

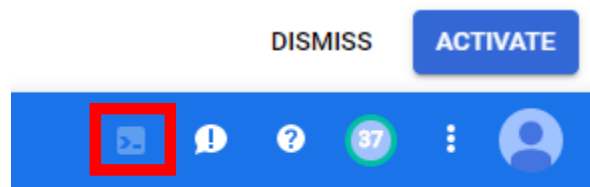
# GCP Lab - Stackdriver Monitoring, Uptime Check, Alerting Policy

## LAB Overview

This lab introduces you how you can use Stackdriver Monitoring and logging to check your application health. It will help to diagnose if application is working properly.

### Task 1: Setting default Region and Zone and creating VM.

1. Go to GCP Portal:  
<https://console.cloud.google.com>  
And sign in using you Your Gmail credential.
2. Activate Cloud Shell from the top-right panel:



3. After terminal loads (it can take few minutes) set default **Region** and default **Zone**:

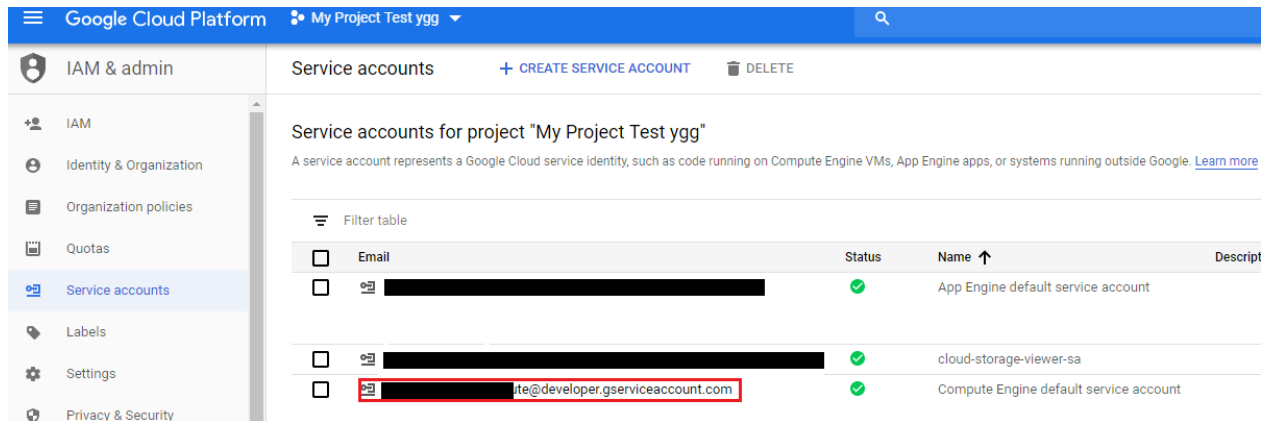
- **gcloud config set compute/zone europe-west1-b**
- **gcloud config set compute/region europe-west1**

Run command and verify if you have project config set, if not run second command to set it:

- **gcloud config list**
- **gcloud config set project <YOUR-PROJECT-ID>**

4. Create virtual machine with nginx, but firstly:

- Get default compute service account from **IAM & admin > Service accounts** and replace **<YOUR-COMPUTE-SERVICE-ACCOUNT>** with it



```
gcloud compute instances create "nginx-plus-1" \
--machine-type "n1-standard-1" \
--metadata "google-cloud-marketplace-solution-key=nginx-public:nginx-plus" \
--maintenance-policy "MIGRATE" --service-account=<YOUR-COMPUTE-SERVICE-ACCOUNT> --
scopes=https://www.googleapis.com/auth/devstorage.read_only,https://www.googleapis.com/auth/logging.write,https://www.googleapis.com/auth/monitoring.write,https://www.googleapis.com/auth/servicecontrol,https://www.googleapis.com/auth/service.management.readonly,https://www.googleapis.com/auth/trace.append \
--tags "http-server", "google-cloud-marketplace" \
--image "https://www.googleapis.com/compute/v1/projects/nginx-public/global/images/nginx-plus-ubuntu1404-v20150916-final" \
--boot-disk-size "10" --boot-disk-type "pd-standard" \
--boot-disk-device-name "nginx-plus-1"
```

## 5. Create Firewall rule:

- `gcloud compute firewall-rules create allow-80 --allow tcp:80 --target-tags "http-server"`

## 6. Verify if nginx server is running in web browser. You should have returned similar result (if you want to quickly check EXTERNAL\_IPs again run below command):

- `gcloud compute firewall-rules create allow-80 --allow tcp:80 --target-tags "http-server"`

# Welcome to NGINX Plus on Google Cloud Platform!

If you see this page, the NGINX Plus web server is successfully installed and working on your Google Cloud Platform instance. Further configuration is required.

