THE VEGA SETUP GUIDE

Configuring your GCP accounts for Vega Platform Integration

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Configuring GCP for Vega Platform Integration

Learn how to set up and configure GCP to view GCP billing and cost data in the Vega Platform by following 5 simple tasks. Within each task is a clickable link for further instructions. If you have any questions, please contact your Vega client success manager.

Task 1. Create Vega Admin Role in GCP with minimum permissions sets[1].

Task 2. Enable Cloud Billing Data[2] so that you can export your GCP data.

Task 3. Set up GCP Credentials [3]and collect the Service Account Key. This will be required for GCP Connector setup.

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Click on the purple links to view a step-by-step guide on how to perform that action

Task 1: Create Vega Admin Role in GCP with minimum permissions sets

Learn to create different roles as required with requisite permissions in GCP. Later those roles will be assigned to principals.

Vega Admin Custom Role

Creation of roles is very much dependent on your requirements. You can either create custom roles for various responsibilities such as monitoring, synchronizing, and then assign the required permissions to these roles. Or you can create a single custom role and assign all the permissions to that role. In our case, we create a single role. Later you can assign that role to the account whose service keys you will use to integrate with Vega Platform.

The Vega Platform uses billing data tables available within the BigQuery dataset to display the various cost reports. The permissions as listed in the following
tables are required for the role to take the required actions.

Vega Provides two permissions files which can use to add permissions quickly.

GCP Vega Inform Optimize.yaml: This file provides read only access to your Billing Account and any projects you assign the service account to

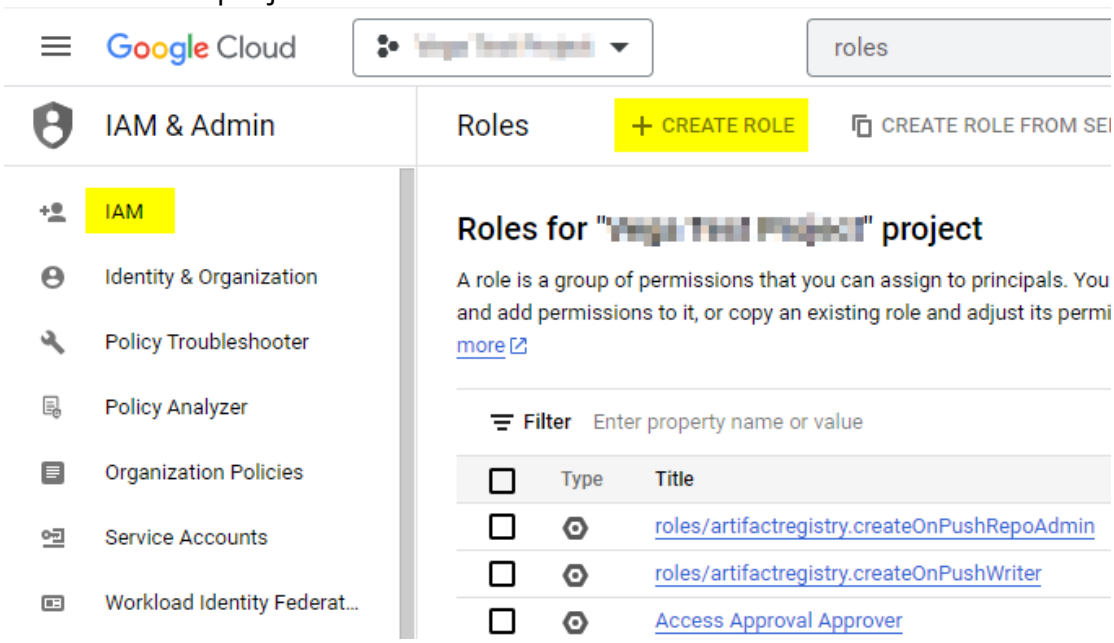
GCP Vega Operate Permissions.yaml: This file provides read access to your Billing Account and read/write access to your project accounts.

