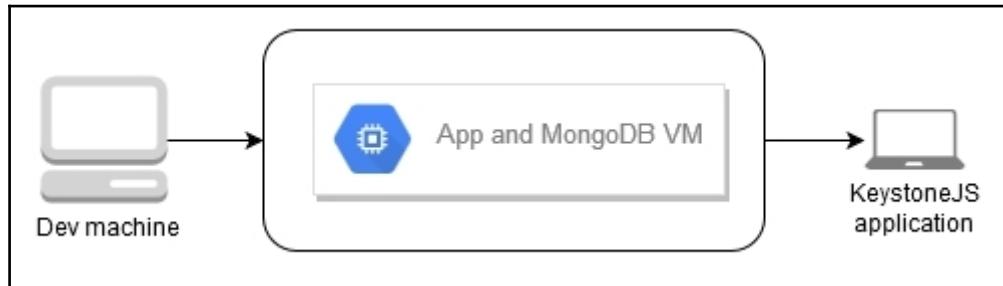
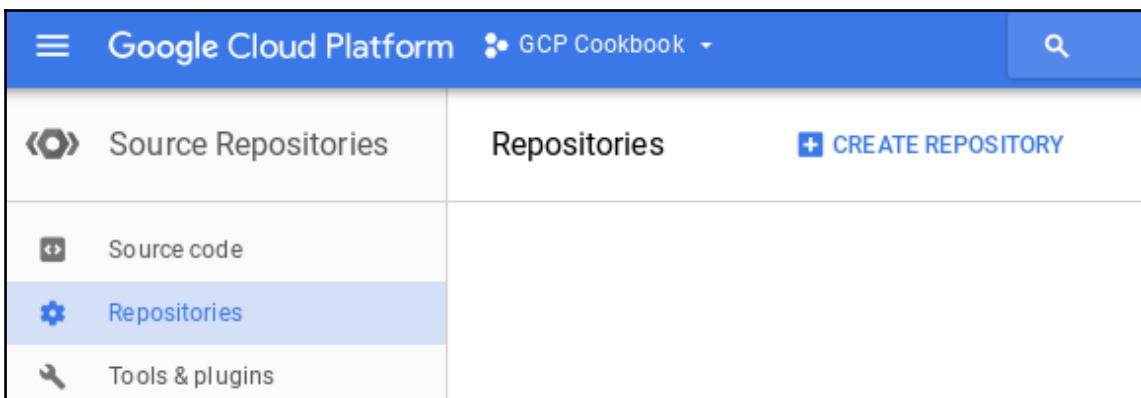


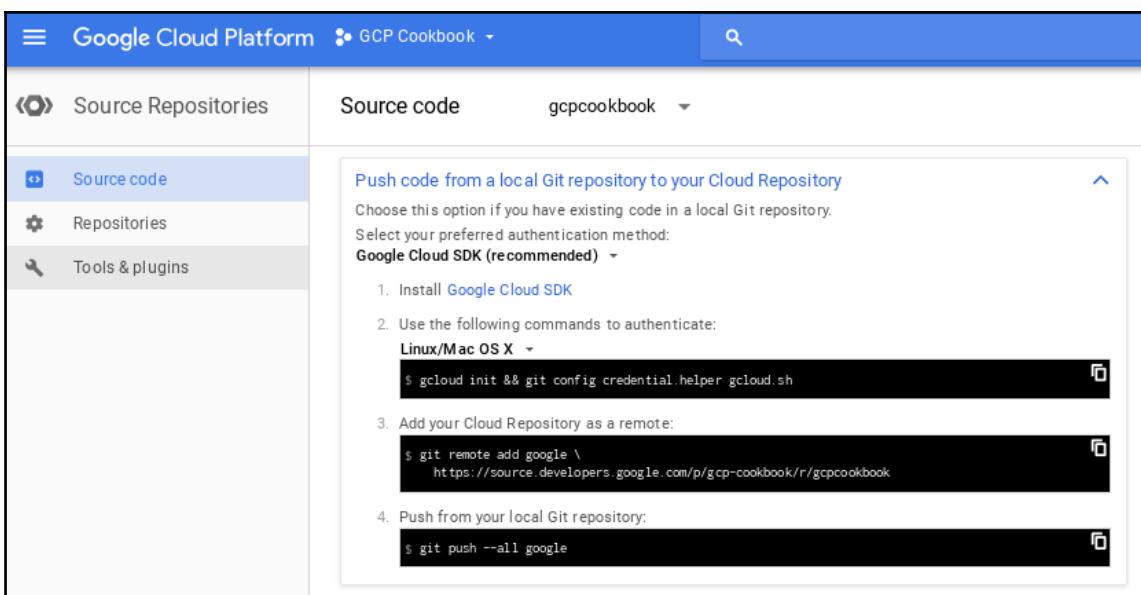
# Chapter 1: Compute



A screenshot of a web browser window displaying the 'KeystoneJS application' homepage. The address bar shows 'localhost:3000'. The page has a header with 'mySite' and 'Home' tabs, and a 'Contact' link. Below the header is a logo consisting of a blue square with a white 'K' and the text 'KeystoneJS'. The main content area features a large 'Welcome' heading, followed by the text 'mySite of GCP Cookbook'. It continues with 'This is your new [KeystoneJS](#) website.', 'It includes the latest versions of [Bootstrap](#) and [jQuery](#).', and 'Visit the [Getting Started](#) guide to learn how to customise it.' At the bottom, there is a note about a default Admin user: 'We have created a default Admin user for you with the email [user@keystonejs.com](mailto:user@keystonejs.com) and the password **admin**'. A 'Sign in' button is visible at the bottom left.



The screenshot shows the Google Cloud Platform interface. The top navigation bar has 'Google Cloud Platform' and 'GCP Cookbook' dropdown menus, and a search icon. Below the navigation is a sidebar with three options: 'Source Repositories' (selected), 'Source code' (disabled), and 'Tools & plugins'. The main content area is titled 'Repositories' and features a 'CREATE REPOSITORY' button.



This screenshot shows the 'Source code' section of the Google Cloud Platform Source Repositories page. It displays instructions for pushing code from a local Git repository to a Cloud Repository named 'gpccookbook'. The steps involve installing the Google Cloud SDK, authenticating via Linux/Mac OS X, adding a Cloud Repository as a remote, and pushing changes. A 'Clone URL' is also provided: <https://source.developers.google.com/p/gcp-cookbook/r/gpccookbook>.



The screenshot shows a 'CREATE REPOSITORY' form. It includes fields for 'Repository Name' (set to 'gpccookbook') and a 'Clone URL' field containing the same URL as the previous screenshot: <https://source.developers.google.com/p/gcp-cookbook/r/gpccookbook>.

[FIREWALL RULE DETAILS](#)

[EDIT](#)  [DELETE](#)

default-allow-http-3000

**Description**  
Allow port 3000 access to mysite-server

**Network**  
default

**Priority**  
1000

**Direction**  
Ingress

**Action on match**  
Allow

**Targets**

Target tags	mysite-server
-------------	---------------

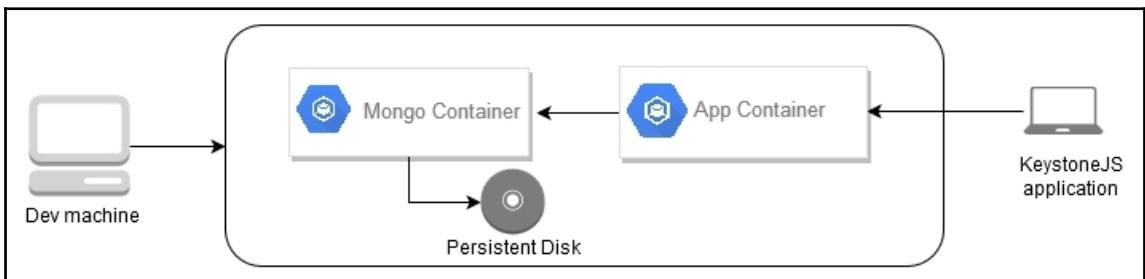
**Source filters**

IP ranges	0.0.0.0/0
-----------	-----------

**Protocols and ports**  
tcp:3000

<input type="checkbox"/> Name ^	Zone	Recommendation	Internal IP	External IP	Connect	
<input checked="" type="checkbox"/> mysite-instance	us-east1-c		10.142.0.2	35.192.123.170	<a href="#">SSH</a>	

Firewall rule details	
<a href="#">EDIT</a>	<a href="#">DELETE</a>
<b>default-allow-mongo-27017</b>	
<b>Description</b>	
Allow port 27017 access to mysite-server	
<b>Network</b>	
default	
<b>Priority</b>	
1000	
<b>Direction</b>	
Ingress	
<b>Action on match</b>	
Allow	
<b>Targets</b>	
Target tags	mysite-server
<b>Source filters</b>	
IP ranges	0.0.0.0/0
<b>Protocols and ports</b>	
tcp:27017	



Container clusters							
<a href="#">CREATE CLUSTER</a> <a href="#">REFRESH</a> <a href="#">DELETE</a>							
Filter by label or name							
Container clusters							
Name	Zone	Cluster size	Total cores	Total memory	Node version	Notifications	Labels
<input checked="" type="checkbox"/> mysite-cluster	us-east1-c	2	2 vCPUs	7.50 GB	1.7.6		<a href="#">Connect</a> <a href="#"></a> <a href="#"></a>

Cloud Functions		Overview	<a href="#">CREATE FUNCTION</a>	<a href="#">REFRESH</a>	<a href="#">DELETE</a>	<a href="#">COPY</a>
Filter functions						
Name	Region	Trigger	Memory allocated	Executed function	Last deployed	
<input checked="" type="checkbox"/> calculator	us-central1	HTTP trigger	256 MB	calculator		<a href="#"></a>

▶  10:31:09.637 calculator lg0mh0crh8vw Function execution started
▶  10:31:09.704 calculator lg0mh0crh8vw Received number1 1
▶  10:31:09.712 calculator lg0mh0crh8vw Received operand mul
▶  10:31:09.712 calculator lg0mh0crh8vw Received number2 2
▶  10:31:09.712 calculator lg0mh0crh8vw The Result is: 2
▶  10:31:09.714 calculator lg0mh0crh8vw Function execution took 78 ms, finished with status code: 200

 SQL | [!\[\]\(e61a2a5774eb2b33df2f4d645063e14c\_img.jpg\) Create a MySQL Second Generation instance](#)

**Instance ID**  
Cannot be changed later. Use lowercase letters, numbers, and hyphens. Start with a letter.

**Root password**  
Set a password for the root user. [Learn more](#)

No password

**Location**   
For better performance, keep your data close to the services that need it.

**Region**  **Zone**

[▼ Show configuration options](#)

**Create** **Cancel**

<input type="checkbox"/> Instance ID 	Type	IP address	Instance connection name
<input checked="" type="checkbox"/> mysql	MySQL 2nd Gen 5.7	35.190.175.176	gcp-cookbook:us-east1:mysql

Instance templates [CREATE INSTANCE TEMPLATE](#) [REFRESH](#) [COPY](#) [CREATE INSTANCE GROUP](#) [DELETE](#)

[Filter instance templates](#) 

<input type="checkbox"/> Name ^	Machine type	Image	Disk type	In use by	Creation time
<input type="checkbox"/> my-php-tmpl	1 vCPU, 1.7 GB	debian-8	Standard persistent disk		Oct 27, 2017, 5:36:50 AM

Instance groups						
<a href="#">CREATE INSTANCE GROUP</a>		<a href="#">REFRESH</a>		<a href="#">EDIT</a> <a href="#">DELETE</a>		
<input type="text"/> Filter instance groups <span style="float: right;">Columns ▾</span>						
<input type="checkbox"/> Name ^	Zone	Creation time	Instances	Template	Recommendation	Autoscaling
<input checked="" type="checkbox"/> my-php-group	us-east1-c	Oct 30, 2017, 2:40:01 AM	2	my-php-tmpl		Off

[←](#) **Health checks**  [EDIT](#)  [DELETE](#)

**php-health-check**

**In use by**  
Not used

**Path**  
/public/index.php

**Protocol**  
HTTP

**Port**  
80

**Interval**  
5 seconds

**Timeout**  
5 seconds

**Unhealthy threshold**  
2 consecutive failures

**Healthy threshold**  
2 consecutive successes

<a href="#"></a> New HTTP(S) load balancer	Creating a HTTP(S) load balancer
<p>Name <a href="#">?</a></p> <input type="text" value="my-php-lb"/> <span>(Required)</span>	A HTTP(S) load balancer has 3 parts:
<p><input type="checkbox"/> <b>Backend configuration</b> You have not configured your backend yet</p> <p><input type="checkbox"/> <b>Host and path rules</b> Requests will be sent to the default backend</p> <p><input type="checkbox"/> <b>Frontend configuration</b> Your frontend is configured</p> <p><a href="#">(i) Review and finalize</a> Optional</p>	<ol style="list-style-type: none"><li>1. Backend configuration A backend service directs incoming traffic to an instance group. You can also use a storage bucket to serve content.</li><li>2. Host and path rules Host and path rules determine how your traffic will be directed. If you don't specify any rules, traffic will be sent to the default backend service.</li><li>3. Frontend configuration Your IP address, protocol and port. This is the IP to which your client requests will come in to.</li></ol>
<a href="#">Create</a> <a href="#">Cancel</a>	

### Create backend service

Name [?](#)  
my-php-be-service

Protocol: HTTP   Named port: http   Timeout: 30 seconds [edit](#)

Backends

my-php-group (Zone: us-east1-c, Port: 80)	Not saved	<a href="#">edit</a>
<a href="#">+ Add backend</a>		

Health check [?](#)  
php-health-check (HTTP)  
port: 80, timeout: 5s, check interval: 5s, unhealthy threshold: 2 attempts

Session affinity [?](#)  
None

Affinity cookie TTL [?](#)  
0 seconds

Advanced configurations

Cloud CDN [?](#)  
 Enable Cloud CDN

Security

[Create](#) [Cancel](#)

← New HTTP(S) load balancer

Name ⓘ my-php-lb

**Backend configuration**  
You have configured 1 backend(s)

**Host and path rules**  
You have created host and path rules

**Frontend configuration**  
Your frontend is configured

**Review and finalize**  
Optional →

**Create** **Cancel**

Review and finalize

Backend

Backend services

1. my-php-be-service  
Endpoint protocol: **HTTP** Named port: **http** Timeout: 30 seconds Health check: **php-health-check** Session affinity: **None**  
Cloud CDN: **disabled**

Advanced configurations

This backend service has no backends configured

Instance group	Zone	Autoscaling	Balancing mode	Capacity
my-php-group	us-east1-c	Off	Max CPU: 80%	100%

Host and path rules

Hosts	Paths	Backend
All unmatched (default)	All unmatched (default)	my-php-be-service

Frontend

Protocol	IP:Port	Certificate
HTTP	EPHEMERAL:80	—

Load balancing    [CREATE LOAD BALANCER](#)    [REFRESH](#)

Load balancer	Protocol
<input checked="" type="checkbox"/> my-php-lb	

[Details](#)   [Monitoring](#)   [Caching](#)

**Frontend**

Protocol	IP:Port	Certificate
HTTP	35.201.89.5:80	—

**Host and path rules**

Hosts	Paths	Backend
All unmatched (default)	All unmatched (default)	my-php-be-service

**Backend**

Backend services

1. my-php-be-service

Endpoint protocol: **HTTP**   Named port: **http**   Timeout: **30 seconds**   Health check: [php-health-check](#)   Session affinity: **None**   Cloud CDN: **disabled**

[Advanced configurations](#)

This backend service has no backends configured

Instance group	Zone	Healthy	Autoscaling	Balancing mode	Capacity
my-php-group	us-east1-c	2 / 2	Off	Max CPU: 80%	100%

[←](#) Instance groups EDIT GROUP ROLLING UPDATE

**Instance template** ?  
my-php-tmpl

**Autoscaling** ?  
On

**Autoscale based on** ?  
For best results read [Configuring autoscaling instance groups](#)

CPU usage

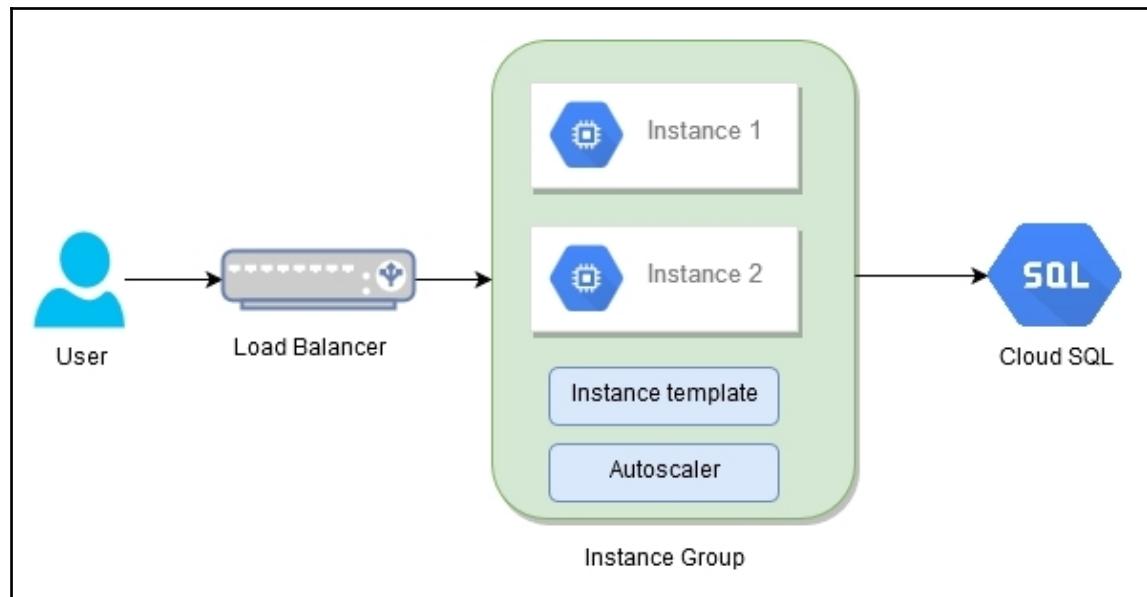
**Target CPU usage** ?  
Scaling dynamically creates or deletes VMs to meet the group target. [Learn more](#)

