

# Capstone Project

You work as a Cloud Engineer in XYZ Corporation. The company has recently set up a new cloud team, and wants them to work on the company's Google Cloud Console. The company's resources are deployed in a project called "sample company".

There are three roles in the team:

- Admins - owner access
- Workers - edit access for VMs
- QA - viewer access for VMs

Create three users for the same.

There is a separate project QA where a storage server is running.

In the current architecture, the company is running a single server which is high in config for their application needs. You have been hired to make the architecture more resilient and cost effective. For implementing the same, following are the changes that you suggested:

1. Deploy the application on app service which can be scaled up and down from 2 instances to 10 instances. Use apache tools for this for creating traffic for the server.
2. A storage server was deployed in a different project. You have to ensure the app service is able to talk to that server. To ensure this, deploy a server in the same VPC as of app service, and check if you are able to ping storage VM in another project.
3. The app service will be interacting with a database. For now, the database exists in a local system. Here is the exported database. Use this and import in Cloud SQL.
4. The company wants to review different versions of the code on the app service. Explain the mechanism using screenshots.
5. Configure Stack driver monitoring to monitor the storage server. An email should be triggered to the owner of the project in case this server goes down.

The above architecture and requirements have to be shown to the stakeholders using a proof of concept. Please implement the project and submit screenshots to the support team.

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console.cloud.google.com/welcome/project-project02-405205

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Google Cloud project02 Search / for resources, docs, products, and more Q Search

PINNED

- Cloud overview
- Products & solutions

Welcome

You're working in project02

Project number: 203226789350 Project ID: project02-405205

Dashboard Recommendations

Create a VM Run a query in BigQuery Create a GKE cluster Create a storage bucket

Quick access

- APIs & Services
- IAM & Admin
- Billing
- Compute Engine
- Cloud Storage
- BigQuery
- VPC network
- Cloud Run
- SQL
- Security
- Google Maps Plat...

View all products

https://console.cloud.google.com/home/project-project02-405205

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10:59:29 21-Nov-23

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console.cloud.google.com/iam-admin/iam?project=project02-405205

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IAM

PERMISSIONS RECOMMENDATIONS HISTORY

Permissions for project "project02"

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

Include Google-provided role grants

VIEW BY PRINCIPALS VIEW BY ROLES

GRANT ACCESS REMOVE ACCESS

Filter Enter property name or value

Type	Principal	Name	Role	Security insights	Inheritance
Compute Engine default service account	203226789350-compute@developer.gserviceaccount.com	Compute Engine default service account	Editor		
App Engine default service account	project02-405205@appspot.gserviceaccount.com	App Engine default service account	Editor		
User	sureshleo166@gmail.com	Suresh G	Owner		

10:59:33 21-Nov-23

Screenshot of the Google Cloud IAM & Admin interface for project "project02".

The left sidebar shows the navigation menu under "IAM & Admin".

The main area displays the "Permissions for project 'project02'" page.

**Permissions for project "project02"**

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

**VIEW BY PRINCIPALS** **VIEW BY ROLES**

**GRANT ACCESS** **REMOVE ACCESS**

**Filter** Enter property name or value

Type	Principal	Name	Role
Compute Engine default service account	203226789350-compute@developer.gserviceaccount.com	Compute Engine default service account	Editor
App Engine default service account	project02-405305@appspot.gserviceaccount.com	App Engine default service account	Editor
Suresh G	sureshgajendran16@gmail.com	Suresh G	Owner
sureshleo1166@gmail.com	sureshleo1166@gmail.com	Suresh G	Owner

**Add principals**

Principals are users, groups, domains, or service accounts. [Learn more about principals in IAM](#)

New principals \*

**Assign roles**

Roles are composed of sets of permissions and determine what the principal can do with this resource. [Learn more](#)

Role \*  IAM condition (optional)

Screenshot of the Google Cloud IAM & Admin interface for project "project02".

The left sidebar shows the navigation menu under "IAM & Admin".

The main area displays the "Permissions for project 'project02'" page.

**Permissions for project "project02"**

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

**VIEW BY PRINCIPALS** **VIEW BY ROLES**

**GRANT ACCESS** **REMOVE ACCESS**

**Filter** Enter property name or value

Type	Principal	Name	Role	Security insights	Inheritance
Compute Engine default service account	203226789350-compute@developer.gserviceaccount.com	Compute Engine default service account	Editor		
App Engine default service account	project02-405305@appspot.gserviceaccount.com	App Engine default service account	Editor		
Suresh G	sureshgajendran16@gmail.com	Suresh G	Editor		
Suresh G	sureshleo1166@gmail.com	Suresh G	Owner		

**Policy updated**

The screenshot shows the Google Cloud Platform App Engine Get Started page. On the left, there's a sidebar with options like Dashboard, Services, Versions, Instances, Task queue, Cron jobs, Security scans, Firewall rules, Quotas, and Release Notes. The main area has tabs for 'Get started' and 'Deploy with Google Cloud SDK'. Under 'Get started', there are sections for 'Resources' (Language: Python, Environment: Standard) and 'Deploy with Google Cloud SDK' (buttons for 'INITIALIZE YOUR SDK' and 'DEPLOY TO APP ENGINE'). Below these are links to documentation and GitHub. A 'CLOUD SHELL' terminal window at the bottom shows a message about customizing the Cloud Shell terminal.

