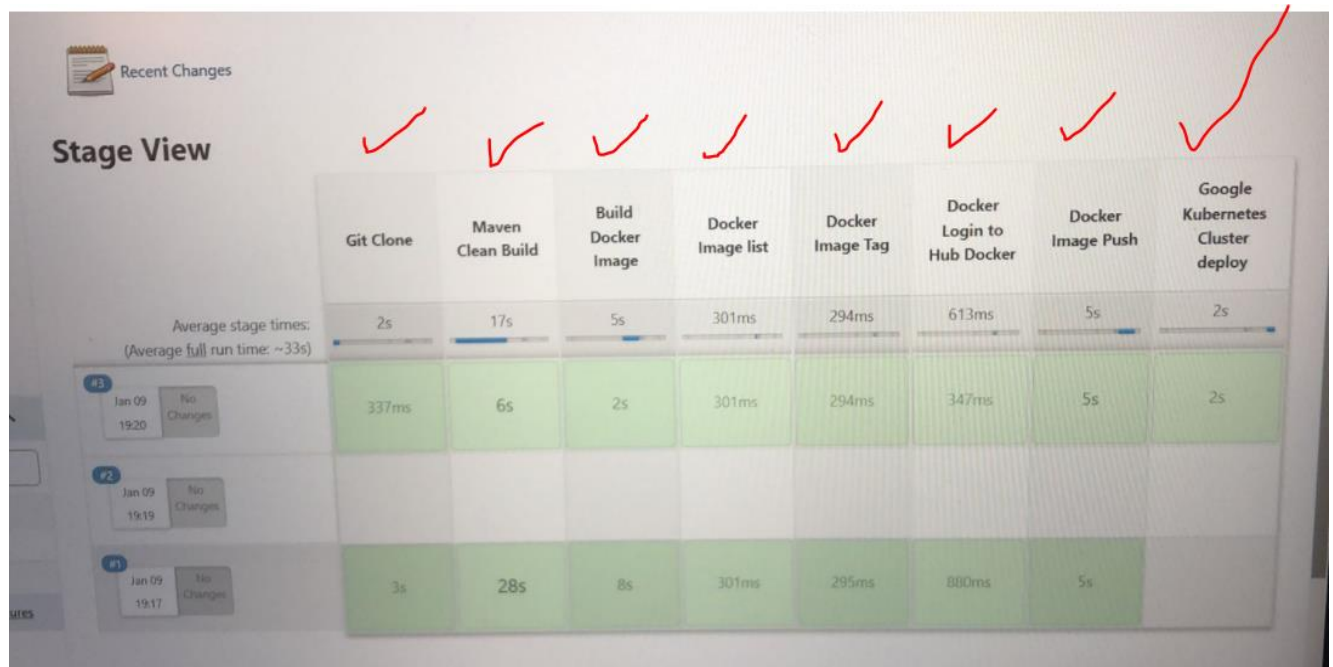


## Project Number 1

This is what we did on Saturday. For more information, check on this link: <https://github.com/joshking1/jenkins-buffer-CI-CD-Pipeline-PROJECT.git>

This is what we accomplished



## Project Number 2

GKC – Google Kubernetes Cluster Project

### 1. Enable Kubernetes Engine API

It should look like this



## Kubernetes Engine API

Google Enterprise API

Builds and manages container-based applications, powered by the open source Kubernetes technology.

MANAGE

TRY THIS API [↗](#)



API Enabled



2. Ensure your service and Ingress are provisioned as Load balancer with the name of the APP

| <input type="checkbox"/> | Name ↑            | Status | Type                   | Endpoints                          | Pods | Namespace | Clusters       |
|--------------------------|-------------------|--------|------------------------|------------------------------------|------|-----------|----------------|
| <input type="checkbox"/> | huguette-services | ✓ OK   | External load balancer | 35.229.45.108:80 <a href="#">↗</a> | 0/0  | default   | simo-cluster-2 |

You should only have one load balancer as shown above

3. Ensure your deployment is provisioned

OVERVIEW

COST OPTIMISATION

PREVIEW

Filter

Is system object : False

Filter workloads

| <input type="checkbox"/> | Name ↑       | Status | Type       | Pods | Namespace  | Cluster        |
|--------------------------|--------------|--------|------------|------|------------|----------------|
| <input type="checkbox"/> | huguette-dev | OK     | Deployment | 1/1  | monitoring | simo-cluster-2 |

