

JHipster Kubernetes App Engine

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Google Cloud Platform

Spring Cloud GCP

cloud.spring.io/spring-cloud-gcp/

@saturnism saturnism.me

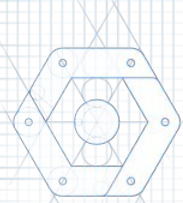


About Ludo

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App Engine Java TL
Google Cloud Platform
San Francisco, CA

 @ludoch

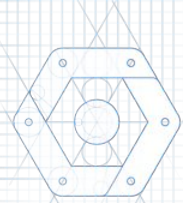




jhipster kubernetes

Generate Kubernetes YAML Files

Initial Support ([#3443](#))



Since Initial Contribution

Community added a lot more!

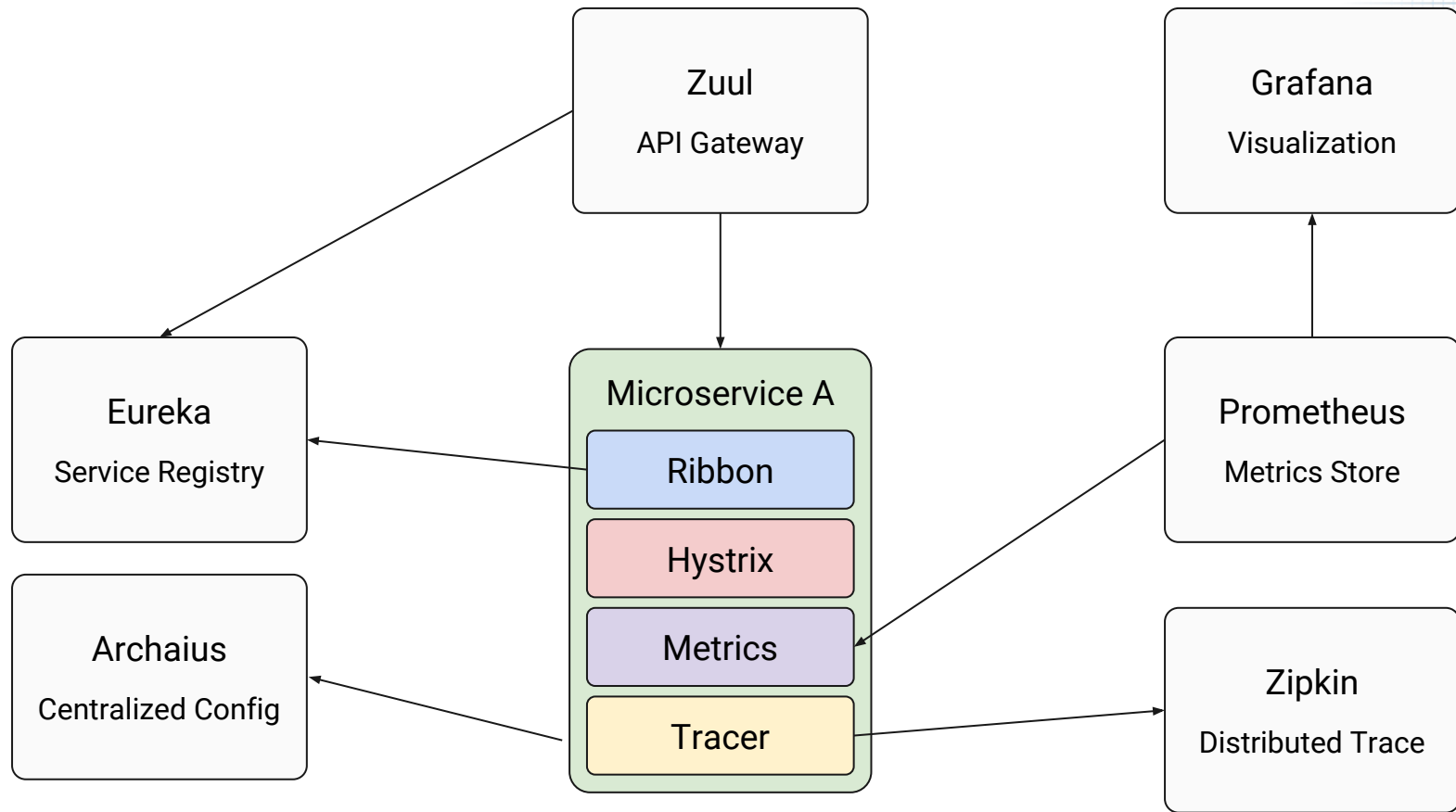
JHipster Registry / Consul

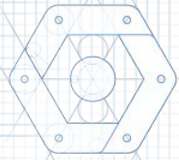
Prometheus / Grafana

MySQL, MariaDB, Couchbase, PostgreSQL, ElasticSearch

Kafka

...



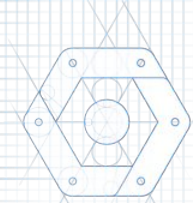


More Kubernetes Native Support

Use Kubernetes Service Discovery

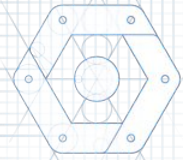
Use Kubernetes Ingress for Microservices URL Mapping

Choose "No Service Discovery"



~~Eureka, Zuul, Hystrix, Ribbon~~

How do we deal w/ microservices reliability concerns?!



Istio Service Mesh



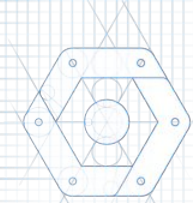
Observability - Zipkin, Prometheus, Grafana