60 %

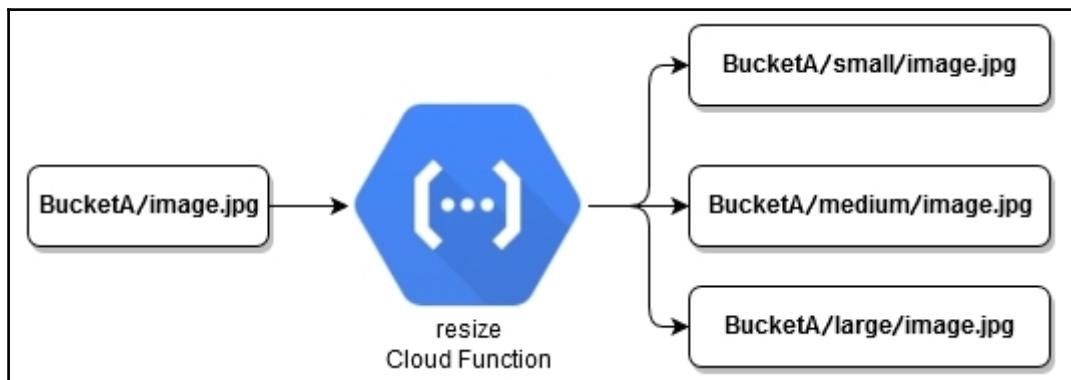
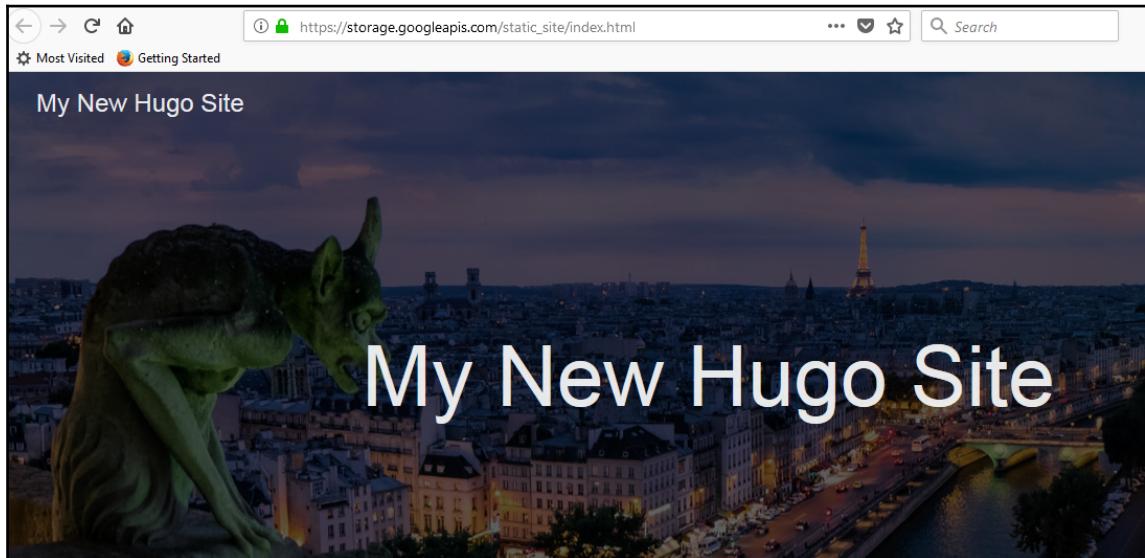
**Minimum number of instances** ?  
2

**Maximum number of instances** ?  
10

**Cool-down period** ?  
60 seconds



# Chapter 2: Storage and Databases



Name	Region	Trigger	Memory allocated	Executed function	Last deployed	⋮
<input checked="" type="checkbox"/> imageresize	us-central1	bucket: uploadtestbucket	256 MB	imageresize	11/23/17, 1:23 AM	⋮

---

Buckets / uploadtestbucket

<input type="checkbox"/>	Name	Size	Type	Storage class
<input type="checkbox"/>	large/	—	Folder	—
<input type="checkbox"/>	medium/	—	Folder	—
<input type="checkbox"/>	small/	—	Folder	—

[Create an instance](#)

**Instance name**  
For display purposes only.

**Instance ID**  
Unique identifier for instance. Permanent.

**Configuration**  
Choose a regional location for your instance configuration. Determines where your nodes are located. For better performance, keep nodes close to the applications that will use your databases.

**Nodes**  
Add nodes to increase data throughput and queries per second (QPS). Affects billing.

[▼ Node guidance](#)

**Cost**  
Storage cost depends on GB stored per month. Nodes cost is an hourly charge for the number of nodes in your instance. [Learn more](#)

<b>Nodes cost</b> \$0.90 per hour	<b>Storage cost</b> \$0.30 per GB/month
--------------------------------------	--

[Create](#) [Cancel](#)

← Instance

← Database details QUERY CREATE TABLE DELETE

org

[Overview](#) [Monitor](#)

CPU utilization (mean)	Operations	Throughput	Total storage
2.52%	Read: 0.05/s Write: 0.00/s	Read: 0 B/s Write: 0 B/s	0 B

Tables

Name	Indexes	Interleaved in
employees	2	offices
offices	-	-

Show equivalent DDL

employees

Schema Indexes (2) Data

[Insert](#) [Edit](#) [Delete](#)

Filter by primary key ?

<input type="checkbox"/> officeCode	employeeNumber	email	extension	firstName	jobTitle	lastName	reportsTo
<input type="checkbox"/> 1	1002	dmurphy@classicmodelcars.com	x5800	Diane	President	Murphy	<NULL>
<input type="checkbox"/> 1	1056	mpatterso@classicmodelcars.com	x4611	Mary	VP Sales	Patterson	1002
<input type="checkbox"/> 1	1076	jfirrelli@classicmodelcars.com	x9273	Jeff	VP Marketing	Firrelli	1002
<input type="checkbox"/> 1	1143	abow@classicmodelcars.com	x5428	Anthony	Sales Manager (NA)	Bow	1056
<input type="checkbox"/> 1	1165	ljennings@classicmodelcars.com	x3291	Leslie	Sales Rep	Jennings	1143
<input type="checkbox"/> 1	1166	lthompson@classicmodelcars.com	x4065	Leslie	Sales Rep	Thompson	1143
<input type="checkbox"/> 2	1188	jfirrelli@classicmodelcars.com	x2173	Julie	Sales Rep	Firrelli	1143
<input type="checkbox"/> 2	1216	spatterson@classicmodelcars.com	x4334	Steve	Sales Rep	Patterson	1143

 Bigtable ← Create instance

A Cloud Bigtable instance is a container for your cluster. Choose the instance and cluster properties below.

**Instance properties**

**Instance name**  
For display purposes only.

**Instance ID**  
ID is permanent. Use lowercase letters, numbers, or hyphens.

**Instance type** ?  
 **Production (recommended)**  
Minimum of 3 nodes. High availability. Cannot downgrade later.  
 **Development**  
Low-cost instance for development and testing. Does not provide high availability. Can upgrade to Production later.

**Cluster properties**

**Cluster ID**  
ID is permanent. Use lowercase letters, numbers, or hyphens.

**Zone**  
Choice is permanent. Determines where cluster data is stored. To reduce latency and increase throughput, store your data near the services that need it.

Create Dataset

Dataset ID  ?

Data location US ?

Data expiration  Never  In  days.

OK Cancel

▶ HomeTemp + - File format Cloud

▼ Public Datasets

- ▶ bigquery-public-data:hacker\_news
- ▶ bigquery-public-data:noaa\_gsod

Create new table  
Share dataset  
Delete dataset

## Create Table

Source Data  Create from source  Create empty table

Repeat job

Select Previous Job



Location

Google Cloud Bigtable

/gcp-cookbook/instances/hometemp/tables/temperature



File format

Cloud Bigtable



### Destination Table

Table name

Home temperature



Table type

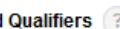
External table



### Column Families



Column Family and Qualifiers



Type



Encoding



Only Read Latest



sensorcf1



STRING



TEXT



FALSE



Add Family

[Edit as Text](#)

### Options

Ignore unspecified column families



Read row key as string



[Create Table](#)

New Query [?](#)

```
1 SELECT
2   SUBSTR(rowkey, 5) AS timestamp,
3   SUBSTR(sensorcf1.column.cell.value,7) AS temperature_reading
4 FROM
5   [gcp-cookbook:HomeTemp.temperature]
6 WHERE
7   SUBSTR(sensorcf1.column.cell.value,7) = (
8     SELECT
9       MAX(SUBSTR(sensorcf1.column.cell.value,7))
10    FROM
11      [gcp-cookbook:HomeTemp.temperature] )
12 LIMIT
13 1
```

[RUN QUERY](#) ▾ [Save Query](#) [Save View](#) [Format Query](#) [Show Options](#)

Row	timestamp	temperature_reading	
1	20171201153000	34	

[Table](#) [JSON](#)

Query by kind [Query by GQL](#)

Namespace  
[default] ▾

```
1 select * from Drive
2 where empid = '121659'
```

[Run query](#) [Clear query](#) [GQL query help](#) ↻

<input type="checkbox"/> Name/ID	created	empid	filekey	timestamp
<input type="checkbox"/> id=5668600916475904	2017-11-22 (09:40:27.795) IST	MTIxNjU5	YjRlZjYvMjAxNzExMjEyMzEwMjYvMTIxNjU5L3JlcXVpcmVtZW50cy50eHQ=	MjAxNzExMjEyMzEwMjY=
<input type="checkbox"/> id=5682617542246400	2017-11-22 (10:02:16.601) IST	MTIxNjU5	MGQ1YjEvMjAxNzExMjEyMzMyMTUvMTIxNjU5L2ltYWdlLmpwZw==	MjAxNzExMjEyMzMyMTU=
<input type="checkbox"/> id=5722646637445120	2017-11-22 (08:23:17.076) IST	MTIxNjU5	MThhY2QvMjAxNzExMjEyMTUzMTUvMTIxNjU5L3VwbG9hZC5weQ==	MjAxNzExMjEyMTUzMTU=
<input type="checkbox"/> id=5732568548769792	2017-11-22 (09:39:32.555) IST	MTIxNjU5	YjRlZjYvMjAxNzExMjEyMzA5MzEvMTIxNjU5L3JlcXVpcmVtZW50cy50eHQ=	MjAxNzExMjEyMzA5MzE=

# Chapter 3: Networking

[Create a VPC network](#)

**Name** [?](#)  
alpha-mgmt

**Description (Optional)**  
Alpha Management Network

**Subnets**

Subnets let you create your own private cloud topology within Google Cloud. Click Automatic to create a subnet in each region, or click Custom to manually define the subnets. [Learn more](#)

**Subnet creation mode**  
[Custom](#) [Automatic](#)

<b>Name</b> <a href="#">?</a>	<input type="text" value="alpha-mgmt-us-central1"/> <a href="#">Delete</a> <a href="#">Edit</a>
<b>Add a description</b>	
<b>Region</b> <a href="#">?</a>	<input type="text" value="us-central1"/>
<b>IP address range</b> <a href="#">?</a>	<input type="text" value="10.2.0.0/24"/>
<b>Create secondary IP range</b>	
<b>Private Google access</b> <a href="#">?</a>	<input type="text" value="Disabled"/>

[Create a VPC network](#)

**Name**

**Description (Optional)**

**Subnets**

Subnets let you create your own private cloud topology within Google Cloud. Click Automatic to create a subnet in each region, or click Custom to manually define the subnets. [Learn more](#)

**Subnet creation mode**  Custom  Automatic

**⚠ These IP address ranges will be assigned to each region in your VPC network. When an instance is created for your VPC network, it will be assigned an IP from the appropriate region's address range.**

Region	IP address range
us-central1	10.128.0.0/20
europe-west1	10.132.0.0/20
us-west1	10.138.0.0/20
asia-east1	10.140.0.0/20
us-east1	10.142.0.0/20

## alpha-mgmt

### Description

Alpha Management Network

### Subnet creation mode

Custom subnets

### Dynamic routing mode

Regional

Subnets    Static internal IP addresses    **Firewall rules**    Routes    VPC Network Peering

[Add firewall rule](#)

[Delete](#)

<input type="checkbox"/>	Name	Type	Targets	Filters	Protocols / ports	Action	Priority
<input type="checkbox"/>	allow-ssh-alpha-servers	Ingress	alpha-server	IP ranges: 0.0.0.0/0	tcp:22	Allow	1000

## beta-data

### Description

Beta Data Network for Public usage

### Subnet creation mode

Auto subnets

### Dynamic routing mode

Regional

Subnets    Static internal IP addresses    **Firewall rules**    Routes    VPC Network Peering

[Add firewall rule](#)

[Delete](#)

<input type="checkbox"/>	Name	Type	Targets	Filters	Protocols / ports	Action	Priority
<input type="checkbox"/>	allow-http-beta-servers	Ingress	beta-server	IP ranges: 0.0.0.0/0	tcp:80	Allow	1000

[Equivalent REST](#)

## Create an instance

Name [?](#)  
web-instance-alpha-beta-1

Zone [?](#)  
us-central1-a

Machine type  
Customize to select cores, memory and GPUs.

1 vCPU 3.75 GB memory [Customize](#)

Upgrade your account to create instances with up to 96 cores

Container [?](#)  
 Deploy a container image to this VM instance. [Learn more](#)

Boot disk [?](#)

New 10 GB standard persistent disk  
Image  
Debian GNU/Linux 9 (stretch) [Change](#)

Identity and API access [?](#)

Service account [?](#)  
Compute Engine default service account

Access scopes [?](#)

Allow default access  
 Allow full access to all Cloud APIs  
 Set access for each API

---

**Management**    Disks    Networking    SSH Keys

**Description** (Optional)

webserver with 2 NICs

**Labels** ? (Optional)

+ Add label

**Automation**

**Startup script** (Optional)

You can choose to specify a startup script that will run when your instance boots up or restarts. Startup scripts can be used to install software and updates, and to ensure that services are running within the virtual machine. [Learn more](#)

```
#!/bin/bash
apt-get update
apt-get install -y apache2
cat <<EOF > /var/www/html/index.html
<html><body><h1>Hello World</h1>
<p>Web server on the alpha and beta networks</p>
</body></html>
EOF
```

**Management**    Disks    **Networking**    SSH Keys

**Network tags** ? (Optional)

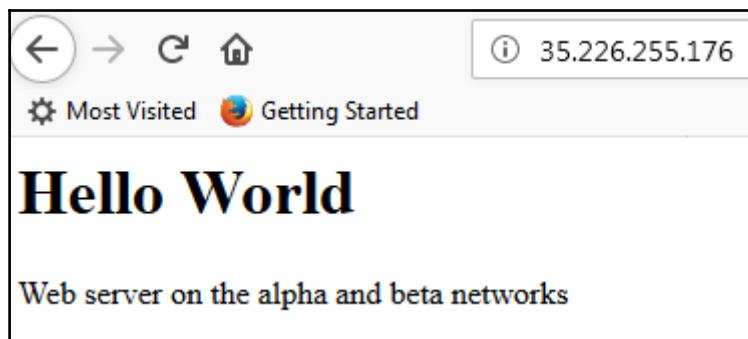
alpha-server ✕    beta-server ✕    http-server ✕

**Network interfaces** ?

alpha-mgmt alpha-mgmt-us-central1 (10.2.0.0/24)

beta-data beta-data (10.128.0.0/20)

+ Add network interface



A screenshot of a configuration dialog titled 'Network interface'. The dialog shows the following details:

- Network**: alpha-mgmt
- Subnetwork**: alpha-mgmt-us-central1
- Internal IP**: 10.2.0.2
- Internal IP type**: Ephemeral
- External IP**: None (highlighted with a red box)
- IP forwarding**: Off

At the bottom of the dialog are 'Done' and 'Cancel' buttons.