This screenshot is identical to the one above, showing the App Engine Get Started page. However, it includes a 'Terminal' window at the bottom. The terminal displays a welcome message for Cloud Shell, indicating the project ID is 'project02-405205', and provides instructions for switching projects using 'gcloud config set project [PROJECT\_ID]'. The system tray at the top right shows the date as 21-Nov-23.

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Compute Engine - project02-

App Engine Application Platform

Method: apps.create | App En

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Search

EQUIVALENT CODE

[Create an instance](#)

To create a VM instance, select one of the options:

- New VM instance
- New VM instance from template
- New VM instance from machine image
- Marketplace

Name: vm2

Region: us-west4 (Las Vegas)

Zone: us-west4-b

Machine configuration

General purpose

Series	Description	vCPUs	Memory	Platform
C3	Consistently high performance	4-176	8-1,408 GB	Intel Sapphire Rapids
C3D	Consistently high performance	4-360	8-2,880 GB	AMD Genoa
<b>E2</b>	Low cost, day-to-day computing	0.25-32	1-128 GB	Based on availability
N2	Balanced price & performance	2-128	2-864 GB	Intel Cascade and Ice Lake
N2D	Balanced price & performance	2-224	2-1,996 GB	AMD EPYC
T2A	Scale-out workloads	1-48	4-192 GB	Ampere Altra Arm
T2D	Scale-out workloads	1-60	4-240 GB	AMD EPYC Milan
N1	Balanced price & performance	0.25-96	0.6-624 GB	Intel Skylake

Machine type

Choose a machine type with preset amounts of vCPUs and memory that suit most workloads. Or, you can create a custom machine for your workload's particular needs. [Learn more](#)

PRESET CUSTOM

e2-medium (2 vCPUs, 1 core, 4 GB memory)

**CREATE** CANCEL EQUIVALENT CODE

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EQUIVALENT CODE

[Create an instance](#)

To create a VM instance, select one of the options:

- New VM instance
- New VM instance from template
- New VM instance from machine image
- Marketplace

Size: 10 GB

License type: Free

Image: Debian GNU/Linux 11 (bullseye)

CHANGE

Identity and API access

Service accounts

Compute Engine default service account

Requires the Service Account User role (roles/iam.serviceAccountUser) to be set for users who want to access VMs with this service account. [Learn more](#)

Access scopes

Allow default access

Allow full access to all Cloud APIs

Set access for each API

Firewall

Add tags and firewall rules to allow specific network traffic from the Internet

Allow HTTP traffic

Allow HTTPS traffic

Allow Load Balancer Health Checks

Observability - Ops Agent

Monitor your system through collection of logs and key metrics.

Install Ops Agent for Monitoring and Logging

Advanced options

Networking, security, management, sole-tenancy

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EQUIVALENT CODE

[Create an instance](#)

To create a VM instance, select one of the options:

- New VM instance
- New VM instance from template
- New VM instance from machine image
- Marketplace

IP stack type

IPv4 (single-stack)

Primary internal IPv4 address: Ephemeral (Automatic)

Alias IP ranges

+ ADD IP RANGE

External IPv4 address: Ephemeral

Network Service Tier

Premium

Standard (us-west4)

Public DNS PTR Record

Enable for IPv4

PTR domain name:

DONE

ADD A NETWORK INTERFACE

**CREATE** CANCEL EQUIVALENT CODE

The screenshot shows the Google Cloud Compute Engine interface for managing Virtual Machines. The left sidebar navigation includes options like Compute Engine, Virtual machines, Storage, and Instance groups. The main content area displays the 'VM instances' section with tabs for Instances, Observability, and Instance Schedules. Under the Instances tab, a table lists a single instance named 'vm2'. The instance details are as follows:

Status	Name	Zone	Recommendations	In use by	Internal IP	External IP	Connect
Up	vm2	us-west4-b			10.182.0.2 (http)	35.219.177.106 (http)	SSH

Below the table, there are 'Related actions' buttons for Edit, Delete, and More. A search bar at the top right allows filtering by property name or value.

The screenshot shows the Google Cloud Console with the URL [console.cloud.google.com/sql/instances/project=project02-405205](https://console.cloud.google.com/sql/instances/project=project02-405205). The page title is "Cloud SQL". It features a main heading "Cloud SQL" with a subtext: "Cloud SQL offers a fully-managed database service for MySQL, PostgreSQL, and SQL Server, reducing your overall cost of operations and freeing up teams to focus on innovation". Below this are two buttons: "CREATE INSTANCE WITH YOUR FREE CREDITS" and "MIGRATE DATA". To the right is a large, abstract blue geometric graphic.