Important: To create the Vega Admin custom role, you must have the *iam.roles.create* permission. By default, the owner of a project or an organization has this permission and can create and manage custom roles. Users who are not owners, including organization admins, must be assigned either the Organization Role Administrator role, or the IAM Role Administrator role.

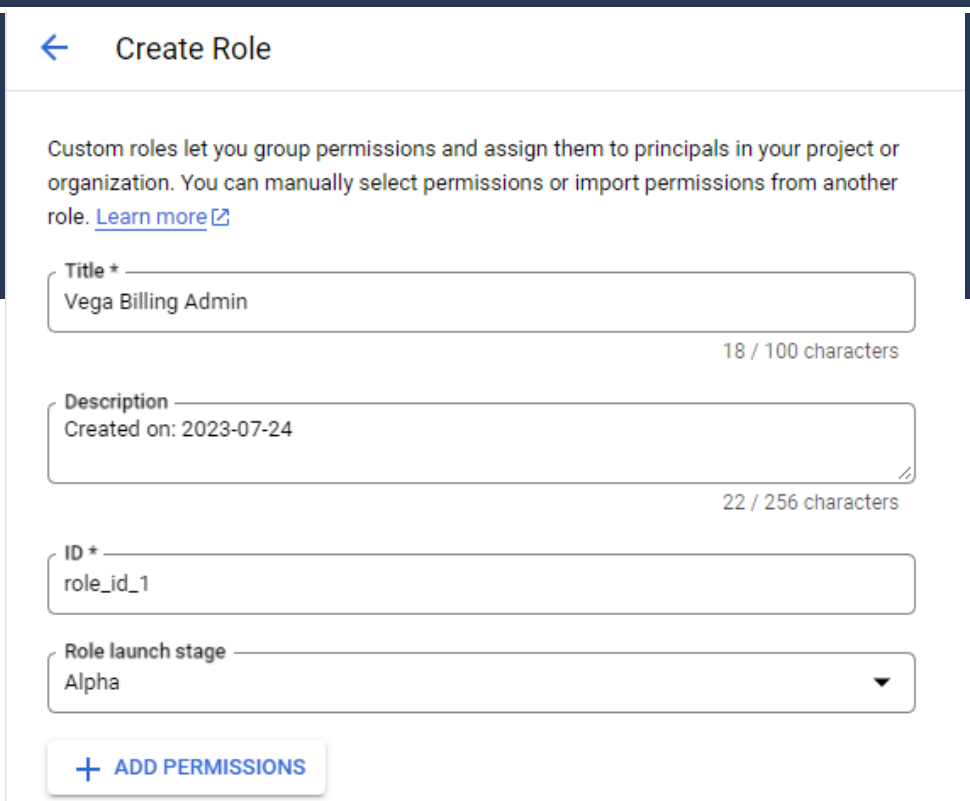
Creation of custom roles in GCP

Create a custom role called "**Vega Admin"**

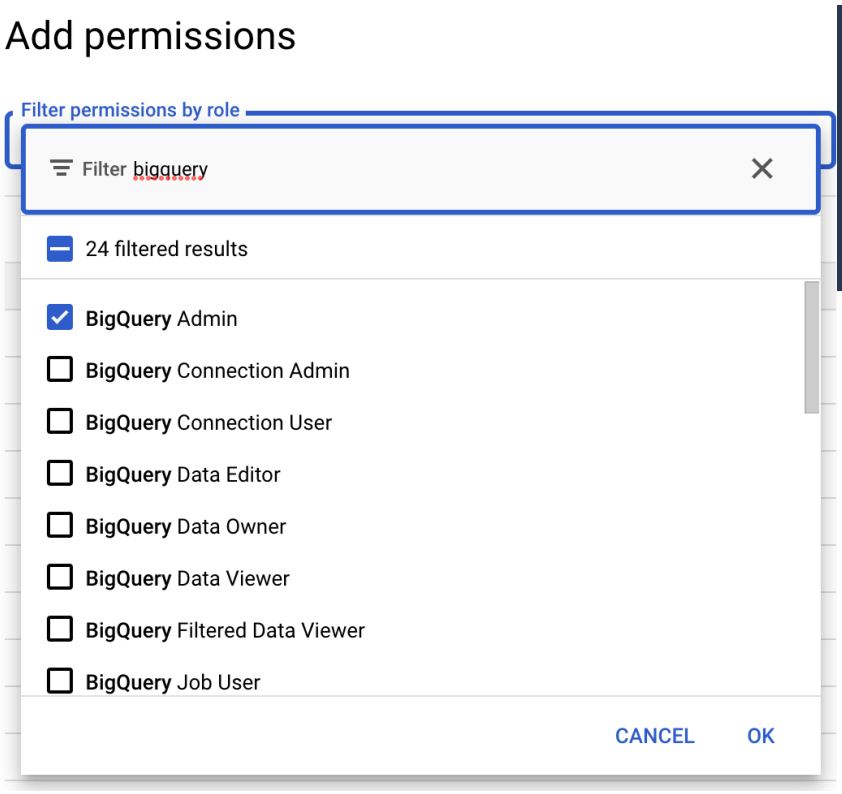
1. Log in to your GCP platform.
2. Select the project for your integration with Vega Platform
3. Navigate to IAM & Admin page.