VM instance details

nic0: alpha-mgmt alpha-mgmt-us-central1

+ Add item

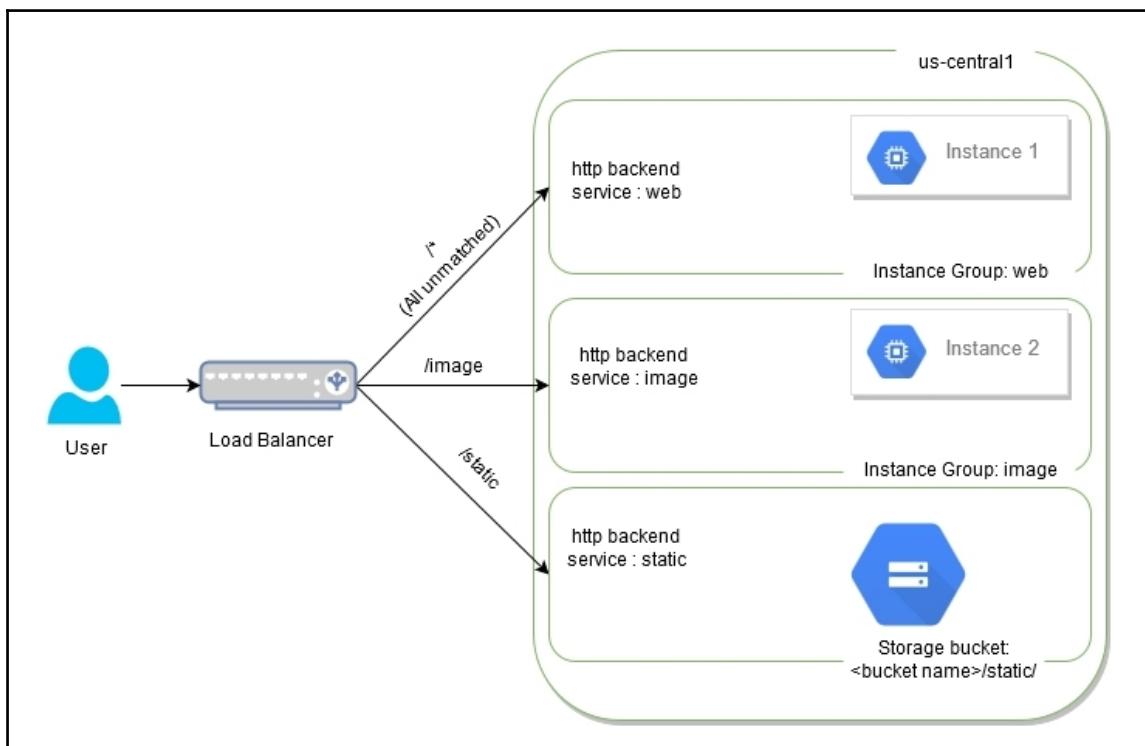
Firewalls

Allow HTTP traffic

Allow HTTPS traffic

Network tags

alpha-server X



<input type="checkbox"/>	Name ^	Zone	Recommendation	Internal IP	External IP	Connect
<input type="checkbox"/>	✓ image-server	us-central1-b		10.128.0.2	35.188.75.19	SSH ▾
<input type="checkbox"/>	✓ web-server	us-central1-b		10.128.0.4	104.198.79.167	SSH ▾

<input type="checkbox"/>	Name ^	Zone	Creation time	Instances	Template	Recommendation	Autoscaling	In use by
<input type="checkbox"/>	✓ image-group	us-central1-b	Dec 29, 2017, 11:24:34 AM	1	—	—	—	—
<input type="checkbox"/>	✓ web-group	us-central1-b	Dec 29, 2017, 11:19:04 AM	1	—	—	—	—



<input type="checkbox"/>	Name ^	Host	Path	Protocol	Port	In use by
<input type="checkbox"/>	http-health-check	/		HTTP	80	

Buckets / gcp-bk-content-filtering / static					
<input type="checkbox"/>	Name	Size	Type	Storage class	Last modified
<input type="checkbox"/>	GCP1.png	92.98 KB	image/png	Multi-Regional	2017-12-29

[New HTTP\(S\) load balancer](#)

<p>Name <a href="#">?</a> web-content-lb</p> <p>Backend configuration You have not configured your backend yet</p> <p>Host and path rules Requests will be sent to the default backend</p> <p>Frontend configuration Your frontend is configured</p> <p>Review and finalize Optional</p> <p><a href="#">Create</a> <a href="#">Cancel</a></p>	<p>Backend configuration</p> <p>Create or select a backend service for incoming traffic. You can add multiple backend services and backend buckets to serve different types of content.</p> <p>Backend services &amp; backend buckets Create or select backend services &amp; backend buckets</p>
---	---

Backend services & backend buckets

Create or select backend services & backend buckets

Backend services > Create a backend service

Backend buckets

## Create backend service

Name 

 Description

Protocol: HTTP Named port: http Timeout: 30 seconds 

### Backends

web-group (Zone: us-central1-b, Port: 80)

*Not saved*



 Add backend

Health check 

http-health-check (HTTP)

port: 80, timeout: 5s, check interval: 5s, unhealthy threshold: 2 attempts

Session affinity 

Affinity cookie TTL 

None

0

seconds

 Advanced configurations

Cloud CDN 

Enable Cloud CDN

**Create**

Cancel

## Create backend bucket

Name 

 [Description](#)

Cloud Storage bucket

 gcp-bk-content-filtering

Browse

Cloud CDN 

Enable Cloud CDN

## Backend configuration

Create or select a backend service for incoming traffic. You can add multiple backend services and backend buckets to serve different types of content.

### Backend services & backend buckets

Create or select backend services & backend buckets

#### Backend services

	Name	Instance groups		
1.	web-backend-service	1		
2.	image-backend-service	1		

#### Backend buckets

	Name		
1.	static-thumbnail-bucket		

## Host and path rules

Host and path rules determine how your traffic will be directed. You can direct traffic to a backend service or a storage bucket. Any traffic not explicitly matched with a host and path rule will be sent to the default service selected on the first row.

Hosts	Paths	Backends
Any unmatched (default)	Any unmatched (default)	web-backend-service ▾ 
*  	/image   /image/*  	image-backend-service ▾ 
*  	/static/*  	static-thumbnail-bucket ▾ 

## Frontend configuration

Specify an IP address, port and protocol. This IP address is the frontend IP for your clients requests. For SSL, a certificate must also be assigned.

New Frontend IP and port

**Name** (Optional) [?](#)  
http-web-rule

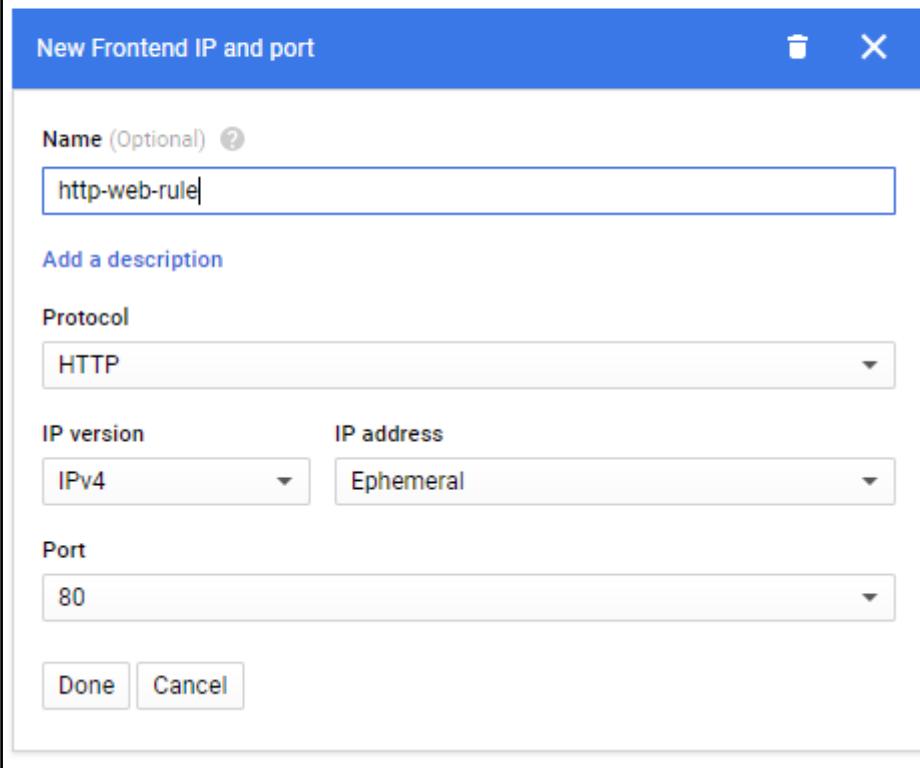
Add a description

**Protocol**  
HTTP

**IP version** IPv4      **IP address** Ephemeral

**Port**  
80

**Done** **Cancel**



Load balancing

[CREATE LOAD BALANCER](#) [REFRESH](#)

Backend

Backend services

1. web-backend-service

Endpoint protocol: HTTP Named port: http Timeout: 30 seconds Health check: http-health-check Session affinity: None Cloud CDN: disabled

2. image-backend-service

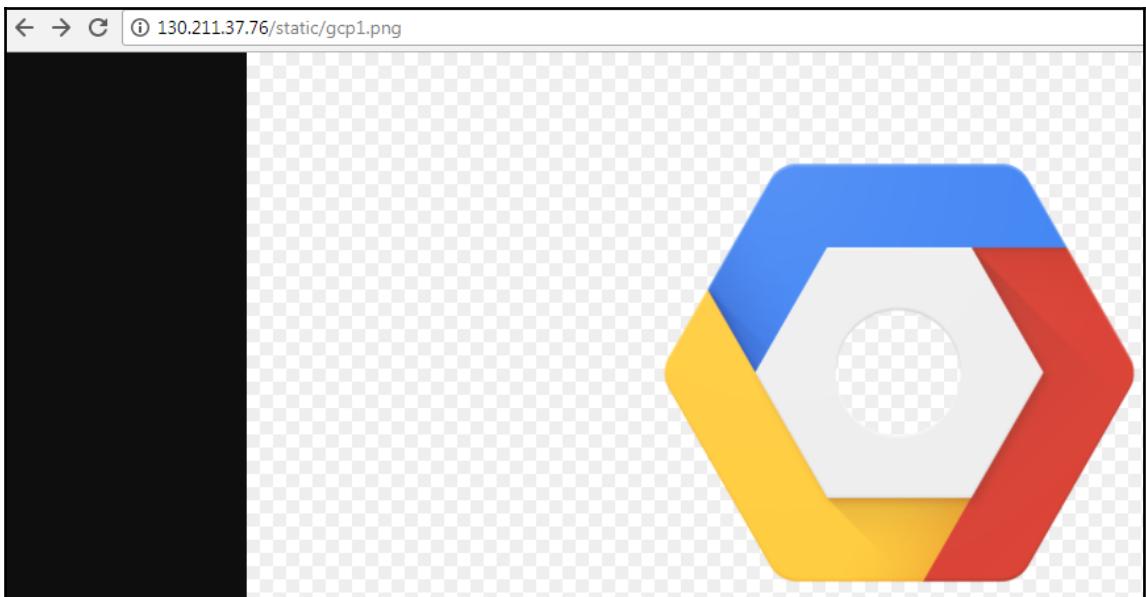
Endpoint protocol: HTTP Named port: http Timeout: 30 seconds Health check: http-health-check Session affinity: None Cloud CDN: disabled

Advanced configurations

Instance group ^	Zone	Healthy	Autoscaling	Balancing mode	Capacity
web-group	us-central1-b	1 / 1	Off	Max CPU: 80%	100%

Instance group ^	Zone	Healthy	Autoscaling	Balancing mode	Capacity
image-group	us-central1-b	1 / 1	Off	Max CPU: 80%	100%





VPC networks		<a href="#">+ CREATE VPC NETWORK</a>		<a href="#">REFRESH</a>			
Name ^	Region	Subnets	Mode	IP addresses ranges	Gateways	Firewall Rules	Global dynamic routing
alpha	us-central1	1	Custom		0	Off	
		alpha-subnet-1		192.168.0.0/16	192.168.0.1		
beta	us-central1	1	Custom		0	Off	
		beta-subnet-1		10.1.0.0/24	10.1.0.1		

<input type="checkbox"/>	Name ^	Zone	Recommendation	Internal IP	External IP	Connect	
<input checked="" type="checkbox"/>	alpha-instance	us-central1-a		192.168.0.2	104.198.73.228	SSH ▾	<span>⋮</span>
<input checked="" type="checkbox"/>	beta-instance	us-central1-a		10.1.0.2	35.226.118.252	SSH ▾	<span>⋮</span>

[Create peering connection](#)

Name [?](#)  
alpha2beta

Your VPC network [?](#)  
alpha

Peered VPC network  
 In project upbeat-aura-163616  
 In another project

VPC network name  
beta

Your VPC network will be fully connected to the peered VPC network (full mesh topology). Routes to subnets in the peered VPC network will be automatically created.

[Create](#) [Cancel](#)

[Create peering connection](#)

Name [?](#)  
beta2alpha

Your VPC network [?](#)  
beta

Peered VPC network  
 In project upbeat-aura-163616  
 In another project

VPC network name  
alpha

**Info** Your VPC network will be fully connected to the peered VPC network (full mesh topology). Routes to subnets in the peered VPC network will be automatically created.

[Create](#) [Cancel](#)

VPC Network Peering					<a href="#">+ CREATE PEERING CONNECTION</a>	<a href="#">REFRESH</a>	<a href="#">DELETE</a>
<input type="checkbox"/> Name ^	Your VPC network	Peered VPC network	Peered project ID	Status			
<input type="checkbox"/> alpha2beta	alpha	beta	upbeat-aura-163616	Connected.			
<input type="checkbox"/> beta2alpha	beta	alpha	upbeat-aura-163616	Connected.			

---

VPC networks

[+ CREATE VPC NETWORK](#) [REFRESH](#)

Name	Region	Subnets	Mode	IP addresses ranges	Gateways	Firewall Rules	Global dynamic routing
alpha-nw		1	Custom		1	Off	
	us-east1	alpha-subnet-vpn		10.1.0.0/16	10.1.0.1		
beta-nw		1	Custom		1	Off	
	us-central1	beta-subnet-vpn		10.2.0.0/24	10.2.0.1		

External IP addresses

[+ RESERVE STATIC ADDRESS](#) [REFRESH](#) [RELEASE STATIC ADDRESS](#)

<input type="checkbox"/>	Name	External Address	Region	Type	Version	In use by	Labels
<input type="checkbox"/>	alpha-static-ip	35.185.69.191	us-east1	Static	IPv4	<span style="color: yellow;">⚠</span> None	<a href="#">Change</a>
<input type="checkbox"/>	beta-static-ip	35.193.66.180	us-central1	Static	IPv4	<span style="color: yellow;">⚠</span> None	<a href="#">Change</a>

VM instances

[+ CREATE INSTANCE](#) [▼](#) [IMPORT VM](#) [REFRESH](#) [START](#)

Filter VM instances ?

<input type="checkbox"/>	Name	Zone	Recommendation	Internal IP	External IP	Connect
<input type="checkbox"/>	<span style="color: green;">✓</span> alpha-instance	us-east1-c		10.1.0.2	35.196.241.176	SSH <span style="color: green;">▼</span> <span style="color: green;">⋮</span>
<input type="checkbox"/>	<span style="color: green;">✓</span> beta-instance	us-central1-c		10.2.0.2	35.226.48.72	SSH <span style="color: green;">▼</span> <span style="color: green;">⋮</span>

## [←](#) Create a VPN connection

A virtual private network lets you securely connect your Google Compute Engine resources to your own private network. Google VPN uses IKEv1 or IKEv2 to establish the IPSec connectivity. [Learn more](#)

### Google Compute Engine VPN gateway [?](#)

Name [?](#)

Description (Optional)



Network [?](#)

Region [?](#)

IP address [?](#)

**Tunnels** [?](#)

You can have multiple tunnels to a single Peer VPN gateway

**Remote peer IP address** [?](#)

trash | edit

**IKE version** [?](#)

down arrow

**Shared secret** [?](#)

**Routing options** [?](#)

**Static**

**Remote network IP ranges** [?](#)

Enter multiple IP address ranges (in CIDR notation) by pressing Enter after each one

trash

**Local subnetworks** [?](#) (Optional)

down arrow

**Local IP ranges** [?](#)

trash

[+ Add tunnel](#)

[Create](#) [Cancel](#)

## [←](#) Create a VPN connection

A virtual private network lets you securely connect your Google Compute Engine resources to your own private network. Google VPN uses IKEv1 or IKEv2 to establish the IPSec connectivity. [Learn more](#)

### Google Compute Engine VPN gateway [?](#)

#### Name [?](#)

#### Description (Optional)

#### Network [?](#)



#### Region [?](#)

#### IP address [?](#)

**Tunnels** [?](#)

You can have multiple tunnels to a single Peer VPN gateway

Remote peer IP address <a href="#">?</a>	<input type="text" value="35.185.69.191"/> <a href="#">trash</a> <a href="#">edit</a>
IKE version <a href="#">?</a>	<input type="text" value="IKEv2"/> <a href="#">dropdown</a>
Shared secret <a href="#">?</a>	<input type="text" value="Secretkey\$"/>
Routing options <a href="#">?</a>	<input checked="" type="radio" value="Dynamic (BGP)"/> <input type="radio" value="Static"/> Static
Remote network IP ranges <a href="#">?</a>	Enter multiple IP address ranges (in CIDR notation) by pressing Enter after each one <input type="text" value="10.1.0.0/24"/> <a href="#">x</a>
Local subnetworks <a href="#">?</a> (Optional)	<input type="text" value="1 selected..."/> <a href="#">dropdown</a>
Local IP ranges <a href="#">?</a>	<input type="text" value="10.2.0.0/24"/> <a href="#">x</a>
<a href="#">+ Add tunnel</a>	
<a href="#">Create</a>	<a href="#">Cancel</a>

**VPN** [+ CREATE VPN CONNECTION](#) [REFRESH](#) [DELETE](#)

<input type="checkbox"/>	Name	Network	Region	IP address	Remote peer IP address <a href="#">?</a>	<input checked="" type="checkbox"/> 35.193.66.180	Cloud routers	Logs	Firewall rules <a href="#">?</a>
<input type="checkbox"/>	alpha-vpn	alpha-nw	us-east1	35.185.69.191 <a href="#">?</a>	<input checked="" type="checkbox"/> 35.193.66.180		None	<a href="#">View</a>	<a href="#">Configure</a>
<input type="checkbox"/>	beta-vpn	beta-nw	us-central1	35.193.66.180 <a href="#">?</a>	<input checked="" type="checkbox"/> 35.185.69.191		None	<a href="#">View</a>	<a href="#">Configure</a>

---

Cloud VPN Gateway, alpha-vpn	All logs	Any log level	Last hour	Jump to now
Showing logs from the last hour ending at 4:24 PM (CET)				
▶  2018-01-13 16:23:22.239 CET sending DPD request				
▶  2018-01-13 16:23:22.239 CET generating INFORMATIONAL request 43 [ ]				
▶  2018-01-13 16:23:22.239 CET sending packet: from 35.185.69.191[500] to 35.193.66.180[500] (49 bytes)				
▶  2018-01-13 16:23:22.276 CET received packet: from 35.193.66.180[500] to 35.185.69.191[500] (49 bytes)				
▶  2018-01-13 16:23:22.276 CET parsed INFORMATIONAL response 43 [ ]				



## Create a bucket

### Name ?

Must be unique across Cloud Storage. **Privacy:** Do not include sensitive information in your bucket name. Others can discover your bucket name if it matches a name they're trying to use.

