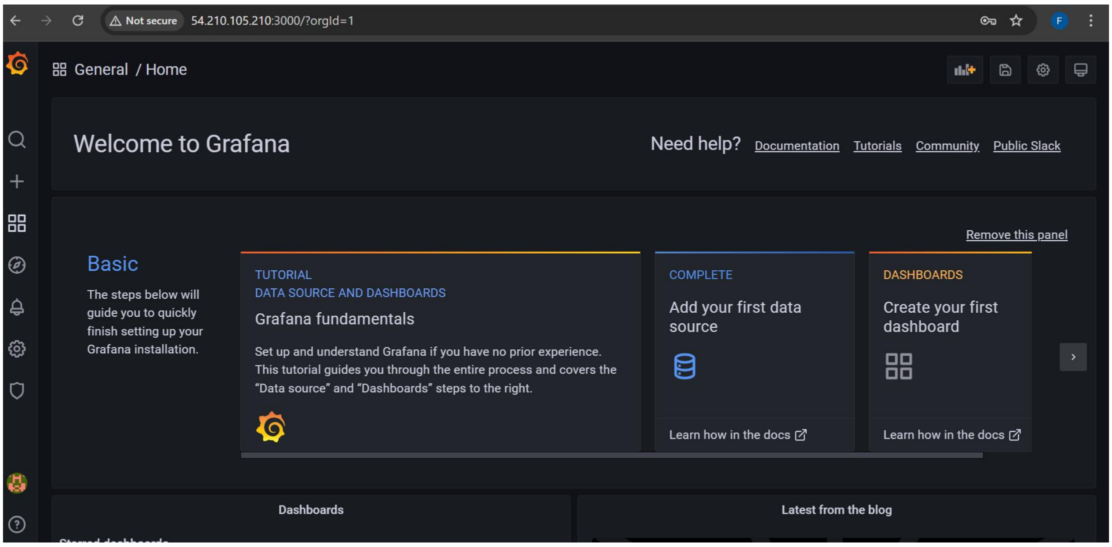
□	Name	Instance ID	Instance state	Instance type	Status check	Alarm status	Availabi
□	Jenkins01	i-0d02cfa15418fe89a	Stopped	t2.micro	–	View alarms +	us-east-
□	Grafana01	i-0f793841d91b17b84	Running	t2.micro	2/2 checks passec	View alarms +	us-east-
□	FinanceMe	i-00ed72c422e9b5125	Running	t2.micro	2/2 checks passec	View alarms +	us-east-



```
root@ip-172-31-88-67:/home/ubuntu# ls
grafana-8.4.4  grafana-enterprise-8.4.4.linux-amd64.tar.gz
root@ip-172-31-88-67:/home/ubuntu# cd grafana-8.4.4/
root@ip-172-31-88-67:/home/ubuntu/grafana-8.4.4# ls
LICENSE  NOTICE.md  README.md  VERSION  bin  conf  data  plugins-bundled  public  scripts
root@ip-172-31-88-67:/home/ubuntu/grafana-8.4.4# cd bin/
root@ip-172-31-88-67:/home/ubuntu/grafana-8.4.4/bin# ls
grafana-cli  grafana-cli.md5  grafana-server  grafana-server.md5
root@ip-172-31-88-67:/home/ubuntu/grafana-8.4.4/bin# ./grafana-server
Grafana server is running with elevated privileges. This is not recommended
INFO[10-12|14:33:39] Starting Grafana                         logger=settings version=8.4.4 commit=fcfb01fae branch=HEAD compiled=2022-03-16T13:36:26+0
000
WARN[10-12|14:33:39] falling back to legacy setting of 'min_interval_seconds'; please use the configuration option in the `unified_alerting` section if
 Grafana 8 alerts are enabled. logger=settings
INFO[10-12|14:33:39] Config loaded from                       logger=settings file=/home/ubuntu/grafana-8.4.4/conf/defaults.ini
INFO[10-12|14:33:39] Path Home                                logger=settings path=/home/ubuntu/grafana-8.4.4
INFO[10-12|14:33:39] Path Data                                logger=settings path=/home/ubuntu/grafana-8.4.4/data
INFO[10-12|14:33:39] Path Logs                                logger=settings path=/home/ubuntu/grafana-8.4.4/data/log
INFO[10-12|14:33:39] Path Plugins                             logger=settings path=/home/ubuntu/grafana-8.4.4/data/plugins
INFO[10-12|14:33:39] Path Provisioning                        logger=settings path=/home/ubuntu/grafana-8.4.4/conf/provisioning
INFO[10-12|14:33:39] App mode production                      logger=settings
INFO[10-12|14:33:39] Connecting to DB                         logger=sqlstore dbtype=sqlite3
INFO[10-12|14:33:39] Starting DB migrations                   logger=migrator
```