4. In the search bar, enter Roles and click the search icon. The existing roles for that project will be listed.



5. Click **+ Create Role**. The Create Role page is displayed.

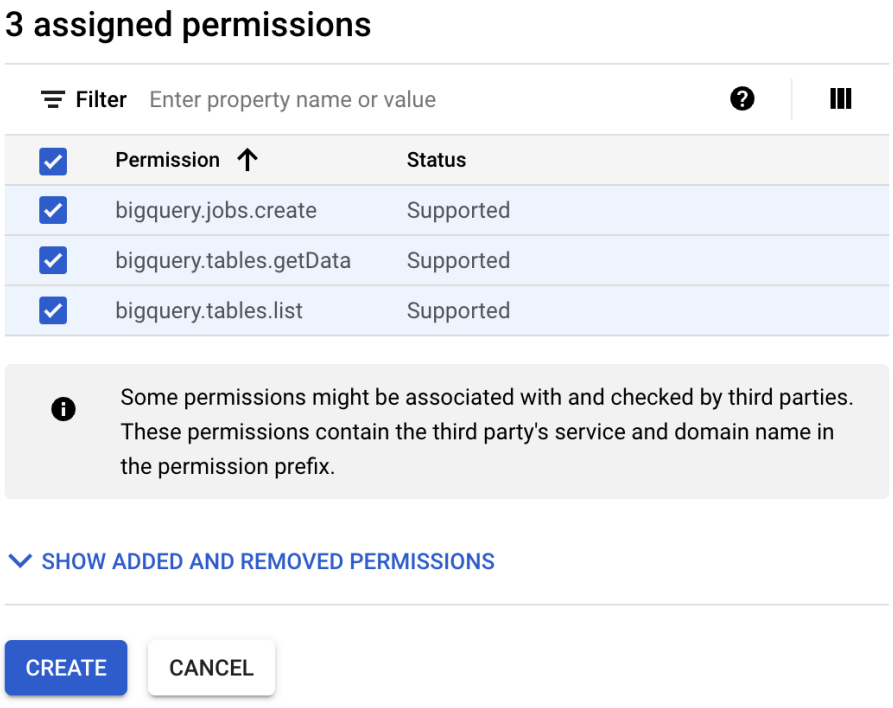


6. Enter the title, for example, **Vega Billing Admin**
7. The ID field is created by GCP, you can rename the default ID if required.
8. For the Role Launch stage, let it remain Alpha which is selected by default.
9. Click **+ Add permissions**
10. In the **Add permissions** dialog, in the **Filter permissions by role** textbox, enter the keywords. E.g., for BigQuery, the corresponding roles are listed.
11. Select BigQuery Admin and click **OK**, the corresponding permissions are listed.