Resiliency - Retries, circuit breaking, fault injection

Traffic Control - Load balance, split, mirror, rate limit

Security - mTLS, RBAC

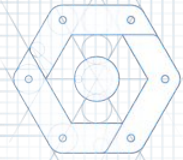
Policy Enforcement - Who can do what?



Istio Service Mesh

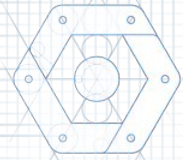
Use Sidecar Proxy to Intercept all communication

"AOP for Microservices" - Matt Raible



Learn more Istio

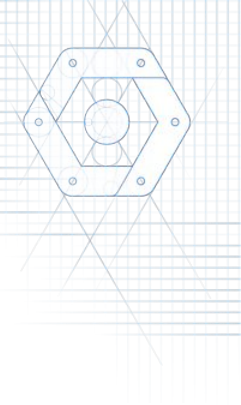
saturnism.me/talk/istio-101



Istio Support ([#7337](#))

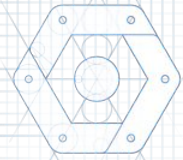
- ✓ Microservices/Gateway Generator
 - ✓ Generate w/o Eureka, Hystrix, Zuul ([#7695](#))
 - ✓ Generate w/ `server.servlet.context-path` for easier Ingress mapping [#7695](#))
- ✓ Kubernetes Generator
 - ✓ Generate Ingress mapping ([#7695](#))
 - ✓ Use Istio Ingress Class ([#7697](#))
 - ✓ Propagate Istio Headers (mostly done through Spring Cloud Sleuth 2) ([#7697](#))
 - ✓ Generate Istio Destination Rules for Circuit Breaker ([#7697](#))
 - ✓ If using Eureka/Consul, use host name rather than IP ([#7697](#))
 - ✓ Prefix service port names (e.g., `http`) for Istio ([#7697](#))

Future Istio Support ([#7708](#))



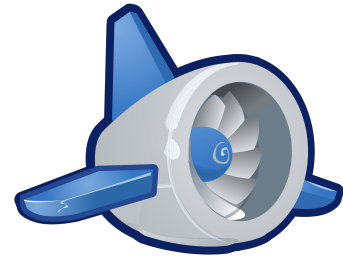
Need your help!