i-0f793841d91b17b84 (Grafana01)

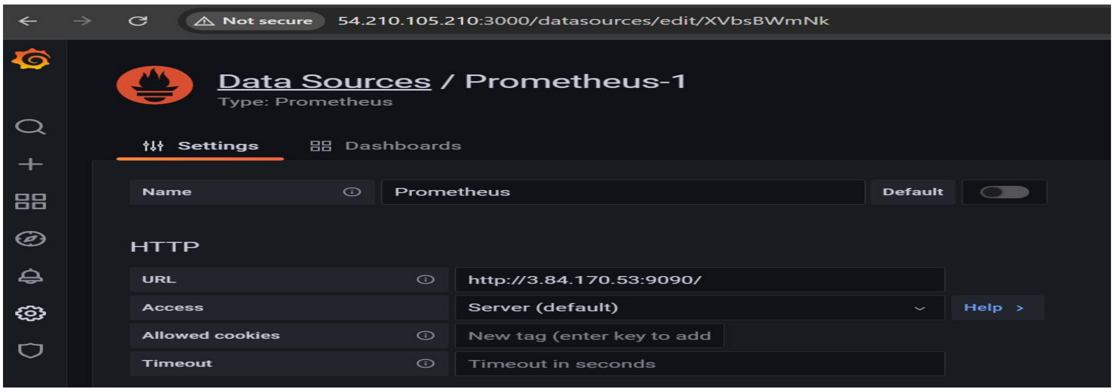
PublicIPs: 54.210.105.210 PrivateIPs: 172.31.88.67



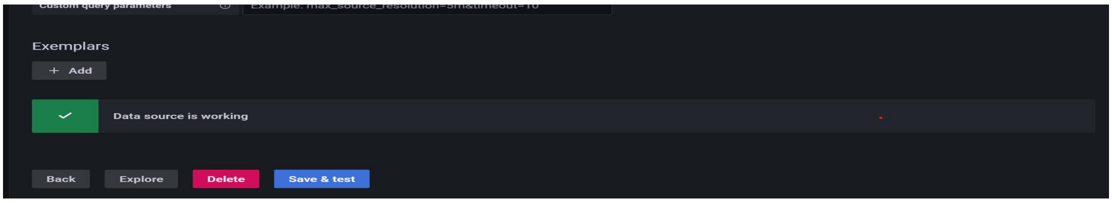
The steps below will guide you to quickly finish setting up your Grafana installation.

Set up and understand Grafana if you have no prior experience. This tutorial guides you through the entire process and covers the "Data source" and "Dashboards" steps to the right.

Add Prometheus as Data Source set URL as FinanceMe Public IP address. Save the configuration and test