### Default storage class ?

Multi-Regional

Use to stream videos and host hot web content.

Best for data accessed frequently around the world.

Regional

Use to store data and run data analytics.

Best for data accessed frequently in one part of the world.

Nearline

Use to store rarely accessed documents.

Best for data accessed less than once per month.

Coldline

Use to store very rarely accessed documents.

Best for data accessed less than once per year.

### Regional location

Redundant within a single region.

▼ Specify labels

```
index.html
1 <html>
2   <body>
3     <h1>Index file to test CDN </h1>
4   </body>
5 </html>
```

Buckets / static-site-cdn-test			
Name	Size	Type	Storage class
index.html	71 B	text/html	Regional

← → C Sécurisé | https://storage.googleapis.com/static-site-cdn-test/index.html

# Index file to test CDN

New HTTP(S) load balancer

Name: static-site-lb

Backend configuration

Create or select a backend service for incoming traffic. You can add multiple backend services and backend buckets to serve different types of content.

Backend services & backend buckets

Backend services: Create or select backend services & backend buckets

Backend buckets: Create a backend bucket

Backend configuration: You have not configured your backend yet

Host and path rules: Requests will be sent to the default backend

---

## Create backend bucket

Name 

 Description

Cloud Storage bucket

 static-site-cdn-test

## Load balancing

[+ CREATE LOAD BALANCER](#)[REFRESH](#)[Load balancers](#)[Backends](#)[Frontends](#)

Load balancer

Protocol

 static-site-lb[Details](#)[Monitoring](#)[Caching](#)

Frontend

Protocol ^

IP:Port

Certificate

HTTP

35.186.217.96:80

—

Host and path rules

Hosts ^

Paths

Backend

All unmatched (default)

All unmatched (default)

static-site-backend

Backend

Backend buckets

1. static-site-backend

Cloud CDN: disabled

Bucket

static-site-cdn-test

← → ⌛ ⓘ 35.186.217.96/index.html

# Index file to test CDN

CHECKS COMPLETE 7 of 7 Locations	ERRORS FROM 0 Locations	AVG: 1 <sup>st</sup> VISIT 619.4 ms	AVG: 2 <sup>nd</sup> VISIT 135.0 ms
AGENT / LOCATION	FIRST VISIT	REPEAT VISIT	
<a href="#">London</a>	607.0 ms	117.0 ms	
<a href="#">San Francisco</a>	413.0 ms	119.0 ms	
<a href="#">Brisbane</a>	619.0 ms	144.0 ms	
<a href="#">Tel-Aviv</a>	872.0 ms	152.0 ms	
<a href="#">Buenos Aires</a>	174.0 ms	128.0 ms	
<a href="#">Johannesburg</a>	944.0 ms	122.0 ms	
<a href="#">Paris</a>	707.0 ms	163.0 ms	

[←](#) Add origin to Cloud CDN

Choose a load balancer as origin. Responses from the origin will be cached by Cloud CDN.

Origin [?](#)

Select origin

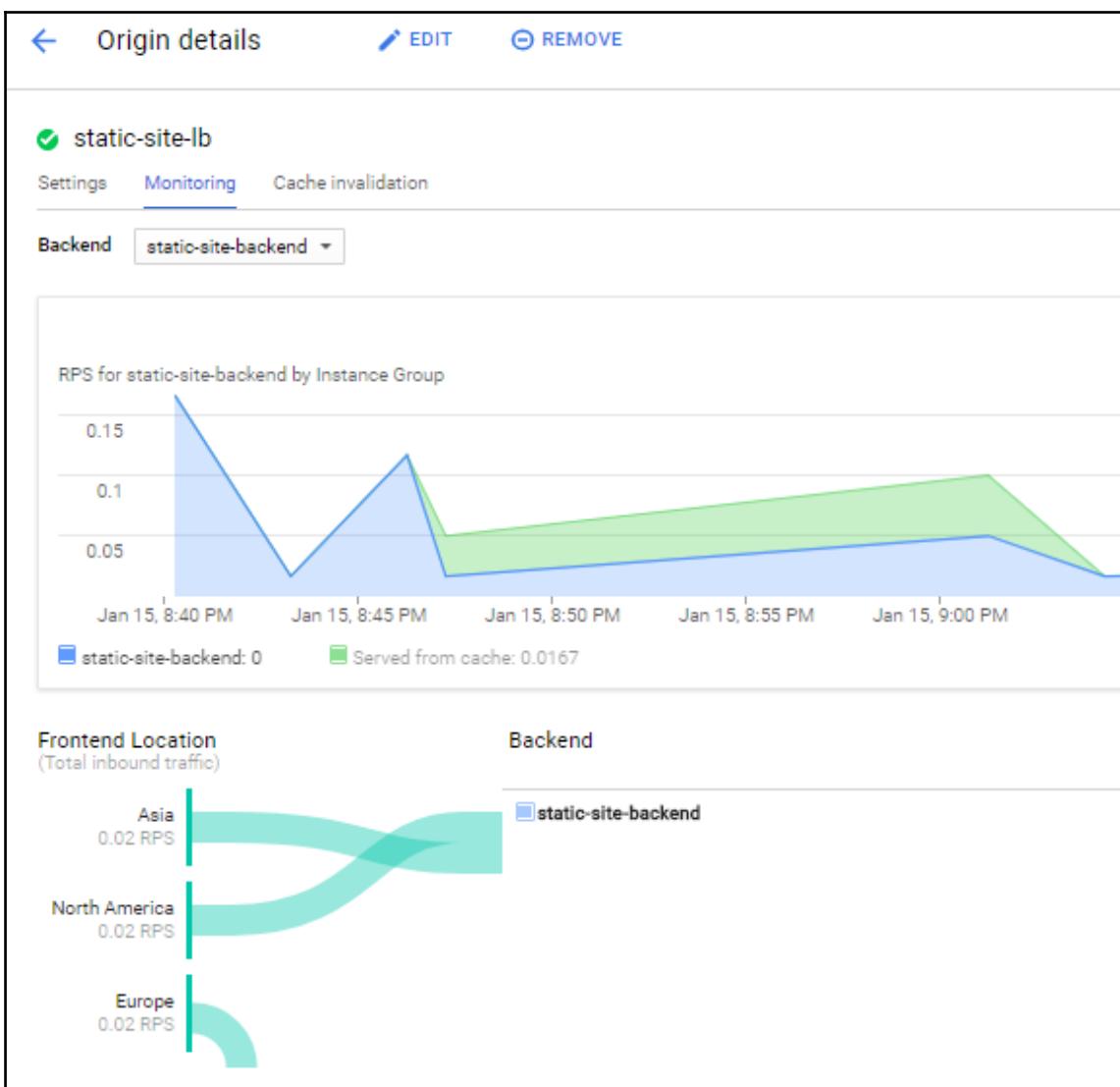
Filter  [X](#)

Create a load balancer...

Load balancer

static-site-lb

	CHECKS COMPLETE 7 of 7 Locations		ERRORS FROM 0 Locations		AVG: 1 <sup>st</sup> VISIT 398.4 ms		AVG: 2 <sup>nd</sup> VISIT 146.0 ms
AGENT / LOCATION	◆	FIRST VISIT	◆	REPEAT VISIT	◆		◆
<a href="#">London</a>		<a href="#">221.0 ms</a>		<a href="#">120.0 ms</a>			
<a href="#">San Francisco</a>		<a href="#">239.0 ms</a>		<a href="#">119.0 ms</a>			
<a href="#">Brisbane</a>		<a href="#">234.0 ms</a>		<a href="#">147.0 ms</a>			
<a href="#">Tel-Aviv</a>		<a href="#">719.0 ms</a>		<a href="#">245.0 ms</a>			
<a href="#">Buenos Aires</a>		<a href="#">308.0 ms</a>		<a href="#">133.0 ms</a>			
<a href="#">Johannesburg</a>		<a href="#">422.0 ms</a>		<a href="#">118.0 ms</a>			
<a href="#">Paris</a>		<a href="#">646.0 ms</a>		<a href="#">140.0 ms</a>			



```
index.html x
1 <html>
2   <body>
3     <h1>Index file to test CDN :: Updated </h1>
4   </body>
5 </html>
```

## Resolve conflict

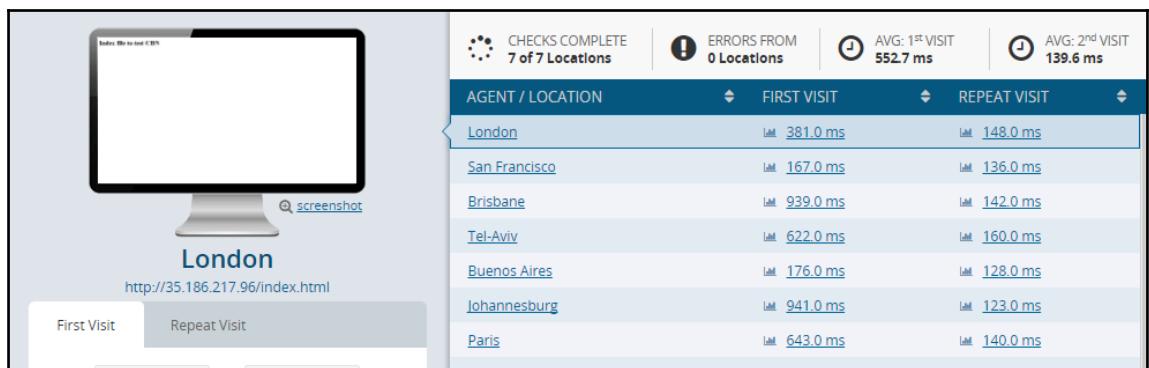
index.html already exists in static-site-cdn-test. How would you like to resolve this conflict?

- Replace existing object
- Skip uploading object
- Repeat for all remaining conflicts

CANCEL OK

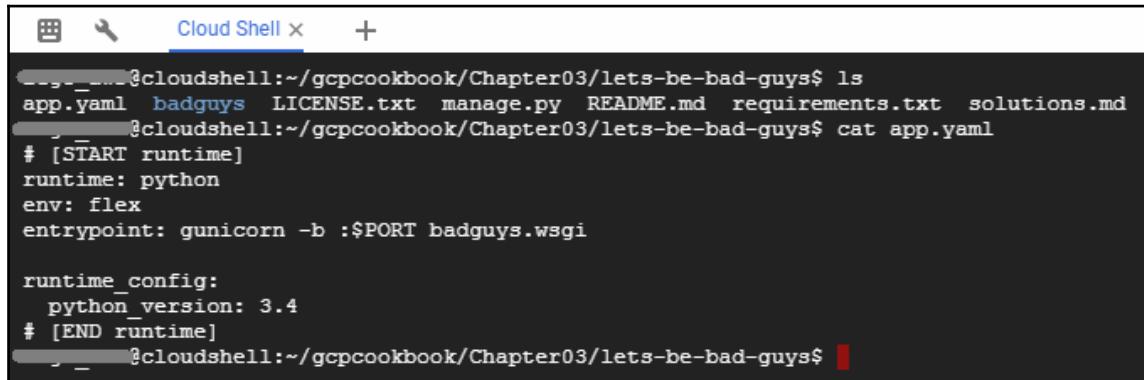
The screenshot shows a conflict resolution dialog and a performance dashboard. The dialog is titled 'Resolve conflict' and asks how to handle an existing 'index.html' file. It has three options: 'Replace existing object' (selected), 'Skip uploading object', and 'Repeat for all remaining conflicts'. Below the dialog is a 'CANCEL' and 'OK' button. To the left is a monitor icon displaying a white page with a red horizontal bar at the top. Below the monitor is the text 'Brisbane' and the URL 'http://35.186.217.96/index.html'. At the bottom are 'First Visit' and 'Repeat Visit' buttons. To the right is a performance dashboard with four sections: 'CHECKS COMPLETE 7 of 7 Locations', 'ERRORS FROM 0 Locations', 'AVG: 1<sup>st</sup> VISIT 552.7 ms', and 'AVG: 2<sup>nd</sup> VISIT 139.6 ms'. Below these are tables for 'AGENT / LOCATION', 'FIRST VISIT', and 'REPEAT VISIT'.

AGENT / LOCATION	FIRST VISIT	REPEAT VISIT
London	381.0 ms	148.0 ms
San Francisco	167.0 ms	136.0 ms
Brisbane	939.0 ms	142.0 ms
Tel-Aviv	622.0 ms	160.0 ms
Buenos Aires	176.0 ms	128.0 ms
Johannesburg	941.0 ms	123.0 ms
Paris	643.0 ms	140.0 ms

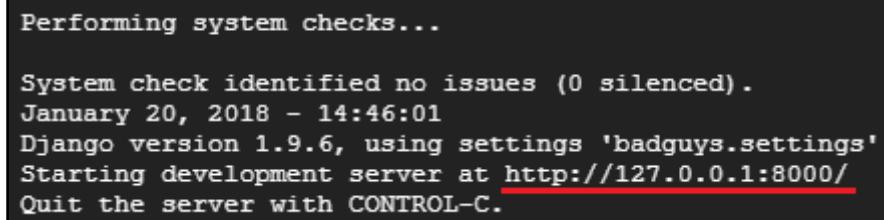


The screenshot shows a "static-site-lb" configuration page. At the top, there are tabs for "Settings", "Monitoring", and "Cache invalidation", with "Cache invalidation" being the active tab. Below the tabs, there's a section titled "Path pattern to invalidate" with a help icon. It says "Cached objects matching the path pattern will be invalidated in all Cloud CDN caches". A text input field contains the path pattern "/index.html", and a blue "Invalidate" button is to its right.

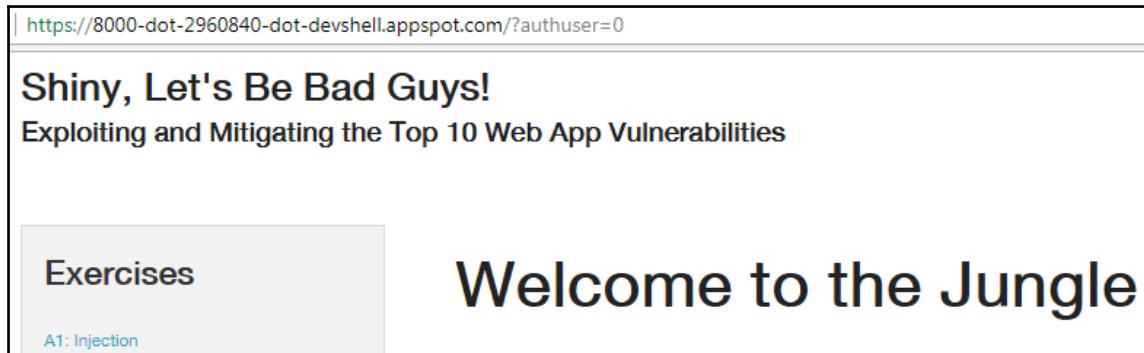
# Chapter 4: Security



```
Cloud Shell x +  
@cloudshell:~/gcpcookbook/Chapter03/lets-be-bad-guys$ ls  
app.yaml badguys LICENSE.txt manage.py README.md requirements.txt solutions.md  
@cloudshell:~/gcpcookbook/Chapter03/lets-be-bad-guys$ cat app.yaml  
# [START runtime]  
runtime: python  
env: flex  
entrypoint: gunicorn -b :$PORT badguys.wsgi  
  
runtime_config:  
  python_version: 3.4  
# [END runtime]  
@cloudshell:~/gcpcookbook/Chapter03/lets-be-bad-guys$
```



```
Performing system checks...  
  
System check identified no issues (0 silenced).  
January 20, 2018 - 14:46:01  
Django version 1.9.6, using settings 'badguys.settings'  
Starting development server at http://127.0.0.1:8000/  
Quit the server with CONTROL-C.
```



https://8000-dot-2960840-dot-devshell.appspot.com/?authuser=0

## Shiny, Let's Be Bad Guys!

Exploiting and Mitigating the Top 10 Web App Vulnerabilities

Exercises

A1: Injection

# Welcome to the Jungle

---

## Security scans

[NEW SCAN](#) [RUN](#) [EDIT](#) [DELETE](#)

Scan date Jan 20, 2018 10:58 PM	URLs tested 127	Duration 25 min 15 sec	Vulnerabilities found 9
---------------------------------------	--------------------	---------------------------	----------------------------

[Results](#) [URLs tested](#) [Details](#)

▶ **Cross-site scripting (6)**

▼ **Clear Text Password (1)**

Your application appears to be transmitting a password field in clear text.

