

CAPESTONE PROJECT REPORT

Submitted By:

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Overview

In this project we are deploying a react application. First, we are cloning the react application. Then we are writing the Docker and docker compose, then we write the build and deploy shell scripts. Build.sh is used to build and push the docker image to the respective docker hub repository. Deploy.sh file would pull the docker images from the respective docker hub according to the commit history.

Through Jenkins we would automate the CI/CD pipeline using GitHub webhook Jenkins would automatically build according to the recent commit history.

The security group of the project is configured such a way that only the application could be viewed by anyone with the IP-address, other services and login to the machine could be done only with my ip-address.

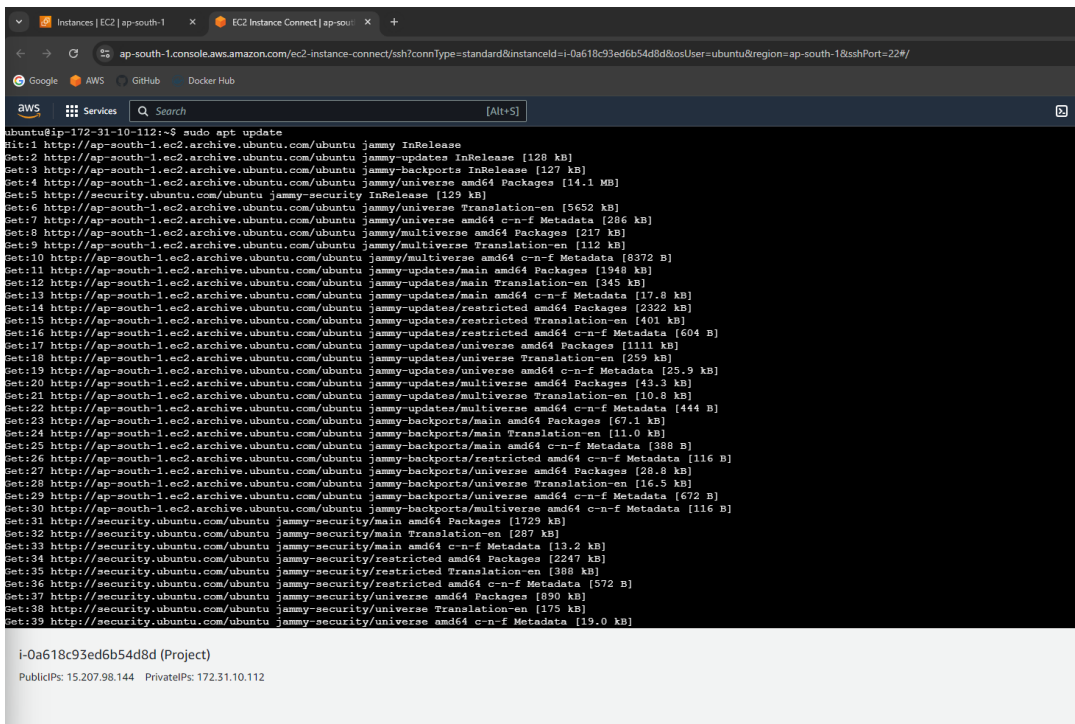
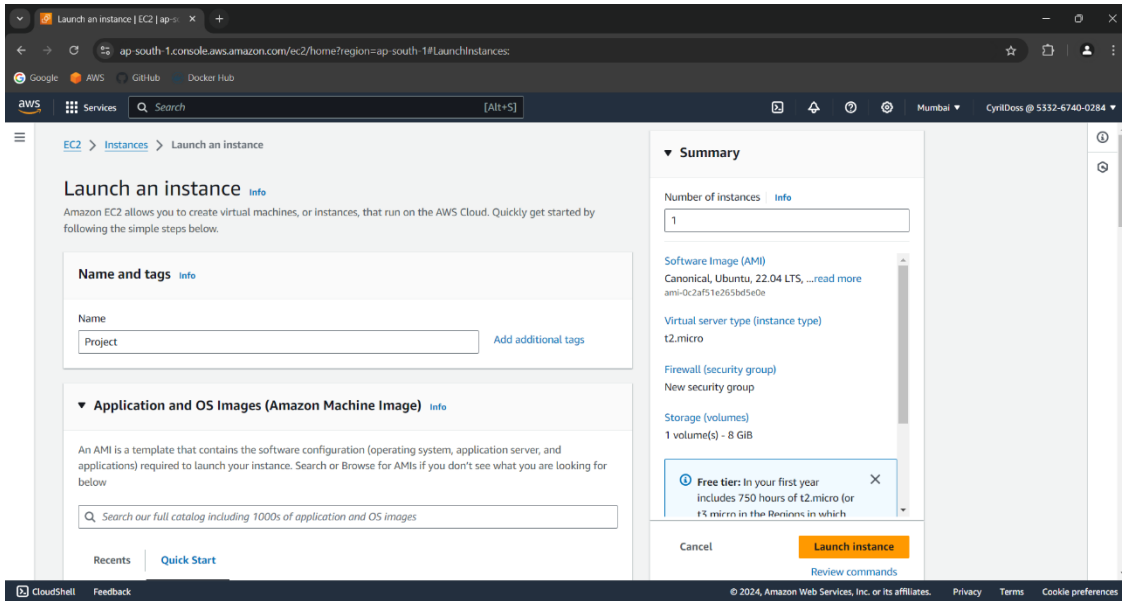
Deployed Ip-Address: http://15.207.98.144:80

GitHub Url: <https://github.com/cyril-doss14/Capstone-Project.git>

INDEX

S.No	Content	Page No
1	Installing Required Services	1
2	Repo Cloning	3
3	Docker and Docker Compose File	3
4	Shell Scripts and Pushing to GitHub	5
5	Docker Hub Repo	7
6	Jenkins	8
7	Monitoring And Visualization	15
8	Alarm	19
9	Security Group	20
10	Deployed Site	21