ADD PERMISSIONS DIALOG

12. Select **bigquery.jobs.create**
13. Click **Add**
14. Now add the remaining permissions listed in the **permissions Json file,** which should align with your corporate policies. Consult your Client Success Manager if needed.



15. Click **Create.** The custom role **Vega Admin** is created with assigned permissions and added to the roles list.

Note: The permissions must be added to the service account's principle under all the projects linked with a billing account.

Task 2: Enable Cloud Billing Data

Required Permissions

You must have the following permissions to enable and configure Google Cloud billing data export to a BigQuery dataset:

- Billing account administrator role for the target Cloud billing account.
- BigQuery User role for the Cloud project that contains the BigQuery dataset that will be used to store the Cloud Billing data.
- Project Creator role on the organization or folder. To create a new project, you must have the following permissions:
  - **resourcemanager.organizations.get**
  - **resourcemanager.projects.create**

Enable Cloud Billing Data to BigQuery

Select or create a project that will contain your dataset.

1. In the Google Cloud console, select or create a Google Cloud project on the project selector page to contain your BigQuery dataset.
   - The project you create or select must have Billing enabled, and must be

   linked to the same Cloud Billing account that contains the data you plan to export to the BigQuery dataset.
2. In the *Select a project* drop down at the top of the Google Cloud Console, select your project.
3. Open the **Navigation menu > Billing.**

Projects with No Linked Billing Account

If Billing is not enabled on the project, a popup window opens with text like: "This project is not linked to a billing account".

1. Enable Billing on the project by either selecting Link a billing account or Manage billing accounts options.
2. Continue to **Create a BigQuery Dataset**.

Projects with Linked Billing Account(s)

- If Billing is enabled on the project and you have only one Cloud Billing account, the **Billing Overview** page will display.
- If Billing is enabled on the project and you have more than one Cloud Billing account, a popup window will display with text like: "Billing account <*Your Billing Account*> is linked to this project."

Continue to **Create a BigQuery Dataset**.

Create a BigQuery Dataset

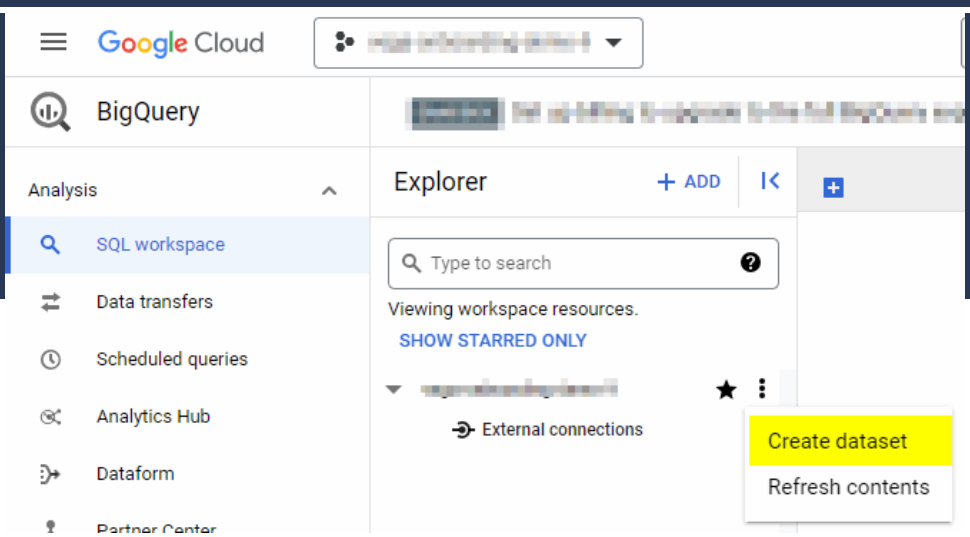
1. Sign into the **Google Cloud Console > Navigation menu > BigQuery.**

