

Google Cloud Project Documentation

0. Introduction

The below steps detail how to create the Google Cloud Project (GCP) for the Familyar, the Virtual Assistant for Patients With Dementia.

To overview, the GCP holds our image animation automation (*refer to the Image Animation Documentation*), storage bucket, and uses both the Speech to Text API and the Cloud Natural Language API.

To get the project running, you must follow these steps, and change the config file in the project to match accordingly (see README).

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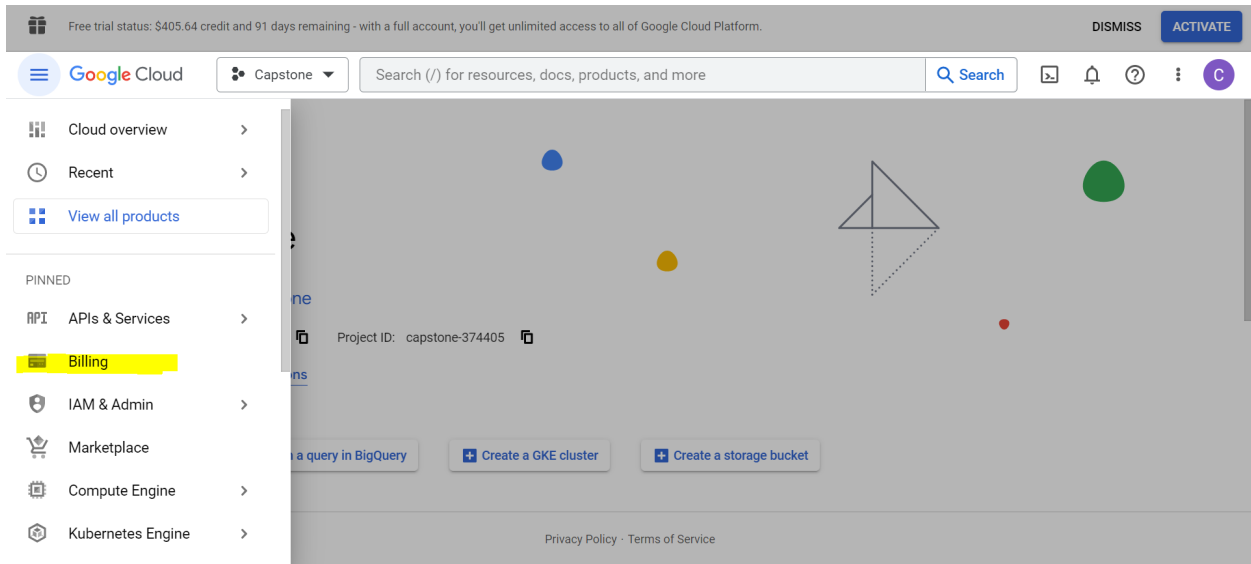
	Name	Page
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1. Set up a New Google Cloud Account with a free trial

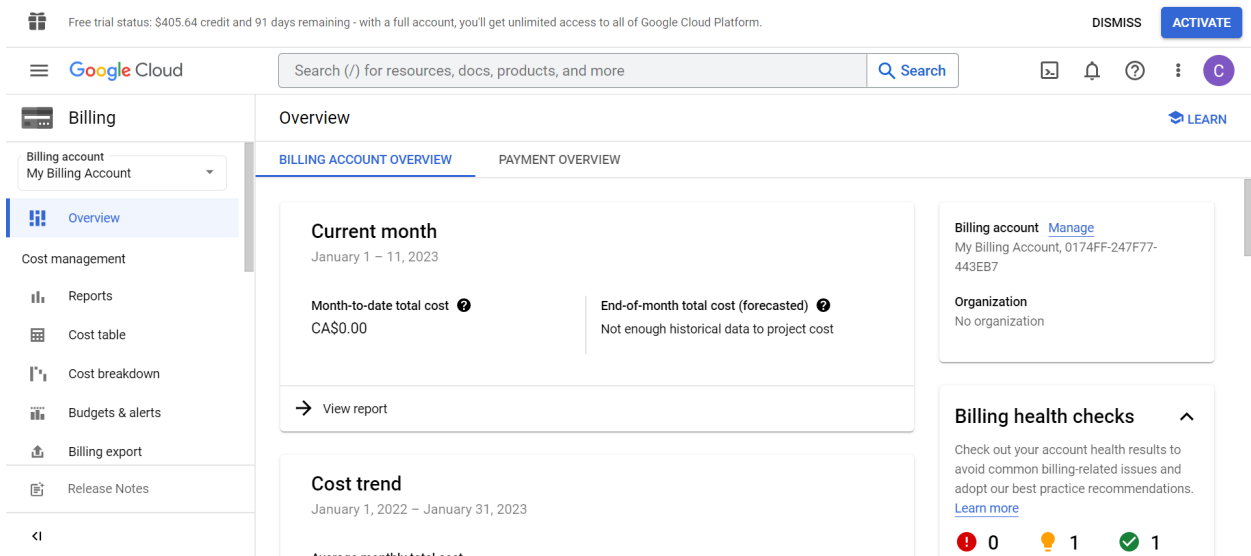
1) Ensure you have a gmail account ready that has not already created a GCP.

2) Go to <https://console.cloud.google.com/>. Click the button that says “Activate” at the “Free trial” banner. Then, link the gmail account that you just made. It will ask you for billing details, but it won’t automatically take from your account when the credits are up. You’ll need to manually upgrade the account if you want to do this.

3) When that’s all done, check that you have credits. On the left hand side, click the hamburger, then Billing.



Double check that all the monthly costs are 0, and scroll down to the “Free trial credit” on the right hand side. Make sure that’s not 0.



Free trial status: \$405.64 credit and 91 days remaining - with a full account, you'll get unlimited access to all of Google Cloud Platform.

DISMISSACTIVATE

Google Cloud

Search (/) for resources, docs, products, and more

Search

Billing

Billing account

My Billing Account

Overview

Cost management

Reports

Cost table

Cost breakdown

Budgets & alerts

Billing export

Cost optimization

Committed use discounts...