1. Installing all the necessary services in the Ec2 machine



```
aws Services [Alt+S]
ubuntu@ip-172-31-10-112:~$ sudo apt install docker.io -y
Reading package lists... Done
Building dependency tree... Done
Reading state information... Done
The following additional packages will be installed:
  bridge-utils containerd dns-root-data dnsmasq-base pigz runc ubuntu-fan
Suggested packages:
  ifupdown aufs-tools cgroupfs-mount | cgroup-lite debootstrap docker-doc rinse zfs-fuse | zfsutils
The following NEW packages will be installed:
  bridge-utils containerd dns-root-data dnsmasq-base docker.io pigz runc ubuntu-fan
0 upgraded, 8 newly installed, 0 to remove and 34 not upgraded.
Need to get 75.5 MB of archives.
After this operation, 284 MB of additional disk space will be used.
Get:1 http://ap-south-1.ec2.archive.ubuntu.com/ubuntu jammy/universe amd64 pigz amd64 2.6-1 [63.6 kB]
Get:2 http://ap-south-1.ec2.archive.ubuntu.com/ubuntu jammy/main amd64 bridge-utils amd64 1.7-1ubuntu3 [3
Get:3 http://ap-south-1.ec2.archive.ubuntu.com/ubuntu jammy-updates/main amd64 runc amd64 1.1.12-0ubuntu2
Get:4 http://ap-south-1.ec2.archive.ubuntu.com/ubuntu jammy-updates/main amd64 containerd amd64 1.7.12-0
Get:5 http://ap-south-1.ec2.archive.ubuntu.com/ubuntu jammy-updates/main amd64 dns-root-data all 20231127
Get:6 http://ap-south-1.ec2.archive.ubuntu.com/ubuntu jammy-updates/main amd64 dnsmasq-base amd64 2.90-0
Get:7 http://ap-south-1.ec2.archive.ubuntu.com/ubuntu jammy-updates/universe amd64 docker.io amd64 24.0.7
Get:8 http://ap-south-1.ec2.archive.ubuntu.com/ubuntu jammy/universe amd64 ubuntu-fan all 0.12.16 [35.2 B]
Fetched 75.5 MB in 1s (72.2 MB/s)
Preconfiguring packages ...
Selecting previously unselected package pigz.
(Reading database ... 65320 files and directories currently installed.)
Preparing to unpack .../0-pigz_2.6-1_amd64.deb ...
```

```
no VM guests are running outdated hypervisor (qemu) binaries on this host.
ubuntu@ip-172-31-10-112:~$ sudo apt install openjdk-17-jdk -y
Reading package lists... Done
Building dependency tree... Done
Reading state information... Done
The following additional packages will be installed:
  adwaita-icon-theme alsa-topology-conf alsa-ucm-conf at-spi2-core ca-certificates-java dconf-gsettings
  gsettings-desktop-schemas gtk-update-icon-cache hicolor-icon-theme humanity-icon-theme java-common
  libatk1.0-data libatspi2.0-0 libavahi-client3 libavahi-common-data libavahi-common3 libcairo-gobject
  libdrm-radeon1 libfontconfig1 libfontenc1 libgail-common libgail18 libgdk-pixbuf-2.0-0 libgdk-pixbu
  libglvnd0 libglx-mesa0 libglx0 libgraphite2-3 libgtk2.0-0 libgtk2.0-bin libgtk2.0-common libharfbuz
  libpangocairo-1.0-0 libpangoft2-1.0-0 libpciaccess0 libpcsc-lite libpixmap-1-0 libpthread-stubs0-de
  libtiff5 libwebp7 libx11-dev libx11-xcb1 libxau-dev libxaw7 libxcb-dri2-0 libxcb-dri3-0 libxcb-glx0
  libxcb1-dev libxcomposite1 libxcursor1 libxdamage1 libxdmcp-dev libxfixes3 libxft2 libxi6 libxiner
  libxxf86dga1 libxxf86vm1 openjdk-17-jdk-headless openjdk-17-jre openjdk-17-jre-headless session-mig
Suggested packages:
  default-jre libasound2-plugins alsa-utils cups-common gvfs libice-doc liblcms2-utils pcsd librsvg2
  libnss-mdns fonts-ipafont-gothic fonts-ipafont-mincho fonts-wqy-microhei | fonts-wqy-zenhei fonts-i
```

i-0a618c93ed6b54d8d (Project)

PublicIPs: 15.207.98.144 PrivateIPs: 172.31.10.112

```
ubuntu@ip-172-31-10-112:~$ sudo wget -O /usr/share/keyrings/jenkins-keyring.asc \
  https://pkg.jenkins.io/debian-stable/jenkins.io-2023.key
echo "deb [signed-by=/usr/share/keyrings/jenkins-keyring.asc]" \
  https://pkg.jenkins.io/debian-stable binary/ | sudo tee \
  /etc/apt/sources.list.d/jenkins.list > /dev/null
sudo apt-get update
sudo apt-get install jenkins
--2024-08-18 07:00:11-- https://pkg.jenkins.io/debian-stable/jenkins.io-2023.key
Resolving pkg.jenkins.io (pkg.jenkins.io)... 151.101.154.133, 2a04:4e42:24::645
Connecting to pkg.jenkins.io (pkg.jenkins.io)[151.101.154.133]:443... connected.
HTTP request sent, awaiting response... 200 OK
Length: 3175 (3.1K) [application/pgp-keys]
Saving to: '/usr/share/keyrings/jenkins-keyring.asc'

/usr/share/keyrings/jenkins-keyring.asc 100%[=====
```

i-0a618c93ed6b54d8d (Project)

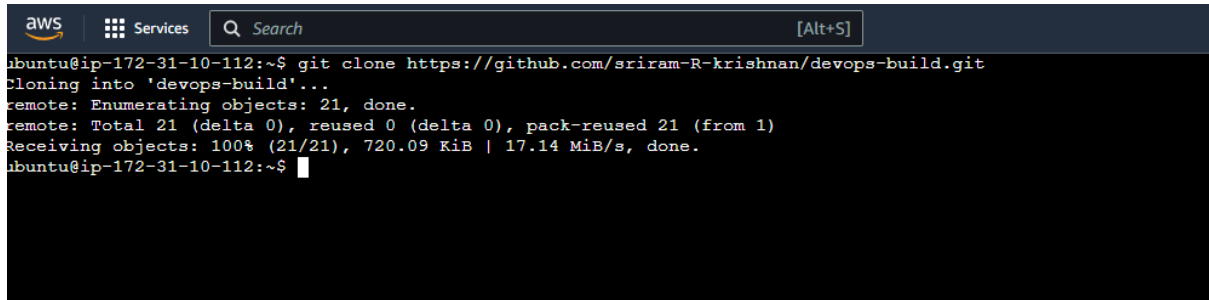
PublicIPs: 15.207.98.144 PrivateIPs: 172.31.10.112

```
ubuntu@ip-172-31-10-112:~$ sudo usermod -aG docker jenkins
ubuntu@ip-172-31-10-112:~$ sudo usermod -aG docker ubuntu
ubuntu@ip-172-31-10-112:~$ sudo systemctl restart jenkins
ubuntu@ip-172-31-10-112:~$
```

i-0a618c93ed6b54d8d (Project)

PublicIPs: 15.207.98.144 PrivateIPs: 172.31.10.112

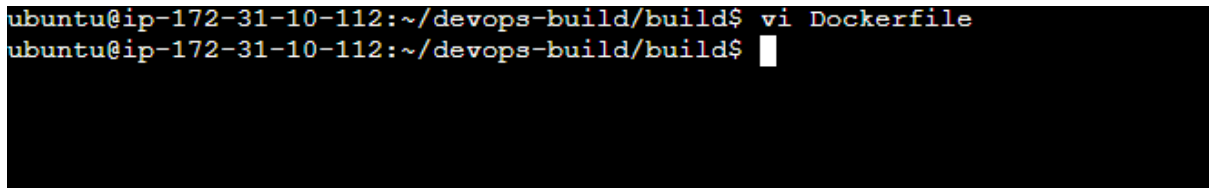
2. Cloning git repo

A terminal window with an AWS logo and 'Services' menu at the top. The command 'git clone https://github.com/sriram-R-krishnan/devops-build.git' is entered. The output shows the repository being cloned into 'devops-build', enumerating 21 objects, and receiving them at 17.14 MiB/s.