2. In the **Project** drop down in the main Navigation bar, select the project you set up to contain your dataset. Note the Project ID, as you will need it in the next step. Navigation: *IAM & Admin* > *Settings* > *Project ID)*

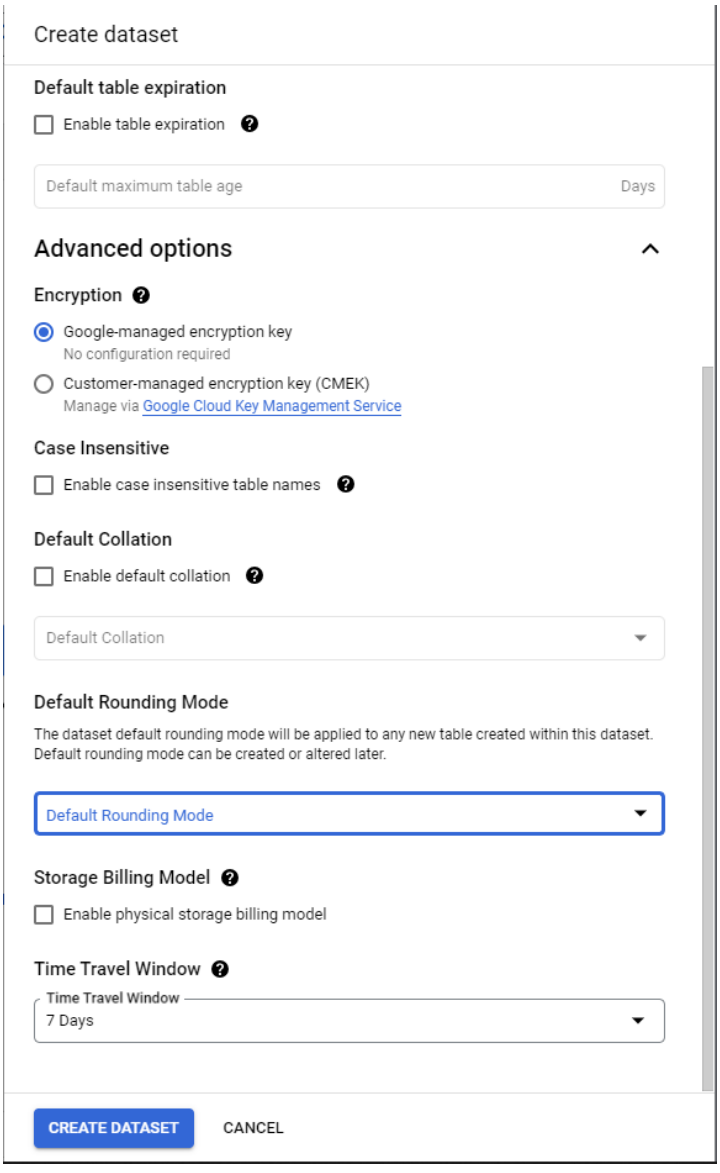
3. In the **Explorer panel > pinned projects**, click the overflow menu next to your project ID and select **Open**.

4. Click **Create Dataset** and fill in the fields to match the ones in the 'Create Data- set Fields Image (SEE IMAGE ON NEXT PAGE)

5. Click **Create Dataset**



Note: Your BigQuery dataset only reflects Google Cloud billing data incurred from the date you set up Cloud Billing export, and onward.



Field name	Notes
Dataset ID	Enter an ID for this dataset.
Data location	Select a data location. **After you create your dataset, the location cannot be changed.** The data location specifies the region where your data is stored. All tables within this dataset will share this location. When creating a dataset, the Default location is the US multi-region.
Default table expiration	Set this option to **never.**
Encryption	Set to **Google-managed key.** Customer Managed Encryption Keys (CMEK) are not supported when exporting billing data to BigQuery.