CUD analysis

Release Notes

Overview

BILLING ACCOUNT OVERVIEW

PAYMENT OVERVIEW

Free trial credit

CA\$406

Free trial credit

Out of CA\$406

91

Days remaining

Ends April 12, 2023

You are not billed during your Free Trial. When the Free Trial ends, all resources you created during the trial are stopped and you will not be charged, unless you upgrade to a paid Cloud Billing account.

Please note: The Free Trial period cannot be paused or extended. The Free Trial ends after all available credits are consumed, or at the end of the Free Trial period, whichever happens first.

Actual cost

View report

Top projects

January 1, 2022 – January 31, 2023

4) If that all matches, then you’ve done it correctly.

2. Creating a New Project

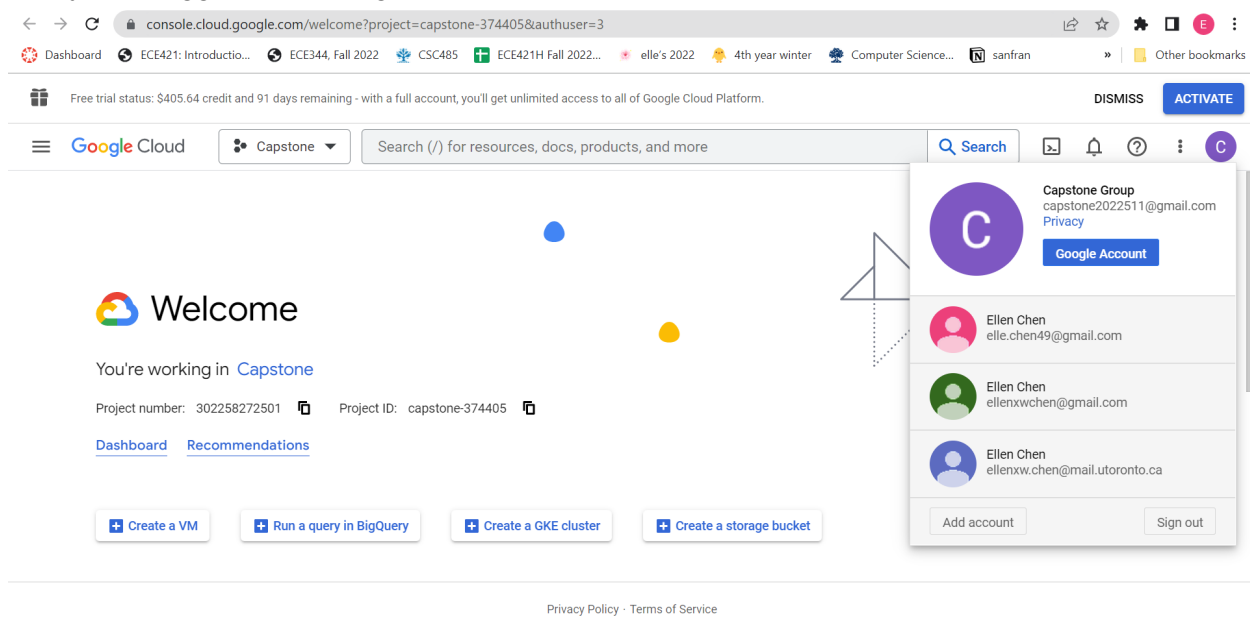
To get the free trial benefits, the new project **must** be created by someone who has not created their own GCP before, and ran out the credits.

For example, let's say person A created a GCP, used a free trial, and no longer has a free trial (ran out of credits or ran out of the 90 days). If person A tries to create a new GCP, the free trial would not work for them. However, if person B creates a GCP with a free trial, then person A can contribute to their GCP.

Our team essentially kept using each other's email addresses, and created new GCPs to keep using the free trial function.

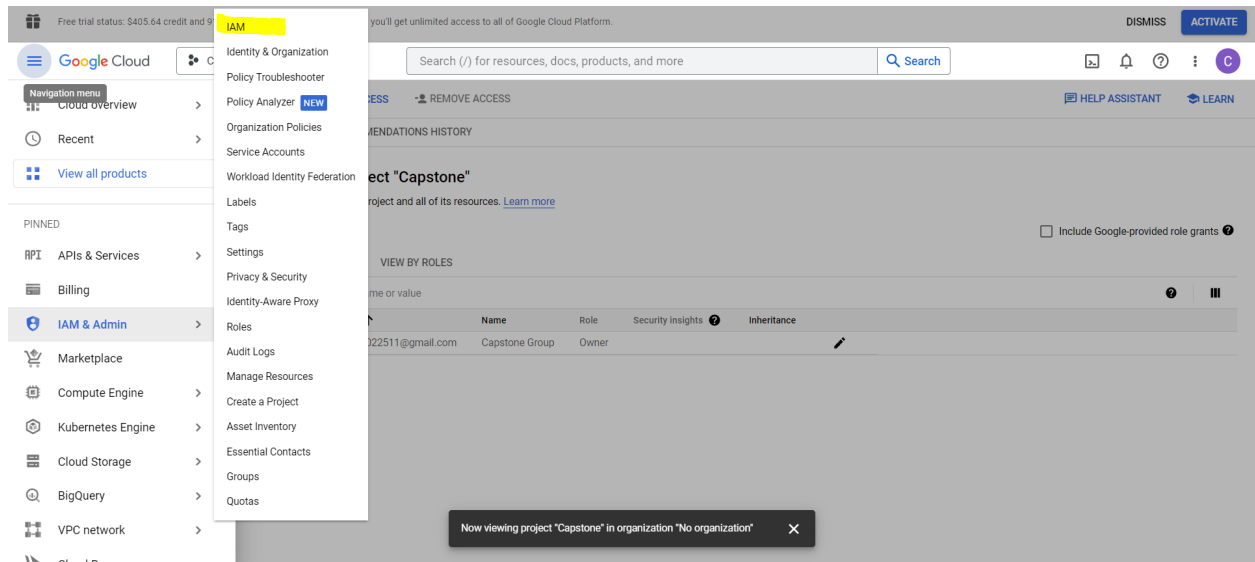
Google's tutorial: <https://developers.google.com/workspace/guides/create-project>

1) Go back to <https://console.cloud.google.com>. On the right hand side, with the circle, make sure you're logged into the right account.