To protect sensitive information passing between client and server:

- use TLS/SSL certificates
- password fields should only be present on pages that use HTTPS
- form action attributes should always point to an HTTPS URL

[Learn more](#)

▼ <http://gcp-cookbook.appspot.com/direct-object-references/users/1>

Reproduction URL  
[http://gcp-cookbook.appspot.com/direct-object-references/users/1#javAscript:alert\(\)//](http://gcp-cookbook.appspot.com/direct-object-references/users/1#javAscript:alert()//)

Unescaped field names

name  
email  
password

▶ **Outdated Library (2)**

 Identity-Aware Proxy

Identity-Aware Proxy (IAP) lets you manage who has access to services hosted on App Engine and the Cloud HTTPS Load Balancer. [Learn more ↗](#)

To get started with IAP, add an [App Engine app](#) or configure [Cloud Load Balancer for IAP](#).  [↗](#)

ⓘ IAP for App Engine flexible environment is in beta.

⚠ Before you can use IAP, you need to configure your OAuth consent screen. [Configure consent screen](#)

Resource	IAP	Published	Configuration	⋮
App Engine app	<input type="checkbox"/>	<a href="https://gcp-cookbook.appspot.com">https://gcp-cookbook.appspot.com</a>	 OK	

Product name shown to users [?](#)

Homepage URL (Optional)

Product logo URL (Optional) [?](#)

 This is how your logo will look to end users  
Max size: 120x120 px

Privacy policy URL  
Optional until you deploy your app

Terms of service URL (Optional)

## Turn on IAP

This will only allow access to your App Engine app by members listed in the Access panel

Enter the domain names used to access this resource: [?](#)

gcp-cookbook.appspot.com [X](#)

gcp-cookbook.appspot-preview.com [X](#)

www.example.com

[CANCEL](#) [TURN ON](#)

Resource <a href="#">^</a>	IAP <a href="#">?</a>	Published <a href="#">?</a>	Configuration <a href="#">?</a>	⋮
App Engine app	<input checked="" type="checkbox"/>	<a href="https://gcp-cookbook.appspot.com">https://gcp-cookbook.appspot.com</a>	OK	



You don't have access

#### Troubleshooting Info

User: legorie@gmail.com

URL: <https://gcp-cookbook.appspot.com/>

If you should have access, please contact

 and provide the troubleshooting info above.

If you're signed in with multiple Google accounts, [try a different account](#).

to services hosted  
more ↗  
Cloud Load Balancer

Access	 ADD	 REMOVE
<p>Add members</p> <p>Enter one or more members below.</p> <p>Members </p> <input type="text" value="legorie@gmail.com"/> 	<p>CANCEL</p> <p>ADD</p>	

---

### Access

+ ADD   - REMOVE

Type	Members ^	Inherited
<input type="checkbox"/>	legorie@gmail.com	

| https://gcp-cookbook.appspot.com

## Shiny, Let's Be Bad Guys!

### Exploiting and Mitigating the Top 10 Web App Vulnerabilities

### Exercises

A1: Injection

# Welcome to the Jungle

### Encryption keys

REFRESH   + CREATE KEY RING

Key rings for "████████" project

Cloud Key Management Service lets you create, use, rotate, and manage cryptographic keys for data encryption. To encrypt or decrypt data with a key, use the Cloud KMS API. [Learn more](#)

Filter by name

<input type="checkbox"/> Name ^	Location	Keys
<input type="checkbox"/> fin-keyring	global	fin-encrypt-key

## Storage Reviewer

ID: projects/ubertutorial-100010/roles/compute.storageReviewer

Role launch stage : General Availability

### Description

Role for Storage Reviewer

### 24 combined permissions

compute.diskTypes.get  
compute.diskTypes.list  
compute.disks.get  
compute.disks.list  
compute.disks.useReadOnly  
compute.globalOperations.get  
compute.globalOperations.list  
compute.images.get  
compute.images.getFromFamily  
compute.images.list  
compute.images.useReadOnly  
compute.projects.get  
compute.regionOperations.get  
compute.regionOperations.list  
compute.regions.get  
compute.regions.list  
compute.snapshots.get  
compute.snapshots.list  
compute.snapshots.useReadOnly  
compute.zoneOperations.get  
compute.zoneOperations.list  
compute.zones.get  
compute.zones.list  
resourcemanager.projects.get



## Edit Role

Custom roles let you group permissions and assign them to members of your project or organization. You can manually select permissions or import permissions from another role. [Learn more](#)

ID: projects/your-project-id/roles/compute.storageReviewer

Name

Storage Reviewer

Description

Role for Storage Reviewer

Role launch stage

General Availability

Add Permissions

24 assigned permissions

Filter permission

All services

All types

Name

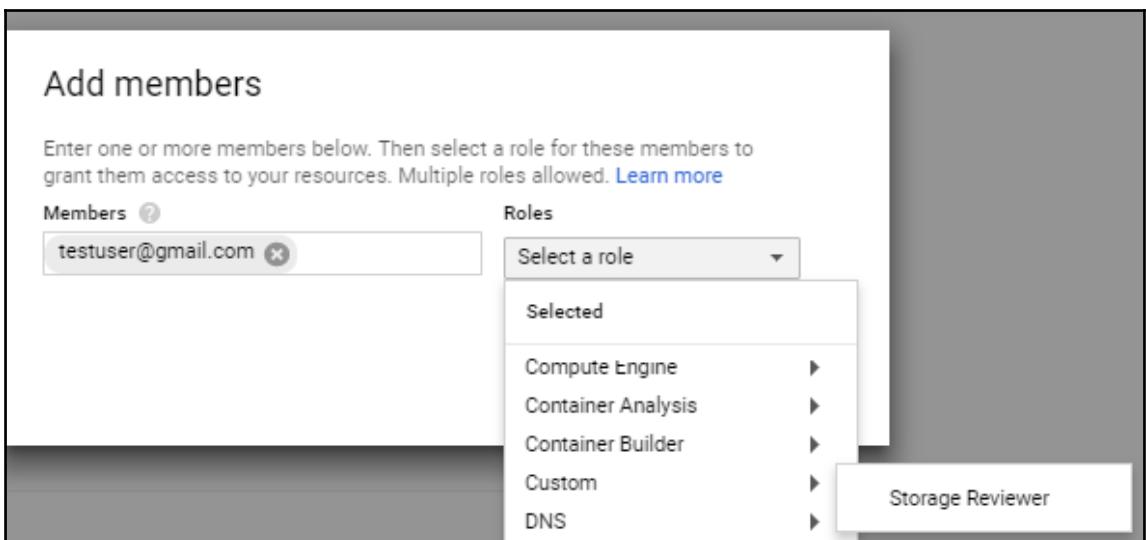
compute.diskTypes.get

compute.diskTypes.list

compute.disks.get

compute.disks.list

compute.disks.useReadOnly



[Disks](#)    [CREATE INSTANCE](#)    [CREATE SNAPSHOT](#)    [CREATE IMAGE](#)    [EDIT](#)    [DELETE](#)

tt-mongo-disk

Type  
Standard persistent disk

Size  
10 GB

Zone  
us-central1-c

Estimated performance

Operation Type	Read	Write
Sustained random IOPS limit	7.50	15.00
Sustained throughput limit (MB/s)	1.20	1.20

Encryption  
Automatic

Equivalent [REST](#)

Disks				
<a href="#">CREATE DISK</a> You don't have permission to create a disk				
<input type="checkbox"/> Filter Resources <span>?</span> Columns ▾				
<input type="checkbox"/> Name ^	Type	Size	Zone	In use by
<input checked="" type="checkbox"/> tt-mongo-disk	Standard persistent disk	10 GB	us-central1-c	<span>⋮</span>

<input type="checkbox"/> Instance ID <span>?</span>	Type	IP address	Instance connection name
<input checked="" type="checkbox"/> mysql-test	MySQL 2nd Gen 5.7	35.192.104.137	upbeat-aura-163616:us-central1:mysql-test

<input type="checkbox"/> Service account name ^	Service account ID
<input type="checkbox"/> App Engine default service account	upbeat-aura-163616@appspot.gserviceaccount.com
<input type="checkbox"/> Compute Engine default service account	518993786967-compute@developer.gserviceaccount.com
<input type="checkbox"/> Service a/c with sql access	my-sa-with-sql@upbeat-aura-163616.iam.gserviceaccount.com

[←](#) Create an instance

Name [?](#)  
instance-sql-1

Zone [?](#)  
us-central1-c

Machine type  
Customize to select cores, memory and GPUs.

micro (1 shared... ▾)      0.6 GB memory      [Customize](#)

[Upgrade your account to create instances with up to 96 cores](#)

Co

Bo   
App Engine default service account  
upbeat-aura-163616@appspot.gserviceaccount.com

Service a/c with sql access  
my-sa-with-sql@upbeat-aura-163616.iam.gserviceaccount.com

Compute Engine default service account  
518993786967-compute@developer.gserviceaccount.com

Ide   
No service account

Service a/c with sql access

Access scopes [?](#)  
Use IAM roles with service accounts to control VM access [Learn more](#)

IAM

[ADD](#)

[REMOVE](#)

---

## Add members

Enter one or more members below. Then select a role for these members to grant them access to your resources. Multiple roles allowed. [Learn more](#)

Members	Roles
my-sa-with-sql@upbeat-aura-163616.iam.gserviceaccount.com	Cloud SQL Admin Selected Cloud SQL Admin
Cloud SQL Admin Full control of Cloud SQL resources.	Project App Engine BigQuery Billing

```
logan@instance-sql-1:~$ gcloud sql connect mysql-test --user=root
ERROR: (gcloud.sql.connect) HTTPError 403: The client is not authorized to make this request.
logan@instance-sql-1:~$ gcloud sql connect mysql-test --user=root
Whitelisting your IP for incoming connection for 5 minutes...done.
Connecting to database with SQL user [root].Enter password:
Welcome to the MariaDB monitor. Commands end with ; or \g.
Your MySQL connection id is 434
Server version: 5.7.14-google-log (Google)

Copyright (c) 2000, 2017, Oracle, MariaDB Corporation Ab and others.

Type 'help;' or '\h' for help. Type '\c' to clear the current input statement.

MySQL [(none)]> 
```

```
1 resource.type="gce_instance"
2 protoPayload.methodName="beta.compute.instances.insert"
3 timestamp >= "2018-03-24T12:00:00.083434706Z"
```

**Submit Filter**

Last hour ▾

[Jump to now](#)

Showing logs from the last hour ending at 1:04 PM (CET)

↓

No older entries found matching your criteria

► i 2018-03-24 13:01:45.126 CET Compute Engine insert us-east1-b:instance-1

2018-03-24 13:01:51.808 CET Compute Engine insert us-east1-b:instance-1

↑

← → 🔍 Sécurisé | <https://developers.google.com/apis-explorer/#search/logging/>

Google

logging

loading

Q

APIs Explorer

Services

### ▼ [Comments](#)

DOCUMENTATION | [LOGGING](#) | [LOGS](#) | [LOG LEVELS](#) | [LOGGING API](#) | [LOGGING CONCEPTS](#)

## ⌚ Request Histo

 Stackdriver Logging API v2beta1 Writes log entries and manages your Stackdriver Logging configuration.

10 of 10

Google Service Control API v1 Default Google Service Control provides control plane functionality to managed services.

## logging.entries.list

Lists log entries. Use this method to retrieve log entries from Stackdriver Logging. For ways to export log entries, see Exporting Logs.

Search Result > Stackdriver Logging API v2 > logging.entries.list

Authorize requests

fields  Selector specifying which fields to include in a partial response.  
[Use fields editor](#)

Request body

```
{
  "resourceNames": [
    "projects/gcp-cookbook"
  ],
  "filter": "logName=projects/gcp-cookbook/logs/cloudaudit.googleapis.com%2Factivity AND resource.type=gce_instance AND protoPayload.methodName=beta.compute.instances.insert AND operation.first=True AND timestamp >= \"2018-01-24T02:13:02.356425Z\""
}
```

-- add a property -- ▾

[Authorize and execute](#)

[Execute without OAuth](#)

logging.entries.list executed moments ago time to execute: 484 ms

Request

```
POST https://logging.googleapis.com/v2/entries:list?key={YOUR_API_KEY}
{
  "resourceNames": [
    "projects/gcp-cookbook"
  ],
  "filter": "logName=projects/gcp-cookbook/logs/cloudaudit.googleapis.com%2Factivity AND \nresource.type=gce_instance AND \nprotoPayload.methodName=beta.compute.instances.insert AND \noperation.first=True AND \ntimestamp >= \"2018-03-24T02:13:02.356425Z\""
}
```

Response

```
200
- Show headers -
{
  "entries": [
    {
      "protoPayload": {
        "@type": "type.googleapis.com/google.cloud.audit.AuditLog",
        "authenticationInfo": {

```

# Chapter 5: Machine Learning and Big Data

Create Dataset

Dataset ID: TwitterData

Data location: US

Data expiration: Never

OK Cancel

Create Table

Source Data: Create empty table

Destination Table:

Table name:	TwitterData	theTweets
Table type:	Native table	

Schema

Name	Type	Mode
screen_name	STRING	NULLABLE
tweet_txt	STRING	NULLABLE

Add Field Edit as Text

Options

Partitioning Type: None

Partitioning Field: \_PARTITIONTIME

Require partition filter:

Destination Encryption: Default

Create Table

```
$ python twitter2BQ.py gcp-cookbook
advBookmark [BI] アップルのiCloud、実はGoogle Cloudを使っていた セキュリティなどの問題は？ https://t.co/7iiw8kyW58
Loaded 1 row into table
---
co_jit 3件のコメント https://t.co/vBbtWLK68i “アップルのiCloud、実はGoogle Cloudを使っていた セキュリティなどの問題は？” https://t.co/pkimi9cbwM
Loaded 1 row into table
---
```

New Query ?

Query Editor UDF Editor X

SQL

```
1 SELECT * FROM [Project ID]:TwitterData.theTweets] LIMIT 1000
```

RUN QUERY Save Query Save View Format Query Show Options

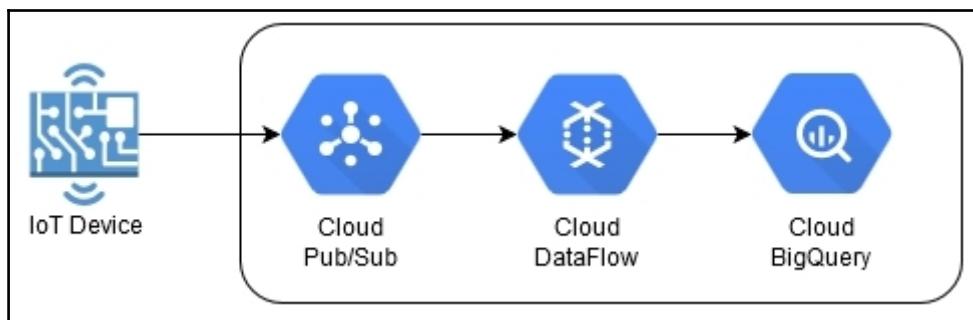
Ctrl + Enter: run query; Tab or Ctrl + Space: autocomplete.

Results Details Download as CSV Download as JSON Save as Table Save to Google Sheets

Row	screen_name	tweet_txt
1	co_jit	3件のコメント https://t.co/vBbtWLK68i “アップルのiCloud、実はGoogle Cloudを使っていた セキュリティなどの問題は？” https://t.co/pkimi9cbwM
2	ZiffyKat	RT @FoxNews: Trump, Netanyahu to meet amid growing uncertainty on Mideast peace deal https://t.co/BSDuLZeUxZI
3	advBookmark	[BI] アップルのiCloud、実はGoogle Cloudを使っていた セキュリティなどの問題は？ https://t.co/7iiw8kyW58

```
Tweet Text: サッカーワ杯代表選考、2段階で続り込む裏ハリ監督 - 日本経済新聞 https://t.co/ZHbumm68A7 #NEWS
Language: ja
Translation: Football World Cup national team selection, also a plan to narrow down in two stages Ha Ral Director - Nihon Keizai Shimbun https://t.co/ZHbumm68A7 # NEWS
---
Tweet Text: RT @DLoesch: From a guy that got his start being a horndog second banana on a show that ended every episode with a chick on a trampoline. H...
Language: en
---
Tweet Text: Surprised they didn't change dates ten minutes after the news hit. https://t.co/MDGRoVN5p4
Language: en
```

```
Tweet Text: #news #opiatecrisis #feelourpain https://t.co/eEAc54dR81
Language: en
Translation: #news #opiatecrisis #feelourpain https://t.co/eEAc54dR81
---
Tweet Text: RT @MirrorFootball: #MUFC: DE DONUT, TONI BARCELONA, Lindelof, Smalling, Young, McTominay, OTTO, Pogba, Alexis, Lukaku, Lingard https://t.c...
Language: en
Translation: RT @MirrorFootball: #MUFC: DE DONUT, TONI BARCELONE, Lindelof, Smalling, Jeune, McTominay, OTTO, Pogba, Alexis, Lukaku, Lingard https://t.c ...
---
Tweet Text: High school was a learning experience for me! Nigga was all on yahoo news and all the local news stations shit was mad epic.
Language: en
Translation: Le lycée était une expérience d'apprentissage pour moi! Nigga était tout sur les nouvelles de Yahoo et toutes les merdes de stations de nouvelles t'épiques folles.
---
Tweet Text: RT @logate13asr: #11/9/2016 بعنوان #العنوان https://t.co/7FWc4DMzn7 https://t.co/TqH7LrO8vC
Language: ar
Translation: RT @logate13asr: # Buts # Correspondances le 11/9/2016 https://t.co/7FWc4DMzn7 https://t.co/TqH7LrO8vC
---
Tweet Text: RT @CFMEU: "The combined strength of the CFMEU, MUA and TCFUA in our new union will write a new chapter in Australia's union movement. Ordin...
Language: en
Translation: RT @CFMEU: «La force combinée du CFMEU, MUA et TCFUA dans notre nouveau syndicat va écrire un nouveau chapitre dans le mouvement syndical aus...
---
Tweet Text: Google Unveils 72-Qubit Quantum Computer with Low Error Rates https://t.co/z3upUu7YqS https://t.co/Mp3m8i61r7
Language: en
Translation: Google dévoile l'ordinateur Quantique 72-Qubit avec des taux d'erreur faibles https://t.co/z3upUu7YqS https://t.co/Mp3m8i61r7
```



**Topic details**

projects/gcp-cookbook/topics/tempSensorTopic  
Subscriptions: 1

Name	Delivery type	Acknowledgement deadline	Project
projects/gcp-cookbook/subscriptions/readTempSubscptn	Pull	10	gcp-cookbook

**PUBLISH MESSAGE**   **CREATE SUBSCRIPTION**   **DELETE**

**Dataflow**   **Jobs**   **+ CREATE JOB FROM TEMPLATE**

**Create job from template**

**Job name**  
Specify a job name for the Dataflow job. [?](#)  
process-temperature

**Cloud Dataflow Regional Endpoint**  
The regional endpoint where metadata will be stored for the job. [Learn more](#) ↗  
us-central1

**Cloud Dataflow template**  
A pipeline that reads from a Pub/Sub topic and writes messages text files stored in GCS.  
Note that this pipeline assumes no newlines in the body of the Pub/Sub message and thus each message becomes a single line in the output file.