CREATE DATASET FIELDS

Enable Cloud Billing Data Export to BigQuery

Select or create a project that will contain your dataset.

1. Sign into the Google Cloud Console.
2. Open the console **Navigation menu > Billing**.
3. From the **Billing menu**, select **Billing export**.
4. Select the **BigQuery export** tab. From here, choose the type(s) of data to export. This guide covers **Daily cost detail** type only.
    a. Daily cost detail
    b. Pricing
5. From the **BigQuery export** tab, click **Edit Settings**.
6. In the **Projects** drop down, choose the Project that you want to contain your BigQuery dataset.
7. From the **Billing export dataset** list, select the dataset that you set up to contain your exported Cloud Billing data.
    Note: You must enable **BigQuery API** for the project you set up to export data to BigQuery.
8. Click **Save**.

Billing Data Tables

Once you enable Cloud Billing export to BigQuery, billing data tables are automatically created in the BigQuery dataset. Make note of the billing data table name. You will need this information during Billing Connector creation.

Frequency of Data Loads

When you first enable the daily cost detail export to BigQuery, it may take a few hours to start seeing your Google Cloud cost data.

Task 3: Set up GCP Credentials

Learn how to establish the identity of your Google Service Account to use it with Vega Platform. To use a Service Account from Vega Platform, you must first establish the identity of the Service Account. Public/private key pairs provide a secure way of accomplishing this goal. When you create a Service Account key, the public portion is stored on Google Cloud, while the private portion is only available to you.

Create a Service Account Key

You will need this key to create a GCP Connection from the Platform to your Account; make sure you store the created key in a secure location. Select or create a project that will contain your dataset.

1. In the Cloud Console, navigate to **IAM & Admin > Service Accounts.**
2. From the drop down, select the project you set up in **Task 2: Enable Cloud Billing Data Export to BigQuery.**
3. In the Actions column of your selected project, click the vertical ellipses > Manage keys.
4. Click the **ADD KEY** drop down **>** Create new key.
5. Select **JSON** as the key type and click **Create.**

Important: Ensure to store the key file securely; after you download the key file, you cannot download it again.

Service Account Key File

- Clicking **Create** downloads a service account key file.
- **Ensure to store the key file securely; after you download the key file, you cannot download it again.**

- This key file is required for the Vega Platform to display your GCP cost detail.
- After you create a key, you might need to wait for 60 seconds or more before using the key. If you try to use a key immediately after you create it, and you receive an error, wait at least 60 seconds, and try again.

The downloaded key has the following format, where private-key is the private portion of the public/private key pair:

JSON

```
{
  "type": "service_account",
  "project_id": "project-id",
  "private_key_id": "key-id",
  "private_key": "-----BEGIN PRIVATE KEY ---- \nprivate-key\n-
----END PRIVATE KEY-----\n",
  "client_email": "service-account-email",
  "client_id": "client-id",
  "auth_uri": "https://accounts.google.com/o/oauth2/auth",
  "token_uri": "https://accounts.google.com/o/oauth2/token",
  "auth_provider_x509_cert_url": "https://www.googleapis.com/
oauth2/v1/certs",
  "client_x509_cert_url":
"https://www.googleapis.com/robot/
v1/metadata/x509/service-account-email"
}
```

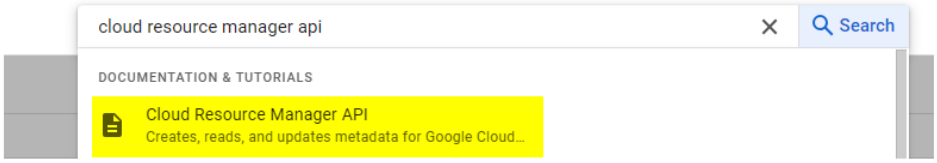
Note: Please provide this to your client success manager