2) Typically, Google Cloud creates a project already for you called "My First Project", but let's just create a project called "Capstone" for consistency. To do this, go to step 3.

3) On the left hand side, click on the hamburger, then click on "IAM & Admin", and then click "IAM".



It'll give you an option to "Create a Project".

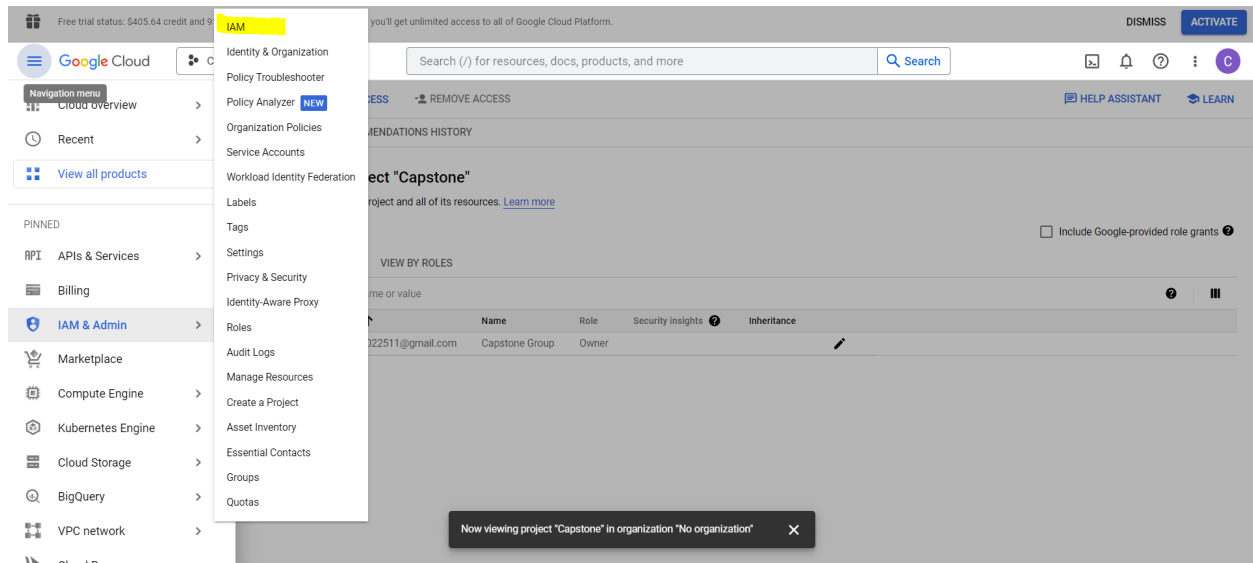
If this doesn't work, go to this link: <https://console.cloud.google.com/cloud-resource-manager>
And click "Create a Project".

4) Give the project name "Capstone"

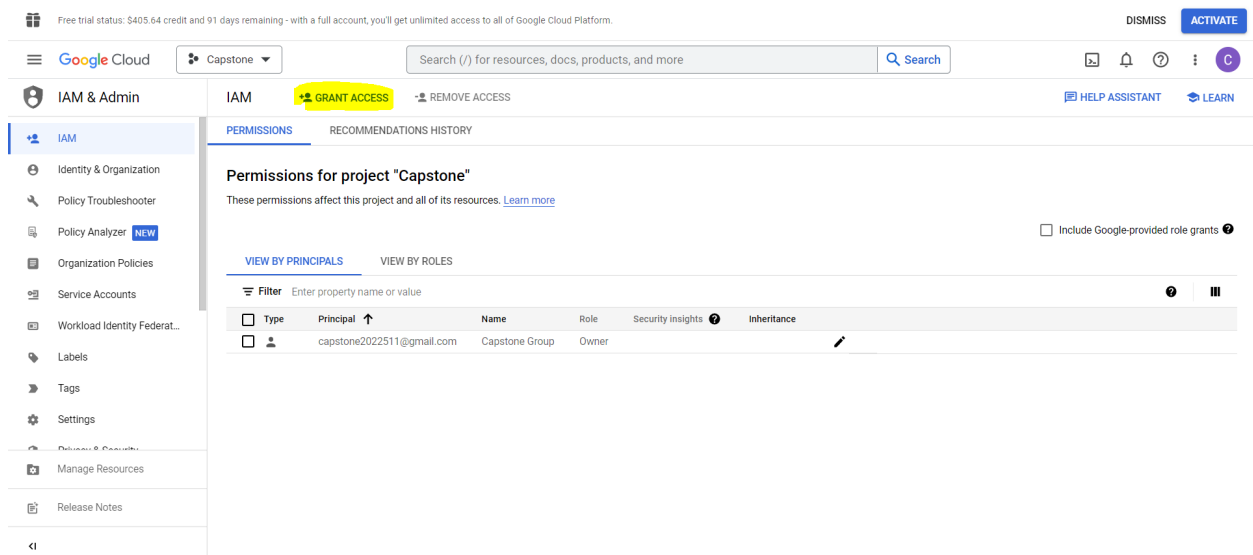
3. Share the Project with Other Members

This is so if the other members want to enable any APIs, look at any file storage buckets, or any cloud functions, they need to do this.

1) On the left hamburger, go to “IAM & Admin”, then “IAM”



2) Make sure you're on the Capstone project. Then, click “Grant Access”.



3) Put the email address in the “Principals” section, and in Roles, select “Owner”. Click “Save”.