Cloud PubSub to GCS Text

## Parameters

### Input Cloud Pub/Sub topic

Cloud Pub/Sub topic to read the input from. The topic name should be in the format of projects/<project-id>/topics/<topic-name>.

### Output Cloud Storage directory

Path and filename prefix for writing output files (ex: gs://bucket-name/path/). This value must end in a slash.

### Output file prefix

The prefix to place on each windowed file (ex: output-).

### Output file suffix (Optional)

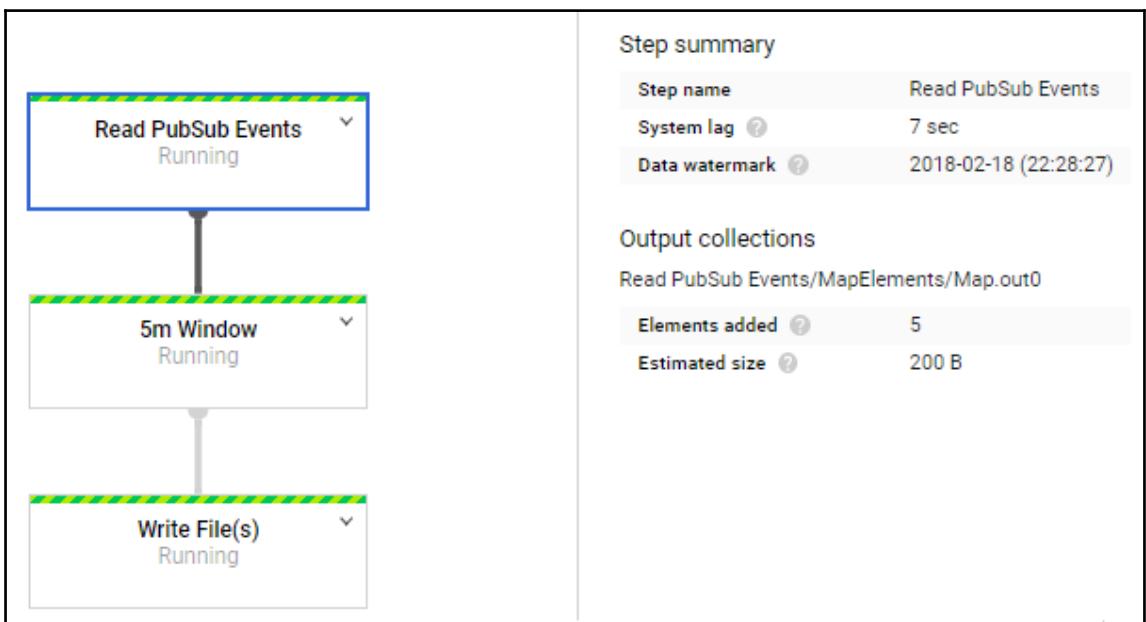
[Optional] The suffix to place on each windowed file. Typically a file extension (.txt, .csv, etc.).

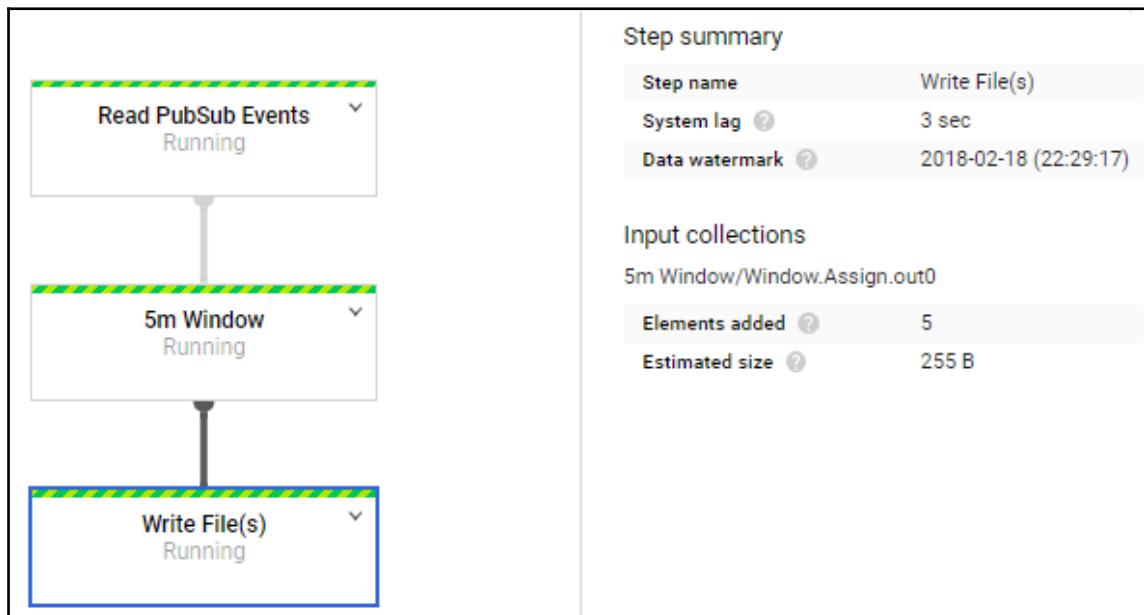
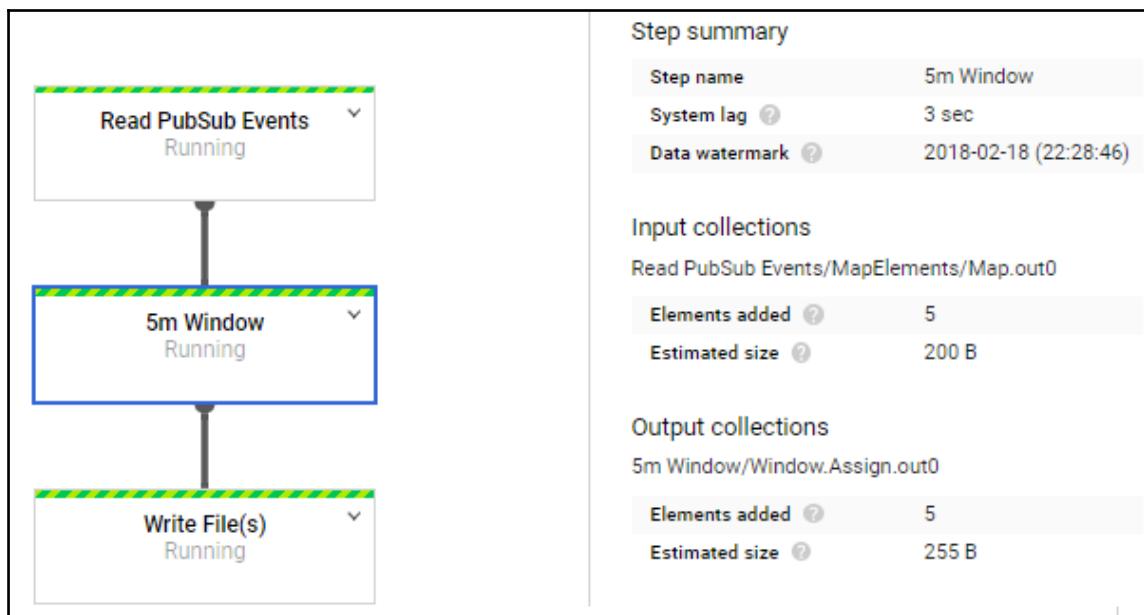
### The shard template (Optional)

[Optional] The shard template defines the unique/dynamic portion of each windowed file. Recommended to use the default (W-P-SS-of-NN). At runtime, 'W' is replaced with the window date range and 'P' is replaced with the pane info. Repeating sequences of the letters 'S' or 'N' (example: SSS-NNN) are replaced with the shard number and number of shards respectively. The pipeline assumes a single file output and thus will produce the text of '00-of-01' by default.

### Temporary Location

Path and filename prefix for writing temporary files. ex: gs://MyBucket/tmp





Buckets / tempsensor / data	
Name	Size
df2018-02-18T21:25:00.000Z-2018-02-18T21:30:00.000Z-pane-0-last-00-of-01.txt	135 B

Contents of the file:

```
22-Jan-2018 10:12:43 70.0F
22-Jan-2018 10:12:55 70.0F
22-Jan-2018 10:13:04 70.6F
22-Jan-2018 10:16:20 71.0F
22-Jan-2018 10:14:36 70.1F
```

IoT Core  
Device registries

A device registry allows you to group devices and set properties that they all share, such as connection protocol, data storage location, and Cloud Pub/Sub topics. To start connecting devices to Cloud IoT, first create a device registry to place them in. [Learn more](#)

[Create device registry](#)

Create a topic

A topic forwards messages from publishers to subscribers.

Name [?](#)

[CANCEL](#) [CREATE](#)

 IoT Core | [Create device registry](#)

Set shared properties for devices in this registry.

**Registry ID** [?](#)  
temperature-reg

**Cloud region** [?](#)  
us-central1

**Protocol** [?](#)  
 MQTT  
 HTTP

**Cloud Pub/Sub topics**

**Default telemetry topic** [?](#)  
projects/gcp-cookbook/topics/temperature

[Add more telemetry topics](#)

**Device state topic (Optional)** [?](#)  
Select a Pub/Sub topic

[Add CA certificate](#)

[Create](#) [Cancel](#)

 [← Create a subscription](#)

A subscription directs messages on a topic to subscribers. Messages can be pushed to subscribers immediately, or subscribers can pull messages as needed.

**Topic**  
projects/gcp-cookbook/topics/temperature

**Subscription name** [?](#)

**Delivery Type** [?](#)  
 Pull  
 Push into an endpoint url [?](#)

[More options](#)

[Create](#) [Cancel](#)



IoT Core



Add device

Add a device to registry temperature-reg.

Device ID

temp-mocked-dev-mc

Device communication

- Allow
- Block

Authentication (Optional)

Input method

- Enter manually
- Upload

Public key format

- RS256
- ES256
- RS256\_X509
- ES256\_X509

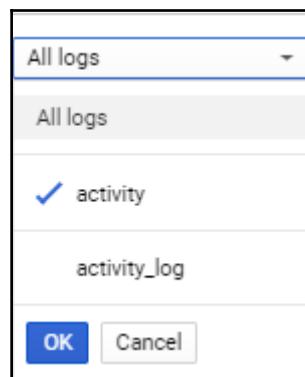
Public key value

tempIoT\_public\_cert.pem

Browse

# Chapter 6: Management Tools

The screenshot shows the Google Cloud Logging interface. On the left, there's a sidebar with icons for Metrics, Logs, Monitoring, and Cloud Trace. The main area has tabs for 'CREATE METRIC' and 'CREATE EXPORT'. Below that is a search bar labeled 'Filter by label or text search' and a dropdown menu set to 'GCE VM Instance'. To the right of the search bar are three dropdowns: 'All logs', 'Any log level', and a dropdown for 'Log type' which is currently set to 'Logs (CET)'. A message 'No entries' is displayed below the log type dropdown. The main content area lists various resources under 'Recently selected resources': GCE VM Instance, GCE VM Instance, 5958737414213893529, Cloud Function, imageresize, us-central1, Cloud Function, imageresize, and Cloud SQL Database. Below this is a list of other resources: BigQuery, Cloud IoT Device, Cloud IoT Device Registry, Cloud SQL Database, Dataflow Step, GCE Disk, GCE Instance Group Manager, GCE Instance Template, GCE VM Instance (which is checked), GCS Bucket, and Service Account.



▶	2018-03-11 11:43:10.891 CET	Compute Engine	insert	us-west1-a:instance-1
▶	2018-03-11 11:43:18.765 CET	Compute Engine	insert	us-west1-a:instance-1

GCE VM Instance activity Any log level Last hour Jump to now

Showing logs from the last hour ending at 11:45 AM (CET)

Load older logs

↓

2018-03-11 11:43:10.891 CET Compute Engine insert us-west1-a:instance-1 `debug@compute.google.com {"@type": "type.googleapis.com/google.cloud.audit.AuditLog", "insertId": "-27qs16d3xhk", "logName": "projects//logs/cloudaudit.googleapis.com%2Factivity", "operation": {...}, "protoPayload": { "@type": "type.googleapis.com/google.cloud.audit.AuditLog", "authenticationInfo": {...}, "authorizationInfo": [{}], "methodName": "beta.compute.instances.insert", "request": {...}, "requestMetadata": { "resourceName": "zones/us-west1-a/instances/instance-1" }, "response": {...}, "serviceName": "compute.googleapis.com" }, "receiveTimestamp": "2018-03-11T10:43:12.268507207Z", "resource": {...}, "severity": "NOTICE", "timestamp": "2018-03-11T10:43:10.891Z" }}`

methodName: "beta.compute.instances.insert"

request: {}

requestMetadata: { "resourceName": "zones/us-west1-a/instances/instance-1" }

response: {}

serviceName: "compute.googleapis.com"

receiveTimestamp: "2018-03-11T10:43:12.268507207Z"

resource: {...}

severity: "NOTICE"

timestamp: "2018-03-11T10:43:10.891Z"

2018-03-11 11:43:18.765 CET Compute Engine insert us-west1-a:instance-1 `debug@compute.google.com {"@type": "type.googleapis.com/google.cloud.audit.AuditLog", "insertId": "-27qs16d3xhk", "logName": "projects//logs/cloudaudit.googleapis.com%2Factivity", "operation": {...}, "protoPayload": { "@type": "type.googleapis.com/google.cloud.audit.AuditLog", "authenticationInfo": {...}, "authorizationInfo": [{}], "methodName": "beta.compute.instances.insert", "request": {...}, "requestMetadata": { "resourceName": "zones/us-west1-a/instances/instance-1" }, "response": {...}, "serviceName": "compute.googleapis.com" }, "receiveTimestamp": "2018-03-11T10:43:12.268507207Z", "resource": {...}, "severity": "NOTICE", "timestamp": "2018-03-11T10:43:10.891Z" }}`

---

[CREATE METRIC](#) [CREATE EXPORT](#) [C](#) [▶](#)

```
1 resource.type="gce_instance"
2 logName="projects/<Project ID>/logs/cloudaudit.googleapis.com%2Factivity"
3 protoPayload.methodName="beta.compute.instances.insert"
```

[Submit Filter](#) [Last hour](#) [Jump to now](#)

[CREATE METRIC](#) [CREATE EXPORT](#) [C](#) [▶](#)

```
1 resource.type="gce_instance"
2 logName="projects/<Project ID>/logs/cloudaudit.googleapis.com%2Factivity"
3 protoPayload.methodName="beta.compute.instances.insert"
4 NOT resource.labels.zone=("us-west1-c" OR "us-west1-a" OR "us-west1-b")
```

[Submit Filter](#) [Last hour](#) [Jump to now](#)

Showing logs from the last hour ending at 12:27 PM (CET)

↓ No older entries

▶ i 2018-03-11 12:26:31.755 CET Compute Engine insert us-central1-c:instance-1

▶ i 2018-03-11 12:26:48.805 CET Compute Engine insert us-central1-c:instance-1

↑

**Metric Editor**

---

**Name**  
VM\_outside\_US-West

**Description**  
VM created outside the specified region us-west1

**Labels** ?  
[+ Add item](#)

**Units** ? (Optional)  
Units

**Type** ?  
Counter

**Create Metric** **Cancel**

User-defined Metrics			
User defined logs-based metrics that count the number of log entries that match a given filter.			
Name	Type	Description	Filter
user/VM_outside_US-West	Counter	VM created outside the specified region us-west1	resource.type="gce_instance" logName="projects/[REDACTED]/logs/cloudaudit.googleapis.com%2Factivity" protoPayload.methodName="beta.compute.instances.insert" NOT resource.labels.zone="["us-west1-c" OR "us-west1-a" OR "us-west1-b"]"

[Edit metric](#)  
[Delete metric](#)  
[View in Metric Explorer](#) [C]  
[Create alert from metric](#) [C]

**Welcome to Stackdriver Monitoring!**

 **Monitor Uptime**  
 Check the availability of user-facing web pages, instances, and load balancers  
[CREATE CHECK](#)

 **Set Alerting Policies**  
 Get notified if anything goes wrong in your application or services  
[CREATE POLICY](#)

 **Create a Dashboard**  
 Improve your application by customizing a display with system-wide metrics  
[CREATE DASHBOARD](#)

## Create new alerting policy

### 1 Conditions

Conditions describe when apps and services are considered unhealthy. When conditions are met, they trigger alerting policy violations. [Learn more ↗](#)

**+ Add Condition**

### 2 Notifications (optional)

When alerting policy violations occur, you will be notified via these channels. [Learn more ↗](#)

**+ Add Notification**

### 3 Documentation (optional)

When email notifications are sent, they'll include any text entered here. This can convey useful information about the problem and ways to approach fixing it.

