HSBC

Infosys
Navigate your next

Lab Guide for GCP IAM, Management services

CONTENTS

Day-4 Assignments

Contents

Context

This document contains assignments to be completed as part of the hands on session for the course

Guidelines

- The lab guide has been designed to give hands on experience to map the concepts learnt in the theory session with real life business oriented case studies/assignments.

Day-4 Assignments

Assignment 1: Managing roles and permissions

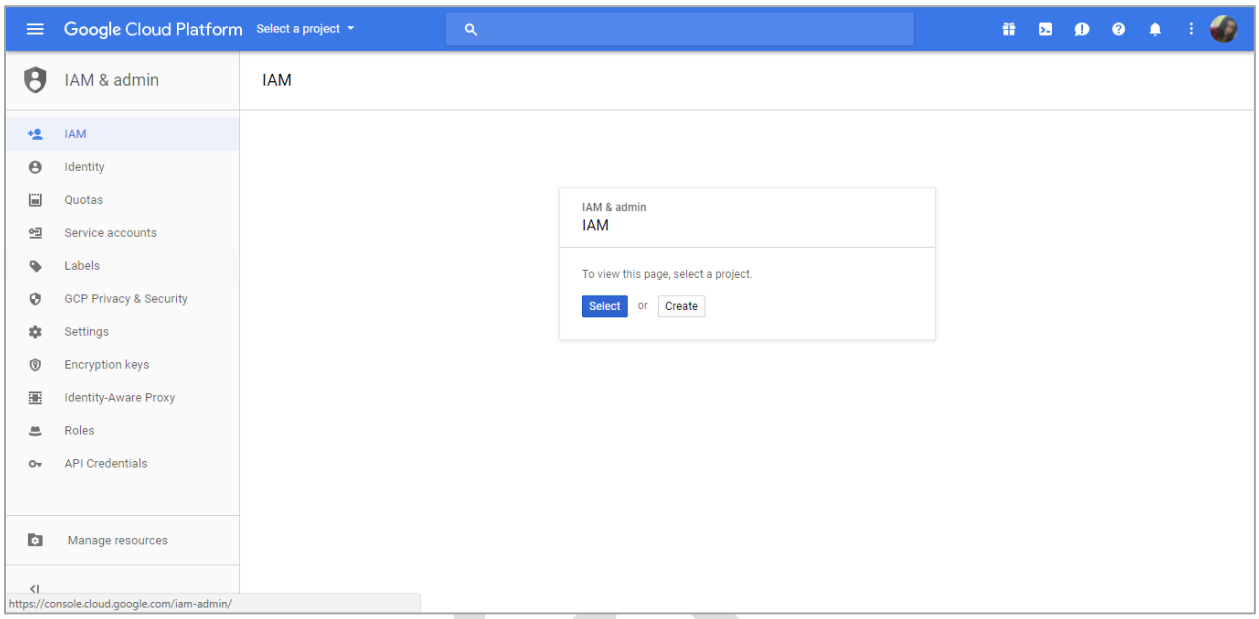
Objective: To create and manage permissions for Google Cloud Platform resources

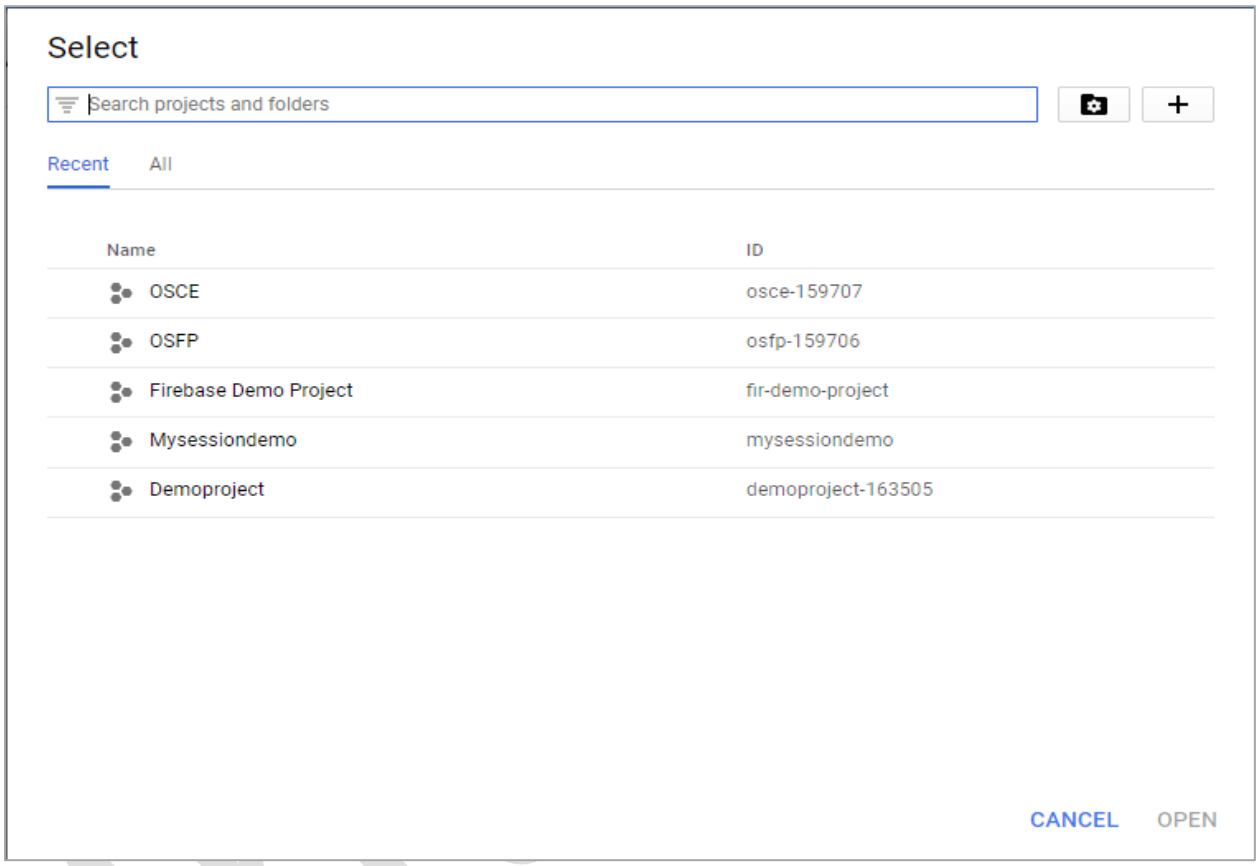
Problem Description:

Step 1: Granting, changing and revoking access

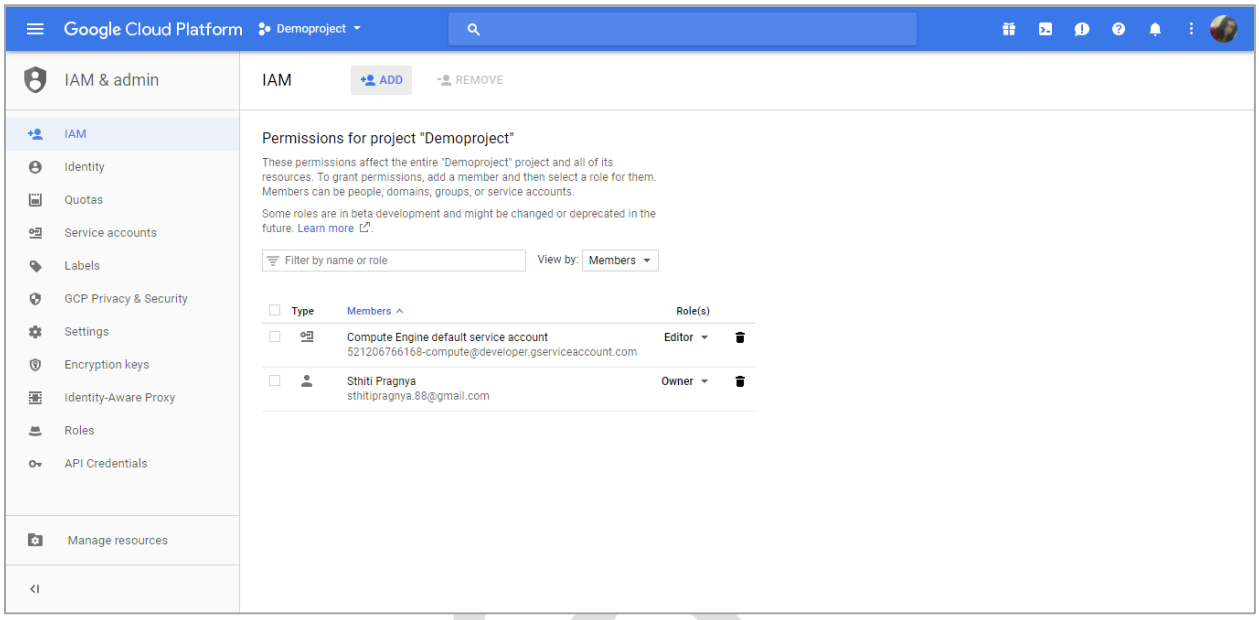
Granting access to team members:

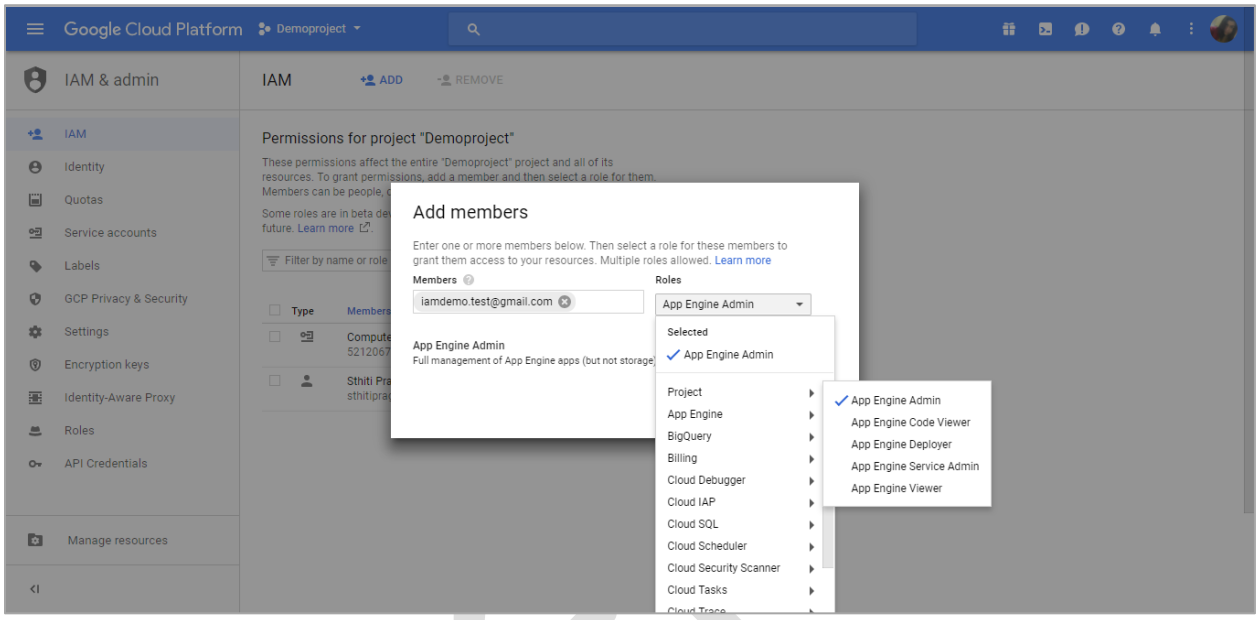
Open the IAM console and select a project.