Free trial status: \$405.64 credit and 91 days remaining - with a full account, you'll get unlimited access to all of Google Cloud Platform

Google Cloud Capstone Search (/) for resources, docs, projects

IAM & Admin IAM GRANT ACCESS REMOVE ACCESS

PERMISSIONS RECOMMENDATIONS HISTORY

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

VIEW BY PRINCIPALS VIEW BY ROLES

Filter Enter property name or value

Type	Principal	Name	Role
<input type="checkbox"/>	capstone2022511@gmail.com	Capstone Group	Owner

Grant access to "Capstone"

Grant principals access to this resource and add roles to specify what actions the principals can take. Optionally, add conditions to grant access to principals only when a specific criteria is met. [Learn more about IAM conditions](#)

Resource
Capstone

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

New principals
elle.chen49@gmail.com

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

Role *
Owner

IAM condition (optional)
[+ ADD IAM CONDITION](#)

Full access to most Google Cloud resources. See the list of included permissions.

[+ ADD ANOTHER ROLE](#)

[SAVE](#) [CANCEL](#)

4) After that, you should see the person pop up. The person must accept the invitation.

IAM GRANT ACCESS REMOVE ACCESS [HELP ASSISTANT](#) [LEARN](#)

PERMISSIONS RECOMMENDATIONS HISTORY

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

VIEW BY PRINCIPALS VIEW BY ROLES

Filter Enter property name or value

Type	Principal	Name	Role	Security insights	Inheritance
<input type="checkbox"/>	capstone2022511@gmail.com	Capstone Group	Owner		Edit
<input type="checkbox"/>	elle.chen49@gmail.com		Owner		Edit

☐ Include Google-provided role grants

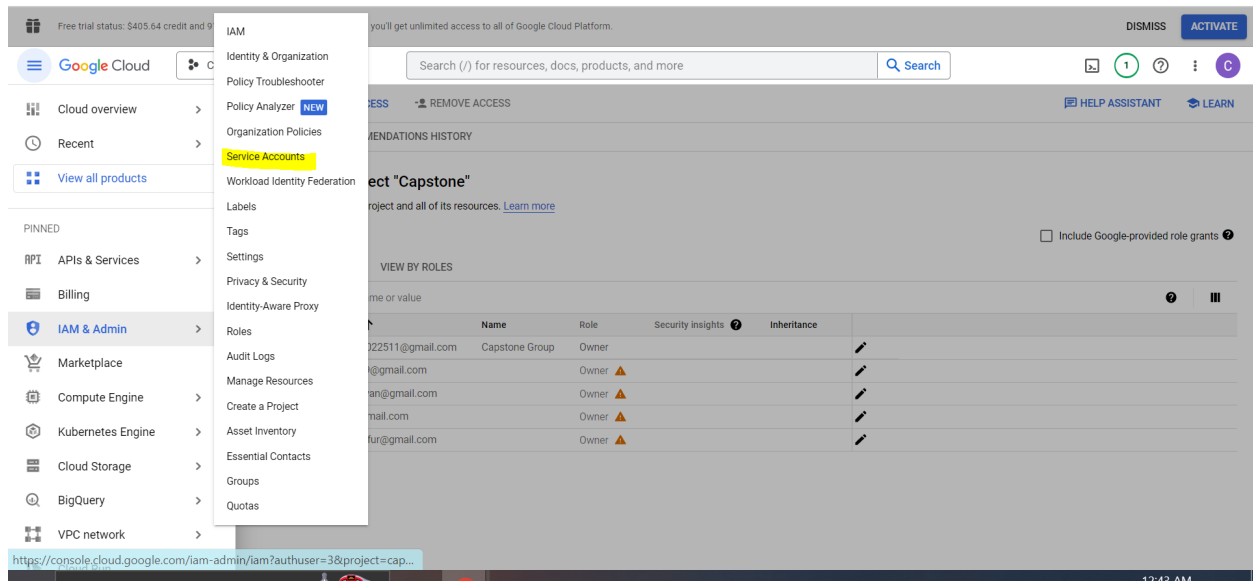
5) Do this for all members of the group.

4. Creating a Service Account

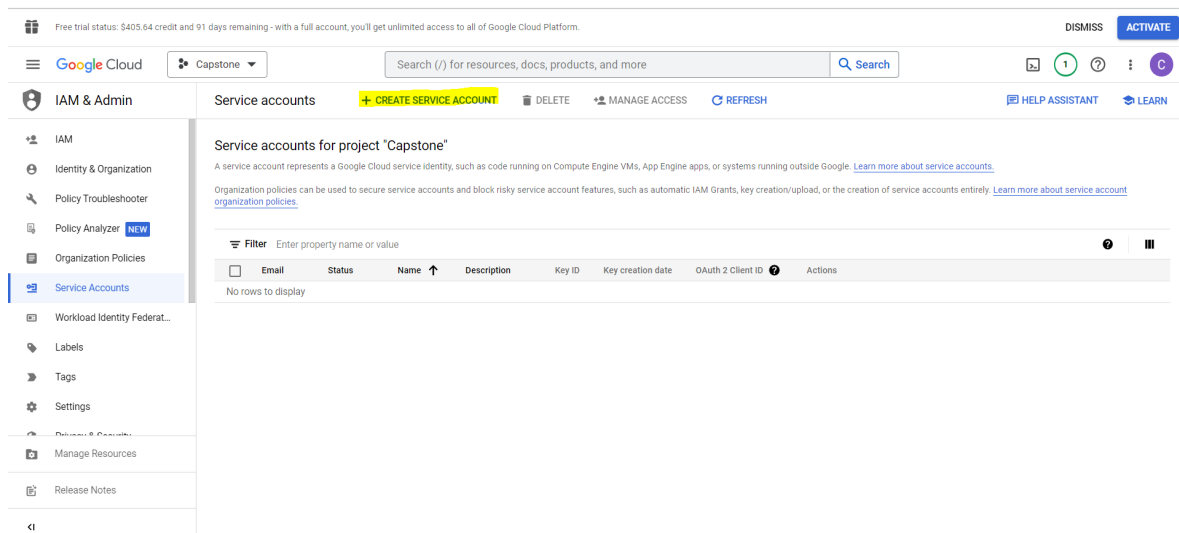
A service account (and the corresponding key) is required to authenticate to the GCP when you are calling APIs, or accessing the storage bucket. This means that the computer that houses the Python backend MUST have a copy of the key installed, and in the proper directory that is pointed to by the config file (see README).