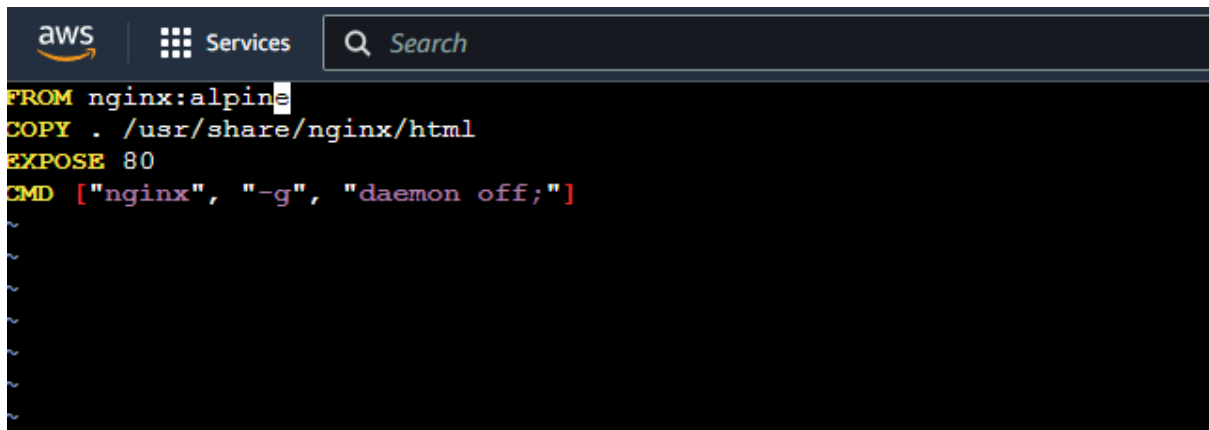
```
aws Services Search [Alt+S]
ubuntu@ip-172-31-10-112:~$ git clone https://github.com/sriram-R-krishnan/devops-build.git
Cloning into 'devops-build'...
remote: Enumerating objects: 21, done.
remote: Total 21 (delta 0), reused 0 (delta 0), pack-reused 21 (from 1)
Receiving objects: 100% (21/21), 720.09 KiB | 17.14 MiB/s, done.
ubuntu@ip-172-31-10-112:~$
```

3. Dockerfile and docker-compose.yml files

Dockerfile:

A terminal window showing the command 'vi Dockerfile' being executed in the directory ~/devops-build/build.

```
ubuntu@ip-172-31-10-112:~/devops-build/build$ vi Dockerfile
ubuntu@ip-172-31-10-112:~/devops-build/build$
```

A terminal window showing the content of a Dockerfile being edited. The content includes FROM, COPY, EXPOSE, and CMD instructions for an nginx container.

```
aws Services Search
FROM nginx:alpine
COPY . /usr/share/nginx/html
EXPOSE 80
CMD ["nginx", "-g", "daemon off;"]
~
~
~
~
~
~
~
```

docker-compose.yml

```
aws | Services | Search [Alt+S]
ubuntu@ip-172-31-10-112:~/devops-build/build$ vi docker-compose.yml
ubuntu@ip-172-31-10-112:~/devops-build/build$
```

```
aws | Services | Search
version: '3.8'

services:
  web:
    image: myapp:latest
    container_name: myapp-container
    ports:
      - "80:80"
    restart: unless-stopped
~
~
~
~
~
```

4. Writing shell scripts

Build.sh:

```
aws Services Search [Alt+S]
ubuntu@ip-172-31-10-112:~/devops-build/build$ vi docker-compose.yml
ubuntu@ip-172-31-10-112:~/devops-build/build$ vi build.sh
ubuntu@ip-172-31-10-112:~/devops-build/build$
```

```
aws Services Search [Alt+S]
#!/bin/bash

BRANCH_NAME=$1
DOCKER_DEV_REPO="cyrildoss14/dev"
DOCKER_PROD_REPO="cyrildoss14/prod"
DOCKER_IMAGE_REPO=""

if [ "$BRANCH_NAME" == "dev" ]; then
    DOCKER_IMAGE_REPO=$DOCKER_DEV_REPO
elif [ "$BRANCH_NAME" == "master" ]; then
    DOCKER_IMAGE_REPO=$DOCKER_PROD_REPO
else
    echo "Branch name does not match 'dev' or 'master'. Skipping build.build.sh"
    exit 1
fi

docker build -t $DOCKER_IMAGE_REPO:latest .
docker login -u $DOCKER_HUB_USERNAME -p $DOCKER_HUB_PASSWORD
docker push $DOCKER_IMAGE_REPO:latest

~
~
```

Deploy.sh

```
ubuntu@ip-172-31-10-112:~/devops-build/build$ vi deploy.sh
ubuntu@ip-172-31-10-112:~/devops-build/build$
```

```
aws Services Search [Alt+S]
#!/bin/bash

BRANCH_NAME=$1
DOCKER_DEV_REPO="cyrildoss14/dev"
DOCKER_PROD_REPO="cyrildoss14/prod"
DOCKER_IMAGE_REPO=""

if [ "$BRANCH_NAME" == "dev" ]; then
    DOCKER_IMAGE_REPO=$DOCKER_DEV_REPO
elif [ "$BRANCH_NAME" == "master" ]; then
    DOCKER_IMAGE_REPO=$DOCKER_PROD_REPO
else
    echo "Branch name does not match 'dev' or 'master'. Skipping deployment."
    exit 1
fi

docker pull $DOCKER_IMAGE_REPO:latest
docker compose down
sed -i "s|image:.*|image: $DOCKER_IMAGE_REPO:latest|g" docker-compose.yml
docker compose up -d
```


Pushing the files to GitHub

```
aws Services [Alt+S]
ubuntu@ip-172-31-10-112:~/devops-build/build$ git remote add origin https://github.com/cyril-doss14/Capstone-Project.git
ubuntu@ip-172-31-10-112:~/devops-build/build$ git add .
ubuntu@ip-172-31-10-112:~/devops-build/build$ git commit -m "first commit"
[main 99fecb1] first commit
  Committer: Ubuntu <ubuntu@ip-172-31-10-112.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

6 files changed, 57 insertions(+)
create mode 100644 build/.dockerignore
create mode 100644 build/.gitignore
create mode 100644 build/Dockerfile
create mode 100644 build/build.sh
create mode 100644 build/deploy.sh
create mode 100644 build/docker-compose.yml
ubuntu@ip-172-31-10-112:~/devops-build/build$ git checkout -b dev
Switched to a new branch 'dev'
ubuntu@ip-172-31-10-112:~/devops-build/build$ git push -u origin dev
Username for 'https://github.com': cyril-doss14
Password for 'https://cyril-doss14@github.com':
```

Capstone-Project Public

Pin

Unwatch 1

Fork 0

Star 0

dev 2 Branches 0 Tags

Go to file

Add file

Code

About

This branch is up to date with master.