Complete documentation in PDF format is available locally on your GCP instance and should be accessible using this [link](#).

To quickly set up working NGINX Plus environment on your GCP instance, refer to how-to available [here](#).

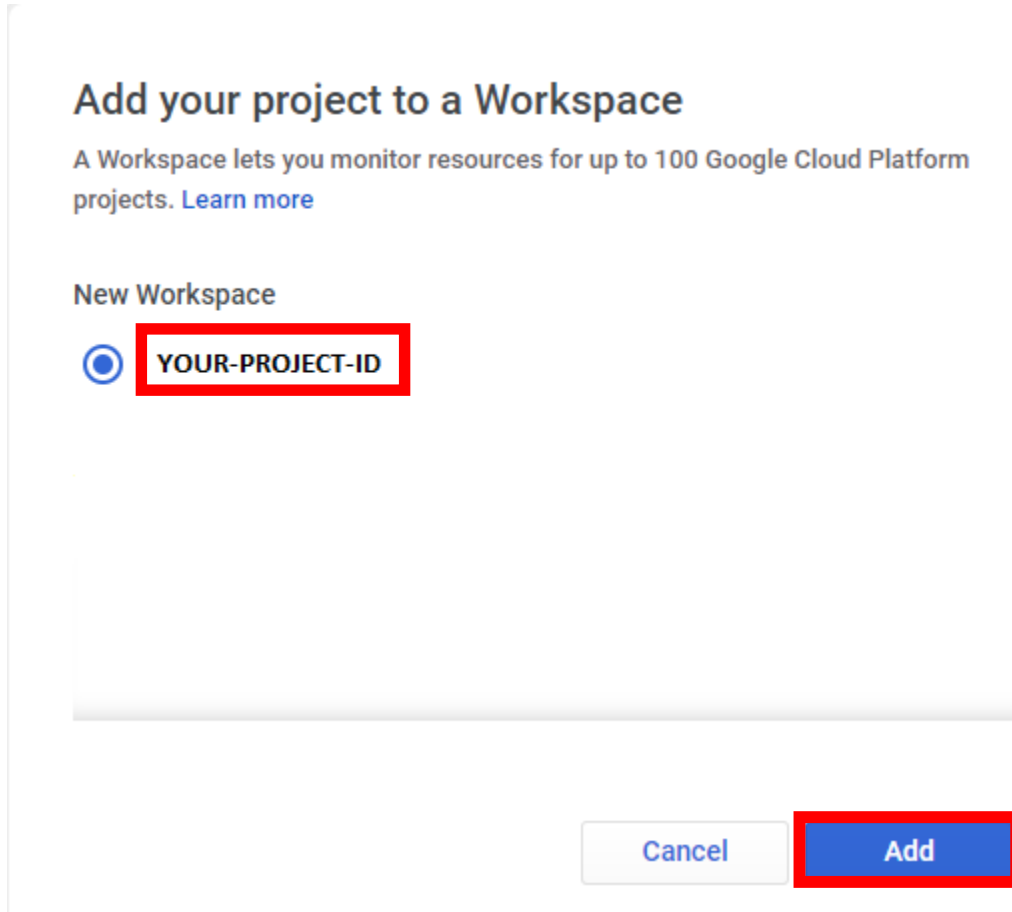
For online documentation and support please refer to [nginx.org](https://nginx.org). Commercial support is available at [nginx.com](https://nginx.com).

*Thank you for using NGINX Plus!*

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## Task 2: Enabling Stackdriver for project.

1. From navigation bar go to **Stackdriver** and create Workspace for you project.



**Add your project to a Workspace**

A Workspace lets you monitor resources for up to 100 Google Cloud Platform projects. [Learn more](#)

**New Workspace**

☒ **YOUR-PROJECT-ID**

After clicking **Add** Workspace should be created and displayed to you.