Google's tutorial: <https://cloud.google.com/iam/docs/creating-managing-service-accounts>

1) Go to the hamburger, click "IAM & Admin", and then "Service Accounts"



2) Up at the top, click "Create Service Account". Ideally for safety and for tracking suspicious activity, create one for every person, and do not post the .json key anywhere (Github, Drive, etc). The person should create their own service account on their own account, since you can only download the key once.



3) You can write whatever you want for the “Service Account Name”.

Google Cloud Capstone

Search Products, resources, docs (/)

IAM & Admin Create service account HELP ASSISTANT

1 Service account details

Service account name

Display name for this service account

Service account ID *

Email address: ec-37-86@capstone-374405.iam.gserviceaccount.com

Service account description

Describe what this service account will do

CREATE AND CONTINUE

2 Grant this service account access to project (optional)

3 Grant users access to this service account (optional)

DONE CANCEL

4) You should grant this service account “Owner” permissions

Google Cloud Capstone

Search Products, resources, docs (/)

IAM & Admin Create service account

✓ Service account details

2 Grant this service account access to project (optional)

Grant this service account access to Capstone so that it has permission to complete specific actions on the resources in your project. [Learn more](#)

Select a role IAM condition (optional)

Filter Type to filter

Quick access Roles

Currently used Owner

Basic

By product or service

Access Approval

Access Context Manager

Actions

MANAGE ROLES

DONE

Service account created

5) Step 3 of allowing users access to this service account is optional, so skip that and click “Done”.

6) It should redirect you to a page like this

The screenshot shows the Google Cloud IAM & Admin console. The left sidebar contains the navigation menu with 'Service Accounts' highlighted. The main content area is titled 'Service accounts for project "Capstone"'. It includes a table with columns: Filter, Email, Status, Name, Description, Key ID, Key creation date, OAuth 2 Client ID, and Actions. One service account is listed with email 'ec-37-86@capstone-374405.iam.gserviceaccount.com' and status 'Active'. The right sidebar shows 'Recommended for you' links such as 'Service accounts', 'Creating and managing service accounts', 'Manage access to projects, folders, and organizations', 'Create and manage service account keys', 'Managing service account impersonation', and 'Manage access to service accounts'.

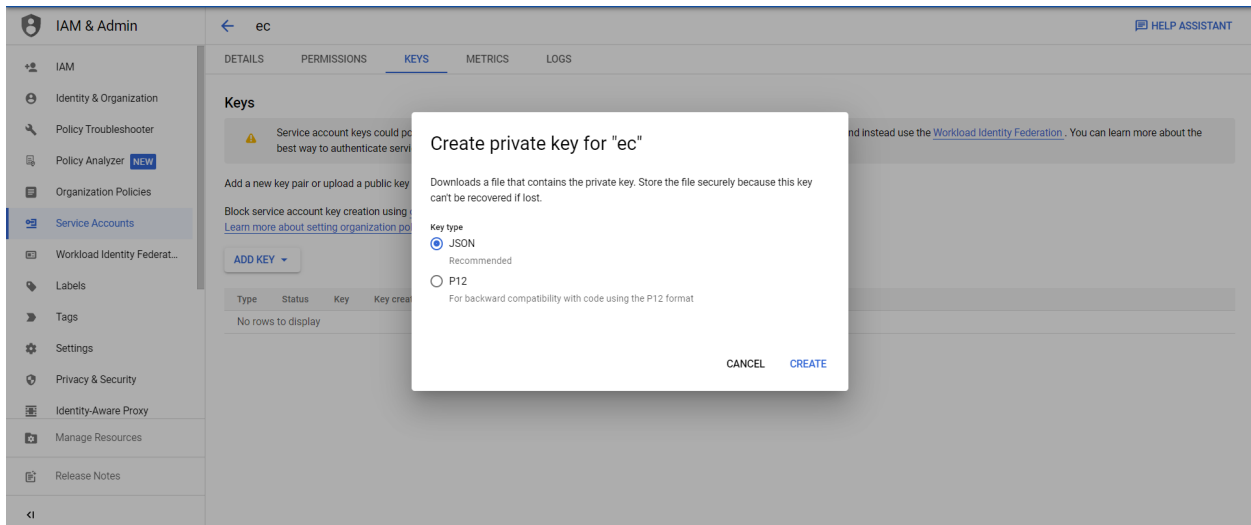
7) Now that the service account is created, we want to create a key for the account. Click into the link under the “Email” column. It should take you to a page like this. Click on the “Keys” tab.

The screenshot shows the 'Keys' tab for a service account named 'ec'. The page has tabs for 'DETAILS', 'PERMISSIONS', 'KEYS' (selected), 'METRICS', and 'LOGS'. Under 'Service account details', fields for Name, Description, Email, and Unique ID are shown. Under 'Service account status', it indicates 'Account currently active' with a 'DISABLE SERVICE ACCOUNT' button. An 'Advanced settings' section is also visible. The left sidebar is the same as in the previous screenshot.