This screenshot shows the "Steps to get started" section. It contains three numbered steps:

- 1 Create an instance: Choose your database engine and initial configurations.
- 2 Set up networking and connect: Explore networking security options, like Cloud SQL Proxy. Then, hook up to a cloud service or your local machine.
- 3 Move in data: Import from Cloud Storage, or use Database Migration.

#### Features and benefits

##### Highly available, protected data

Recover data from any point in time. Safeguard your data with automated backups. Utilize greater than 99.9% availability. Replicate across regions.

##### Pricing and scalability for any workload

Size your instance to fit your needs, with per-second billing and databases that are easily stopped and restarted. Add up to 128 vCPUs and up to 8TB of RAM and 1.6 TB of storage. Create read replicas.

##### Minimize downtime and stay up-to-date

Get notified of upcoming maintenance, and reschedule or deny it. Stay current with automatic minor version upgrades, and in-place major database version upgrades.



The screenshot shows the "Create an instance" wizard. Step 1 is titled "Choose your database engine". It displays three options: MySQL, PostgreSQL, and SQL Server. Each option has a brief description and a "Choose [engine]" button.

- MySQL**: Versions: 8.0, 5.7, 5.6. [Choose MySQL](#).
- PostgreSQL**: Versions: 15, 14, 13, 12, 11, 10, 9.6. [Choose PostgreSQL](#).
- SQL Server**: Versions: 2022, 2019, 2017. [Choose SQL Server](#).

Want more context on the Cloud SQL database engines? [Learn more](#).



**Create a MySQL instance**

**Instance info**

Instance ID: sq001  
Use lowercase letters, numbers, and hyphens. Start with a letter.

Password:  GENERATE  
Set a password for the root user. [Learn more](#) Show password

No password selected.

**PASSWORD POLICY**

Database version: MySQL 8.0

Show MINOR VERSIONS

**Choose a Cloud SQL edition**

A Cloud SQL edition determines foundational characteristics of your instance and cannot be changed later. Choose based on your price and performance needs. [Learn more](#)

<input checked="" type="radio"/> Enterprise Plus	<ul style="list-style-type: none"> <li>99.99% availability SLA for eligible instances</li> <li>High-performance machines, up to 128 vCPUs</li> <li>Up to 35 days point-in-time recovery</li> <li>Data cache (optional)</li> </ul>
<input type="radio"/> Enterprise	<ul style="list-style-type: none"> <li>99.95% availability SLA for eligible instances</li> <li>General purpose machines, up to 96 vCPUs</li> <li>Up to 75 days point-in-time recovery</li> </ul>

Choose a preset for this edition. Presets can be customized later as needed.

**Pricing estimate**

\$2.30 per hour (estimated, without discounts)  
That's about \$55.32 per day.  
Feature usage and traffic costs aren't included in estimate.

Show COST BREAKDOWN

**Summary**

Cloud SQL Edition	Enterprise Plus
Region	us-central1 (Iowa)
DB Version	MySQL 8.0
vCPUs	8 vCPU
Memory	64 GB
Data Cache	Enabled (375 GB)
Storage	250 GB
Connections	Public IP
Backup	Automated
Availability	Multiple zones (Highly available)
Point-in-time recovery	Enabled
Network throughput (MB/s)	2,000 of 2,000
Disk throughput (MB/s)	Read: 120.0 of 800.0 Write: 120.0 of 800.0
IOPS	Read: 7,500 of 15,000 Write: 7,500 of 15,000

**Create a MySQL instance**

Choose a preset for this edition. Presets can be customized later as needed.

Sandbox

**Pricing estimate**

\$0.14 per hour (estimated, without discounts)  
That's about \$3.38 per day.  
Feature usage and traffic costs aren't included in estimate.

Show COST BREAKDOWN

**Summary**

Cloud SQL Edition	Enterprise
Region	us-central1 (Iowa)
DB Version	MySQL 8.0
vCPUs	2 vCPU
Memory	8 GB
Data Cache	Disabled
Storage	10 GB
Connections	Public IP
Backup	Automated
Availability	Single zone
Point-in-time recovery	Enabled
Network throughput (MB/s)	500 of 500
Disk throughput (MB/s)	Read: 4.8 of 240.0 Write: 4.8 of 240.0
IOPS	Read: 300 of 15,000 Write: 300 of 15,000

**Create a MySQL instance**

Choose region and zonal availability

For better performance, keep your data close to the services that need it. Region is permanent, while zone can be changed any time.

Region: us-central1 (Iowa)

Zonal availability:

- Single zone  
In case of outage, no failover. Not recommended for production.
- Multiple zones (Highly available)  
Automatic failover to another zone within your selected region. Recommended for production instances. Increases cost.

Specify zones

Customize your instance

You can also customize instance configurations later.

Show CONFIGURATION OPTIONS

**CREATE INSTANCE** CANCEL

**sql001 - Overview - SQL - project02**

**SQL**

**OVERVIEW**

All instances > sq001

MySQL 8.0

Instance is being created. This may take a few minutes. While this operation is running, you may continue to view information about the instance.

Chart: CPU utilization

No data is available for the selected time frame.