- ☐ Update to Istio 0.8 ← 1.0 Released!
- ☐ Use Istio's Zipkin
 - ☐ Remove Zipkin Deployment
 - ☐ Configure Zipkin to point to Istio's Zipkin
 - ☐ Add Spring Cloud Sleuth Core Starter by default if using Istio
- ☐ Use `curl` or local shell health check when generating for Istio (to support Istio Auth)
- ☐ Generate Prometheus scrape annotations for Prometheus operator



jhipster gae

Generate Google App Engine Java 8 Standard Configuration

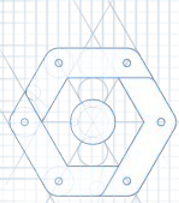


https://en.wikipedia.org/wiki/Platform_as_a_service

In April 2008, Google launched App Engine, with a free trial version limited to 10,000 developers.^[16] This was said to have "turned the Internet cloud computing space into a fully-fledged industry virtually overnight."^[17]

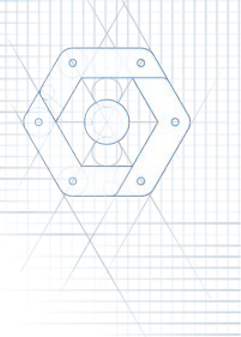
10 years later, more powerful than ever...

App Engine Java8 Standard



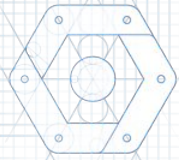
- Brand new Security Sandbox (based on gVisor)
- Can run Spring Boot, JHipster, ... BYOF
- Free Tier with Automatic or Manual Scaling
- Batteries Included
 - Centralized Logging, Remote Debugging, Monitoring, Security Scanning, Traffic Splitting, CDN Static Content, ...

App Engine Java8 Standard



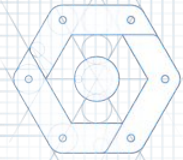
sub-generator, Beta

- **\$ jhipster gae**
- Modified/Generated files:
 - src/main/webapp/WEB-INF/appengine-web.xml
 - src/main/webapp/WEB-INF/logging.properties
 - src/main/resources/config/application-prod-gae.yml
 - pom.xml
- Prerequisites:
 - Google Cloud SDK locally installed, with Java support
- Configuration:
 - App Engine Scaling properties
 - Google MySQL database creation/reuse on a given App Engine project
- Run App Engine DevServer Locally:
 - **\$./mvnw appengine:run -DskipTests**
- Deploy to Google App Engine Java8:
 - **\$./mvnw appengine:deploy -DskipTests -Pprod,prod-gae**



appengine-web.xml:

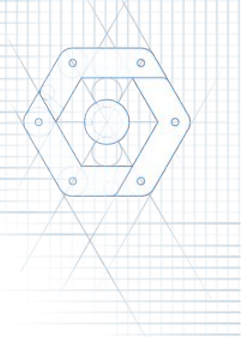
```
<appengine-web-app xmlns="http://appengine.google.com/ns/1.0">
  <service>default</service>
  <threadsafe>true</threadsafe>
  <runtime>java8</runtime>
  <!-- See https://cloud.google.com/appengine/docs/standard/java/config/appref#syntax-->
  <automatic-scaling>
  </automatic-scaling>
  <sessions-enabled>true</sessions-enabled>
  <instance-class>F4</instance-class>
  <precompilation-enabled>false</precompilation-enabled>
  <system-properties>
    <property name="java.util.logging.config.file" value="WEB-INF/logging.properties"/>
  </system-properties>
  <class-loader-config>
    <!-- temporary workaround to make sure the app uses it's memcache/mail jars!-->
    <priority-specifier filename="cache-api-1.1.0.jar"/>
  </class-loader-config>
</appengine-web-app>
```



application-prod-gae.yml

```
# =====  
# Spring Boot configuration for the "gae" profile.  
#  
# This configuration overrides the application.yml file.  
# =====  
spring:  
  datasource:  
    type: com.zaxxer.hikari.HikariDataSource  
    url:  
jdbc:mysql://google/jhipster2?cloudSqlInstance=pubrobots:us-central1:jhipster2&socketFactory=com.google.cloud.sql.mysql  
.SocketFactory&useSSL=false  
  username: root  
  password: XXX  
  hikari:  
    maximumPoolSize: 8
```