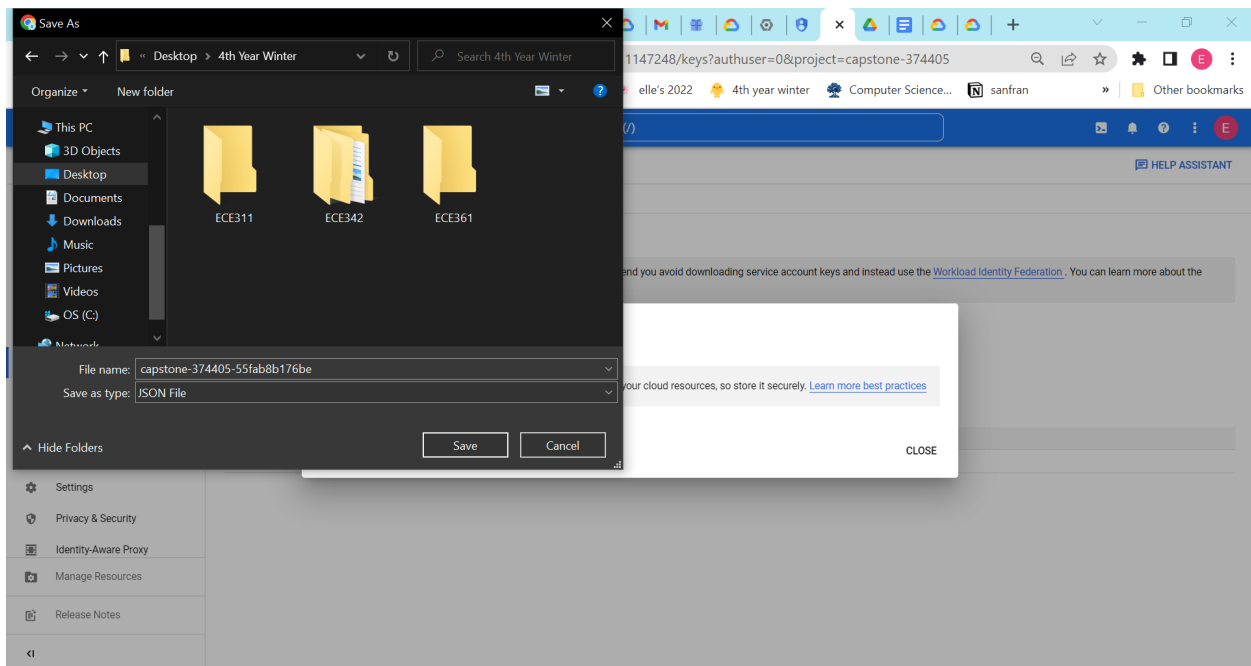
8) Go to “Add key”, and then “Create a New Key”.

The screenshot shows the 'Add key' dialog box in the 'Keys' tab. It has a warning icon and text: 'Service account keys could pose a security risk. Best way to authenticate service accounts on'. Below, it says 'Add a new key pair or upload a public key certificate from:'. There are two options: 'Add key' (with a dropdown arrow) and 'Upload existing key'. The 'Add key' dropdown is open, showing 'Create new key' (highlighted in yellow) and 'Key creation date'. The left sidebar is the same as in the previous screenshots.

9) Make sure the JSON is selected, and then click “Create”



10) A pop-up window should come up, and select a good place to save your key.



11) Now, you're done! Use that .json file as the new .json file to connect to the Google Cloud Client.

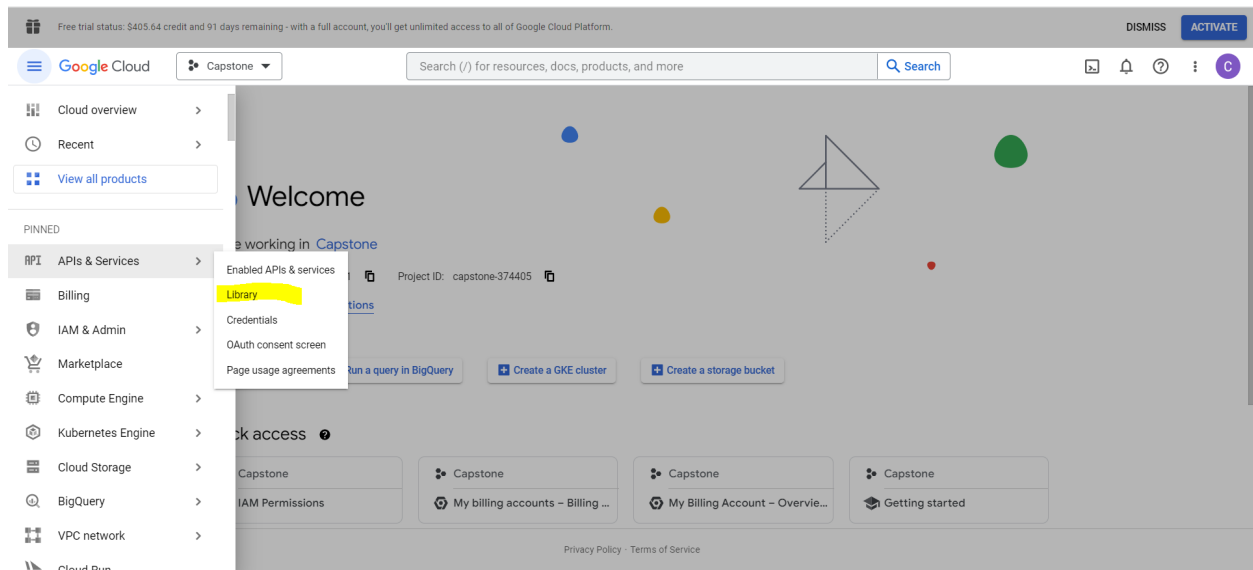
12) Make sure you remember the name of this file, and the location, as you will be changing the config files in the project so that they match the location. If you are confused, please refer to the README in the GitHub.