UTC+6:00 2:00 AM 3:00 AM 4:00 AM 5:00 AM 6:00 AM 7:00 AM 8:00 AM 9:00 AM 10:00 AM Nov 21 1:00 PM 2:00 PM 3:00 PM 4:00 PM 5:00 PM 6:00 PM 7:00 PM 8:00 PM 9:00 PM 10:00 PM 11:00 PM 12:00 AM

Go to Query Insights for more depth info on queries and performance

**Connect to this instance**

Connection name: project02-485295:us-central1:sq1001

Need help connecting?

Review the documentation to learn about the many ways to connect to your instance. [Learn more](#)

To connect using gcloud, [OPEN CLOUD SHELL](#)

**Configuration**

vCPUs	2	Memory	8 GB	SSD storage	10 GB
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Enterprise edition

Database version is MySQL 8.0.31

Auto storage increase is enabled

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sql001 - Databases - SQL - project=project02-405205

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Google Cloud project02 Search ( / ) for resources, docs, products, and more

Databases

All instances > sq001

**sq001** MySQL 8.0

+ CREATE DATABASE

Name	Collation	Character set	Type
information_schema	utf8mb3_general_ci	utf8mb3	System
mysql	utf8mb3_general_ci	utf8mb3	System
performance_schema	utf8mb4_0900_ai_ci	utf8mb4	System
sys	utf8mb4_0900_ai_ci	utf8mb4	System

Release Notes

Uploads and project02 operations

Created sq001 12:37:14 PM GMT+5 ENG IN 12:39:04 21-Nov-23

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Databases

All instances > sq001

**sq001** MySQL 8.0

Operation is pending. This may take a few minutes. While this operation is running, you may continue to view information about the instance.

+ CREATE DATABASE

You can not create a database since there is a pending operation.

Name	Collation	Character set	Type
information_schema	utf8mb3_general_ci	utf8mb3	System
mysql	utf8mb3_general_ci	utf8mb3	System
performance_schema	utf8mb4_0900_ai_ci	utf8mb4	System
sys	utf8mb4_0900_ai_ci	utf8mb4	System

Database created

Uploads and project02 operations

Created sq001 12:37:14 PM GMT+5 ENG IN 12:39:04 21-Nov-23

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Biddefender GravityZone

Import data from Cloud Storage

App Engine Application Platform

Method: apps.create | App En...

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Import data from Cloud Storage

Source

Choose a file to import from. Make sure you have read access first. [Learn more](#)

bucket.name/file.name \* BROWSE

File format

SQL A SQL text file with a sequence of SQL commands, like the output of mysqldump

CSV If your Cloud Storage file is a CSV file, select CSV. The CSV file should be a plain text file with one line per row and comma-separated fields.

Destination

Choose a destination database for your import. If your file already specifies the destination, this selection will be overridden. SQL file must contain "CREATE" and "USE" commands to specify the destination database. [Learn more](#)

Database: Specified in SQL file

When you import, a Cloud SQL service account will be granted read access to the selected file and bucket, which will be reflected in your permissions.

IMPORT CANCEL

Database created

Uploads and project02 operations

Created sq001 12:37:14 PM GMT+5 ENG IN 12:39:04 21-Nov-23

Screenshot of the Google Cloud Storage interface showing the 'Buckets' page for project02. The page displays a central graphic of a brain-like structure with colored dots (blue, green, yellow, red) and a 'Store and retrieve your data' callout. Below the graphic are 'CREATE BUCKET' and 'TAKE QUICKSTART' buttons.

The 'Create a bucket' dialog is open, showing the following configuration steps:

- Name your bucket**: A text input field with placeholder text "Ex: 'example', 'example\_bucket-1', or 'example.com'".  
Tip: Don't include any sensitive information.
- LABELS (OPTIONAL)**: A dropdown menu with options like "CONTINUE".
- Choose where to store your data**: Options include "Location: us (multiple regions in United States)" and "Location type: Multi-region".
- Choose a storage class for your data**: Default storage class is set to "Standard".
- Choose how to control access to objects**: Public access prevention is set to "On" and Access control is set to "Uniform".
- Choose how to protect object data**: Protection tools are set to "None" and Data encryption is set to "Google-managed".

On the right side of the dialog, there is a "Good to know" section titled "Location pricing" which states: "Storage rates vary depending on the storage class of your data and location of your bucket." It also shows current configuration as "Multi-region / Standard" and provides a table of estimated monthly costs for different storage classes and locations.

At the bottom of the dialog are "CREATE" and "CANCEL" buttons. A status bar at the bottom of the screen indicates "Created sq001" and the date "21-Nov-23".