Contribute

cyril-doss14 first commit 4776e61 · 1 minute ago 3 Commits

static	first commit	1 minute ago
.dockerignore	first commit	1 minute ago
.gitignore	first commit	1 minute ago
Dockerfile	first commit	1 minute ago
_redirects	first commit	1 minute ago
asset-manifest.json	first commit	1 minute ago
build.sh	first commit	1 minute ago
deploy.sh	first commit	1 minute ago
docker-compose.yml	first commit	1 minute ago
favicon.ico	first commit	1 minute ago
index.html	first commit	1 minute ago
logo192.png	first commit	1 minute ago
logo512.png	first commit	1 minute ago
manifest.json	first commit	1 minute ago
robots.txt	first commit	1 minute ago

Releases

No releases published
[Create a new release](#)

Packages

No packages published
[Publish your first package](#)

Contributors 2

sriram-R-krishnan sriram radhakrishnan

cyril-doss14

Languages

Shell 49.9%

HTML 45.7%

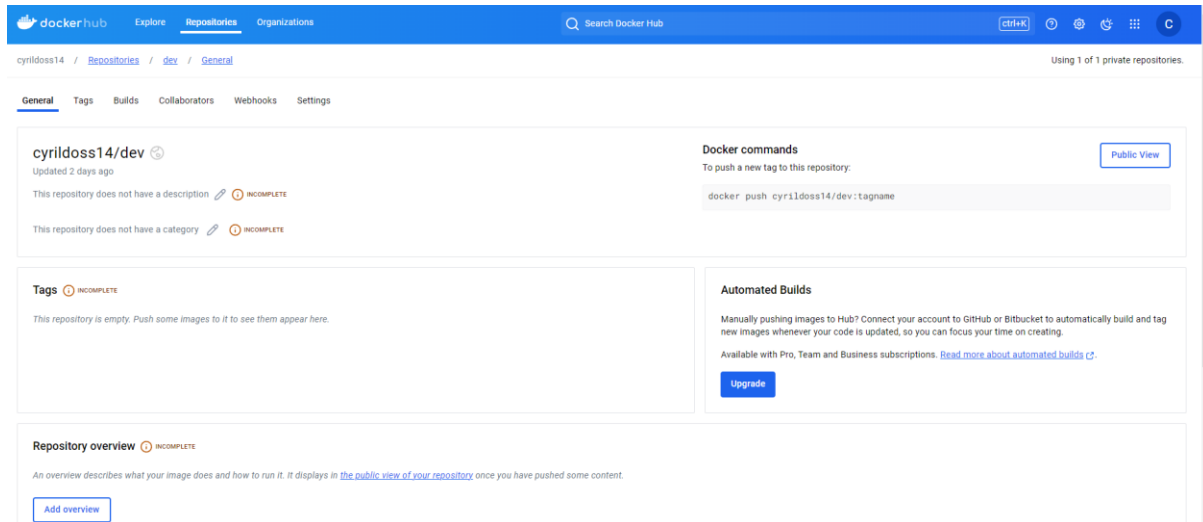
Dockerfile 4.4%

Suggested workflows

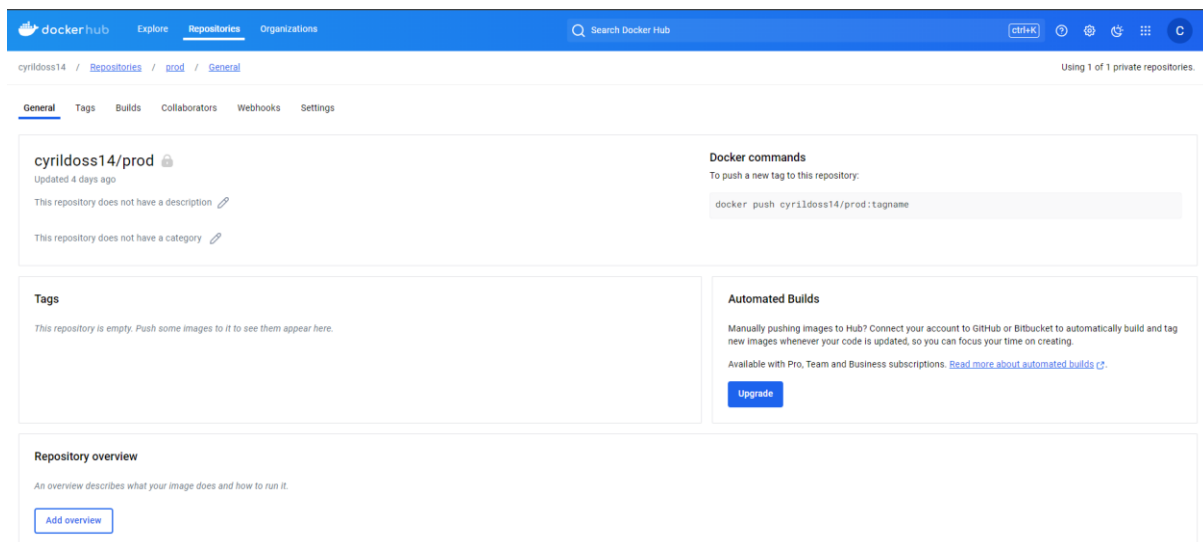
Based on your tech stack

5. Docker hub Repo creation

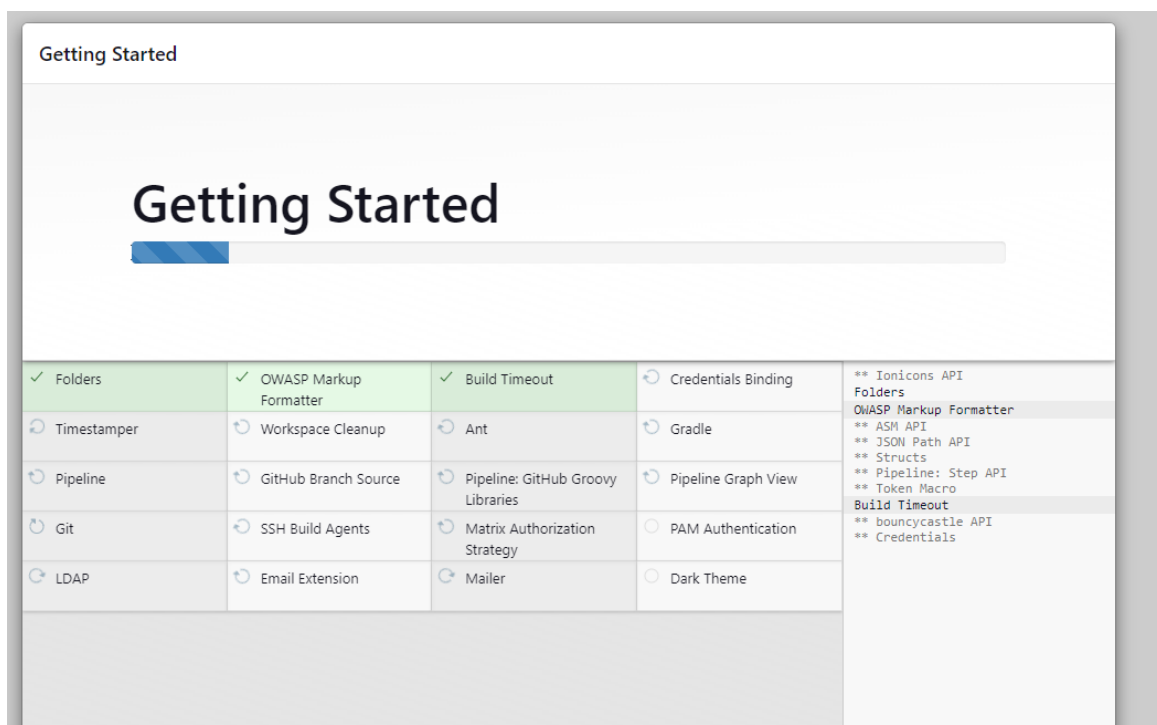
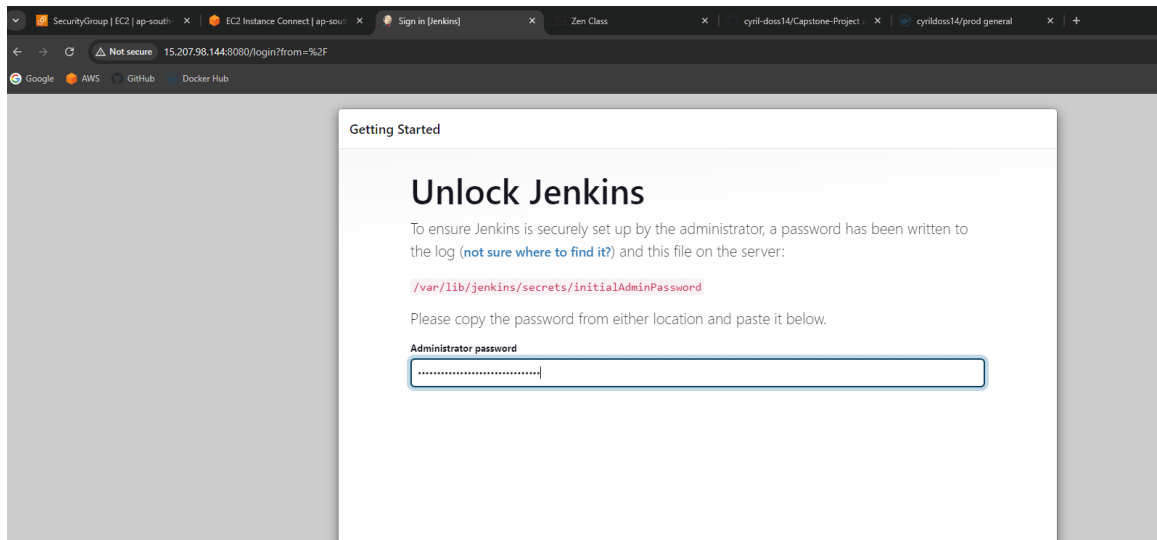
Creating dev(public) repo:



Creating prod(private) repo:



6. Configuring Jenkins



Getting Started

Create First Admin User

Username

cyril

Password

.....

Confirm password

.....

Full name

cyril

E-mail address

cyrildoss007@gmail.com

Jenkins 2.462.1

Skip and continue as admin

Save and Continue

Global properties

☐ Disable deferred wipeout on this node ?

☐ Disk Space Monitoring Thresholds

☒ Environment variables

List of variables ?

Name

DOCKER_REGISTRY_CREDS

Value