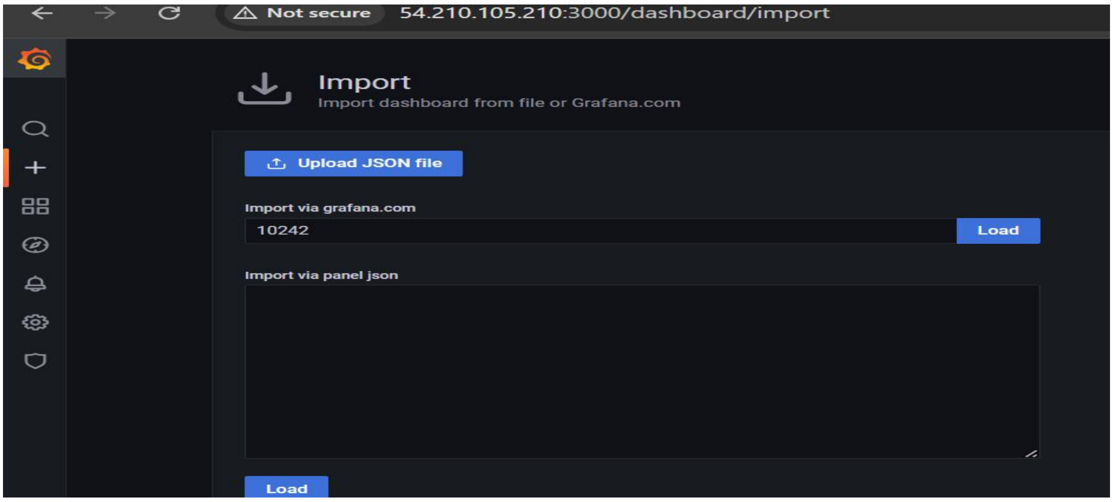

Not secure
54.210.105.210:3000/datasources/edit/XVbsBWmNk
Data Sources / Prometheus-1
Type: Prometheus
Settings
Dashboards
HTTP
Help >

Name	Prometheus
Default	○
URL	http://3.84.170.53:9090/
Access	Server (default)
Allowed cookies	New tag (enter key to add
Timeout	Timeout in seconds



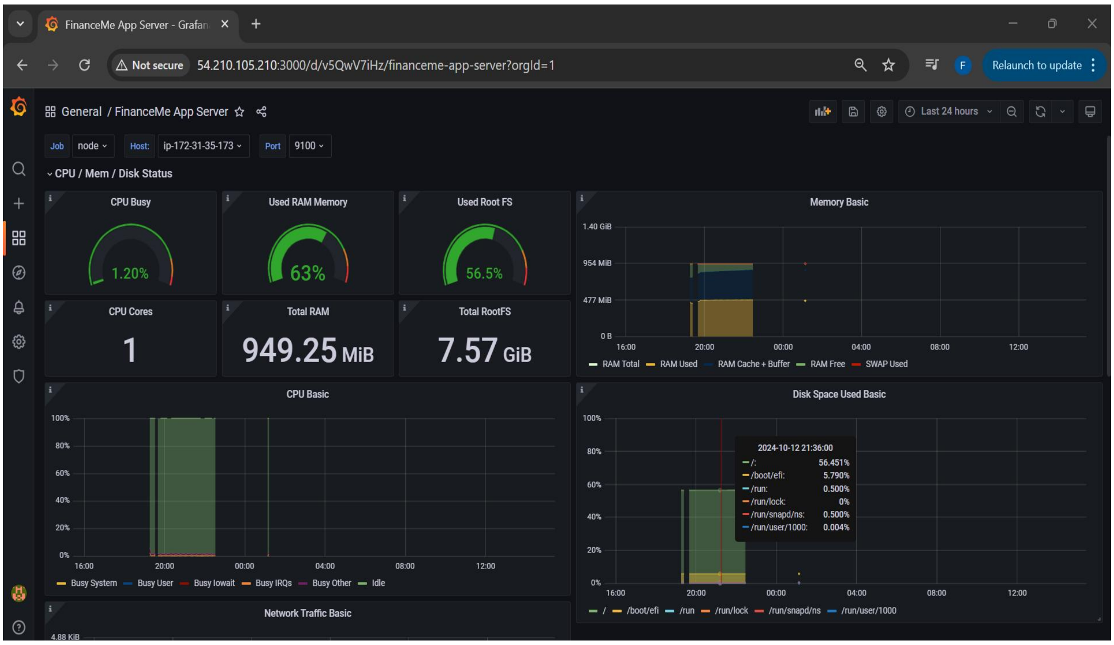
Data source is working

Import Dashboard > add Grafana.com ID (10242). A well configured template for node exporter contributed in grafana.com community dashboard.
Reference: https://grafana.com/grafana/dashboards/10242-node-exporter-full/



10242

After Importing the dashboard template make the necessary changes by dragging the panel for a convenient visualization. Below shows the CPU, memory and disk space availability.



Project Reference: https://github.com/fahamikareem/FinanceMe