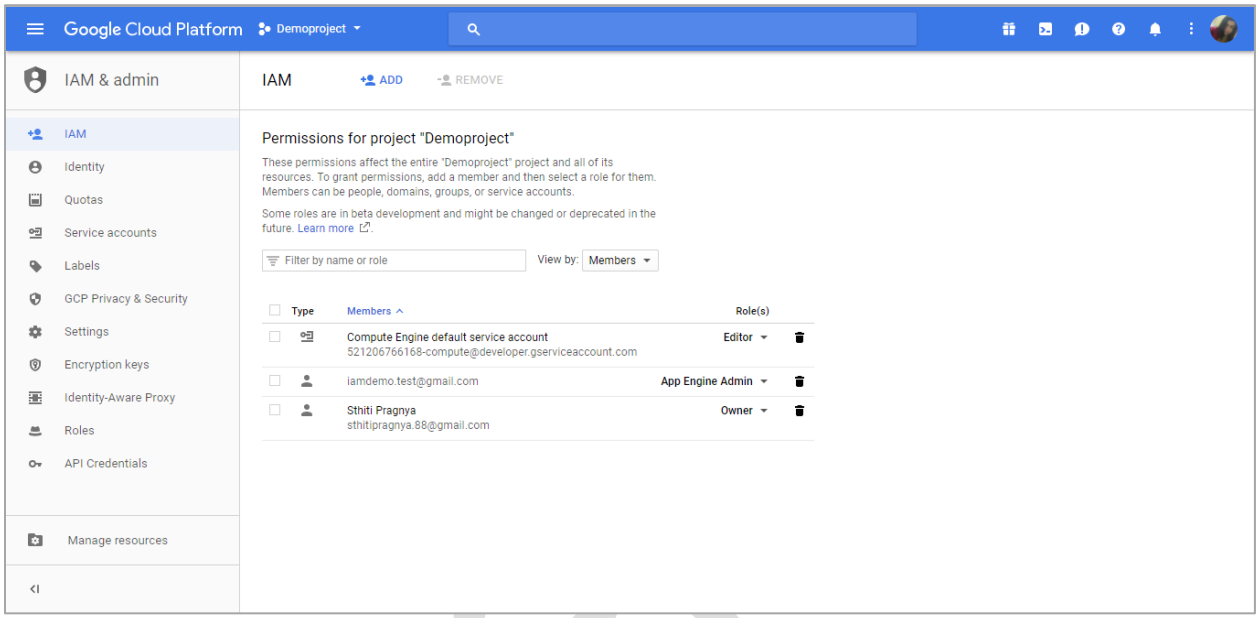

Google Cloud Platform
Select a project
IAM & admin
IAM
IAM
Identity
Quotas
Service accounts
Labels
GCP Privacy & Security
Settings
Encryption keys
Identity-Aware Proxy
Roles
API Credentials
Manage resources
IAM & admin
IAM
To view this page, select a project.
Select
or
Create
https://console.cloud.google.com/iam-admin/



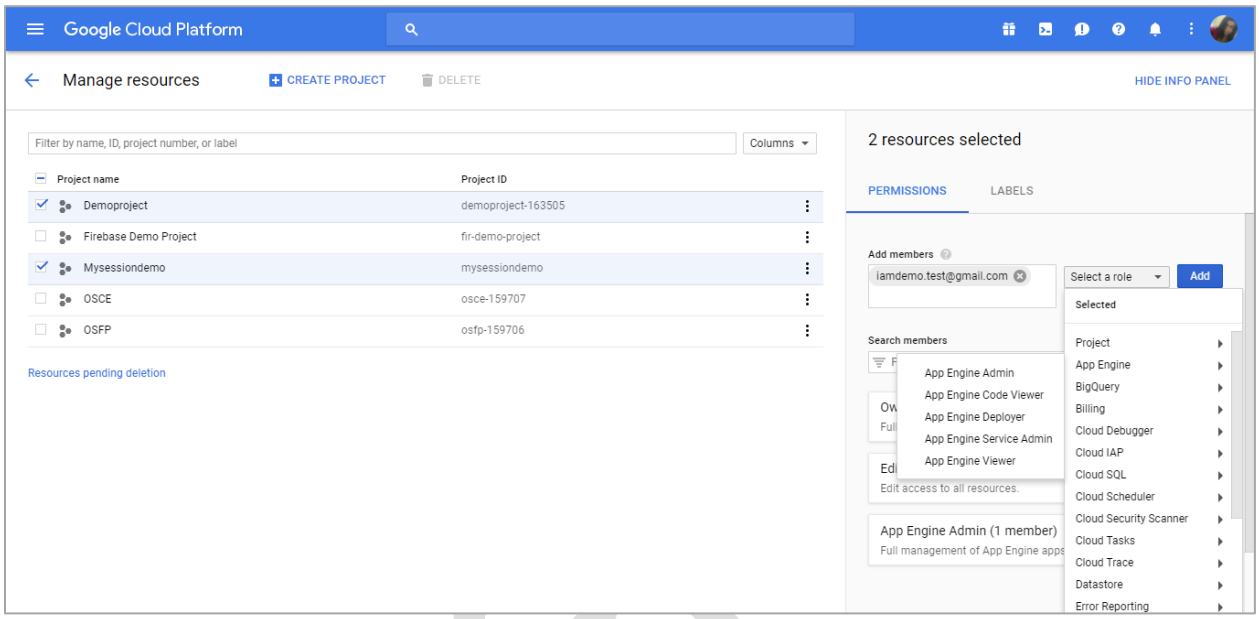
Click Add to add new member and set it's permission.

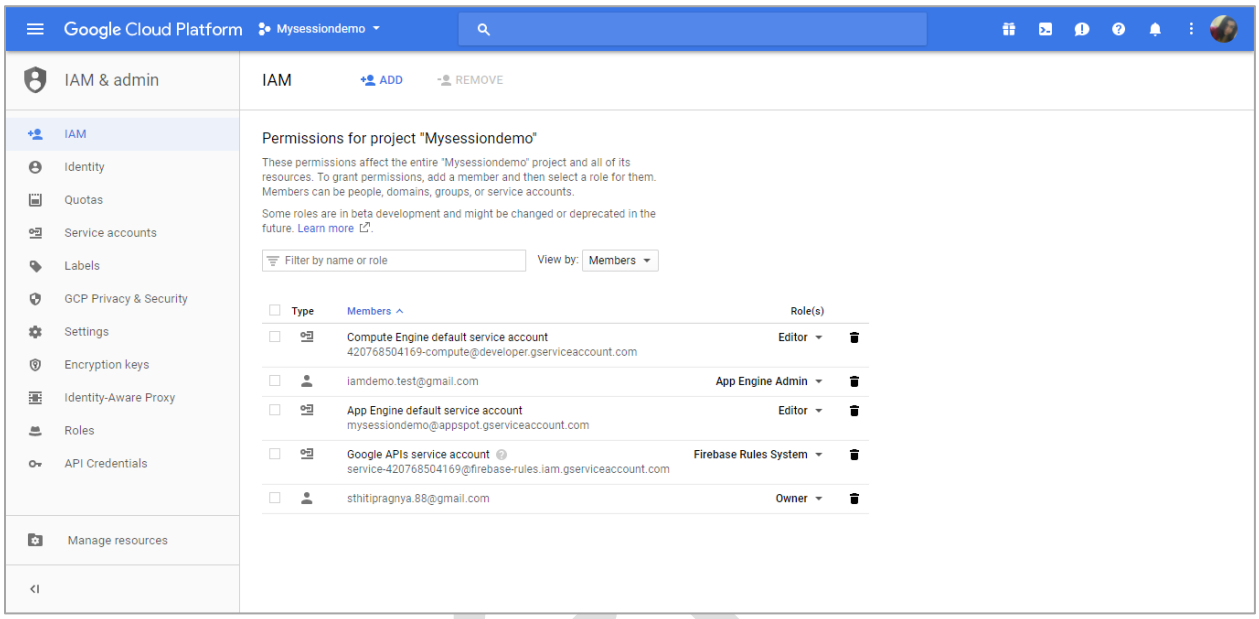

Google Cloud Platform
Demoproject
IAM & admin
IAM
ADD
REMOVE
IAM
Identity
Quotas
Service accounts
Labels
GCP Privacy & Security
Settings
Encryption keys
Identity-Aware Proxy
Roles
API Credentials
Manage resources
Permissions for project "Demoproject"
These permissions affect the entire "Demoproject" project and all of its resources. To grant permissions, add a member and then select a role for them. Members can be people, domains, groups, or service accounts.
Some roles are in beta development and might be changed or deprecated in the future. Learn more.
Filter by name or role
View by: Members
Type
Members
Role(s)
Compute Engine default service account
521206766168-compute@developer.gserviceaccount.com
Editor
Sthiti Pragnya
sthitipragnya.88@gmail.com
Owner


Google Cloud Platform
Demoproject
IAM & admin
IAM
ADD
REMOVE
IAM
Identity
Quotas
Service accounts
Labels
GCP Privacy & Security
Settings
Encryption keys
Identity-Aware Proxy
Roles
API Credentials
Manage resources
Permissions for project "Demoproject"
These permissions affect the entire "Demoproject" project and all of its resources. To grant permissions, add a member and then select a role for them.
Add members
Enter one or more members below. Then select a role for these members to grant them access to your resources. Multiple roles allowed. Learn more
Members
iamdemo.test@gmail.com
Roles
App Engine Admin
Selected
App Engine Admin
App Engine Admin
Full management of App Engine apps (but not storage)
Project
App Engine
BigQuery
Billing
Cloud Debugger
Cloud IAP
Cloud SQL
Cloud Scheduler
Cloud Security Scanner
Cloud Tasks
App Engine Admin
App Engine Code Viewer
App Engine Deployer
App Engine Service Admin
App Engine Viewer



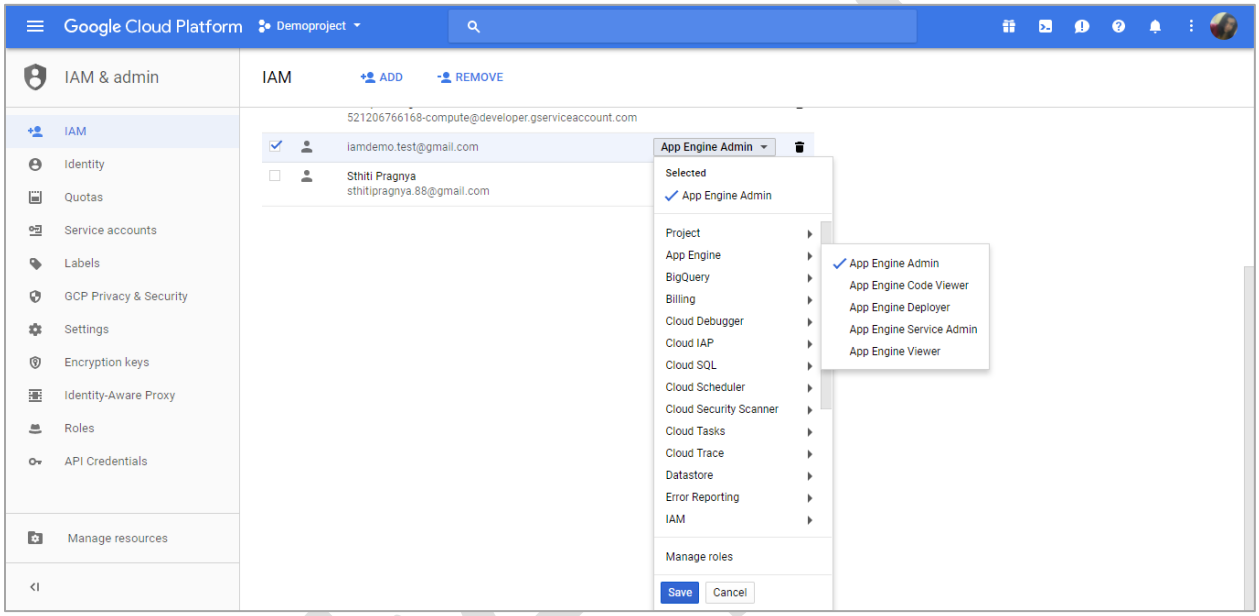
Grant a role to a member for more than one project.