5. Enable Speech-to-Text in the Project

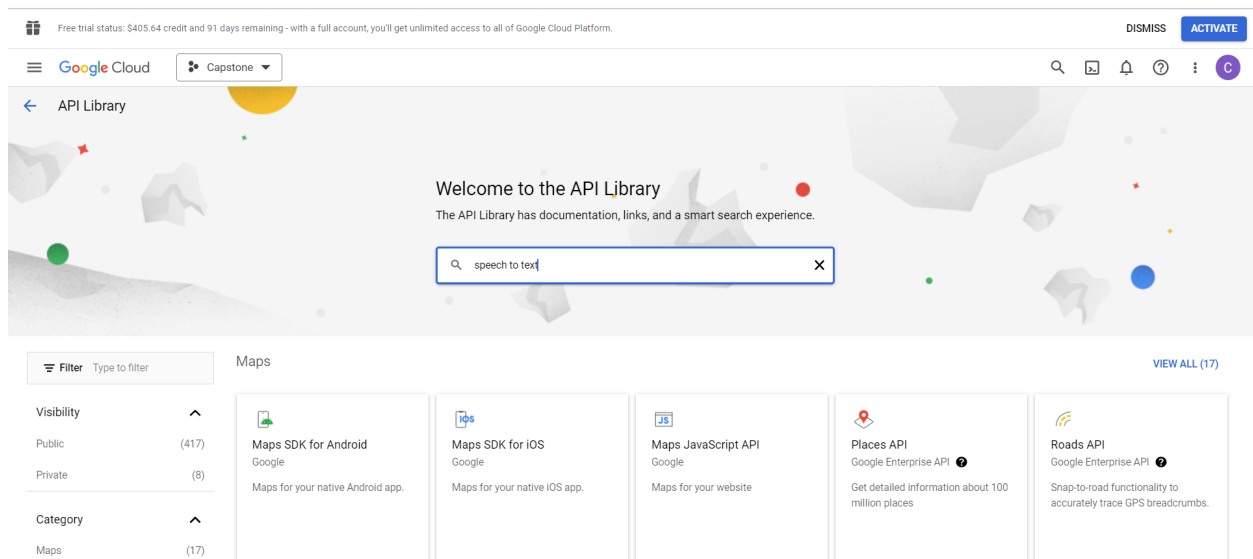
Google's Tutorial: <https://cloud.google.com/speech-to-text/docs/before-you-begin>

1) To enable this, you need to enable the Speech-to-Text API in the Google Cloud Console, create at least 1 service account, and download that service account key.

2) Go to the console, “APIs & Services”, and then click on “Library”



3) Then, put “speech to text” in the search bar.



4) The Speech-to-Text API should come up. Make sure you're clicking Speech-to-Text, not Text-to-Speech

Free trial status: \$405.64 credit and 91 days remaining - with a full account, you'll get unlimited access to all of Google Cloud Platform. DISMISS ACTIVATE

Google Cloud Capstone

API Library

API Library > "speech to text"

Filter Type to filter

3 results

Visibility Public (3)

Category Machine learning (2) Google Enterprise APIs (3)

Cloud Speech-to-Text API
Google Enterprise API
Converts audio to text by applying powerful neural network models.

Cloud Text-to-Speech API
Google Enterprise API
Synthesizes natural-sounding speech by applying powerful neural network models.

Cloud Video Intelligence API
Google Enterprise API
Detects objects, explicit content, and scene changes in videos. It also specifies the region for annotation and transcribes speech to text. Supports both asynchronous API and streaming API.

5) Then, click the "Enable" button.

Google Cloud Capstone

Product details

Cloud Speech-to-Text API
Google Enterprise API
Speech recognition

ENABLE TRY THIS API

[OVERVIEW](#) [PRICING](#) [DOCUMENTATION](#) [SUPPORT](#)

Overview
Converts audio to text by applying powerful neural network models.

Additional details
Type: [SaaS & APIs](#)
Last updated: 7/21/22
Category: [Machine learning](#), [Google Enterprise APIs](#)
Service name: [speech.googleapis.com](#)

6) When that's all complete, you should see the page redirect to this

The screenshot shows the Google Cloud console interface. At the top, there's a header with the Google Cloud logo, a search bar, and a 'Capstone' dropdown. Below the header, the left sidebar shows 'APIs & Services' with a sub-menu 'Enabled APIs & services'. The main content area displays the 'API/Service Details' for the 'Cloud Speech-to-Text API'. It includes a warning message: 'To use this API, you may need credentials. Click 'CREATE CREDENTIALS' to get started.' Below this, the API details are shown: 'Service name' is 'speech.googleapis.com', 'Type' is 'Public API', and 'Status' is 'Enabled'. There are links for 'LEARN MORE' and 'MAINTENANCE & SUPPORT'. The 'METRICS' tab is selected, showing a graph of 'Traffic by response code' over a 30-day period. The graph shows a single data point for '200' status codes. The 'Filters' section shows 'Versions' as 'v1, v1p1beta1, and v2', 'Credentials' as 'Unspecified, Anonymous, ...', and 'Methods' as '56 options selected'.

7) Now the Speech-To-Text API is enabled. You'll need to create a service account and download the key to get it all working.

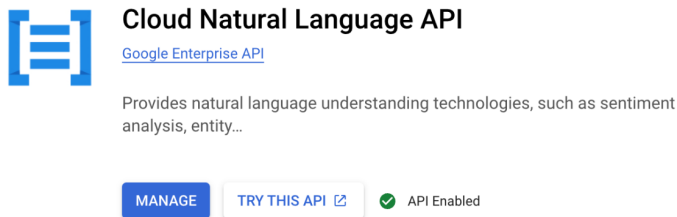
6. Enable Natural Language API in the Project

(This is the exact same steps as Part 5)

Google's Tutorial: <https://cloud.google.com/natural-language/docs/setup>

To enable this, you need to enable the Natural Language API in the Google Cloud Console, create at least 1 service account, and download that service account key.

Follow the same steps as Part 5, but type “Cloud Natural Language API” instead of “speech to text”. When you have enabled it, it should look like this:



Now the Cloud Natural Language API is enabled. You'll need to create a service account and download the key to get it all working if you haven't already.