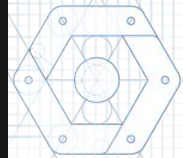
App Engine Java8 Standard



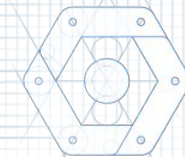
sub-generator, Beta Limitations

- Only Monolith Application for now (Micro Services coming soon (™))
- F1 automatic scaling might be too small for decent applications
- All static resources are served outside the JVM process
 - So it is possible Web Pages are there , but the JVM is still booting
 - Using Static scaling backends can help there
- Future work:
 - Spring Data for Google Cloud Datastore coming in Q3-Q4
 - Cloud Memcache investigation

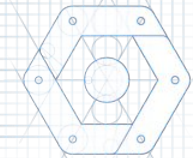
```
ludo@penguin:~/a/myapp$ jhipster gae
Using JHipster version installed locally in current project's node_modules
Executing jhipster:gae
Options:
Welcome to Google App Engine Generator
? Google Cloud Project ID (pubrobots) █
```



```
ludo@penguin:~/a/myapp$ jhipster gae
Using JHipster version installed locally in current project's node_modules
Executing jhipster:gae
Options:
Welcome to Google App Engine Generator
? Google Cloud Project ID pubrobots
This project already has an App Engine location set, using location "us-central"
? Google App Engine Service Name (Use arrow keys)
> default
myapp
```



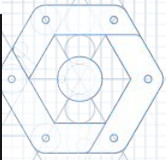
```
ludo@penguin:~/a/myapp$ jhipster gae
Using JHipster version installed locally in current project's node_modules
Executing jhipster:gae
Options:
Welcome to Google App Engine Generator
? Google Cloud Project ID pubrobots
This project already has an App Engine location set, using location "us-central"
? Google App Engine Service Name default
? Google App Engine Instance Class F4 - 2.4GHz, 512MB, Automatic Scaling
Instance Class "F4" can only be automatically scaled. Setting scaling type to automatic.
? How many instances minimum ? 2
? How many instances max (0 for unlimited) ? 4
? Google Cloud SQL Instance Name (Use arrow keys)
New Cloud SQL Instance
> pubrobots:us-central1:jhipster
pubrobots:us-central1:jhipster2
```



```
ludo@penguin:~/a/myapp$ jhipster gae
Using JHipster version installed locally in current project's node_modules
Executing jhipster:gae
Options:
Welcome to Google App Engine Generator
? Google Cloud Project ID pubrobots
This project already has an App Engine location set, using location "us-central"
? Google App Engine Service Name default
? Google App Engine Instance Class F4 - 2.4GHz, 512MB, Automatic Scaling
Instance Class "F4" can only be automatically scaled. Setting scaling type to automatic.
? How many instances minimum ? 2
? How many instances max (0 for unlimited) ? 4
? Google Cloud SQL Instance Name pubrobots:us-central1:jhipster
? Google Cloud SQL User Name root
? Google Cloud SQL Password [hidden]
? Google Cloud SQL Database Name myapp

Configuring Cloud SQL Login
... User "root" already exists
... To set its password, run: gcloud sql users set-password "root" -i "jhipster" "%" --project="pubrobots" --password="..."

Creating Google App Engine deployment files
conflict src/main/webapp/WEB-INF/appengine-web.xml
? Overwrite src/main/webapp/WEB-INF/appengine-web.xml? (ynaxdH)
y) overwrite
n) do not overwrite
a) overwrite this and all others
x) abort
d) show the differences between the old and the new
h) Help, list all options
Answer: 
```




```

conflict src/main/webapp/WEB-INF/appengine-web.xml
? Overwrite src/main/webapp/WEB-INF/appengine-web.xml? show the differences between the old and the new

removed added

<appengine-web-app xmlns="http://appengine.google.com/ns/1.0">
  <service>default</service>
  <threadsafe>true</threadsafe>
  <runtime>java8</runtime>
  <!-- See https://cloud.google.com/appengine/docs/standard/java/config/appref#syntax
        for more scaling tuning parameters -->
  <automatic-scaling>
    <min-instances>3</min-instances>
    <max-instances>7</max-instances>
    <min-instances>2</min-instances>
    <max-instances>4</max-instances>
  </automatic-scaling>
  <sessions-enabled>true</sessions-enabled>
  <instance-class>F4</instance-class>
  <precompilation-enabled>false</precompilation-enabled>
  <system-properties>
    <property name="java.util.logging.config.file" value="WEB-INF/logging.properties"/>
  </system-properties>
  <class-loader-config>
    <!-- temporary workaround to make sure the app uses it's memcache/mail jars!-->
    <priority-specifier filename="cache-api-1.0.0.jar"/>
    <priority-specifier filename="cache-api-1.1.0.jar"/>
    <priority-specifier filename="javax-mail-1.5.6.jar"/>
  </class-loader-config>
  <env-variables>
    <env-var name="SERVER_PORT" value="8080"/>
  </env-variables>
</appengine-web-app>

? Overwrite src/main/webapp/WEB-INF/appengine-web.xml? overwrite
force src/main/webapp/WEB-INF/appengine-web.xml
identical src/main/webapp/WEB-INF/logging.properties
identical src/main/resources/config/application-prod-gae.yml
identical pom.xml

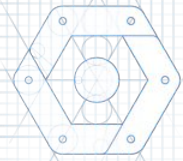
```