Google Cloud Platform
Manage resources
CREATE PROJECT
DELETE
HIDE INFO PANEL
Filter by name, ID, project number, or label
Columns
Project name
Project ID
Demoproject
demoproject-163505
Firebase Demo Project
fir-demo-project
Mysessiondemo
mysessiondemo
OSCE
osce-159707
OSFP
osfp-159706
Resources pending deletion
2 resources selected
PERMISSIONS
LABELS
Add members
iamdemo.test@gmail.com
Select a role
Add
Selected
Search members
App Engine Admin
App Engine Code Viewer
App Engine Deployer
App Engine Service Admin
App Engine Viewer
Project
App Engine
BigQuery
Billing
Cloud Debugger
Cloud IAP
Cloud SQL
Cloud Scheduler
Cloud Security Scanner
Cloud Tasks
Cloud Trace
Datastore
Error Reporting
Edit access to all resources.
App Engine Admin (1 member)

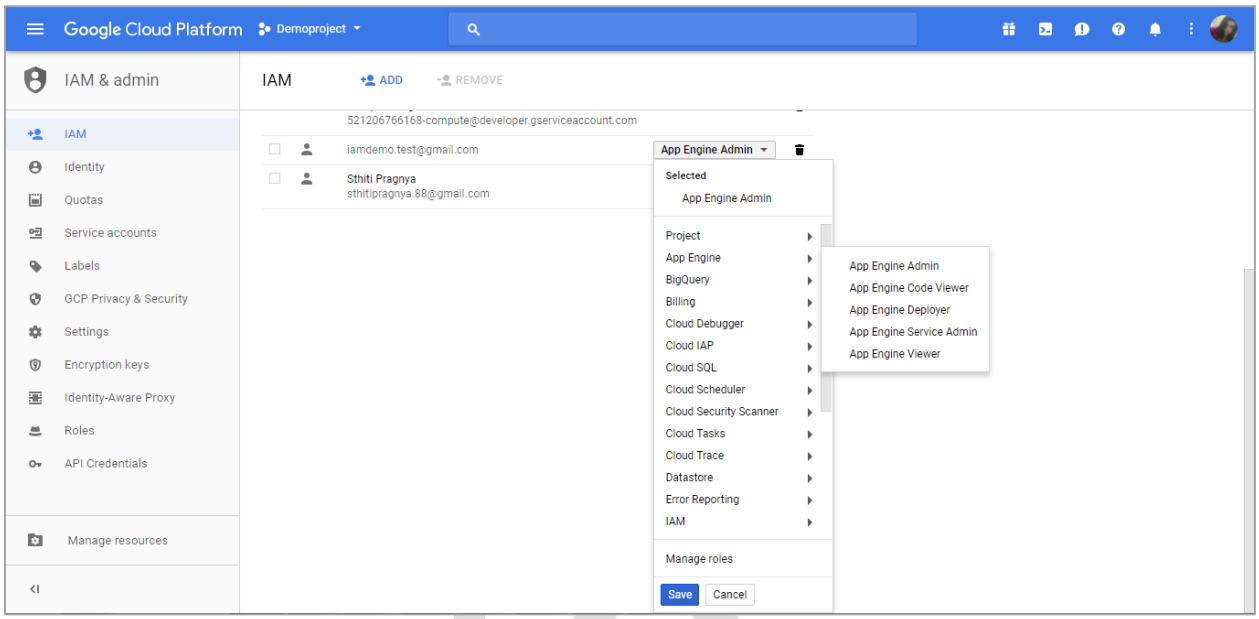


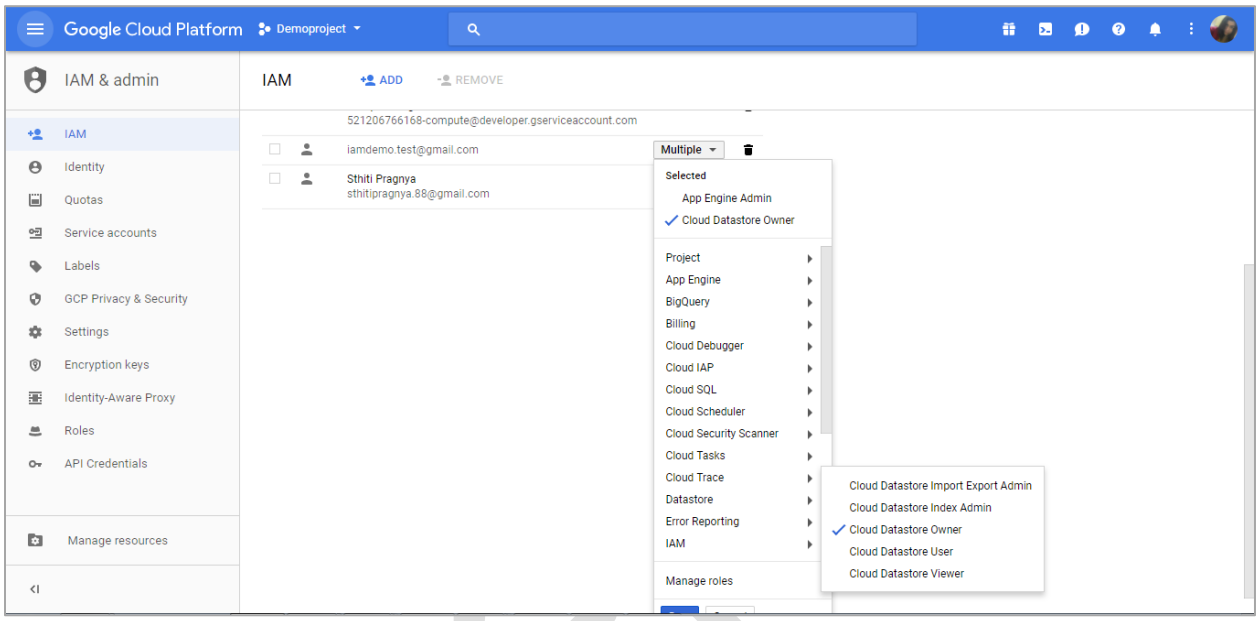
To change or revoke the to team member's

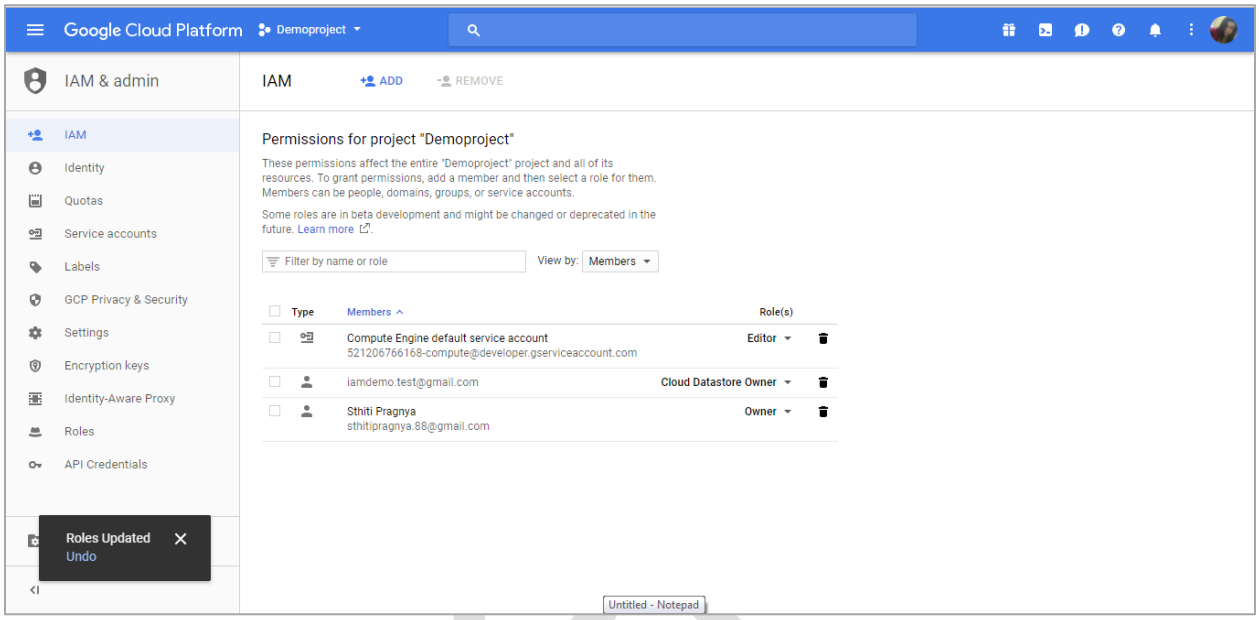
Select the member from whom you want to change or revoke the access.



In the Roles dropdown uncheck the roles and save.