**+ Add Documentation**

## Select condition type

Conditions help you measure the health of your cloud services and platforms. Create a condition to determine when your alert should trigger. [Learn more ↗](#)

### Basic Types

#### Metric Threshold

**Select**



A threshold condition can be configured to alert you when any metric crosses a set line for a specific period of time (ex. alert me when the latency on my load balancer is greater than 1000 ms for 15 minutes). You can use this condition type to monitor many different metrics and fine tune exactly when you'd like to be notified.

## Add Metric Threshold Condition

A threshold condition can be configured to alert you when any metric crosses a set line for a specific period of time.

[Change](#)

### Target

RESOURCE TYPE

Log Metrics

### Configuration

IF METRIC

user/VM\_outside\_US-West

CONDITION

above

THRESHOLD

1

count

FOR

1 minute

RESOURCE

Any



TIME

1h

6h

1d

1w

1m

6w

## 2 Notifications (optional)

When alerting policy violations occur, you will be notified via these channels. [Learn more](#)

Email

jo@example.com



Add Another Notification

#### 4 Name this policy

A policy's name is used in identifying which policies were triggered, as well as managing configurations of different policies.

Alert on VM creation outside us-west

**Save Policy**

Cancel

GCP-Cookbook-Monitoring is not in a Stackdriver account

- Create a new Stackdriver account
- Add GCP-Cookbook-Monitoring to an existing Stackdriver account

**Continue**

Cancel

## Create your free Stackdriver account

Start your 30 day free trial. No credit card required.

Select or create a new Google Cloud Platform project to store your Stackdriver account settings and user permissions. The selection cannot be changed, but you can create other Stackdriver accounts later. [Learn more](#)

### Google Cloud Platform project

GCP-Cookbook-Monitoring



[Create Account](#)

[Cancel](#)

## Add Google Cloud Platform projects to monitor optional

Add Google Cloud Platform projects to monitor as part of this Stackdriver account. You can edit this selection later in account settings. [Learn more](#)



[Select all](#) [None](#)



GCP-Cookbook-Monitoring (gcp-cookbook-monitoring)

## Get Reports by Email

Stackdriver can send you reports on the performance of your cloud applications by email. Reports include information on incidents and utilization.

Select the frequency of reports that you would like to receive. You can change this setting any time in your Account Settings.

- Daily reports, including weekly summaries
- Weekly reports
- No reports

[Continue](#)

Finished initial collection!

[Launch monitoring](#)

<input type="checkbox"/>	Name ^	Zone	Recommendation	Internal IP	External IP	Connect	
<input type="checkbox"/>	instance-1	us-east1-b		10.142.0.2	35.229.39.6 ↗	SSH ▾	⋮
<input type="checkbox"/>	instance-2	us-east1-b		10.142.0.3	35.229.81.172 ↗	SSH ▾	⋮

# Testing 123..

This page is used to test the proper operation of the [Apache HTTP server](#) after it has been installed. If you can read this page it means that this site is working properly. This server is powered by [CentOS](#).

You don't have any uptime checks. [Learn more](#) about the uptime monitoring functionality.

[Create an Uptime Check](#)

## New Uptime Check

Title

instance1-uptime-check

Check Type

HTTP

Resource Type

Instance

Applies To

Single

instance-1

Path

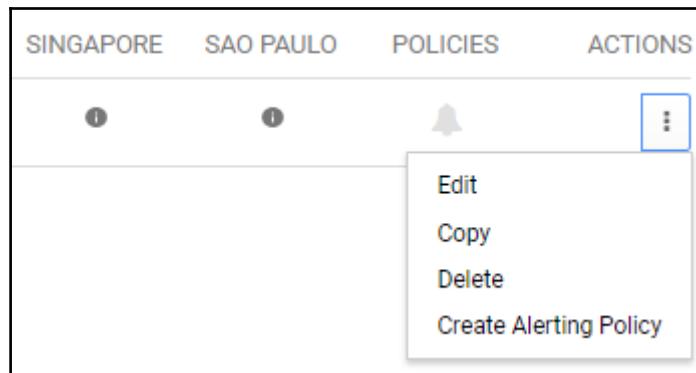
/index.html

Select protocol and enter the path component of the URL you want to check.

Check every

5 minutes

[Advanced Options](#)



## Edit Uptime Check Health Condition

[Change](#)

### Condition Name

HTTP check on instance instance-1

### Target

#### RESOURCE TYPE

Instances ▾ Single instance-1

#### APPLIES TO

### Configuration

#### IF UPTIME CHECK

instance1-uptime-check

#### IS DOWN FOR

5 minutes

[Save Condition](#)

[Cancel](#)

#### 4 Name this policy

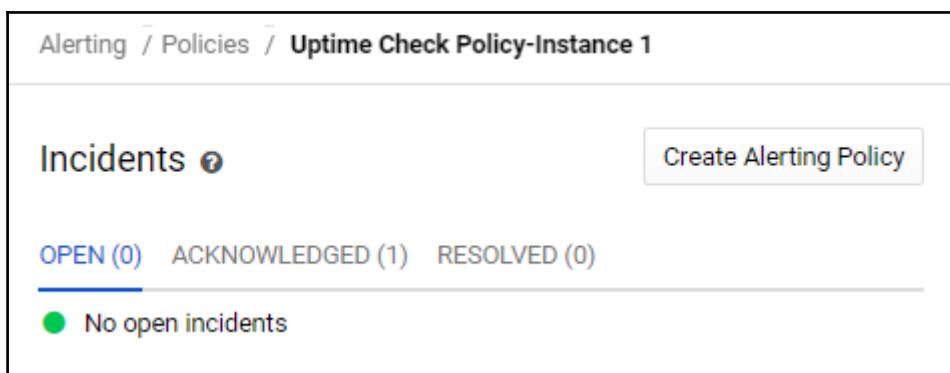
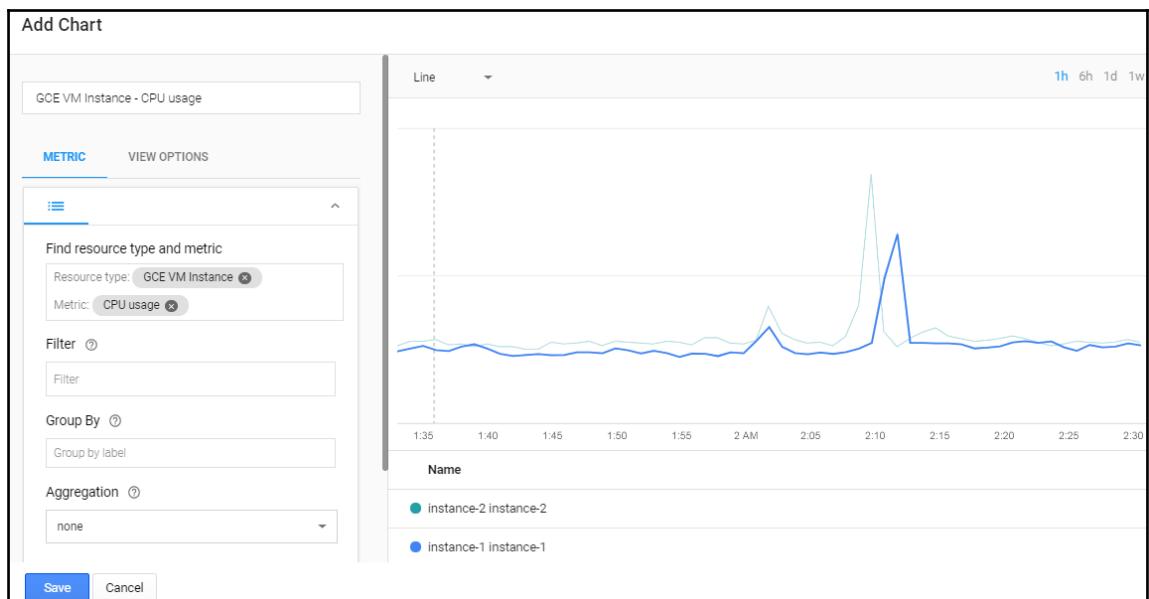
A policy's name is used in identifying which policies were triggered, as well as managing configurations of different policies.

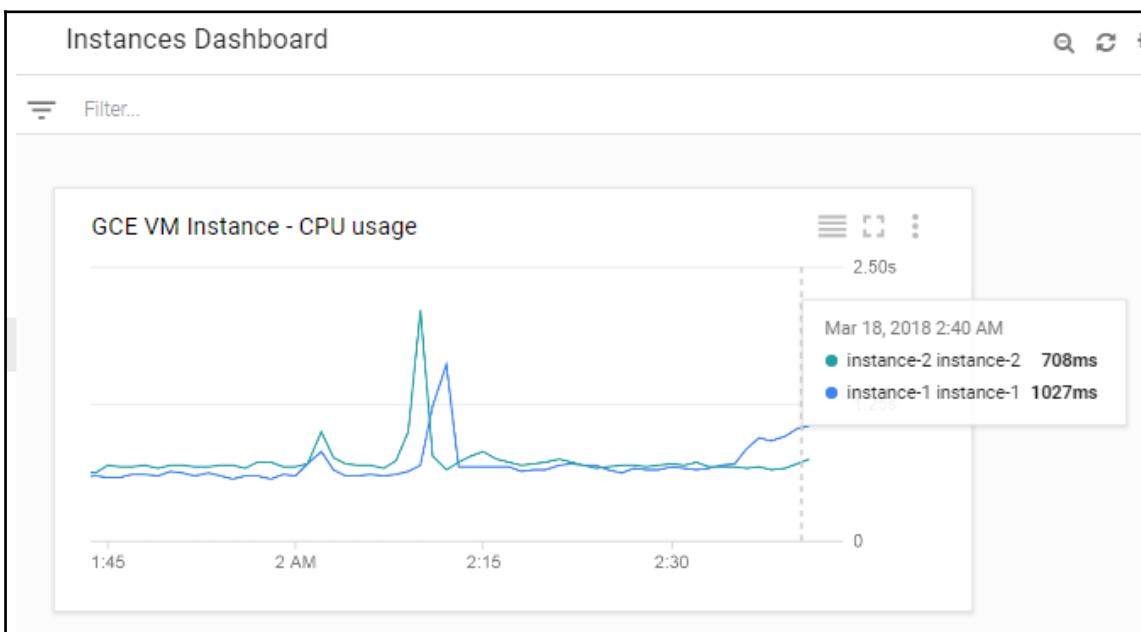
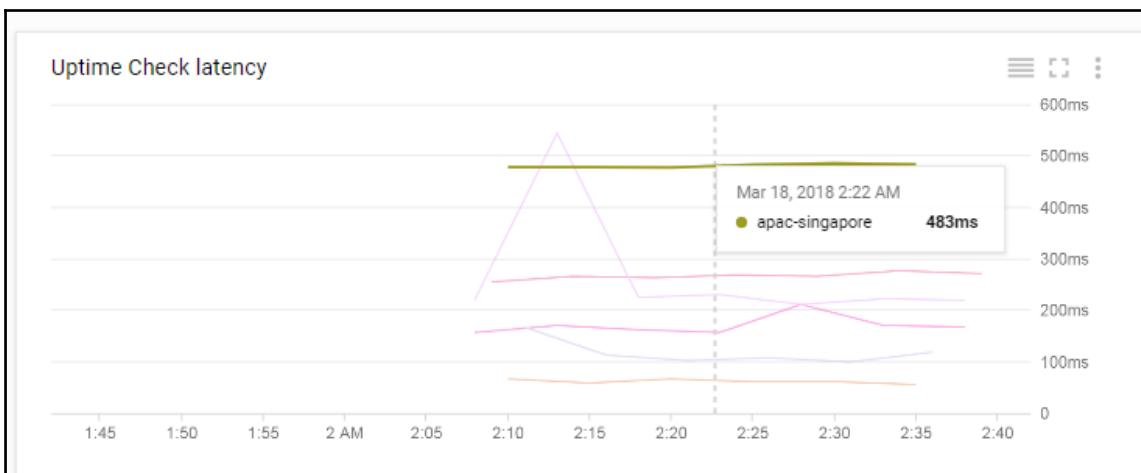
Alerting / Policies Order By Open Violations ▲

Filter...

POLICIES WITH BASIC CONDITIONS

On	<a href="#">Uptime Check Policy-Instance 1</a> - Uptime Check Health on Instance instance-1 fails modified a minute ago by <a href="#">logoname@gmail.com</a>
----	---





	Deployments	DEPLOY CLOUD LAUNCHER SOLUTION	DELETE
	<input type="text"/> Filter by label or name		
	<input type="checkbox"/> Name ^ <input type="checkbox"/> quickdeploy	Created on 5 minutes ago	Last modified 5 minutes ago

quickdeploy 

 quickstart-deployment-vm

quickdeploy is in preview

- Overview - quickdeploy
- data-disk-1 disk
- data-disk-2 disk
- quickstart-deployment-vm vm instance

Resource properties

<b>type</b>	compute.v1.instance
<b>disks</b>	- autoDelete: true boot: true deviceName: boot initializeParams: sourceImage: https://www.googleapis.com/compute/v1/projects/quickstart/deployments/quickstart-deployment-vm/disks/data-disk-1 type: PERSISTENT
<b>machineType</b>	https://www.googleapis.com/compute/v1/projects/quickstart/zones/us-central1-f/machineTypes/n1-standard-1
<b>networkInterfaces</b>	- accessConfigs: - name: External NAT type: ONE_TO_ONE_NAT network: https://www.googleapis.com/compute/v1/projects/quickstart/zones/us-central1-f/networks/quickstart-network
<b>zone</b>	us-central1-f

[←](#) quickdeploy  [DELETE](#)

quickdeploy has been deployed

[Overview - quickdeploy](#)

- [data-disk-1 disk](#)
- [data-disk-2 disk](#)
- [quickstart-deployment-vm vm instance](#)

[←](#) VM instance details  [EDIT](#)  [RESET](#)  [CLONE](#)  [STOP](#)  [DELETE](#)

Boot disk and local disks				
Name	Size (GB)	Type	Mode	
quickstart-deployment-vm	10	Standard persistent disk	Boot, read/write	

Delete boot disk when instance is deleted

Additional disks				
Name	Size (GB)	Type	Mode	When deleting instance
data-disk-1	10	Standard persistent disk	Read/write	Delete disk
data-disk-2	11	Standard persistent disk	Read/write	Delete disk

Deployments  [DEPLOY CLOUD LAUNCHER SOLUTION](#)  [DELETE](#)

Filter by label or name

<input checked="" type="checkbox"/> Name ^	Created on	Last modified
<input checked="" type="checkbox"/> quickdeploy	17 minutes ago	15 minutes ago
<input checked="" type="checkbox"/> vm2disk-deploy	4 minutes ago	4 minutes ago

---

IAM    [+ ADD](#)    [- REMOVE](#)

### Permissions for project "GCP Cookbook"

These permissions affect this project and all of its resources. [Learn more](#)

View By: [MEMBERS](#) [ROLES](#)

Type	Member ↑	Name	Role	Inheritance	
<input type="checkbox"/>	284284611269-compute@developer.gserviceaccount.com	Compute Engine default service account	Compute Admin		

## Edit permissions

Member  
284284611269-  
compute@developer.gserviceaccount.com      Project  
GCP  
Cookbook

Role  
Compute Admin ▾

Full control of all Compute Engine resources.