Task 4: Enable Cloud Resource Manager API for your GCP project

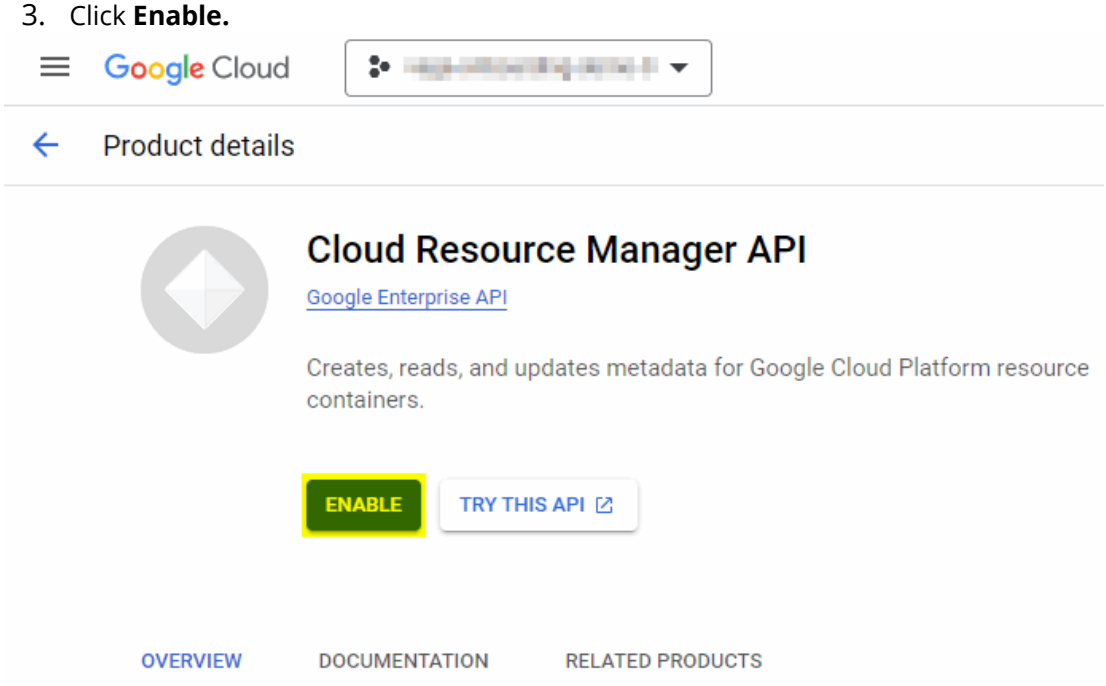
You will need to login to your Google Cloud Platform account and enable the Cloud Resource manager API and link it to your GCP project.

Metadata for Google Cloud Platform resource containers is updated via the Cloud Resource Manager API.

1. Login to your Google Cloud Platform (GCP) account.
2. Navigate to the cloud resource manager API page in GCP and select the project you have created earlier to contain your BigQuery **dataset**



3. Click **Enable.**



GCP SELECT PROJECT

Task 5: Assign custom role and grant permissions to service account

In GCP, BigQuery uses a service account (also known as principal) to manage dataset permissions. As soon as you enable Cloud Billing export to BigQuery, GCP automatically adds a service account as an owner to the dataset that you specify in GCP.
The service account has the following format: gcp-role@amplified-cat-234234-iam. gserviceaccount.com. By assigning roles to the service account, you grant the per- missions associated with that role to the service account. Based on these permissions, the service account can fetch the required data from GCP to Vega Platform.