Google Cloud Platform
Demoproject
IAM & admin
IAM
ADD
REMOVE
IAM
Identity
Quotas
Service accounts
Labels
GCP Privacy & Security
Settings
Encryption keys
Identity-Aware Proxy
Roles
API Credentials
Manage resources
521206766168-compute@developer.gserviceaccount.com
iamdemo.test@gmail.com
Sthiti Pragnya
sthitipragnya.88@gmail.com
App Engine Admin
Selected
App Engine Admin
Project
App Engine
BigQuery
Billing
Cloud Debugger
Cloud IAP
Cloud SQL
Cloud Scheduler
Cloud Security Scanner
Cloud Tasks
Cloud Trace
Datastore
Error Reporting
IAM
Manage roles
Save
Cancel
App Engine Admin
App Engine Code Viewer
App Engine Deployer
App Engine Service Admin
App Engine Viewer

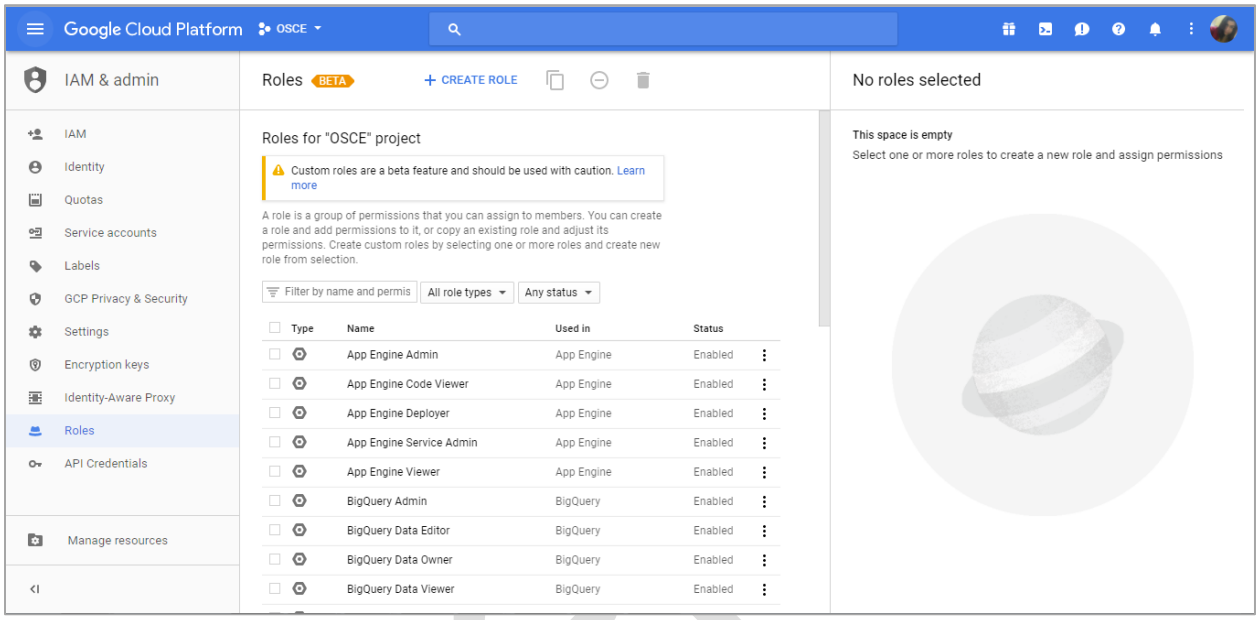

Google Cloud Platform
Demoproject
IAM & admin
IAM
ADD
REMOVE
IAM
Identity
Quotas
Service accounts
Labels
GCP Privacy & Security
Settings
Encryption keys
Identity-Aware Proxy
Roles
API Credentials
Manage resources
521206766168-compute@developer.gserviceaccount.com
iamdemo.test@gmail.com
Multiple
Sthiti Pragnya
sthitipragnya.88@gmail.com
Selected
App Engine Admin
Cloud Datastore Owner
Project
App Engine
BigQuery
Billing
Cloud Debugger
Cloud IAP
Cloud SQL
Cloud Scheduler
Cloud Security Scanner
Cloud Tasks
Cloud Trace
Datastore
Error Reporting
IAM
Manage roles
Cloud Datastore Import Export Admin
Cloud Datastore Index Admin
Cloud Datastore Owner
Cloud Datastore User
Cloud Datastore Viewer

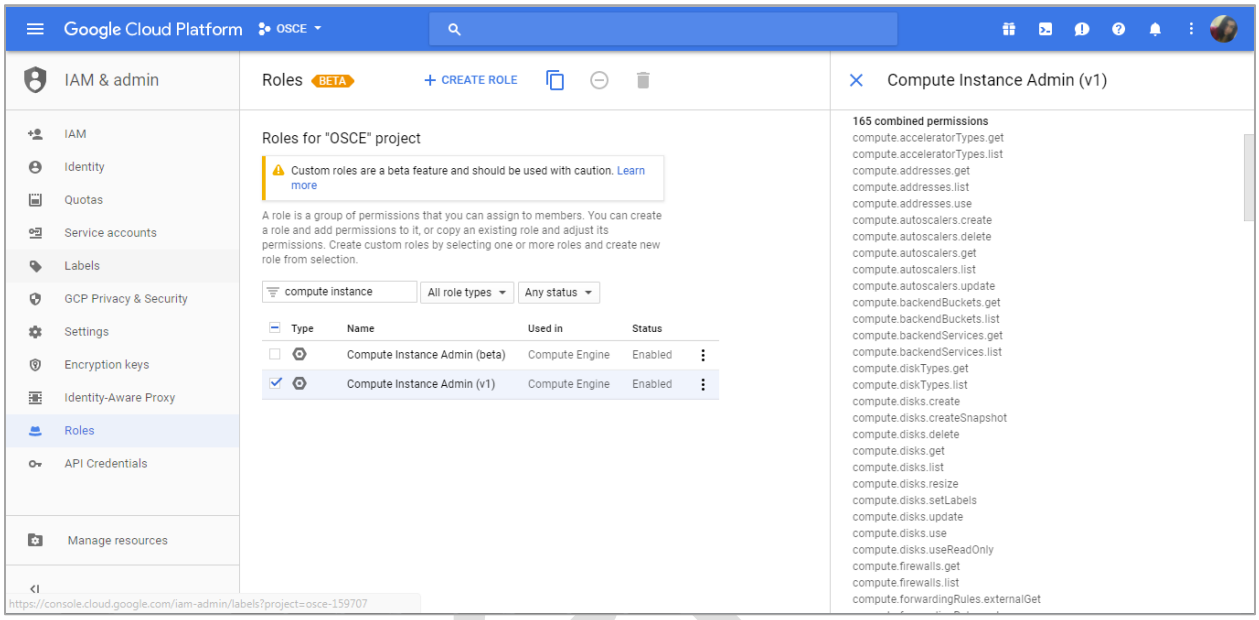


Source: google cloud platform

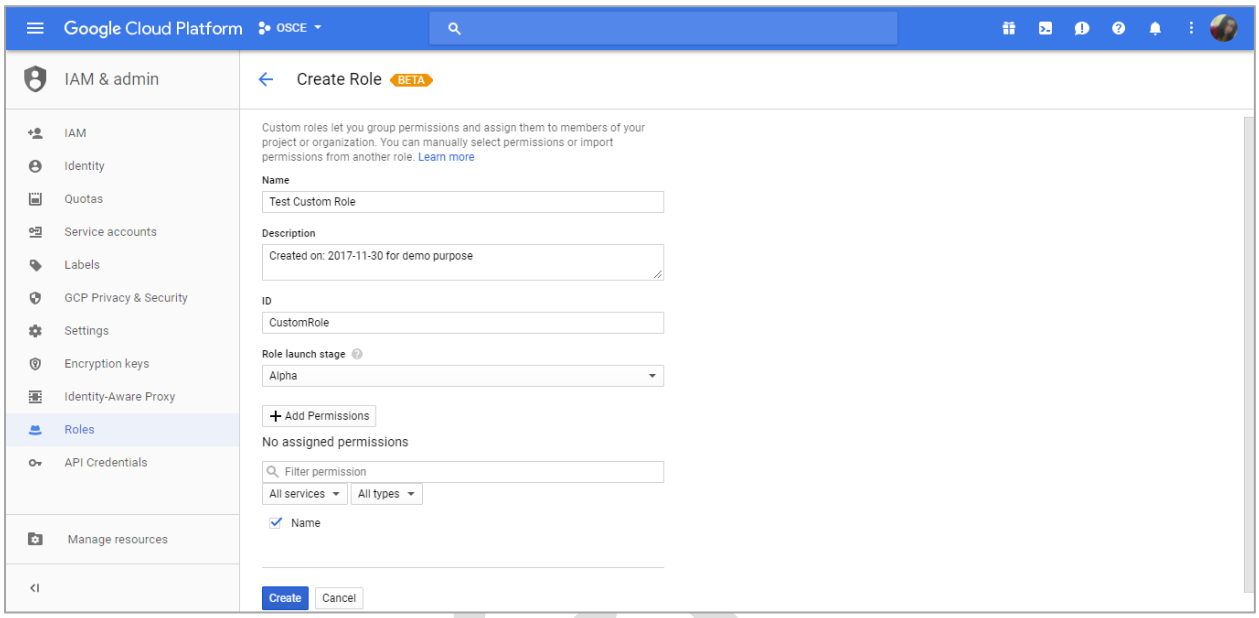
Step 2: Creating and managing custom roles.

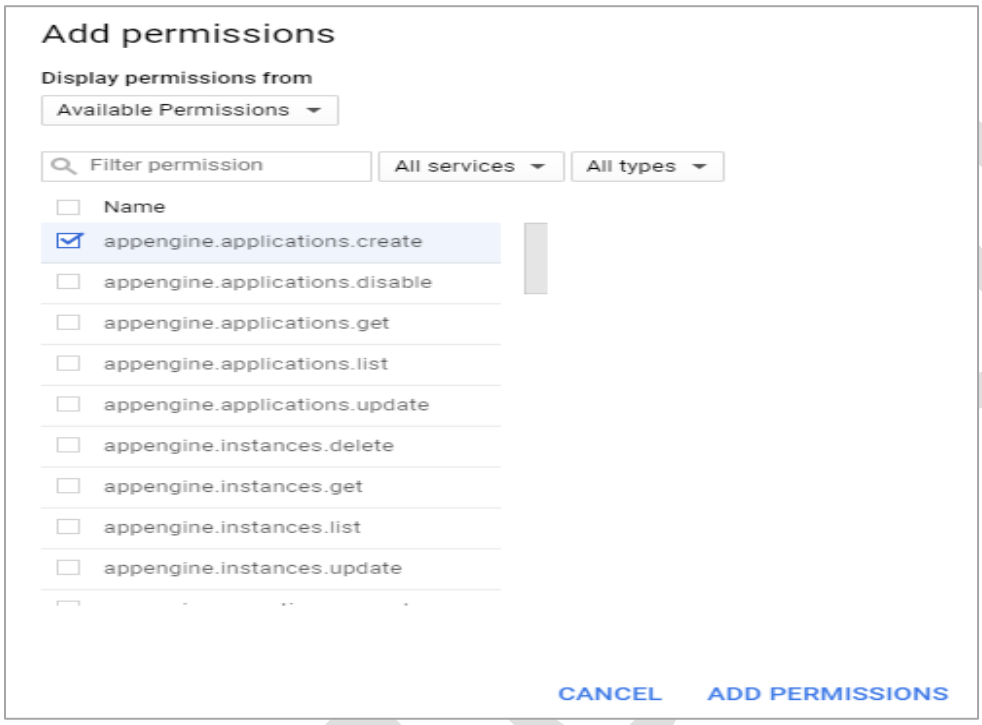
Go to Roles and click on CREATE ROLE.