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Import data from Cloud Storage

Create a bucket - Cloud Storage

App Engine Application Platform

Method: apps:create | App En

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Google Cloud project02

Cloud Storage

Create a bucket

Name your bucket  
Name: aproject01

Choose where to store your data  
This choice defines the geographic placement of your data and affects cost, performance, and availability. Cannot be changed later. [Learn more](#)

Location type  
 Multi-region Highest availability across largest area  
 Dual-region High availability and low latency across 2 regions  
 Region Lowest latency within a single region  
 us-central1 (Iowa)

CONTINUE

Choose a storage class for your data  
Default storage class: Standard

Choose how to control access to objects  
Public access prevention: On  
Access control: Uniform

Choose how to protect object data  
Protection tools: None  
Data encryption: Google-managed

**CREATE** **CANCEL**

Good to know

Location pricing  
Storage rates vary depending on the storage class of your data and location of your bucket. [Pricing details](#)

Current configuration: Region / Standard

Item	Cost
us-central1 (Iowa)	\$0.020 per GB-month

ESTIMATE YOUR MONTHLY COST

Uploads and project02 operations  
Created sq001 12:37:14 PM GMT+5

ENG IN 21-Nov-23 12:41:43

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Import data from Cloud Storage

Create a bucket - Cloud Storage

App Engine Application Platform

Method: apps:create | App En

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Google Cloud project02

Cloud Storage

Create a bucket

Name your bucket  
Name: aproject01

Choose where to store your data  
Location: us-central1 (Iowa)  
Location type: Region

Choose a storage class for your data  
A storage class sets costs for storage, retrieval, and operations, with minimal differences in uptime. Choose if you want objects to be managed automatically or specify a default storage class based on how long you plan to store your data and your workload or use case. [Learn more](#)

Autoclass Automatic transitions each object to Standard or Nearline class based on object-level activity, to optimize for cost and latency. Recommended if usage frequency may be unpredictable. Can be changed to a default class at any time. [Pricing details](#)

Opt-in to allow object transitions to Coldline and Archive classes  
**Data in Coldline and Archive classes will have a lower availability SLA.** Enabling this option may lead to increased latency of data reads.

Set a default class Set a default storage class for your bucket unless you manually modify the class per object or set object lifecycle rules. Best when your usage is highly predictable. Can't be changed to Autoclass once the bucket is created.

Standard Best for short-term storage and frequently accessed data

Nearline Best for backups and data accessed less than once a month

Coldline Best for disaster recovery and data accessed less than once a quarter

Archive Best for long-term digital preservation of data accessed less than once a year

CONTINUE

Good to know

Location pricing  
Storage rates vary depending on the storage class of your data and location of your bucket. [Pricing details](#)

Current configuration: Region / Managed with Autoclass

Item	Cost
us-central1 (Iowa)	\$0.0012 - \$0.020 per GB-month
Autoclass management fee	\$0.025 per 10,000 objects per month

ESTIMATE YOUR MONTHLY COST

Uploads and project02 operations  
Created sq001 12:37:14 PM GMT+5

ENG IN 21-Nov-23 12:41:18

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Import data from Cloud Storage

Create a bucket - Cloud Storage

App Engine Application Platform

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Google Cloud project02

Cloud Storage

Create a bucket

Name your bucket  
Name: aproject01

Choose where to store your data  
Location: us-central1 (Iowa)  
Location type: Region

Choose a storage class for your data  
Default storage class: Managed with Autoclass

Choose how to control access to objects  
Public access prevention: On  
Access control: Uniform

Choose how to protect object data  
Protection tools: None  
Data encryption: Google-managed

**CREATE** **CANCEL**

Good to know

Location pricing  
Storage rates vary depending on the storage class of your data and location of your bucket. [Pricing details](#)

Current configuration: Region / Managed with Autoclass

Item	Cost
us-central1 (Iowa)	\$0.0012 - \$0.020 per GB-month
Autoclass management fee	\$0.025 per 10,000 objects per month

ESTIMATE YOUR MONTHLY COST

Created bucket aproject01

Uploads and project02 operations  
Created sq001 12:37:14 PM GMT+5

ENG IN 21-Nov-23 12:41:43

Screenshot of Google Cloud Storage Bucket details for 'aproject01'. The bucket was created successfully.

**Bucket Details:**

- Location:** us-central1 (Iowa)
- Storage class:** Managed with Autoclass
- Public access:** Not public
- Protection:** None

**OBJECTS** (0 items)

**Actions:** Buckets > aproject01, UPLOAD FILES, UPLOAD FOLDER, CREATE FOLDER, TRANSFER DATA, MANAGE HOLDS, DOWNLOAD, DELETE.

**Filter:** Filter by name prefix only, Filter objects and folders.

No rows to display.

**Created bucket aproject01** Your bucket is ready! JUST add data.

**Uploads and project02 operations** Created sql001 12:37:14 PM GMT+5

Screenshot of Google Cloud Storage Bucket details for 'aproject01' showing a single uploaded file.

**Bucket Details:**

- Location:** us-central1 (Iowa)
- Storage class:** Managed with Autoclass
- Public access:** Not public
- Protection:** None

**OBJECTS** (1 item)

Name	Size	Type	Created	Storage class	Last modified	Public access	Version history	Encryption	Retention expiration date	Holds
access_log.csv	293.4 MB	text/csv	Nov 21, 2023, 12:44:43 PM	Standard	Nov 21, 2023, 12:44:43 PM	Not public	-	Google-managed	-	None

**Actions:** Buckets > aproject01, UPLOAD FILES, UPLOAD FOLDER, CREATE FOLDER, TRANSFER DATA, MANAGE HOLDS, DOWNLOAD, DELETE.