Type to filter

Dataproc	Error Reporting Admin
Datastore	Error Reporting User
Deployment Manager	Error Reporting Viewer
Dialogflow	Errors Writer
DNS	

Error Reporting
Firebase
Firebase Crash Repo...
Genomics

[MANAGE ROLES](#)

Name ↑	Role
Compute Engine default service account	Compute Admin Errors Writer

<input type="checkbox"/> Name ^	Zone	Recommendation	Internal IP	External IP	Connect
<input checked="" type="checkbox"/> flask-instance	us-east1-c		10.142.0.2	35.196.237.75	SSH <span>⋮</span>

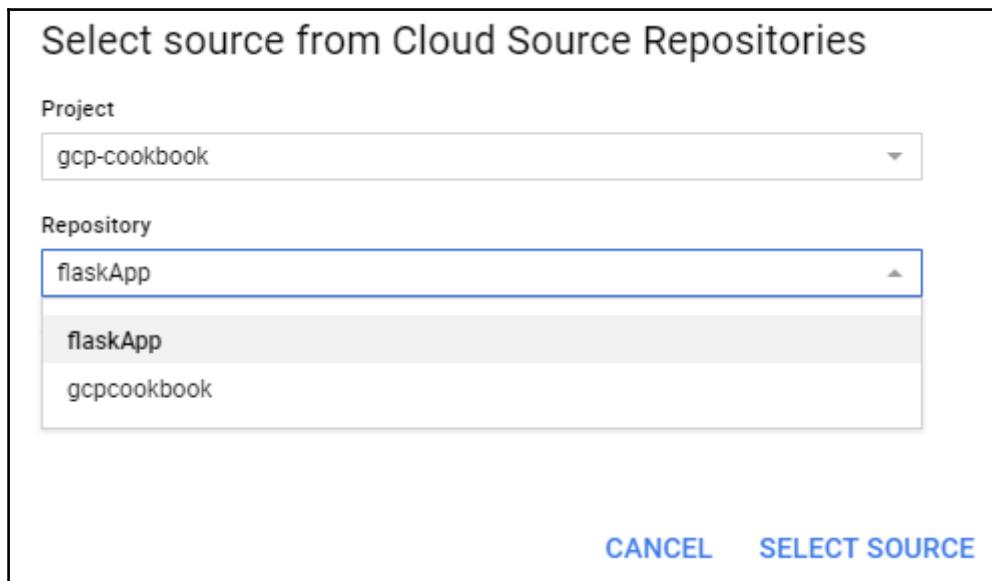
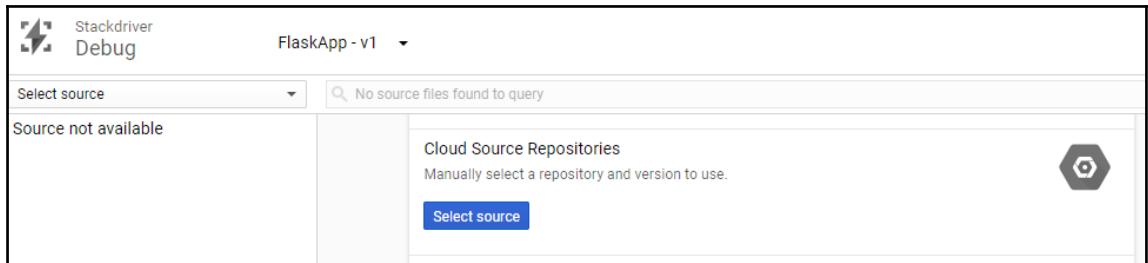
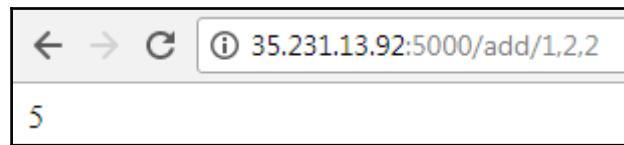


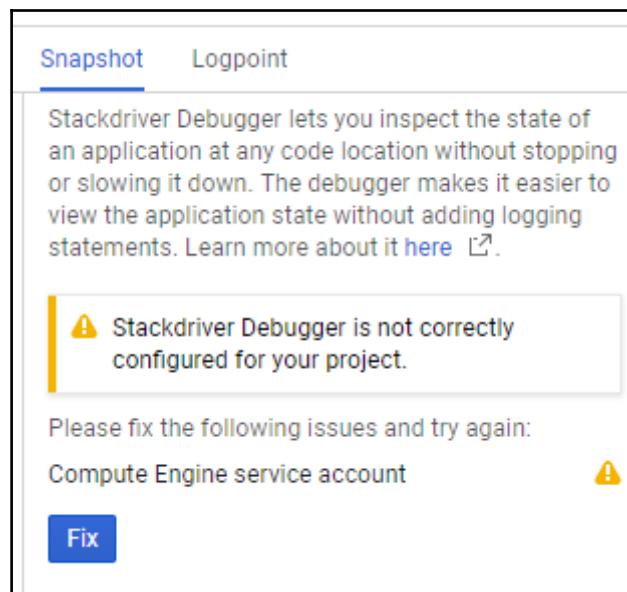
<input type="checkbox"/> 35.196.237.75:5000/error	
<b>Internal Server Error</b>	
The server encountered an internal error and was unable to complete your request. Either the server is overloaded or there is an error in the application.	

Stackdriver Error Reporting		All versions	Open, Acknowledged	AUTO RELOAD
Filter errors				
Errors in the last hour				
Resolution Status	Occurrences ▾	Error	Seen in	First seen Last seen
1 Open	1	NEW NameError simulate_error (hello.py)	python	5 minutes ago 5 minutes ago
1 Open	1	NEW An error has occurred. report_manual_error (hello.py)	python	5 minutes ago 5 minutes ago



Type	Member ↑	Name	Role	Inheritance
<input checked="" type="checkbox"/>	284284611269-compute@developer.gserviceaccount.com	Compute Engine default service account	Stackdriver Debugger Agent Compute Admin Errors Writer Source Repository Writer	<span>⋮</span>





Stackdriver Debug

FlaskApp - v1

Type a file name

cloud repository:/

helloDebug.py

requirements.txt

```
1 # Sample code to demonstrate GCP Debugger
2 from flask import Flask
3 import re
4 app = Flask(__name__)
5
6 @app.route('/')
7 def hello_world():
8     return 'Hello World! - testing debugger'
9
10 @app.route('/add/<int_list>')
11 # Thanks to :
12 # https://stackoverflow.com/questions/35437180/capture-a-list-of-integers-with-a-flask-route
13 def index(int_list):
14     # Make sure it is a list that only contains integers.
15     if not re.match(r'^\d+(:,\d+)*,$', int_list):
16         return "Please input a list of integers, split with ,"
17     result = sum(int(i) for i in int_list.split(','))
18     return "{0}".format(result)
19
20 if __name__ == '__main__':
21     app.run(host='0.0.0.0')
```

The screenshot shows the GCP Debugger interface with the following details:

- Code Editor:** Displays the Python file `helloDebug.py` with line 17 highlighted:

```
1 # Sample code to demonstrate GCP Debugger
2 from flask import Flask
3 import re
4 app = Flask(__name__)
5
6 @app.route('/')
7 def hello_world():
8     return 'Hello World! - testing debugger'
9
10 @app.route('/add/<int_list>')
11 # Thanks to :
12 # https://stackoverflow.com/questions/35437180/capture-a-list-of-integers-with-a-flask-route
13 def index(int_list):
14     # Make sure it is a list that only contains integers.
15     if not re.match(r'^\d+(?:,\d+)*$', int_list):
16         return "Please input a list of integers, split with ','"
17     result = sum(int(i) for i in int_list.split(','))
18     return "{}".format(result)
19
20 if __name__ == '__main__':
21     app.run(host='0.0.0.0')
22
23
```
- Snapshot:** Shows the current state of the application.
- Logpoint:** Allows setting conditions and expressions for logging.
- Variables:** Shows the variable `int_list` with the value `u'1,2,2'`.
- Call Stack:** Displays the call stack trace:

Call Stack	File	Line
index	helloDebug.py	17
Flask.dispatch_request	app.py	1598
Flask.full_dispatch_request	app.py	1612
Flask.wsgi_app	app.py	1982
Flask.__call__	app.py	1997
execute	serving.py	258
WSGIRequestHandler.run_wsgi	serving.py	270
WSGIRequestHandler.handle_one_request	serving.py	328

# Chapter 7: Best Practice

Service Accounts    [CREATE SERVICE ACCOUNT](#)    [DELETE](#)    [PERMISSIONS](#)

A service account represents a Google Cloud service identity, such as code running on Compute Engine VMs, App Engine apps, or systems running outside Google Cloud.

Find a service account

Service account name	Service account ID	Key ID
<input type="checkbox"/> securitymonkey	securitymonkey@upbeat-aura-163616.iam.gserviceaccount.com	2c85a1b13995368434966a200972d036e42c48c0

View By: [MEMBERS](#) [ROLES](#)

securitymonkey [Filter table](#)

Type	Member ↑	Name	Role	Inheritance
<input type="checkbox"/>	securitymonkey@upbeat-aura-163616.iam.gserviceaccount.com	securitymonkey	Security Reviewer Viewer	<a href="#"></a> <a href="#"></a>

Non sécurisé | <https://35.192.157.150/login?next=https%3A%2F%2F35.192.157.150%2F>

Security Monkey

Login

SSO

OR

Email address

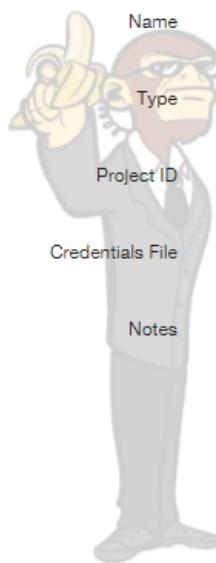
Password

Remember me

**Sign in**



## Edit Account



Name	<input type="text" value="test-env"/>
Type	<input type="text" value="GCP"/>
Project ID	<input type="text" value="upbeat-aura-163616"/>
Credentials File	<input type="text" value="/home/&lt;userid&gt;/cred.txt"/>
Notes	<input type="text" value="Notes"/>

Active ?- Should be scanned by security monkey.

Third Party ?

**Save**

**Delete**

← → ⌂ | ⚠ Non sécurisé | <https://35.192.157.150/#/dashboard>

**Security Monkey** Dashboard Search Internet Accessible ▾ Cross Account ▾ Reports ▾ Settings

Accounts		Recalculate Scores ↕
Clear All	Account ↑	Score ↓
<input checked="" type="checkbox"/>	test-env	232

Technology Issue Scores	
Technology ↑	Score ↓
gcefirewallrule	120
gcsbucket	112
iamserviceaccount	0
gcnetwork	0

High Score Items	
Account	Technology
test-env	gcsbucket

## Aging Issues

Account	Technology	Item Name	Issue	Score
test-env	gcefirewallrule	beta-nw-firewall	Source range open. Traffic permitted from any host.	7
test-env	gcefirewallrule	beta-nw-firewall	Target Tags Not Found in Firewall Rule.	3
test-env	gcefirewallrule	k8s-fw-a972c031f58df11e789d142010a80004	Source range open. Traffic permitted from any host.	7
test-env	gcefirewallrule	mongo	Source range open. Traffic permitted from any host.	7

---

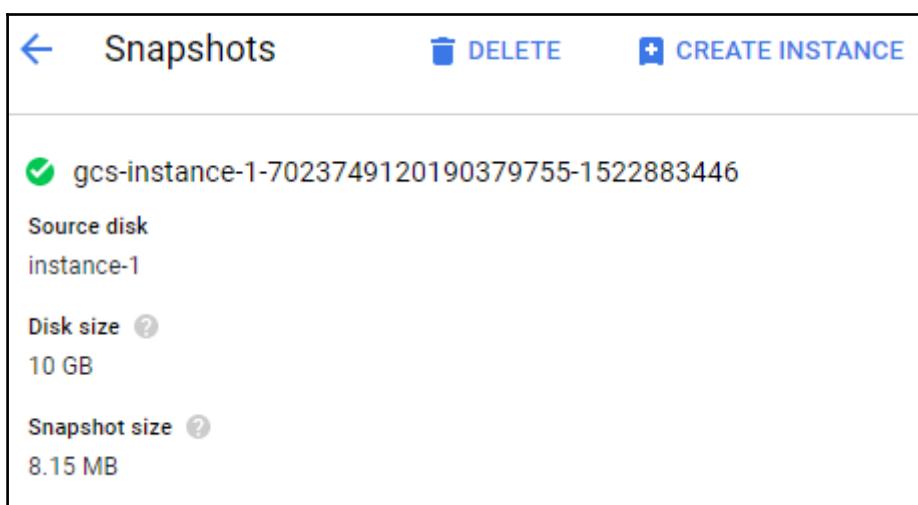
	Name ^	Type	Size	Zone	In use by	
	<input checked="" type="checkbox"/> disk-1	Standard persistent disk	10 GB	us-central1-c		<span style="font-size: 2em;">⋮</span>

	Name ^	Zone	Recommendation	Internal IP	External IP	Connect	
	<input checked="" type="checkbox"/> <a href="#">instance-1</a>	us-central1-c		10.128.0.2	104.198.165.213	SSH ▾	<span style="font-size: 2em;">⋮</span>

Boot disk and local disks				
Name	Size (GB)	Type	Mode	
instance-1	10	Standard persistent disk	Boot, read/write	
<input checked="" type="checkbox"/> Delete boot disk when instance is deleted				
Additional disks				
Name	Size (GB)	Type	Mode	When deleting instance
disk-1	10	Standard persistent disk	Read/write	Keep disk

Cloud API access scopes	
BigQuery	Disabled
Bigtable Admin	Disabled
Bigtable Data	Disabled
Cloud Datastore	Disabled
Cloud Debugger	Disabled
Cloud Pub/Sub	Disabled
Cloud Source Repositories	Disabled
Cloud SQL	Disabled
Compute Engine	Read Write
Service Control	Enabled
Service Management	Read Only
Stackdriver Logging API	Write Only
Stackdriver Monitoring API	Write Only
Stackdriver Trace	Write Only
Storage	Read Only
Task queue	Disabled
User info	Disabled

<input type="checkbox"/> Name ^	Source disk	Creation time	Disk size	Snapshot size
<input checked="" type="checkbox"/> gcs-disk-1-7023749120190379755-1522880728	disk-1	2019-03-19T12:00:00Z	10 GB	0 B
<input checked="" type="checkbox"/> gcs-disk-1-7023749120190379755-1522883446	disk-1	2019-03-19T12:00:00Z	10 GB	364.5 KB
<input checked="" type="checkbox"/> gcs-instance-1-7023749120190379755-1522880728	instance-1	2019-03-19T12:00:00Z	10 GB	504.86 MB
<input checked="" type="checkbox"/> gcs-instance-1-7023749120190379755-1522883446	instance-1	2019-03-19T12:00:00Z	10 GB	8.15 MB





## Create an instance

Name

Zone

Machine type

Customize to select cores, memory and GPUs.

0.6 GB memory

[Customize](#)

[Upgrade your account](#) to create instances with up to 96 cores

Container

Deploy a container image to this VM instance. [Learn more](#)

Boot disk



New 10 GB standard persistent disk

Snapshot

gcs-instance-1-702374912019037975...

[Change](#)

Compute Engine

Read Write

Management    **Disks**    Networking    SSH Keys

**Deletion rule**

Delete boot disk when instance is deleted

**Encryption** ?

Automatic (recommended)

**Additional disks** ? (Optional)

Name	Mode	When deleting instance
disk-1-bkup	Read/write	Keep disk

**+ Add item**

<input type="checkbox"/>	Name ^	Zone	Recommendation	Internal IP	External IP	Connect
<input type="checkbox"/>	instance-1	us-central1-c		10.128.0.2	35.184.244.82	SSH <small>⋮</small>

<input type="checkbox"/>	Name ^	Type	Size	Zone	In use by	<small>⋮</small>
<input type="checkbox"/>	instance-1	Standard persistent disk	10 GB	us-central1-c	instance-1	<small>⋮</small>

**+ Create instance**

**+ Create snapshot**

**>Delete**

[Create a disk](#)

Name [?](#)  
toraw-disk-1

Description (Optional)

Zone [?](#)  
us-central1-c

Disk Type [?](#)  
Standard persistent disk

Source type [?](#)  
 Image    Snapshot    None (blank disk)

Source snapshot [?](#)  
snapshot-1

Size (GB) [?](#) (Optional)  
10

<input type="checkbox"/>	Name ^	Type	Size	Zone	In use by	<a href="#">⋮</a>
<input type="checkbox"/>	instance-1	Standard persistent disk	10 GB	us-central1-c	instance-1	<a href="#">⋮</a>
<input type="checkbox"/>	temp-disk	Standard persistent disk	15 GB	us-central1-c		<a href="#">⋮</a>
<input type="checkbox"/>	toraw-disk-1	Standard persistent disk	10 GB	us-central1-c		<a href="#">⋮</a>

---

Management    **Disks**    Networking    SSH Keys

---

**Deletion rule**

Delete boot disk when instance is deleted

**Encryption** ?

Automatic (recommended)

---

**Additional disks** ? (Optional)

Name	Mode	When deleting instance
toraw-disk-1	Read/write	Keep disk
temp-disk	Read/write	Keep disk

**+ Add item**

**Storage**

Read/Write



## Create an image

Name ?

Family (Optional) ?

Description (Optional)

Encryption ?



Source ?



Cloud Storage file ?

Your image source must use the .tar.gz extension and the file inside the archive must be named disk.raw. [Learn more](#)

---

Images	[+] CREATE IMAGE	REFRESH
<input type="button"/> Filter images		
Name		Size
<input type="checkbox"/> image-1		10 GB



## Create an instance

Name

Zone

Machine type

Customise to select cores, memory and GPUs.

0.6 GB memory

[Customise](#)

[Upgrade your account to create instances with up to 96 cores](#)

Container

Deploy a container image to this VM instance. [Learn more](#)

Boot disk



New 10 GB standard persistent disk

Image

image-1

[Change](#)

---

Compute Engine
Read/Write
Service Control
Enabled
Service Management
Read Only
Stackdriver Logging API
Write Only
Stackdriver Monitoring API
Write Only
Stackdriver Trace
Write Only
Storage
Full

<input type="checkbox"/> Name	Size
<input checked="" type="checkbox"/> packer-1523057779	10 GB

---

[Images](#)     [DELETE](#)     [CREATE INSTANCE](#)

---

packer-1523057779

Description  
Created by Packer

Creation time  
7 Apr 2018, 01:39:28

Encryption  
Automatic

[Equivalent REST](#)

http://35.196.32.252/info.php

PHP Version 7.0.27-0+deb9u1

System	Linux instance-2 4.9.0-6-amd64 #1 SMP Debian 4.9.82-1+deb9u3 (2018-03-02) x86_64
Build Date	Jan 5 2018 13:51:52
Server API	Apache 2.0 Handler
Virtual Directory Support	disabled