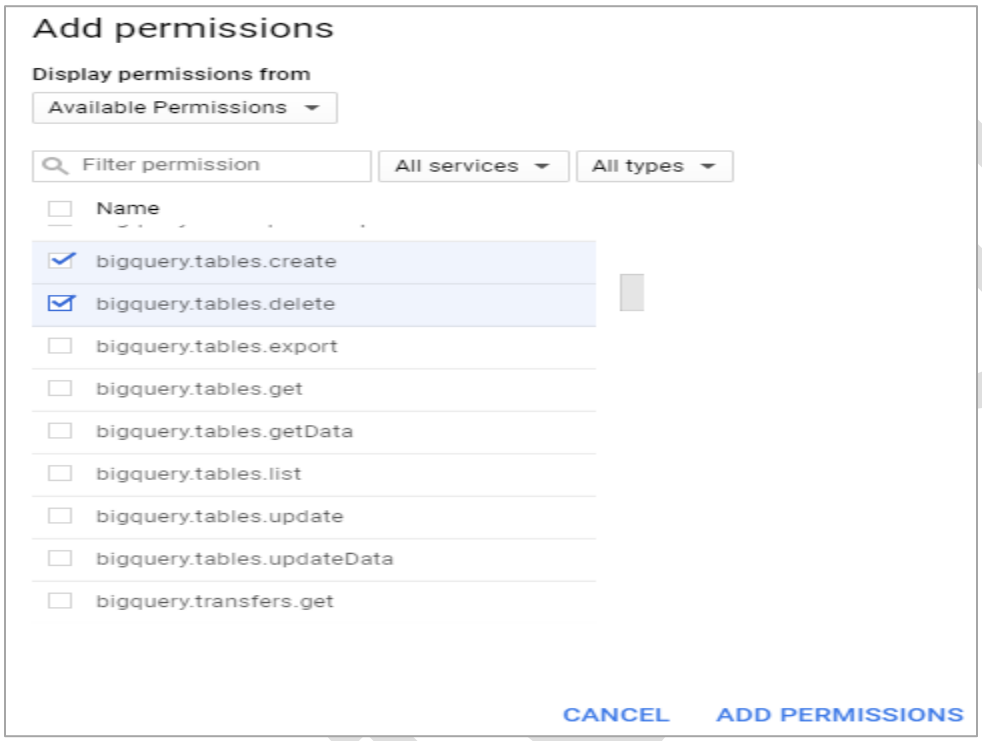

Google Cloud Platform
OSCE
IAM & admin
IAM
Identity
Quotas
Service accounts
Labels
GCP Privacy & Security
Settings
Encryption keys
Identity-Aware Proxy
Roles
API Credentials
Manage resources
Roles
BETA
+ CREATE ROLE
Roles for "OSCE" project
Custom roles are a beta feature and should be used with caution. Learn more
A role is a group of permissions that you can assign to members. You can create a role and add permissions to it, or copy an existing role and adjust its permissions. Create custom roles by selecting one or more roles and create new role from selection.
Filter by name and permis
All role types
Any status
Type
Name
Used in
Status
App Engine Admin
App Engine
Enabled
App Engine Code Viewer
App Engine
Enabled
App Engine Deployer
App Engine
Enabled
App Engine Service Admin
App Engine
Enabled
App Engine Viewer
App Engine
Enabled
BigQuery Admin
BigQuery
Enabled
BigQuery Data Editor
BigQuery
Enabled
BigQuery Data Owner
BigQuery
Enabled
BigQuery Data Viewer
BigQuery
Enabled
No roles selected
This space is empty
Select one or more roles to create a new role and assign permissions

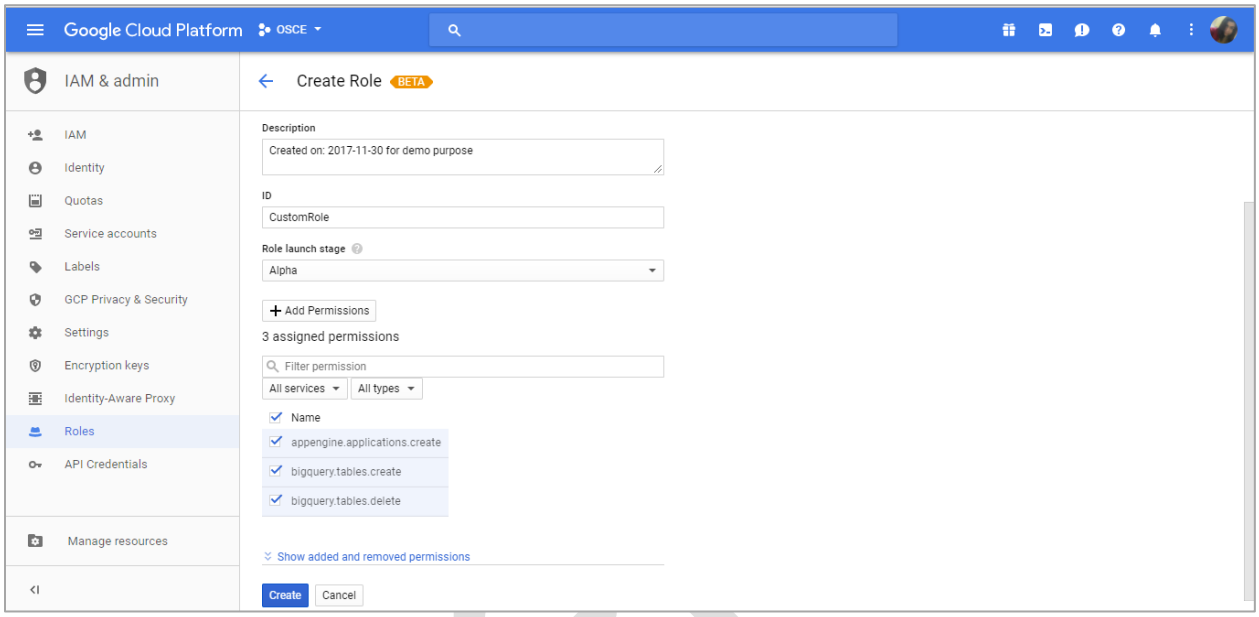


Add a new role and assign permissions to it.

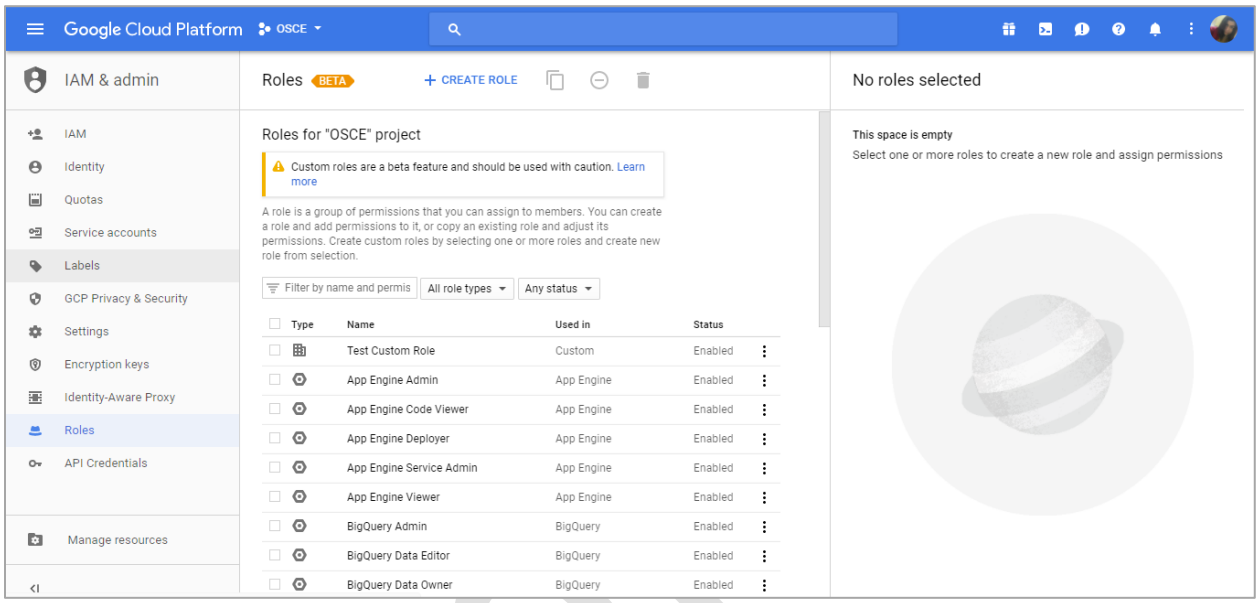

Google Cloud Platform
OSCE
IAM & admin
Create Role
BETA
IAM
Identity
Quotas
Service accounts
Labels
GCP Privacy & Security
Settings
Encryption keys
Identity-Aware Proxy
Roles
API Credentials
Manage resources
Custom roles let you group permissions and assign them to members of your project or organization. You can manually select permissions or import permissions from another role. Learn more
Name
Test Custom Role
Description
Created on: 2017-11-30 for demo purpose
ID
CustomRole
Role launch stage
Alpha
Add Permissions
No assigned permissions
Filter permission
All services
All types
Name
Create
Cancel


Add permissions
Display permissions from
Available Permissions
Filter permission
All services
All types
Name
appengine.applications.create
appengine.applications.disable
appengine.applications.get
appengine.applications.list
appengine.applications.update
appengine.instances.delete
appengine.instances.get
appengine.instances.list
appengine.instances.update
CANCEL
ADD PERMISSIONS

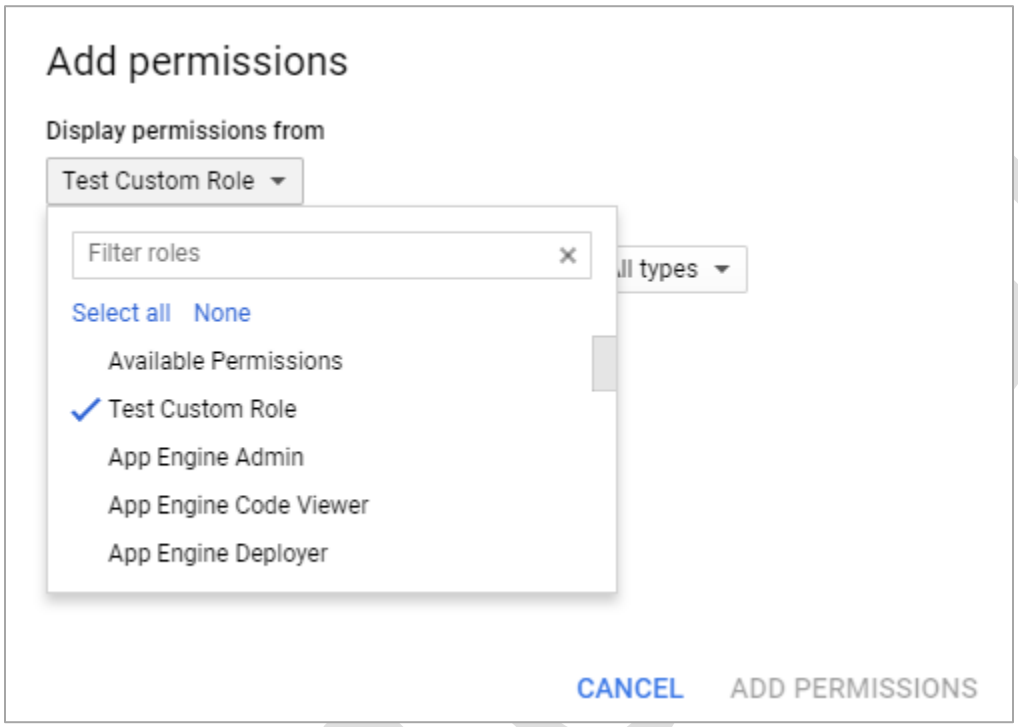

Add permissions
Display permissions from
Available Permissions
Filter permission
All services
All types
Name
bigquery.tables.create
bigquery.tables.delete
bigquery.tables.export
bigquery.tables.get
bigquery.tables.getData
bigquery.tables.list
bigquery.tables.update
bigquery.tables.updateData
bigquery.transfers.get
CANCEL
ADD PERMISSIONS