**Filter:** Filter by name prefix only, Filter objects and folders.

1 file successfully uploaded.

**Uploads and project02 operations** access\_log.csv Complete Created sql001 12:37:14 PM GMT+5

Screenshot of Google Cloud SQL Import data from Cloud Storage interface.

**Source:** Choose a file to import from. Make sure you have read access first. Learn more.

**File format:** SQL (A plain text file with a sequence of SQL commands, like the output of mysqldump) or CSV (If your Cloud Storage file is a CSV file, select CSV. The CSV file should be a plain text file with one line per row and comma-separated fields).

**Destination:** Choose the database and table in your instance for this file to import into. Learn more.

**Database:** Database created

**Table:** Enter the name of an existing table in the database to house your CSV file.

**IMPORT** CANCEL

**Select a file to import**

Select a SQL dump file or CSV file to import

aproject01

access\_log.csv

SELECT CANCEL

Screenshot of the Google Cloud SQL Import Data from Cloud Storage interface.

**Source:** Bucket name/file name: project021/access\_log.csv

**File format:** CSV

**Destination:** Database: database1, Table: tab01

**IMPORT**

Database created

Uploads and project02 operations  
Created sql001 12:37:14 PM GMT+5

Screenshot of the Google Cloud SQL Import Data from Cloud Storage interface.

**Source:** Bucket name/file name: project021/access\_log.csv

**File format:** CSV

**Destination:** Database: database1, Table: tab01

**IMPORT**

Database created

Uploads and project02 operations  
Created sql001 12:37:14 PM GMT+5

Screenshot of the Stackdriver Monitoring API Product details page.

### Stackdriver Monitoring API

Google Enterprise API

Stackdriver Monitoring

TRY THIS API

API Enabled

**OVERVIEW** **PRICING** **DOCUMENTATION** **SUPPORT** **RELATED PRODUCTS**

**Overview**

The Stackdriver Monitoring API gives you access to over 900 Stackdriver Monitoring metrics from Google Cloud Platform and Amazon Web Services. You can create your own custom metrics and can organize your cloud resources using groups.

**Additional details**

Type: SaaS & APIs  
Last product update: 4/30/22  
Category: Monitoring, Google Enterprise APIs  
Service name: monitoring.googleapis.com

**Pricing**

Monitoring API Requests	FREE	TIER 1
Metric Volume	INR 0.00 /1K Requests	INR 0.832449999 /1K Requests
Prometheus Samples Ingested	Starting after 0 Requests/month	Starting after 1M Requests/month
Synthetic Monitor Executions		

Search

Screenshot of the Google Cloud Platform API & Services interface showing the creation of credentials for the Stackdriver API.

**APIs & Services** - **Create credentials**

**Credential Type**

**Which API are you using?**

Different APIs use different auth platforms and some credentials can be restricted to only call certain APIs.

Select an API \* Stackdriver API

**What data will you be accessing? \***

Different credentials are required to authorize access depending on the type of data that you request. [Learn more](#)

User data Data belonging to a Google user, like their email address or age. User consent required. This will create an OAuth client.

Application data Data belonging to your own application, such as your app's Cloud Firestore backend. This will create a service account.

**NEXT**

**Your Credentials**

**DONE** **CANCEL**

Screenshot of the Google Cloud IAM & Admin interface showing the creation of a service account named 'allow01'.

**IAM & Admin** - **Create service account**

**Service account details**

- Service account name: allow01
- Display name for this service account:
- Service account ID: allow01
- Email address: allow01@project02-405205.iam.gserviceaccount.com
- Service account description: app
- Describe what this service account will do:

**CREATE AND CONTINUE**

**Grant this service account access to project (optional)**

**Grant users access to this service account (optional)**

**DONE** **CANCEL**

Screenshot of the Google Cloud Monitoring Infrastructure Summary dashboard.

**Monitoring** - **INFRASTRUCTURE SUMMARY**

**Compute Engine**

- VMs Dashboard | Installing the Monitoring Agent
- Active VMs: 1
- With Agent: -
- Max CPU: 1%
- Avg CPU: 1%

**VMs by Region** (Region: US-West4)

**Top VMs by CPU** (Time series: UTC-15:30 to 12:50 PM)

**Top Memory Used (Agent)** (Time series: 0 time series)

**Top Sent Traffic** (Time series: 0 time series)

**Top Received Traffic** (Time series: 0 time series)

**RTT Latency 95%ile** (Time series: 0 time series)

**Service account created** (Alert message)

Start Course | Intelligent | Inbox - surekha01166@gmail.com | Biddefender GravityZone | Monitoring - project02 - Google Cloud | aproject01 - Bucket details - Cloud | App Engine Application Platform | Method: apps.create | App En...

console.cloud.google.com/monitoring/alerting/policies/create?project=project02-405205

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**Create alerting policy**

**ALERT CONDITIONS**

- New condition
- Configure trigger

**ALERT DETAILS**

- Notifications and name
- Review alert

**Select a metric**

**SELECT A METRIC**

Filter by resource or metric name: Active Popular resources ACTIVE RESOURCES

VM Instance 36 metrics >

Audited Resource 2 metrics >

Cloud SQL Database 40 metrics >

Compute Location 2 metrics >

Consumed API 4 metrics >

Selection preview: VM Instance > instance

**ACTIVE METRIC CATEGORIES**

Firewall 2 metrics > CPU usage compute.googleapis.com/instance/cpu/usage...