You should have one deployment with the name of the APP

4. Click on the endpoints of the load balancer - it will not work

| <input type="checkbox"/> | Name ↑            | Status | Type                   | Endpoints                          | Pods | Namespace | Clusters       |
|--------------------------|-------------------|--------|------------------------|------------------------------------|------|-----------|----------------|
| <input type="checkbox"/> | huguette-services | ✓ OK   | External load balancer | 35.229.45.108:80 <a href="#">↗</a> | 0/0  | default   | simo-cluster-2 |

5. Enable the load balancer and ingress rule provisioning for NGINX image to work.

Click on the endpoints, and a load balancer with the name of the image should appear as follow

Filter

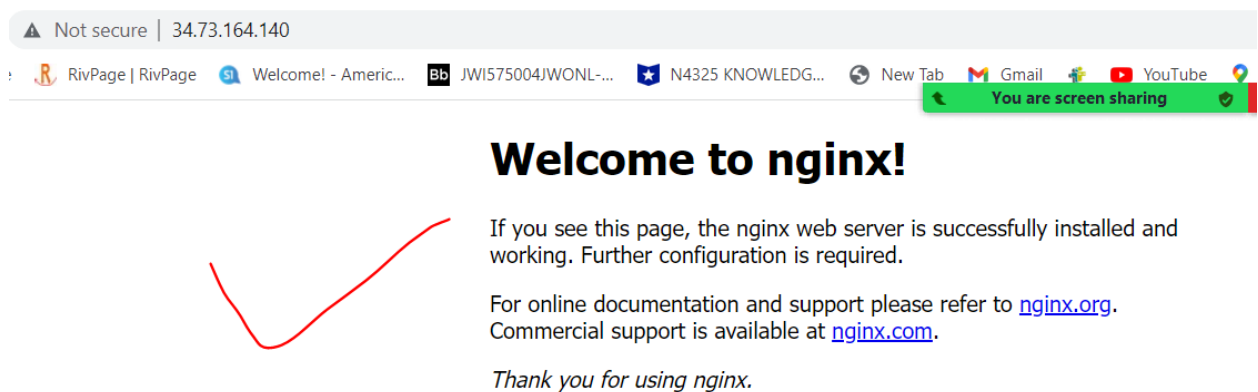
Is system object : False

Filter services and ingresses

| <input type="checkbox"/>            | Name ↑                     | Status                   | Type                   | Endpoints        | Pods | Namespace | Clusters       |
|-------------------------------------|----------------------------|--------------------------|------------------------|------------------|------|-----------|----------------|
| <input type="checkbox"/>            | huguette-services          | <div><div></div>OK</div> | External load balancer | 35.229.45.108:80 | 0/0  | default   | simo-cluster-2 |
| <input checked="" type="checkbox"/> | <del>nginx-1-service</del> | <div><div></div>OK</div> | External load balancer | 34.73.164.140:80 | 3/3  | default   | simo-cluster-2 |

nginx-1-service load balancer will be provisioned externally

Click on the endpoints of nginx-1-service, and the load balancer should display the following



Not secure | 34.73.164.140

RivPage | RivPage Welcome! - Americ... JW1575004JWONL-... N4325 KNOWLEDG... New Tab Gmail YouTube

You are screen sharing

## Welcome to nginx!

If you see this page, the nginx web server is successfully installed and working. Further configuration is required.

For online documentation and support please refer to [nginx.org](https://nginx.org).  
Commercial support is available at [nginx.com](https://nginx.com).

*Thank you for using nginx.*

6. Deploy the nginx image to become a container of three pods as shown below

OVERVIEW

COST OPTIMISATION

PREVIEW

Filter

Is system object : False

Filter workloads

X

?