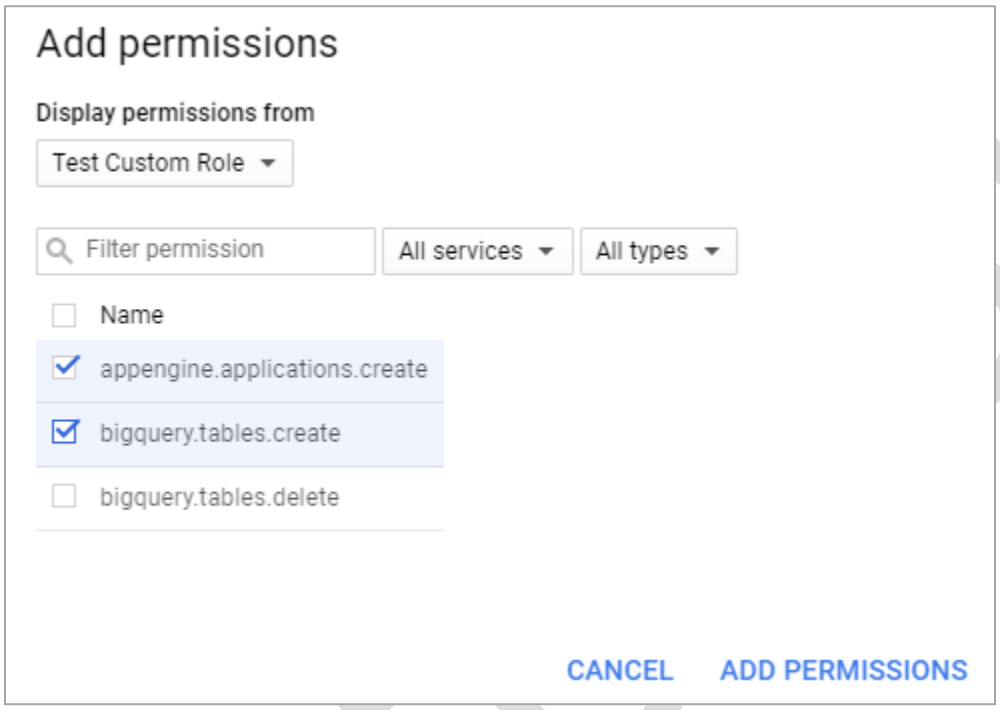


Go back to the Roles page and check for the new role you have created.

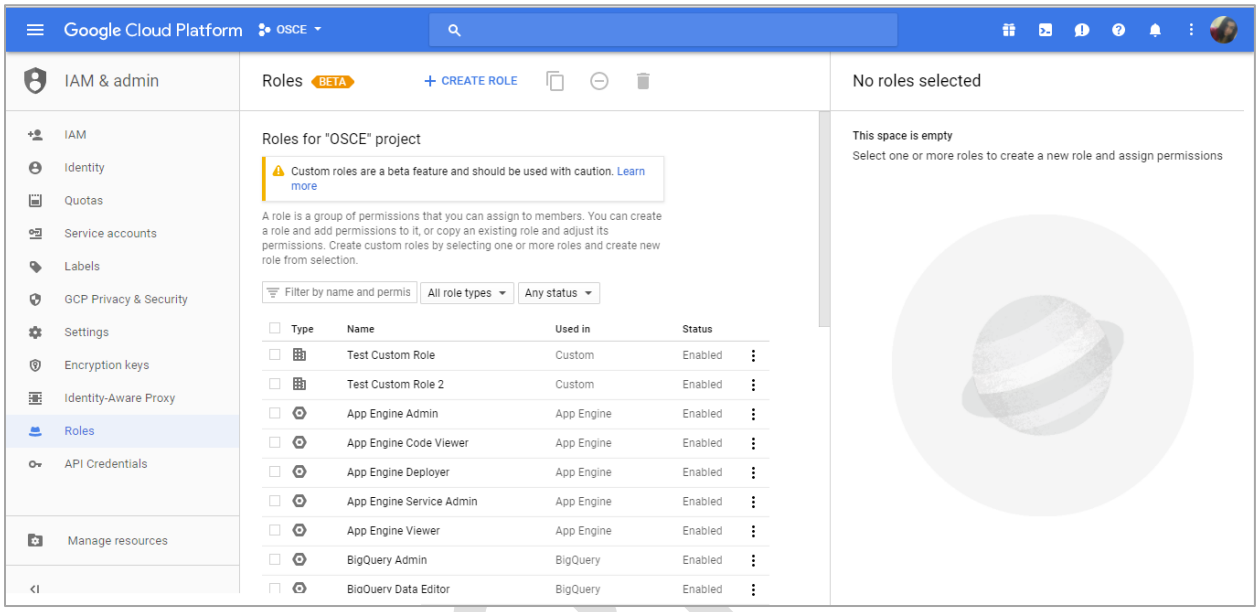


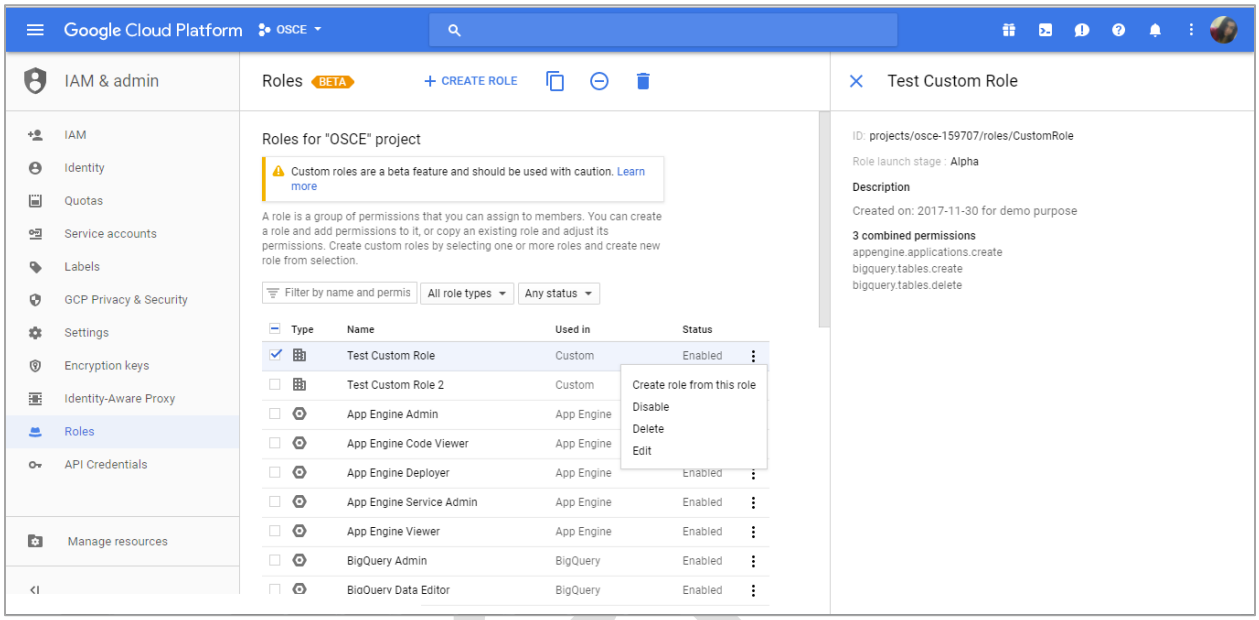
Follow the above steps and create another role. Assign Test Custom Role as a permission to the new role.


Add permissions
Display permissions from
Test Custom Role
Filter roles
ll types
Select all
None
Available Permissions
Test Custom Role
App Engine Admin
App Engine Code Viewer
App Engine Deployer
CANCEL
ADD PERMISSIONS

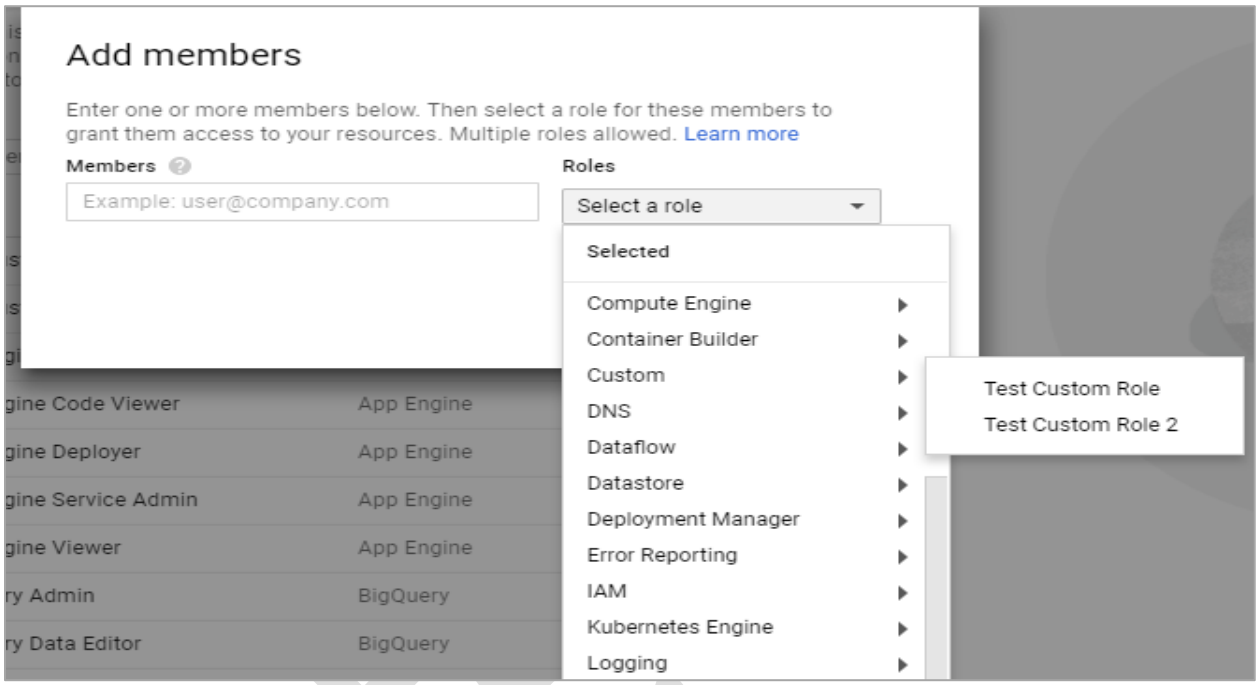


Go back to the Roles console and check for the new role.