### Task 3: Configuring VM for load and agent

1. From the list of VMs in column **Connect** select **SSH** and connect to it.
2. Inside VM install rand:
  - `sudo apt-get install rand`
  - `for i in {1..10}; do dd if=/dev/zero of=/dev/null count=$((rand -M 80)M); sleep 60; done &`
3. Install Cloud Logging agent:
  - `curl -sS https://dl.google.com/cloudagents/install-logging-agent.sh | sudo bash`

### Task 4: View machine CPU utilization in Stackdriver.

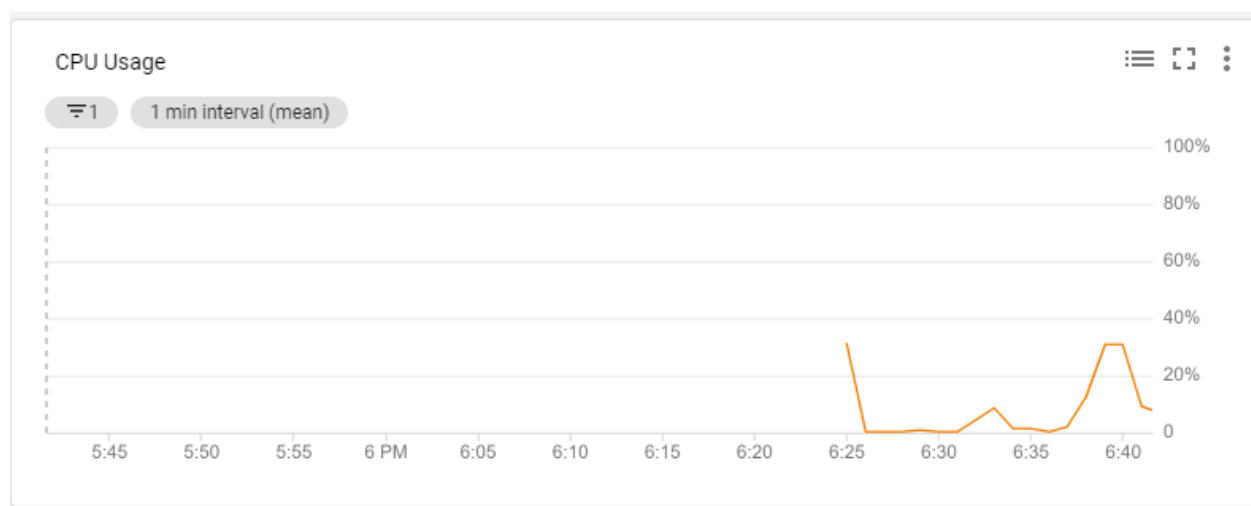
1. From the navigation bar in GCP console go to **Stackdriver** > **Monitoring**.
2. Inside Stackdriver navigate to **Resources** > **Instances** > select instance on which you ran work - its should be **nginx-plus-1**

Infrastructure / Instances / **nginx-plus-1**

- Monitoring Overview
- Resources >
  - Metrics Explorer
  - Key Visualizer for Bigtable
  - INFRASTRUCTURE
  - Block Storage Volumes
  - Cloud Storage
  - Instances**
  - Security Groups
  - HOST
- Alerting
- Uptime Checks
- Groups
- Dashboards

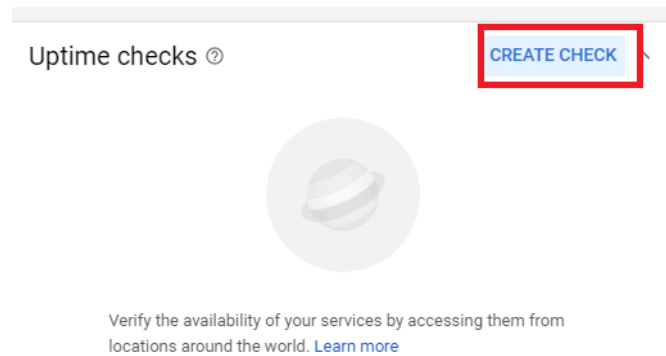
| NAME ^              | ZONE               | PUBLIC IP     | PRIVATE IP  | CPU USAGE |
|---------------------|--------------------|---------------|-------------|-----------|
| <b>nginx-plus-1</b> | gce:europe-west1-b | 34.77.158.122 | 10.132.0.27 | 16.19%    |

- Inside the details of the machine you should be able to see how the CPU, Disk I/O and Network traffic is used in this machine:



## Task 5: Create Uptime check

- Inside Stackdriver panel in Monitoring Overview click **Create Check**:



2. Fill necessary fields to create check:

- **Title:** nginx-check
- **Check Type:** http
- **Resource Type:** Instance
- **Applies To:** Instance > select **nginx-plus-1**
- **Path:** empty
- **Check every:** 1 minute

Click **Test** button to see if configuration is correct.