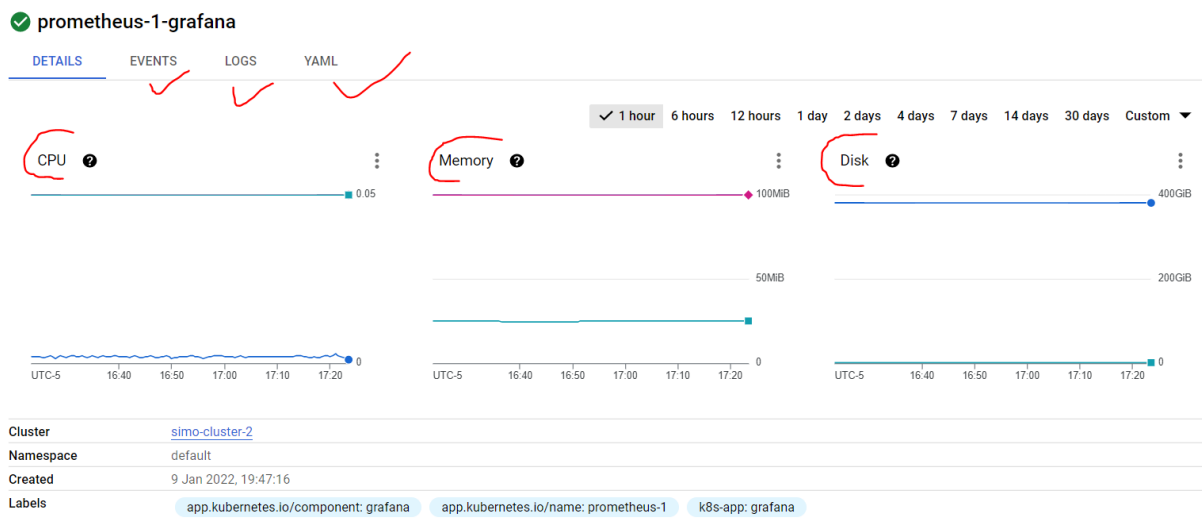
| <input type="checkbox"/>            | Name ↑       | Status | Type       | Pods | Namespace  | Cluster        |
|-------------------------------------|--------------|--------|------------|------|------------|----------------|
| <input type="checkbox"/>            | huguette-dev | ✓ OK   | Deployment | 1/1  | monitoring | simo-cluster-2 |
| <input checked="" type="checkbox"/> | nginx-1      | ✓ OK   | Deployment | 3/3  | default    | simo-cluster-2 |

Remember nginx stay as an image until it is deployed to become a nginx container

7. Go to application and add Prometheus + Grafana to monitor your cluster and you should have something like this

| OVERVIEW  |                                 |        |              |      |            |                |
|---|---------------------------------|--------|--------------|------|------------|----------------|
| COST OPTIMISATION   |                                 |        |              |      |            |                |
| PREVIEW   |                                 |        |              |      |            |                |
| Filter <span>Is system object : False</span> Filter workloads |                                 |        |              |      |            |                |
| <input type="checkbox"/>                                      | Name ↑                          | Status | Type         | Pods | Namespace  | Cluster        |
| <input type="checkbox"/>                                      | huguette-dev                    | OK     | Deployment   | 1/1  | monitoring | simo-cluster-2 |
| <input type="checkbox"/>                                      | nginx-1                         | OK     | Deployment   | 3/3  | default    | simo-cluster-2 |
| <input type="checkbox"/>                                      | prometheus-1-alertmanager       | OK     | Stateful Set | 2/2  | default    | simo-cluster-2 |
| <input type="checkbox"/>                                      | prometheus-1-deployer           | OK     | Job          | 0/1  | default    | simo-cluster-2 |
| <input type="checkbox"/>                                      | prometheus-1-grafana            | OK     | Stateful Set | 1/1  | default    | simo-cluster-2 |
| <input type="checkbox"/>                                      | prometheus-1-kube-state-metrics | OK     | Deployment   | 1/1  | default    | simo-cluster-2 |
| <input type="checkbox"/>                                      | prometheus-1-node-exporter      | OK     | Daemon Set   | 3/3  | default    | simo-cluster-2 |
| <input type="checkbox"/>                                      | prometheus-1-prometheus         | OK     | Stateful Set | 2/2  | default    | simo-cluster-2 |