Instance 23 metrics > CPU utilization compute.googleapis.com/instance/cpu/utiliz...

Logs-based metrics 2 metrics > Disk average io queue depth compute.googleapis.com/instance/disk/averag...

Mirroring 3 metrics > Disk average latency compute.googleapis.com/instance/disk/latency...

Vm\_Usage 6 metrics > Disk read bytes compute.googleapis.com/instance/disk/read/b...

Disk read operations compute.googleapis.com/instance/disk/read/o...

Disk write bytes compute.googleapis.com/instance/disk/write/b...

Disk write operations compute.googleapis.com/instance/disk/write/o...

**Metric**

CPU utilization Fractional utilization of allocated CPU on this instance. Values are typically numbers between 0.0 and 1.0 (but some machine types allow bursting above 1.0). Charts show utilization as a percentage between 0% and 100% (or more). This metric is reported by the hypervisor for the VM and can differ from agent.googleapis.com/cpu/utilization, which is reported from inside the VM.

compute.googleapis.com/instance/cpu/usage...

compute.googleapis.com/instance/cpu/utiliz...

compute.googleapis.com/instance/disk/averag...

compute.googleapis.com/instance/disk/latency...

compute.googleapis.com/instance/disk/read/b...

compute.googleapis.com/instance/disk/read/o...

compute.googleapis.com/instance/disk/write/b...

compute.googleapis.com/instance/disk/write/o...

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Service account created

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console.cloud.google.com/monitoring/alerting/policies/create?project=project02-405205

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**Create alerting policy**

**ALERT CONDITIONS**

- VM Instance - CPU utilization
- Configure trigger

**ALERT DETAILS**

- Notifications and name
- Review alert

**Configure alert trigger**

**Condition Types**

- Threshold Condition triggers if a time series rises above or falls below a value for a specific duration window.
- Metric absence Condition triggers if any time series in the metric has no data for a specific duration window.
- Forecast **PREDICTION** Condition triggers if any timeseries in the metric is projected to cross the threshold in the near future.

**Alert trigger**

Any time series violates

**Threshold position**

Below threshold

**Threshold value**

0.5 %

**Advanced Options**

Condition name \* VM Instance - CPU utilization

**NEXT**

Service account created

VM Instance - CPU utilization

1 hour 6 hours 1 day 7 days 30 days Custom

VM Instance - CPU utilization

Filter Enter property name or value

Metric utilization Value 0.792 %

10% 20% 30%

UTC-03:00 12:00 PM 12:15 PM 12:30 PM 12:45 PM 12:00 AM 12:15 AM 12:30 AM 12:45 AM

Service account created

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console.cloud.google.com/monitoring/alerting/policies/create?project=project02-405205

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**Create alerting policy**

**ALERT CONDITIONS**

- VM Instance - CPU utilization
- Configure trigger

**ALERT DETAILS**

- Notifications and name
- Review alert

**Configure notifications and finalize alert**

**Configure notifications** Recommended

Use notification channel

**Notification Channels**

No available notification channels for this workspace.

**MANAGE NOTIFICATIONS**

We recommend that you create multiple notification redundancy purposes. Google has no control of message delivery for external systems after we have passed the notification to a single Google service supports Cloud Console Mail, Webhooks, and Slack. If you use one of these notification channels, you can also use email, SMS, or Pub/Sub as the redundant channel.

**LEARN MORE**

Notify on incident closure

- Incident autoclose duration \* 7 days

If data is absent, select a duration after which incident will automatically close.

**Policy user labels** Recommended

Policy user labels allow you to add your own labels to alert policies. Labels are included in the notification and incident details.

**+ ADD LABEL**

**Create Email Channel**

Email addresses can be set to receive notifications from your alerting when a new incident is created.

**Email Address \*** surekha01166@gmail.com

**Display Name \*** surekha

**SAVE**

**LEARN MORE** **DISMIS**

**Slack**

No Slack channels configured.

**Webhooks**

No webhook channels configured.

**Email**

No emails configured.

**SMS**

No SMS channels configured.

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Screenshot of the Google Cloud Platform (GCP) Monitoring interface showing the creation of an alerting policy.

The top navigation bar shows several open tabs, including "Start Course | Intellipaat", "Inbox - sureshko1166@gmail.com", "Bridgeman GravityZone", "Monitoring - project02 - Goo...", "aproject01 - Bucket details - C...", "App Engine Application Platfor...", and "Method: apps:create | App En...".