dockerhub

Add

☐ Tool Locations

 Jenkins

Search (CTRL+K)



   cyril  log out

Dashboard > Manage Jenkins > Credentials > System > Global credentials (unrestricted) >






Global credentials (unrestricted)

+ Add Credentials

Credentials that should be available irrespective of domain specification to requirements matching.

ID	Name	Kind	Description
 dockerhub	cyrildoss14/***** (dockerhub)	Username with password	dockerhub 

Icon: S M L

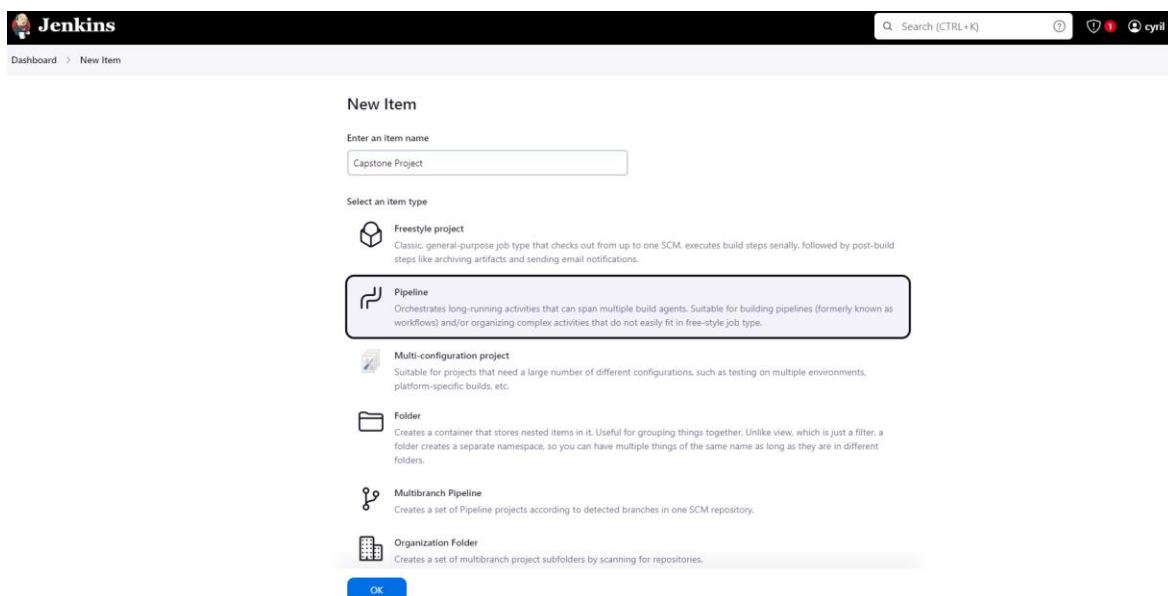
Docker API	 Pending
Docker	 Pending
Docker Pipeline	 Pending
Docker API	 Pending
Loading plugin extensions	 Pending

→ [Go back to the top page](#)

(you can start using the installed plugins right away)

→ ☐ Restart Jenkins when installation is complete and no jobs are running

Creating new job in Jenkins:



Jenkins Search (CTRL+K) ? [shield icon] [bell icon] [user icon] Cyril







Dashboard > New Item

New Item

Enter an item name

Capstone Project

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**
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 separate namespace, so you can have multiple things of the same name as long as they are in different folders.
-  **Multibranch Pipeline**
Creates a set of Pipeline projects according to detected branches in one SCM repository.
-  **Organization Folder**
Creates a set of multibranch project subfolders by scanning for repositories.

OK

Jenkins

Search (CTRL+K)

cyril

log out

Dashboard > Capstone Project > Configuration

Configure

General

Advanced Project Options

Pipeline

General

Enabled

Description

This pipe line is for capstone project deployment.