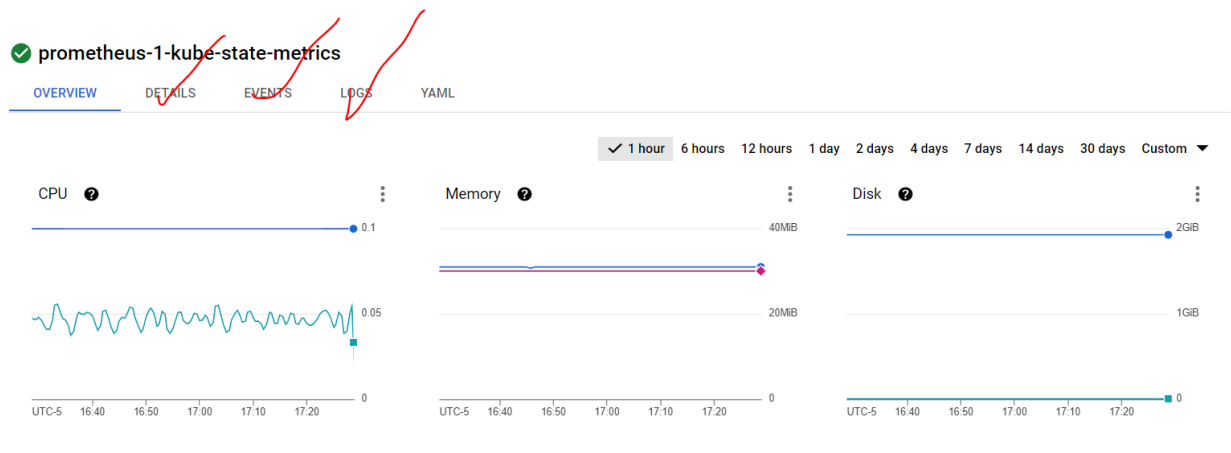
Click on Prometheus + Grafana and should display the following



Check the logs of your cluster and events

8. Go to service and Ingress – ( traffic protocol) TCP or UDP

Click on the Prometheus + Grafana and you should have the following



## 9. Check the config map and the secret

You should have something close to this

| <input type="checkbox"/> | Name ↑   | Type       | Namespace       | Cluster        |
|--------------------------|--|------------|-----------------|----------------|
| <input type="checkbox"/> | default-token-d8m6g  | Secret     | monitoring      | simo-cluster-2 |
| <input type="checkbox"/> | default-token-pfcrr  | Secret     | kube-node-lease | simo-cluster-2 |
| <input type="checkbox"/> | kube-root-ca.crt   | Config Map | default         | simo-cluster-2 |
| <input type="checkbox"/> | kube-root-ca.crt   | Config Map | kube-node-lease | simo-cluster-2 |
| <input type="checkbox"/> | kube-root-ca.crt   | Config Map | monitoring      | simo-cluster-2 |
| <input type="checkbox"/> | kube-root-ca.crt   | Config Map | kube-public     | simo-cluster-2 |
| <input type="checkbox"/> | prometheus-1-alertmanager-config                             | Config Map | default         | simo-cluster-2 |
| <input type="checkbox"/> | prometheus-1-alertmanagerserviceaccount-4054-token-bjgxf     | Secret     | default         | simo-cluster-2 |
| <input type="checkbox"/> | prometheus-1-dashboards                                      | Config Map | default         | simo-cluster-2 |
| <input type="checkbox"/> | prometheus-1-deployer-config                                 | Config Map | default         | simo-cluster-2 |
| <input type="checkbox"/> | prometheus-1-grafana   | Secret     | default         | simo-cluster-2 |
| <input type="checkbox"/> | prometheus-1-grafana-dashboardproviders                      | Config Map | default         | simo-cluster-2 |
| <input type="checkbox"/> | prometheus-1-grafana-datasources                             | Config Map | default         | simo-cluster-2 |
| <input type="checkbox"/> | prometheus-1-grafana-ini                                     | Config Map | default         | simo-cluster-2 |
| <input type="checkbox"/> | prometheus-1-grafanaserviceaccount-2229-token-hfm58          | Secret     | default         | simo-cluster-2 |
| <input type="checkbox"/> | prometheus-1-kubestatemetricsserviceaccount-608f-token-85xgp | Secret     | default         | simo-cluster-2 |

An example of confirmed details

```
"groups":
- "name": "kubernetes-absent"
  "rules":
  - "alert": "AlertmanagerDown"
```

```
    "annotations":
      "message": "Alertmanager has disappeared from Prometheus target
discovery."
      "runbook_url": "https://github.com/kubernetes-monitoring/kubernetes-
mixin/tree/master/runbook.md#alert-name-alertmanagerdown"
      "expr": |
        absent(up{job="alertmanager"} == 1)
      "for": "15m"
      "labels":
        "severity": "critical"

apiVersion: 1
datasources:
- access: proxy
  isDefault: true
  name: prometheus
  type: prometheus
  url: http://prometheus-1-prometheus:9090
  version: 1
```

The cluster will access the links and to do so, secret must be available