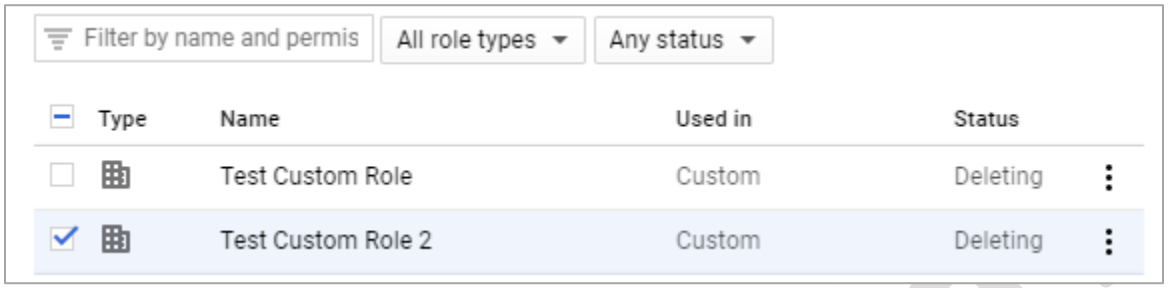

Google Cloud Platform
OSCE
IAM & admin
IAM
Identity
Quotas
Service accounts
Labels
GCP Privacy & Security
Settings
Encryption keys
Identity-Aware Proxy
Roles
API Credentials
Manage resources
Roles
BETA
+ CREATE ROLE
Roles for "OSCE" project
Custom roles are a beta feature and should be used with caution. Learn more
A role is a group of permissions that you can assign to members. You can create a role and add permissions to it, or copy an existing role and adjust its permissions. Create custom roles by selecting one or more roles and create new role from selection.
Filter by name and permis
All role types
Any status
Type
Name
Used in
Status
Test Custom Role
Custom
Enabled
Test Custom Role 2
Custom
Enabled
App Engine Admin
App Engine
Enabled
App Engine Code Viewer
App Engine
Enabled
App Engine Deployer
App Engine
Enabled
App Engine Service Admin
App Engine
Enabled
App Engine Viewer
App Engine
Enabled
BigQuery Admin
BigQuery
Enabled
BigQuery Data Editor
BigQuery
Enabled
No roles selected
This space is empty
Select one or more roles to create a new role and assign permissions

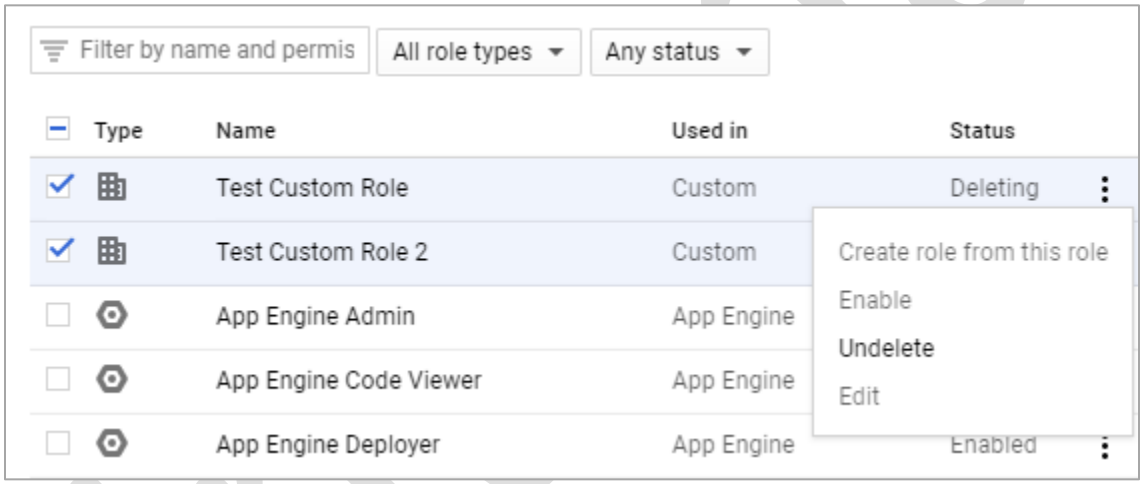


Add members and assign the new roles to them.



Delete the new custom roles.





Step 3: Enter the gmail username and password when prompted and click on Login.

Estimated time: 5 minutes

Summary: You have learnt:

- *how to grant, change, and revoke access to Project members*
- *how to create and manage a custom role*

Day-4 Assignments

Assignment 2 : Create persistent disk

Highlights:

PD helps in increasing the storage capacity of instances

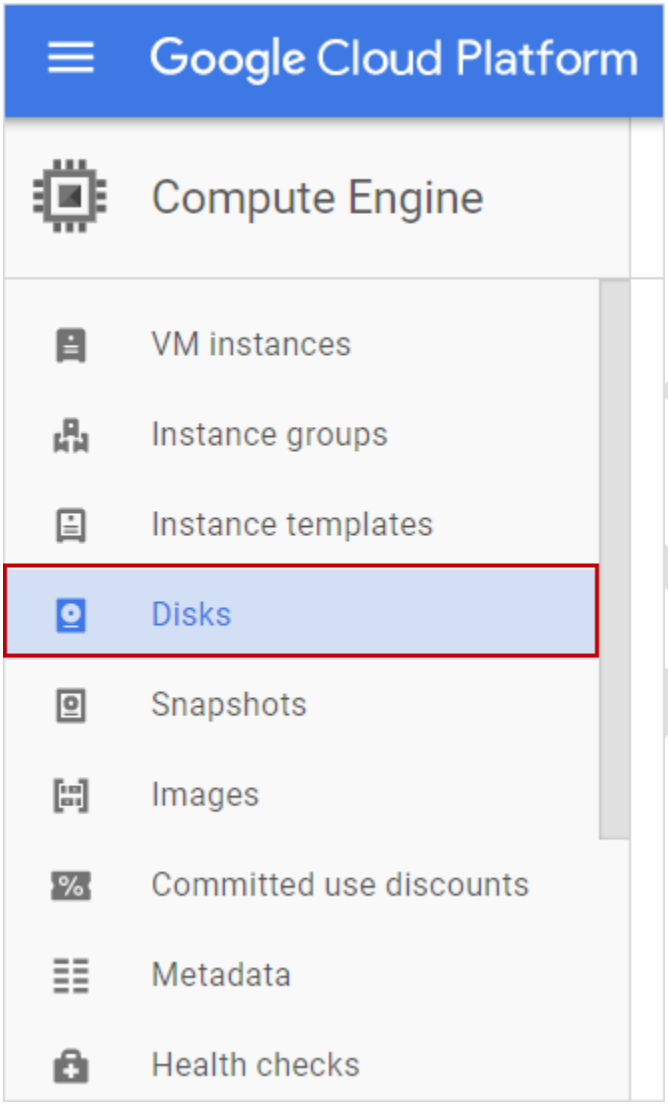
PD are available as either Standard HDD or SSD

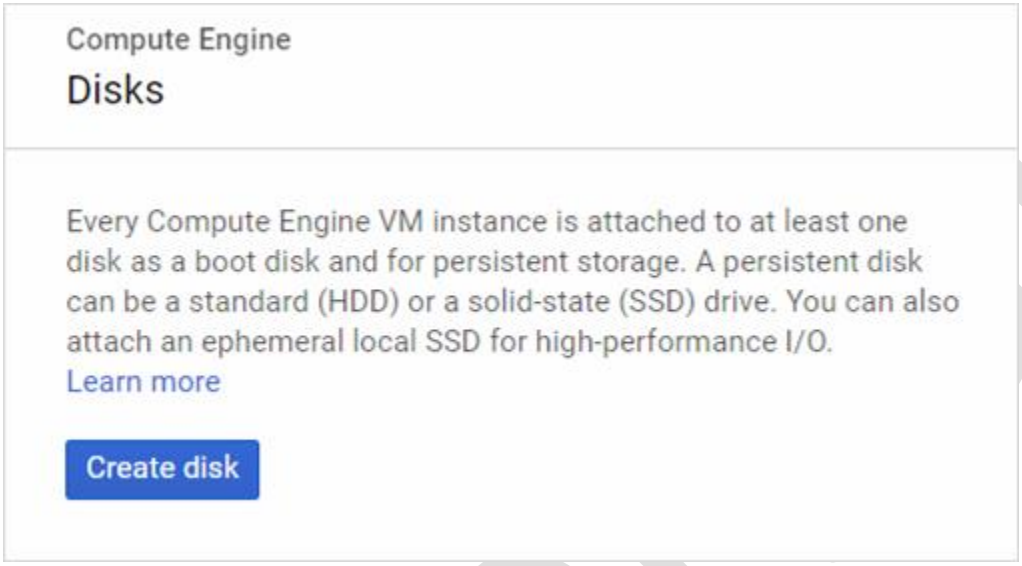
Demosteps:

For personal computers, you can use external hard disks to increase the total storage capacity. PD helps in increasing the storage capacity of instances. You can create PD and customize according to the storage requirements of instances. You will now see the demo on how to create a standard PD:

Step 1:

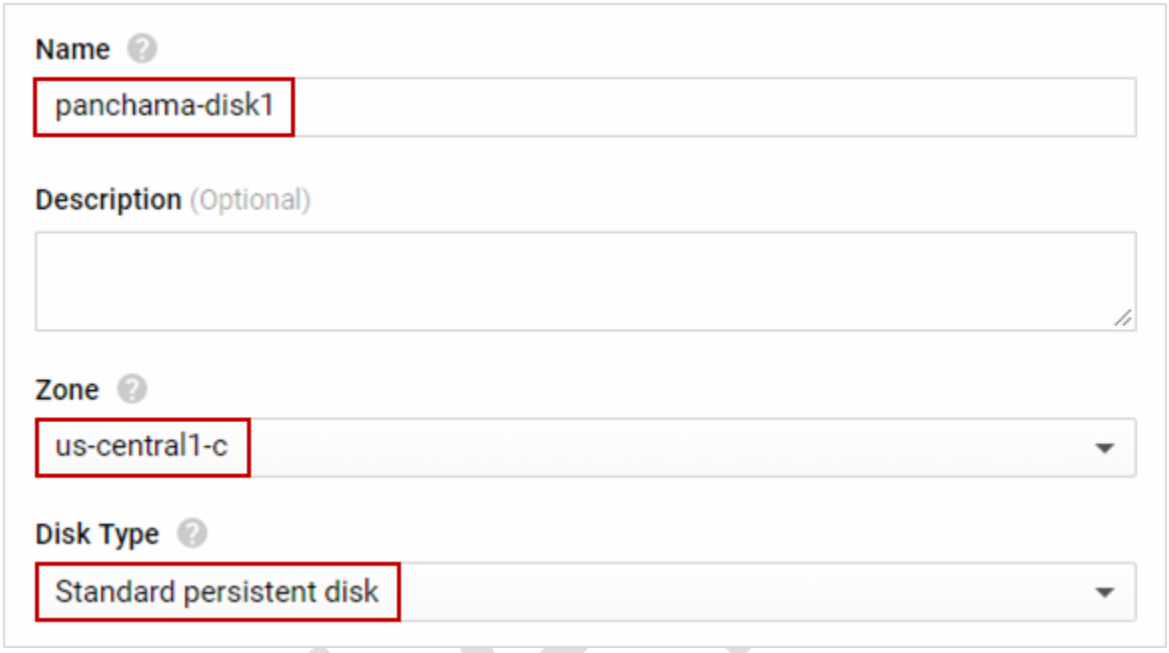
To create a PD, navigate to disks and click create disks