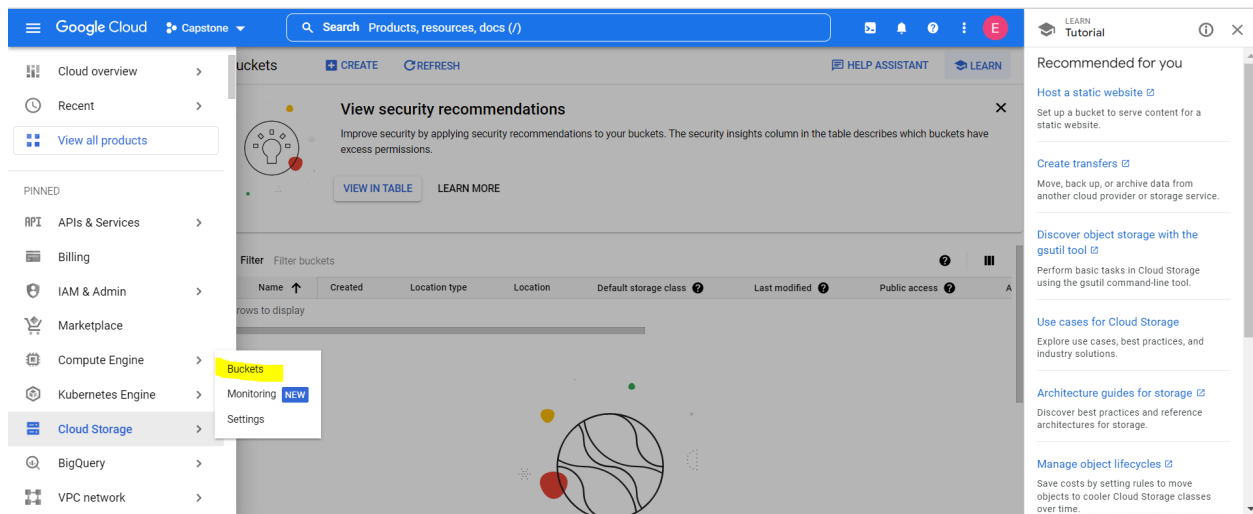
7. Create the File Buckets in the Google Cloud Project

In this section, we are creating **two** file storage buckets.

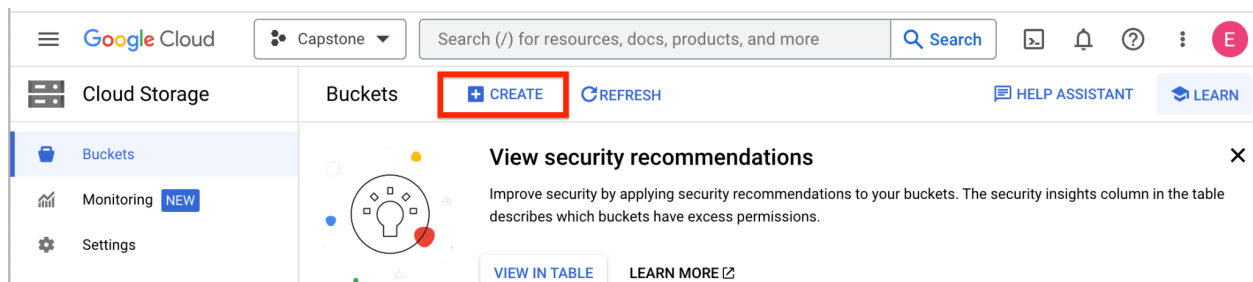
1. “familiar-person” → this is for storing all of the finished deepfaked video and audio clips after image animation and voice cloning. The iOS app downloads from this bucket when creating a voice call.
2. “familiar-person-form-data” → this is for storing the voice recording and the image of the familiar person’s face when they create a new profile through the app. Both the image animation and the voice cloning steps take from this file bucket.

Therefore, you will do the following steps twice. One for “familiar-person”, and another for “familiar-person-form-data”. They both have the same configuration.

1) On the hamburger, go to “Cloud Storage”, and then click on “Buckets”.



2) Then, click on “Create”.



3) This page will appear. For the name, you should either put “familiar-person”, or “familiar-person-form-data”.

[←](#) Create a bucket [HELP ASSISTANT](#)

- Name your bucket**

Pick a globally unique, permanent name. [Naming guidelines](#)

familiar-person

❗ That bucket name is taken. Try another.

✓ LABELS (OPTIONAL)

CONTINUE
- Choose where to store your data**

Location: us (multiple regions in United States)
Location type: Multi-region
- Choose a storage class for your data**

Default storage class: Standard

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: Multi-region / Standard

Item	Cost
us (multiple regions in United States)	\$0.026 per GB-month
With default replication	\$0.020 per GB written

ESTIMATE YOUR MONTHLY COST

4) For the data storage, choose “multi-region”.

[←](#) Create a bucket [HELP ASSISTANT](#)

- ✓ Name your bucket**

Name: familiar-person1
- 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

us (multiple regions in United States) ▼

☐ **Dual-region**
High availability and low latency across 2 regions

☐ **Region**
Lowest latency within a single region

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: Multi-region / Standard

Item	Cost
us (multiple regions in United States)	\$0.026 per GB-month
With default replication	\$0.020 per GB written

ESTIMATE YOUR MONTHLY COST

5) For the storage class, our team has consistently used “Standard”, but you can choose differently.

Location type: Multi-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 ?
Automatically transitions each object to hotter or colder storage 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](#)

☒ Set a default class
Applies to all objects in 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](#)

Item	Cost
us (multiple regions in United States)	\$0.026 per GB-month
With default replication	\$0.020 per GB written

ESTIMATE YOUR MONTHLY COST

6) For control access, we want to ensure all of the members of the project can access this file storage bucket. Select “Uniform” for Access control. Then, press “Create” to create the file bucket.

	With default replication	\$0.020 per GB written
--	--------------------------	------------------------

- **Choose how to control access to objects**

Prevent public access
Restrict data from being publicly accessible via the internet. Will prevent this bucket from being used for web hosting. [Learn more](#)

☒ Enforce public access prevention on this bucket

Access control

☒ Uniform
Ensure uniform access to all objects in the bucket by using only bucket-level permissions (IAM). This option becomes permanent after 90 days. [Learn more](#)

☐ Fine-grained
Specify access to individual objects by using object-level permissions (ACLs) in addition to your bucket-level permissions (IAM). [Learn more](#)

[CONTINUE](#)
- **Choose how to protect object data**

Protection tools: None
Data encryption: Google-managed key

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

Remember to do the same thing for “familiar-person-form-data”.