The main page title is "Create alerting policy" under "ALERT CONDITIONS". A sidebar on the left lists "VM Instance - CPU utilization" and "Configure trigger".

The main content area is titled "Configure notifications and finalize alert". It includes sections for "Configure notifications" (Recommended), "Notification Channels" (Email, suresh selected), "Policy user labels" (Recommended), and "Documentation (optional)" (Text Field).

A modal window titled "Service account created" is visible at the bottom center of the screen.

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Inbox - suresh10156@gmail.com

Bidfender GravityZone

Monitoring - project02 - Google Cloud Platform

aproject01 - Bucket details - Cloud Storage

App Engine Application Platform

Method: apps:create | App Engine

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Google Cloud

project02

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ALERT CONDITIONS

- VM Instance - CPU utilization
- Configure trigger

ALERT DETAILS

- Notifications and name
- Review alert

**VM Instance - CPU utilization**

Condition type: Threshold

Triggers when: Any time series cross threshold

Threshold position: Below threshold

Threshold value: 0.5

Retest window: No retest

Filter: Enter property name or value

Metric: utilization

Value: 0.688 %

Alert Policy Name: cpu-down

Notification channels:

- Notify on incident open and closure.
- Incidents with absent data will auto close after 1 hour.

Channel type: Email

Channel name: suresh

Documentation

CREATE POLICY

PROVIDE FEEDBACK

CANCEL

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Bidfender GravityZone

Policy details - Monitoring - project02 - Google Cloud Platform

aproject01 - Bucket details - Cloud Storage

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Monitoring

Policy details

ENABLED

EDIT

COPY

DELETE

JSON

1 hour 6 hours 1 day 1 week 1 month 6 weeks

cpu-down

Conditions

Policy violates when ANY condition is met

**VM Instance - CPU utilization**

Condition type: Threshold

Triggers when: Any time series cross threshold

Threshold position: Below threshold

Threshold value: 0.05

Retest window: No retest

Filter: Enter property name or value

Metric: utilization

Value: 0.781 %

CREATE POLICY

PROVIDE FEEDBACK

CANCEL

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Bidfender GravityZone

Policies - Monitoring - project02 - Google Cloud Platform

aproject01 - Bucket details - Cloud Storage

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Monitoring

Policies

CREATE POLICY

Display Name	Type	Last Modified By	Last Modified On	Created On	Enabled	⋮
cpu-down	Metrics	suresh10156@gmail.com	November 21, 2023	November 21, 2023	on	⋮

Filter: Filter policies

Display Name: cpu-down

Type: Metrics

Last Modified By: suresh10156@gmail.com

Last Modified On: November 21, 2023

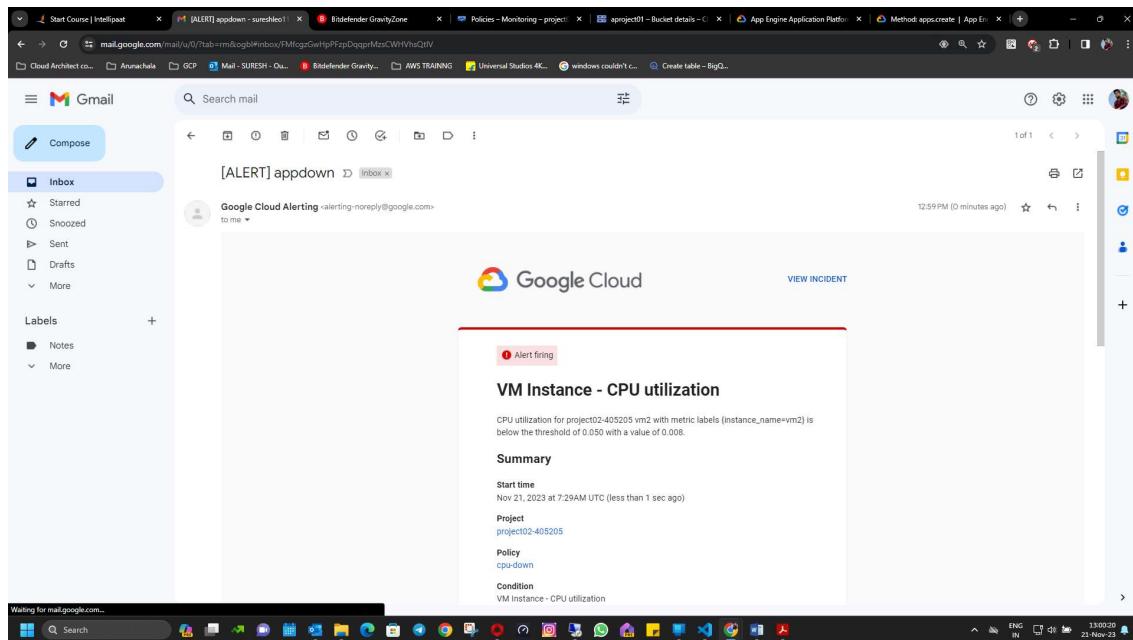
Created On: November 21, 2023

Enabled: on

⋮

Release Notes

# VERIFY:



DONE...!!!!