Assign roles to the service account at organization level

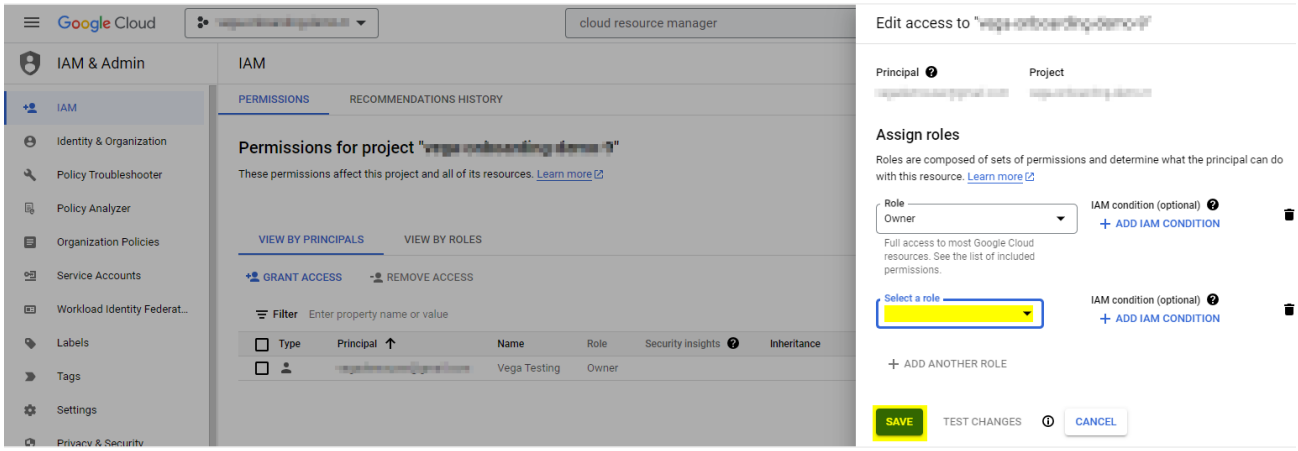
A service account can be assigned a role that has permissions at the **org level**. Then that service account will have permissions to all the project in the organization. In this example, we shall see how to assign a role created with minimum permissions to the service account (principal) at organization level. We shall use the role "Vega Billing Admin" created earlier. See **Task 1: Create Vega Admin Role in GCP with minimum permission sets**

1. In the cloud console, go to **IAM & Admin > IAM.**
2. Select the organization.
3. Select the principal of your service account:
    a. To grant a role to a principal who already has other roles on the service account, find the row containing the principal's email address, then click **Edit principal** in that row, then click add **+Add another role**.
    b. To grant a principal who does not already have other roles on the service account, click ADD from the top, then enter the principal's email address.
4. In the Select a role box, browse down to **Custom**, and select the recently created role **"Vega Billing Admin"** which we created earlier. **See Task 1: Create Vega Admin Role in GCP with minimum permission sets.**
5. Click **Save**.

Assign roles to the service account at folder level

Use the procedure below to grant custom role(s) to the service account's principal at folder level.

1. In the cloud console, go to **IAM & Admin > IAM**.
2. Select the folder.
3. Select the principal of your service account:
    a. To grant a role to a principal who already has other roles on the service account, find the row containing the principal's email address, then click Edit principal icon in that row, then click add **+Add another role**.
    b. To grant a principal who does not already have other roles on the service account, click **ADD** from the top, then enter the principal's email address.
4. In the Select a role drop-down, browse to Custom, and select the recently created role **Vega Billing Admin,** Service Manager, and Service Advisor which we created earlier. See **Task 1: Create Vega Admin Role in GCP with minimum permission sets.**
5. Click **Save**. The principal is granted the roles on the service account.



GCP SELECT FOLDER

Task 6: GRANT GCS BILLING BUCKET PERMISSIONS TO SERVICE ACCOUNT

To enable Billing Data to be retrieved from GCP by the Vega Platform, additional manual steps must occur. Your Vega Client Success Manager will complete this task with you in person.

If you have any questions, please contact your client success manager