Click **Save**.

When asked if create Alerting Policy click **Create Alerting Policy**.

## Task 5: Create Alerting Policy

1. Inside Stackdriver navigate **Alerting > Create Alerting Policy** (after saving Uptime check you should be asked to create policy).
2. In Create New Alerting Policy fill:
  - **Notification** channels select **Email** and provide your **Gmail address**
  - Click **Add Notification Channel**
  - **Documentation:** This is alerting policy
  - **Name this policy:** nginx-check-policy


## Task 6: Stop nginx on nginx-plus-1

1. Go back to ssh session and run:
  - `sudo service nginx stop`
2. After 1-2 min on in **Stackdriver** on **Monitoring Overview** dashboard (or inside **Alerting > Policies overview > nginx-check-policy**) you should see incident indicating that VM is not working properly:

## Incidents ②

OPEN (1) ACKNOWLEDGED (0)

Today

7:24 PM  [nginx-check-policy](#)  
An uptime check on my-project-test-ygg nginx-plus-1 is failing.  
Duration: 4 minutes

Items per page: 3

3. You should also receive alerting email on provided Gmai.
4. We have been acknowledged by Uptime check that incident occurred.
5. Going inside incident list we can **Acknowledge / Resolve / Comment**.
6. If we go back to ssh and start nginx again, incident will resolve automatically.
7. From Stackdriver panel we can go straight to logs and see that VM was monitored by Uptime check:

Filter by label or text search

GCE VM Instance, nginx-plus-1 All logs Any log level Last hour Jump to now

Showing logs from 6:33 PM to now (CEST)

|                              |                |   |                              |                  |          |   |  |
|------------------------------|----------------|---|------------------------------|------------------|----------|---|--|
| 2019-07-11 19:19:09.288 CEST | 35.240.124.58  | - | [11/Jul/2019:17:19:09 +0000] | "GET / HTTP/1.1" | 200 1038 | - | "GoogleStackdriverMonitoring-UptimeChecks(https://c1 |
| 2019-07-11 19:19:14.192 CEST | 35.186.159.51  | - | [11/Jul/2019:17:19:14 +0000] | "GET / HTTP/1.1" | 200 1038 | - | "GoogleStackdriverMonitoring-UptimeChecks(https://c1 |
| 2019-07-11 19:19:14.833 CEST | 35.199.77.186  | - | [11/Jul/2019:17:19:14 +0000] | "GET / HTTP/1.1" | 200 1038 | - | "GoogleStackdriverMonitoring-UptimeChecks(https://c1 |
| 2019-07-11 19:19:27.139 CEST | 35.198.248.66  | - | [11/Jul/2019:17:19:27 +0000] | "GET / HTTP/1.1" | 200 1038 | - | "GoogleStackdriverMonitoring-UptimeChecks(https://c1 |
| 2019-07-11 19:20:02.051 CEST | 35.199.12.162  | - | [11/Jul/2019:17:20:02 +0000] | "GET / HTTP/1.1" | 200 1038 | - | "GoogleStackdriverMonitoring-UptimeChecks(https://c1 |
| 2019-07-11 19:20:04.026 CEST | 35.233.206.171 | - | [11/Jul/2019:17:20:04 +0000] | "GET / HTTP/1.1" | 200 1038 | - | "GoogleStackdriverMonitoring-UptimeChecks(https://c1 |
| 2019-07-11 19:20:08.037 CEST | 104.197.30.241 | - | [11/Jul/2019:17:20:08 +0000] | "GET / HTTP/1.1" | 200 1038 | - | "GoogleStackdriverMonitoring-UptimeChecks(https://c1 |
| 2019-07-11 19:20:09.286 CEST | 35.240.124.58  | - | [11/Jul/2019:17:20:09 +0000] | "GET / HTTP/1.1" | 200 1038 | - | "GoogleStackdriverMonitoring-UptimeChecks(https://c1 |