Plain text

Preview

☐ Discard old builds

☐ Do not allow concurrent builds

☐ Do not allow the pipeline to resume if the controller restarts

☒ GitHub project

Project url

https://github.com/cyril-doss14/Capstone-Project.git

Advanced

☐ Pipeline speed/durability override

☐ Preserve stashes from completed builds

Save

Apply

Dashboard > Capstone Project > Configuration

Configure

General

Advanced Project Options

Pipeline

Build Triggers

☐ Build after other projects are built

☐ Build periodically

☒ GitHub hook trigger for GITScm polling

☐ Poll SCM

☐ Quiet period

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

Advanced Project Options

Advanced

Dashboard > Capstone Project > Configuration

Configure

General

Advanced Project Options

Pipeline

Pipeline

Definition

Pipeline script from SCM

SCM

Git

Repositories

Repository URL

https://github.com/cyril-doss14/Capstone-Project.git

Credentials

- none -

+ Add

Advanced

Add Repository

Branches to build

Writing Jenkins file and storing it in git:

Script ?

```
1 pipeline {
2   agent any
3   stages {
4     stage('Build and Push') {
5       steps {
6         script {
7           def branchName = env.BRANCH_NAME ?: env.GIT_BRANCH
8           branchName = branchName.replaceAll(/^origin\/, '').trim()
9           echo "Current branch: ${branchName}"
10
11           if (branchName == 'dev' || branchName == 'master') {
12             sh "chmod +x ./build.sh"
13             sh "./build.sh ${branchName}"
14             withCredentials([usernamePassword(credentialsId: "${DOCKER_REGISTRY_CREDS}", usernameVariable: 'DOCKER_HUB_USERNAME', passwordVariable: 'DOCKER_HUB_PASSWORD')]) {
15               sh "echo ${DOCKER_HUB_PASSWORD} | docker login -u ${DOCKER_HUB_USERNAME} --password-stdin"
16             }
17           } else {
18             error("Branch name does not match 'dev' or 'master'. Skipping Docker image push.")
19           }
20         }
21       }
22     }
23     stage('Deploy') {
24       steps {
25         script {
26           def branchName = env.BRANCH_NAME ?: env.GIT_BRANCH
27           branchName = branchName.replaceAll(/^origin\/, '').trim()
28           if (branchName == 'dev' || branchName == 'master') {
29             sh "chmod +x ./deploy.sh"
30             sh "./deploy.sh ${branchName}"
31           } else {
32             error("Branch name does not match 'dev' or 'master'. Skipping deployment.")
33           }
34         }
35       }
36     }
37   }
38 }
```

try sample Pipeline...

Capstone-Project / Jenkinsfile in master Cancel chat

Edit Preview Code 55% faster with GitHub Copilot Spaces

```
1 pipeline {
2   agent any
3   stages {
4     stage('Build and Push') {
5       steps {
6         script {
7           def branchName = env.BRANCH_NAME ?: env.GIT_BRANCH
8           branchName = branchName.replaceAll(/^origin\/, '').trim()
9           echo "Current branch: ${branchName}"
10
11           if (branchName == 'dev' || branchName == 'master') {
12             sh "chmod +x ./build.sh"
13             sh "./build.sh ${branchName}"
14             withCredentials([usernamePassword(credentialsId: "${DOCKER_REGISTRY_CREDS}", usernameVariable: 'DOCKER_HUB_USERNAME', passwordVariable: 'DOCKER_HUB_PASSWORD')]) {
15               sh "echo ${DOCKER_HUB_PASSWORD} | docker login -u ${DOCKER_HUB_USERNAME} --password-stdin"
16             }
17           } else {
18             error("Branch name does not match 'dev' or 'master'. Skipping Docker image push.")
19           }
20         }
21       }
22     }
23     stage('Deploy') {
24       steps {
25         script {
26           def branchName = env.BRANCH_NAME ?: env.GIT_BRANCH
27           branchName = branchName.replaceAll(/^origin\/, '').trim()
28           if (branchName == 'dev' || branchName == 'master') {
29             sh "chmod +x ./deploy.sh"
30             sh "./deploy.sh ${branchName}"
31           } else {
32             error("Branch name does not match 'dev' or 'master'. Skipping deployment.")
33           }
34         }
35       }
36     }
37   }
38 }
```

Use control + shift + m to toggle the tab key moving focus. Alternatively, use esc then tab to move to the next interactive element on the page.

Adding GitHub webhook:

The screenshot shows the GitHub 'Add webhook' configuration page. The left sidebar contains a navigation menu with sections: General, Access (Collaborators, Moderation options), Code and automation (Branches, Tags, Rules, Actions), Webhooks (selected), Environments, Codespaces, Pages, Security (Code security and analysis, Deploy keys, Secrets and variables), Integrations (GitHub Apps, Email notifications), and Insights. The main content area is titled 'Webhooks / Add webhook' and includes the following fields and options:

- Payload URL ***: `http://15.207.98.144:8080/github-webhook/`
- Content type ***: `application/x-www-form-urlencoded`
- Secret**: (empty text field)
- SSL verification**: ☒ Enable SSL verification ☐ Disable (not recommended)
- Which events would you like to trigger this webhook?**: ☒ Just the push event. ☐ Send me everything. ☐ Let me select individual events.
- Active**: ☒ Active. Below it, a note says: 'We will deliver event details when this hook is triggered.'

A green 'Add webhook' button is at the bottom of the configuration form.

The screenshot shows the GitHub 'Webhooks' management page. A blue banner at the top states: 'Okay, that hook was successfully created. We sent a ping payload to test it out! Read more about it at <https://docs.github.com/webhooks/#ping-event>.' The left sidebar is identical to the previous screenshot, with 'Webhooks' selected. The main content area is titled 'Webhooks' and shows a list of webhooks with one entry:

URL	Events	Active
<code>http://15.207.98.144:8080/github-w...</code> (push)	Just the push event	<input checked="" type="checkbox"/>

Below the table, it says 'This hook has never been triggered.' To the right of the table are 'Edit' and 'Delete' buttons. An 'Add webhook' button is in the top right corner.

Building the application:

The screenshot shows the Jenkins web interface. At the top, the Jenkins logo is on the left, and a search bar with the text 'Search (CTRL+K)' is on the right. Below the header, the breadcrumb navigation shows 'Dashboard > Capstone Project >'. The main content area is divided into two columns. The left column contains a sidebar with various actions: 'Status' (selected), 'Changes', 'Build Now', 'Configure', 'Delete Pipeline', 'GitHub', 'Stages', 'Rename', 'Pipeline Syntax', and 'GitHub Hook Log'. The right column displays the 'Capstone Project' status with a green checkmark icon. Below the status, it says 'This pipe line is for capstone project deployment.' and 'Permalinks'. A list of build links is provided: 'Last build (#6), 13 min ago', 'Last stable build (#6), 13 min ago', 'Last successful build (#6), 13 min ago', 'Last failed build (#2), 32 min ago', 'Last unsuccessful build (#2), 32 min ago', and 'Last completed build (#6), 13 min ago'. At the bottom left, a 'Build History' widget shows a list of builds with their status (green for success, red for failure) and timestamps. The builds are numbered #1 through #6. Build #1 is a failure, #2 is a failure, #3 is a success, #4 is a success, #5 is a success, and #6 is a success. The widget also includes a 'Filter...' input and a 'trend' dropdown menu.