Run App Engine DevServer Locally: `./mvnw appengine:run -DskipTests`

Deploy to App Engine: `./mvnw appengine:deploy -DskipTests -Pprod,prod-gae`

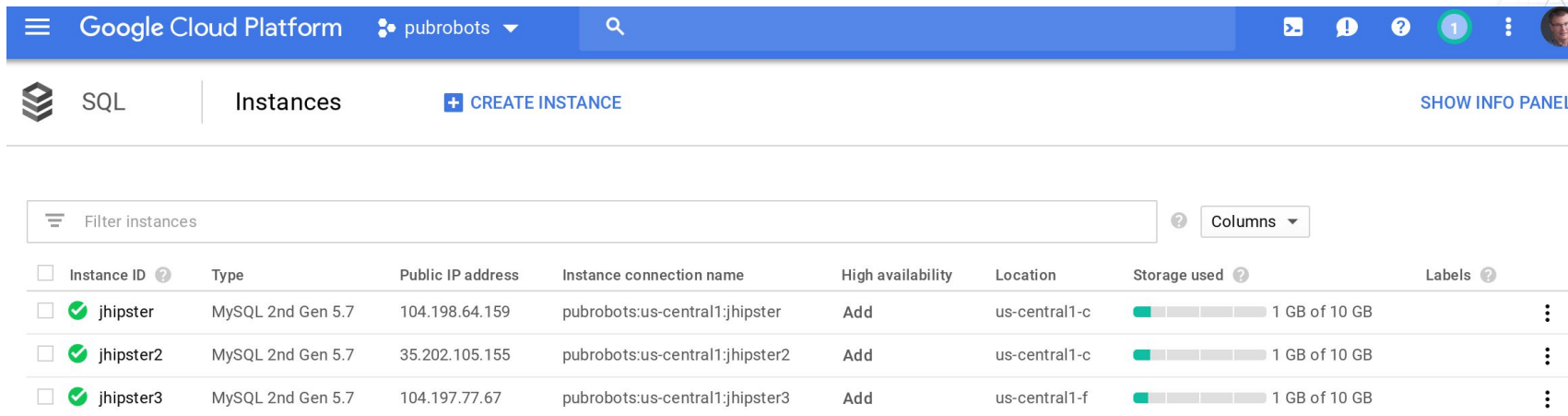
Congratulations, JHipster execution is complete!

`ludo@penguin:~/a/myapp$`



url:

jdbc:mysql://google/**mydatabase**?cloudSqlInstance=**pubrobots:us-central1:jhipster3**&socketFactory=com.google.cloud.sql.mysql.SocketFactory&useSSL=false



The screenshot shows the Google Cloud Platform SQL Instances page for the 'pubrobots' project. The header includes the Google Cloud Platform logo, the project name 'pubrobots', a search bar, and navigation icons. The main content area has a 'SQL' tab selected, showing a list of instances. A 'Filter instances' search bar and a 'Columns' dropdown are at the top of the table. The table lists three instances: 'jhipster', 'jhipster2', and 'jhipster3'. Each instance row includes a checkbox, a status icon (green checkmark), the instance name, type, public IP address, connection name, high availability status, location, storage usage (1 GB of 10 GB), and a labels column with a vertical ellipsis icon.