Jenkins

Search (CTRL+K)

cyril

Dashboard > Capstone Project >

Status

Changes

Build Now

Configure

Delete Pipeline

GitHub

Stages

Rename

Pipeline Syntax

GitHub Hook Log

Capstone Project

This pipe line is for capstone project deployment.

Permalinks

- Last build (#6), 13 min ago
- Last stable build (#6), 13 min ago
- Last successful build (#6), 13 min ago
- Last failed build (#2), 32 min ago
- Last unsuccessful build (#2), 32 min ago
- Last completed build (#6), 13 min ago

Build History

trend

Filter...

#6	18 Aug 2024, 08:22
#5	18 Aug 2024, 08:19
#4	18 Aug 2024, 08:18
#3	18 Aug 2024, 08:05
#2	18 Aug 2024, 08:03
#1	18 Aug 2024, 08:02

Atom feed for all

Atom feed for failures

7. Monitoring and visualization

Installing Prometheus, node-exporter and Grafana:

```
Created symlink /etc/systemd/system/multi-user.target.wants/prometheus.service → /etc/systemd/system/prometheus.service.
● prometheus.service - Prometheus
   Loaded: loaded (/etc/systemd/system/prometheus.service; enabled; vendor preset: enabled)
   Active: active (running) since Sun 2024-08-18 08:23:52 UTC; 19ms ago
     Main PID: 12687 (prometheus)
        Tasks: 4 (limit: 4666)
       Memory: 4.8M
          CPU: 13ms
      CGroup: /system.slice/prometheus.service
              └─12687 /usr/local/bin/prometheus --config.file /etc/prometheus/prometheus.yml --storage.tsdb.path /var/lib/

Aug 18 08:23:52 ip-172-31-10-112 systemd[1]: Started Prometheus.
lines 1-11/11 (END)
```

```
grafana-server.service - Grafana instance
   Loaded: loaded (/lib/systemd/system/grafana-server.service; disabled; vendor preset: enabled)
   Active: active (running) since Sun 2024-08-18 08:24:44 UTC; 27ms ago
     Docs: http://docs.grafana.org
    Main PID: 12818 (grafana-server)
         Tasks: 6 (limit: 4666)
        Memory: 4.9M
           CPU: 18ms
      CGroup: /system.slice/grafana-server.service
              └─12818 /usr/sbin/grafana-server --config=/etc/grafana/grafana.ini --pidfile=/var/run/grafana/grafana-server.pid --

Aug 18 08:24:44 ip-172-31-10-112 systemd[1]: Started Grafana instance.
lines 1-12/12 (END)
```

i-0a618c93ed6b54d8d (Project)

```
Created symlink /etc/systemd/system/multi-user.target.wants/node-exporter.service → /etc/systemd/system/node-exporter.
● node-exporter.service - Prometheus Node Exporter Service
   Loaded: loaded (/etc/systemd/system/node-exporter.service; enabled; vendor preset: enabled)
   Active: active (running) since Sun 2024-08-18 08:25:06 UTC; 30ms ago
     Main PID: 13475 (node_exporter)
        Tasks: 4 (limit: 4666)
       Memory: 1.7M
          CPU: 7ms
      CGroup: /system.slice/node-exporter.service
              └─13475 /usr/local/bin/node_exporter

Aug 18 08:25:06 ip-172-31-10-112 systemd[1]: Started Prometheus Node Exporter Service.
Aug 18 08:25:06 ip-172-31-10-112 node_exporter[13475]: level=info ts=2024-08-18T08:25:06.244Z caller=node_exporter.go:
lines 1-12/12 (END)
```

i-0a618c93ed6b54d8d (Project)


Editing the Prometheus.yml file:

```
aws Services Search
ubuntu@ip-172-31-10-112:~$ cd /etc/prometheus
ubuntu@ip-172-31-10-112:/etc/prometheus$ ls
console_libraries  consoles  prometheus.yml
ubuntu@ip-172-31-10-112:/etc/prometheus$
```

```
aws Services Search [Alt+S]
global:
  scrape_interval: 15s
  external_labels:
    monitor: 'prometheus'

scrape_configs:
  - job_name: 'CapstoneProject'
    static_configs:
      - targets: ['localhost:9100']
```

Grafana:

 **Data Sources / Prometheus**
Type: Prometheus

Settings

Dashboards

Name

Prometheus

Default

☒

HTTP

URL

http://localhost:9090

Access

Server (default)

Help >

Whitelisted Cookies

Add Name

Add

Auth

Basic auth

☐

With Credentials

☐

TLS Client Auth

☐

With CA Cert

☐

Skip TLS Verify

☐

Forward OAuth Identity

☐

Custom HTTP Headers

+ Add header

Scrape interval


15s

Query timeout

60s

HTTP Method

Choose

 **Import**
Import dashboard from file or Grafana.com

Importing Dashboard from [Grafana.com](#)

Published by

StarsL.cn

Updated on

2023-07-07 13:10:39

Options

Name

Node Exporter Dashboard EN 20201010-StarsL.cn

Folder

General


Unique identifier (uid)

The unique identifier (uid) of a dashboard can be used for uniquely identify a dashboard between multiple Grafana installs. The uid allows having consistent URLs for accessing dashboards so changing the title of a dashboard will not break any bookmarked links to that dashboard.

xfpJB9FGz

Change uid

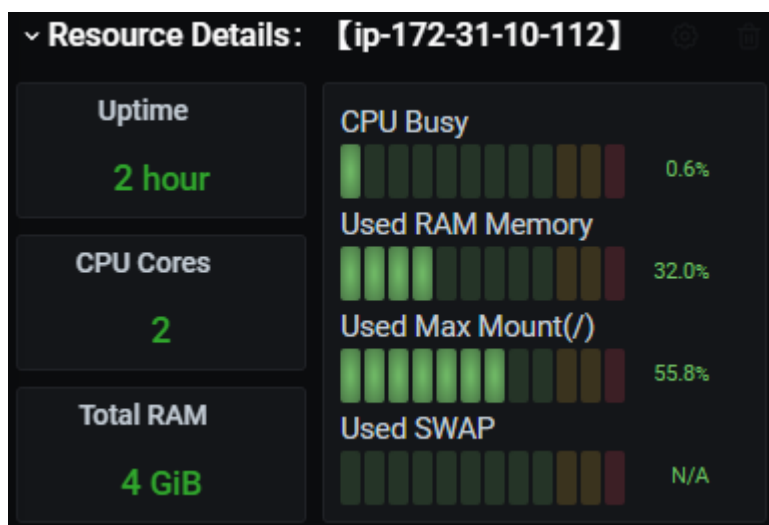
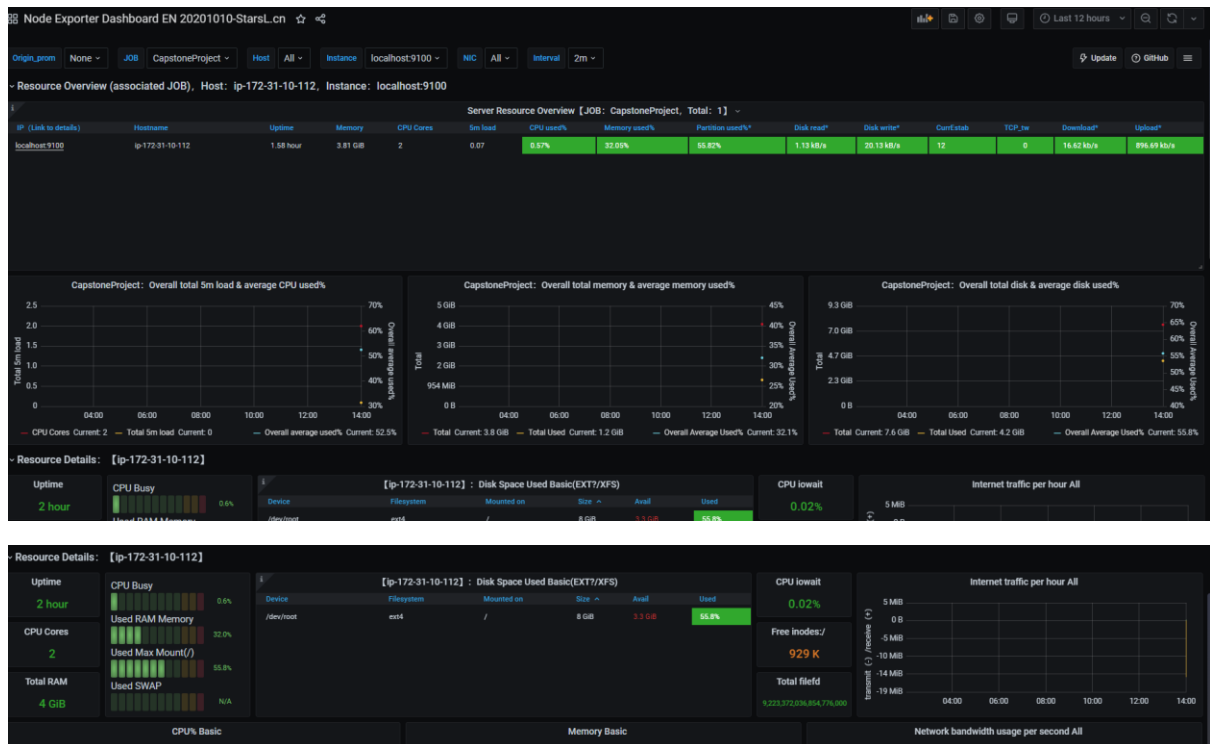
VictoriaMetrics

 Prometheus

Import

Cancel

Application health monitoring through Grafana:



8. Alarm

Setting alarm when the system goes down:

Manage CloudWatch alarms [Info](#)

Create or edit a CloudWatch alarm that monitors CloudWatch metrics for the instance.

Add or edit alarm [Info](#)

You can create a new alarm or edit an existing alarm.

☒ **Create an alarm**
Create an alarm for i-0a618c93ed6b54d8d

☐ **Edit an alarm**
Edit an existing alarm for i-0a618c93ed6b54d8d

Search for alarm
Find an alarm to modify

Alarm notification [Info](#) ☒

Configure the alarm to send notifications to an Amazon SNS topic when it is triggered.

Alarm action [Info](#) ☐

Specify the action to take when the alarm is triggered.

Alarm thresholds

Specify the metric thresholds for the alarm.

Group samples by: Type of data to sample:

Alarm when: Percent:

Consecutive period: Period:

Alarm name:

Alarm description:

Sample metric data [Info](#)

Sample metric data for i-0a618c93ed6b54d8d

☒ **Alarm recommendations** [?](#)

13.5
6.73
0

05:30 06:00 06:30 07:00 07:30 08:00 08:30

9. Configuring security group

SG is set in a way only the application could be viewed by anyone and the rest services and login could be done from only my Ip-address.

The screenshot shows the AWS Management Console interface. On the left is a navigation menu with categories like EC2 Dashboard, Instances, Images, Elastic Block Store, and Network & Security. The main area displays the 'Details' for a Security Group named 'launch-wizard-31'. It includes fields for Security group ID, Description, VPC ID, Owner, Inbound rules count, and Outbound rules count. Below this, there are tabs for 'Inbound rules', 'Outbound rules', and 'Tags'. The 'Inbound rules' tab is active, showing a table with 7 rules. Each rule has a checkbox, Name, Security group rule ID, IP version, Type, Protocol, Port range, Source, and Description.

	Name	Security group rule ID	IP version	Type	Protocol	Port range	Source	Description
<input type="checkbox"/>	-	sgr-0604ea4c3dd3882cc	IPv4	Custom TCP	TCP	8080	120.56.140.228/32	-
<input type="checkbox"/>	-	sgr-0dc3016e798df1b9a	IPv4	HTTP	TCP	80	0.0.0.0/0	-
<input type="checkbox"/>	-	sgr-013194effbf865ab9	IPv4	Custom TCP	TCP	9090	120.56.140.228/32	-
<input type="checkbox"/>	-	sgr-003dc8b0bc63de44...	IPv4	SSH	TCP	22	120.56.154.242/32	-
<input type="checkbox"/>	-	sgr-019a395f57d326d...	IPv4	SSH	TCP	22	13.233.177.0/29	-
<input type="checkbox"/>	-	sgr-06d7ada6643165e...	IPv4	Custom TCP	TCP	9100	120.56.140.228/32	-
<input type="checkbox"/>	-	sgr-037d6c3d2d1e10b...	IPv4	Custom TCP	TCP	3000	120.56.140.228/32	-

This screenshot shows the 'Inbound rules' configuration page for a Security Group. It includes a header with 'Inbound rules control the incoming traffic that's allowed to reach the instance.' Below this is a table with columns for Security group rule ID, Type, Protocol, Port range, Source, and Description - optional. Each row represents a rule, and the 'Source' column contains a search bar and a list of IP addresses with delete icons. At the bottom, there is an 'Add rule' button.

Security group rule ID	Type	Protocol	Port range	Source	Description - optional
sgr-0604ea4c3dd3882cc	Custom TCP	TCP	8080	Custom	120.56.140.228/32 X
sgr-0dc3016e798df1b9a	HTTP	TCP	80	Custom	0.0.0.0/0 X
sgr-013194effbf865ab9	Custom TCP	TCP	9090	Custom	120.56.140.228/32 X
sgr-003dc8b0bc63de4483	SSH	TCP	22	Custom	120.56.154.242/32 X
sgr-019a395f57d326d52	SSH	TCP	22	Custom	13.233.177.0/29 X
sgr-06d7ada6643165e9b	Custom TCP	TCP	9100	Custom	120.56.140.228/32 X
sgr-037d6c3d2d1e10bea	Custom TCP	TCP	3000	Custom	120.56.140.228/32 X

10. Deployed Site