<input type="checkbox"/>	Instance ID [?]	Type	Public IP address	Instance connection name	High availability	Location	Storage used [?]	Labels [?]
<input type="checkbox"/>	✓ jhipster	MySQL 2nd Gen 5.7	104.198.64.159	pubrobots:us-central1:jhipster	Add	us-central1-c	<div><div></div></div> 1 GB of 10 GB	⋮
<input type="checkbox"/>	✓ jhipster2	MySQL 2nd Gen 5.7	35.202.105.155	pubrobots:us-central1:jhipster2	Add	us-central1-c	<div><div></div></div> 1 GB of 10 GB	⋮
<input type="checkbox"/>	✓ jhipster3	MySQL 2nd Gen 5.7	104.197.77.67	pubrobots:us-central1:jhipster3	Add	us-central1-f	<div><div></div></div> 1 GB of 10 GB	⋮

Cloud Project = pubrobots

SQL Instance name = jhipster3

Instance Connection Name: pubrobots:us-central1:jhipster3

Database Name: mydatabase

Google Cloud Platform pubrobots

SQL

jhipster3 master us-central1-f

Instance details

EDIT IMPORT EXPORT RESTART STOP DELETE

jhipster3 MySQL Second Generation master

OVERVIEW USERS DATABASES AUTHORIZATION SSL BACKUPS REPLICAS OF

MySQL Databases

Create database

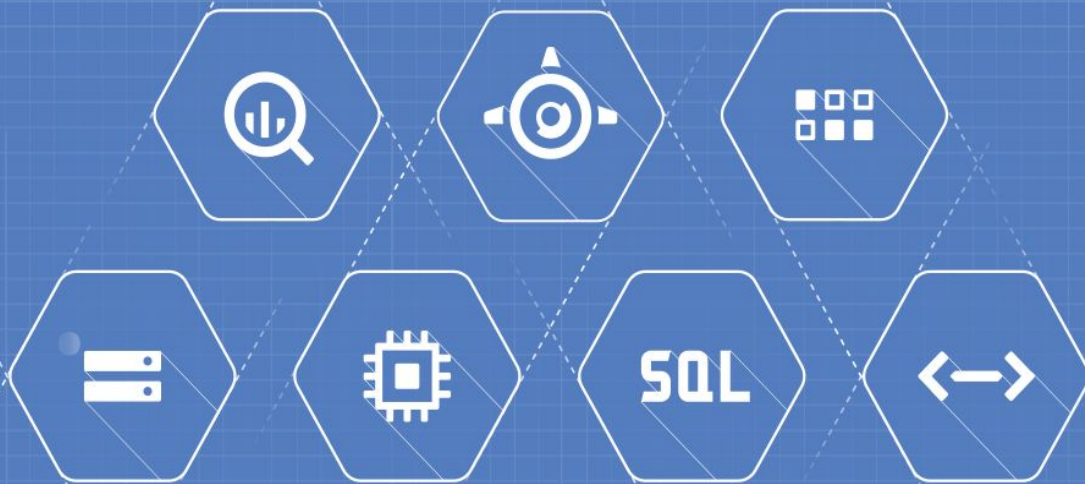
Name	Character set	Collation	Type
information_schema	utf8	utf8_general_ci	System
mydatabase	utf8	utf8_general_ci	User
mysql	utf8	utf8_general_ci	System
performance_schema	utf8	utf8_general_ci	System

Cloud Project = pubrobots

SQL Instance name = jhipster3

Instance Connection Name: pubrobots:us-central1:jhipster3

Database Name: mydatabase



Please Contribute #7708 #7750 :D

@saturnism @ludoch @gcpcloud