Google Cloud Platform
Compute Engine
VM instances
Instance groups
Instance templates
Disks
Snapshots
Images
Committed use discounts
Metadata
Health checks



Step 2:

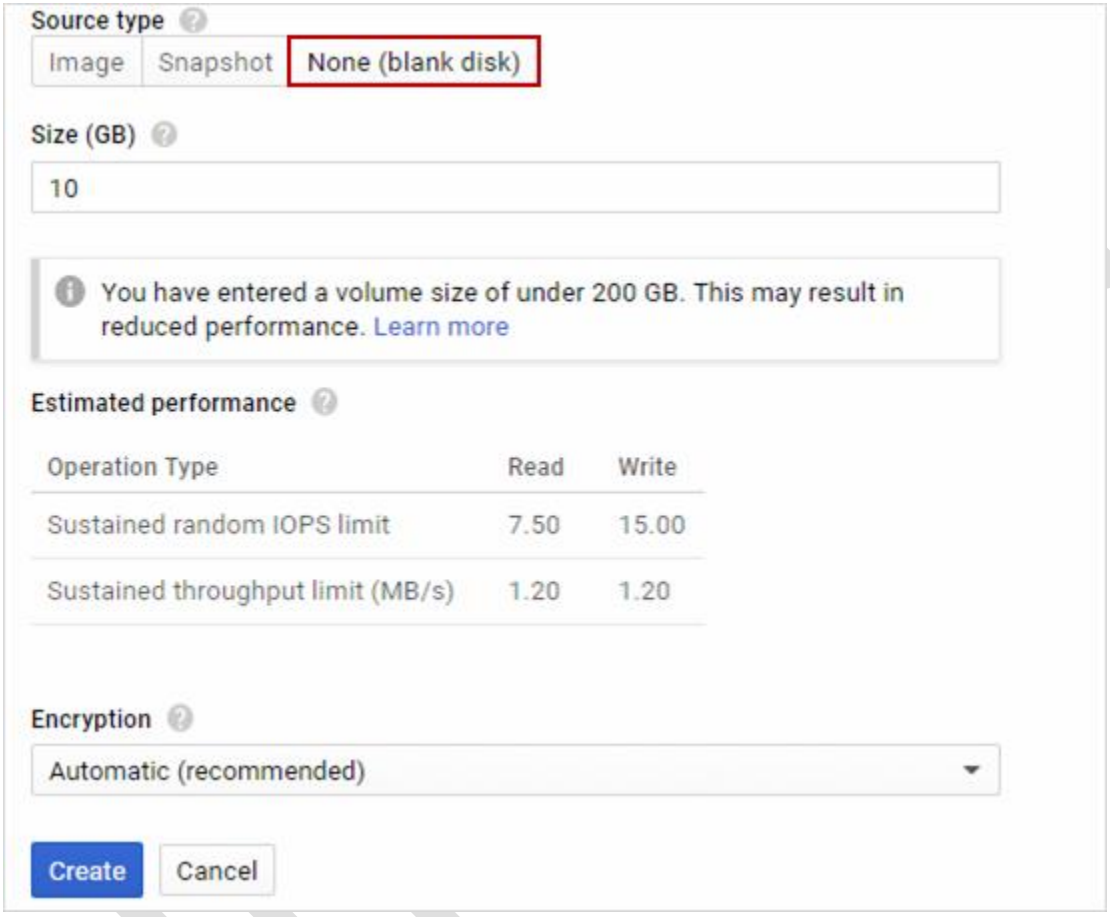
Provide the name to the disk



Step 3:

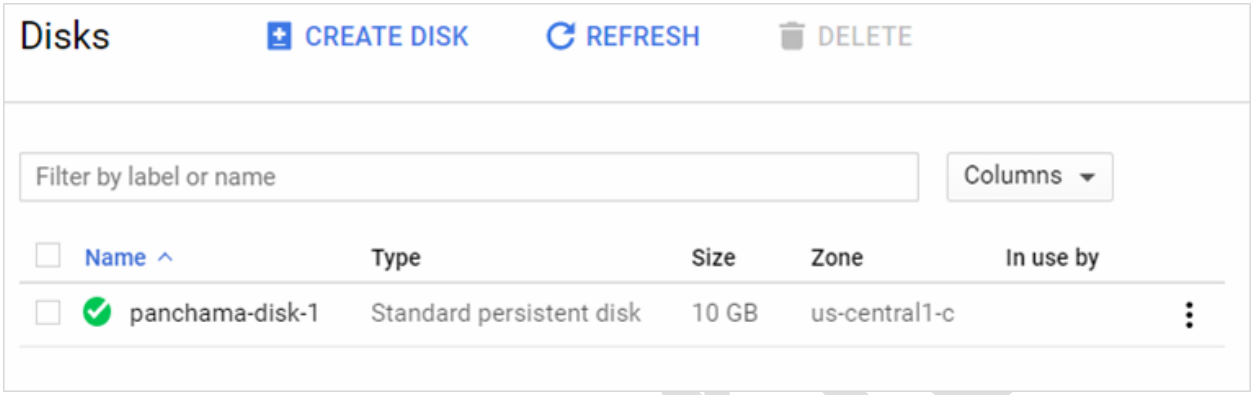
As disk are zonal resources, thus to attach the disk to instance select the zone in which your instance are placed.

- ***Select None(blank disk)*** *under* ***Source Type***
- *Select disk type as per Panchama's requirement. For standard, we can create disk upto 64TB*



Step 4:

*Click on **Create** and a new PD will be created as shown below:*



PD are available as either Standard HDD (hard disk drives) or SSD (solid state drives). You can understand more storage options to add to your instance in GCP documentation.

Next, you will see how to attach this EBS volume to an EC2 instance to increase its storage capacity.

Assignment 3 : Add PD to instances

Highlights:

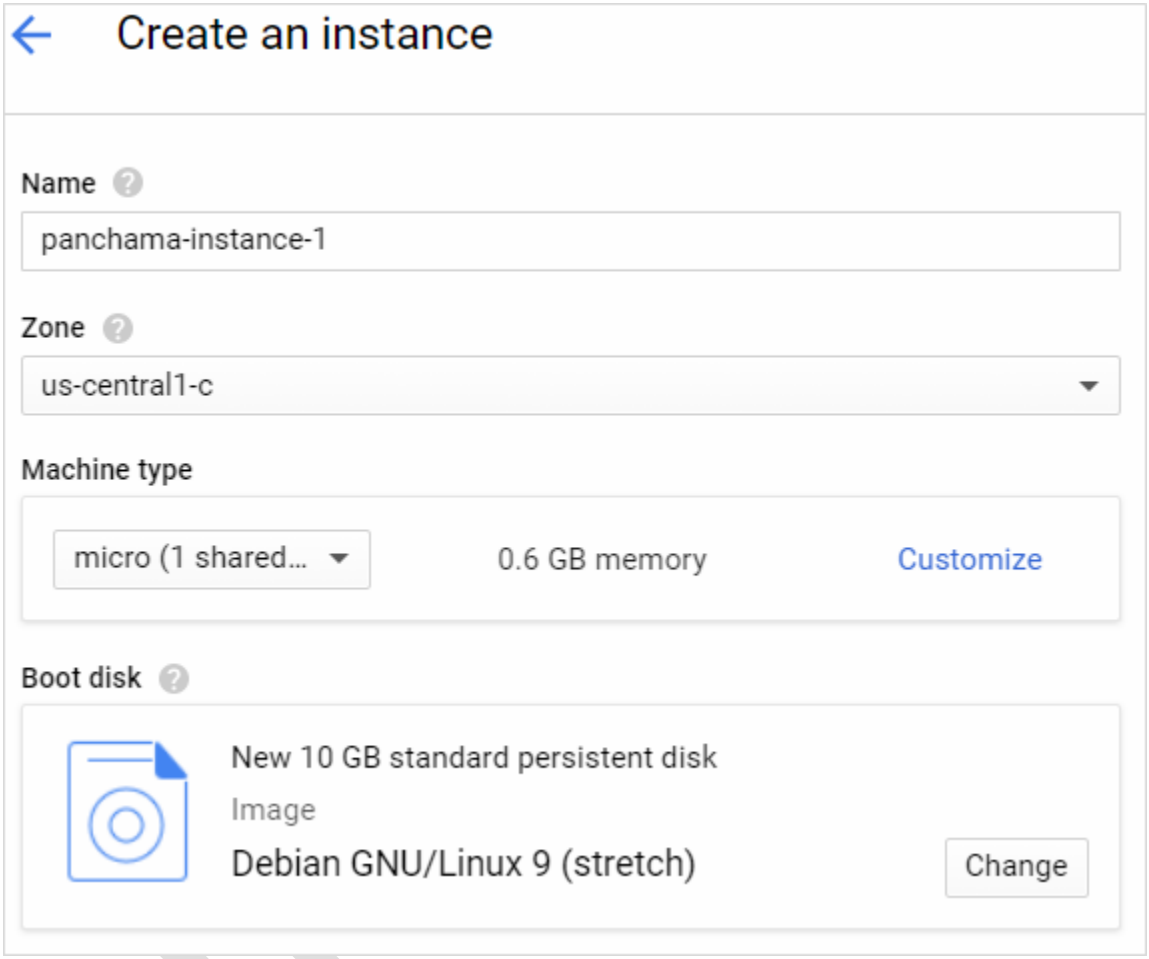
- *PDs are zonal resources*
- *Multiple disks can be attached to the instance while creation*

Demosteps:

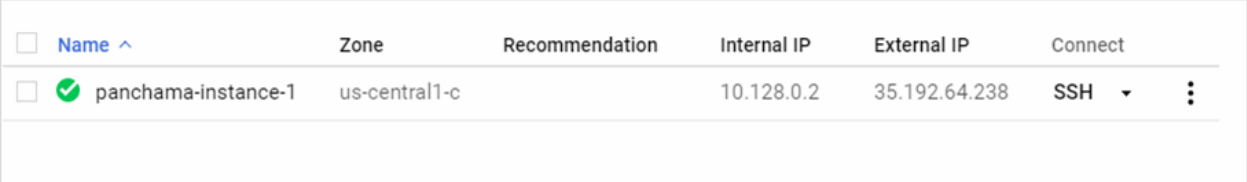
Once PD is created, it will be in available state. You can attach them to instances to configure as a storage device. As the first step, you will create an instance, so that the PD can be attached to it.

Step 1: Create an instance

- *Navigate to GCP console and launch an instance from a Debian GNU image. You can proceed with micro (f1-micro) machine type*
- *Select the zone corresponding to the zone that you selected during PD creation*

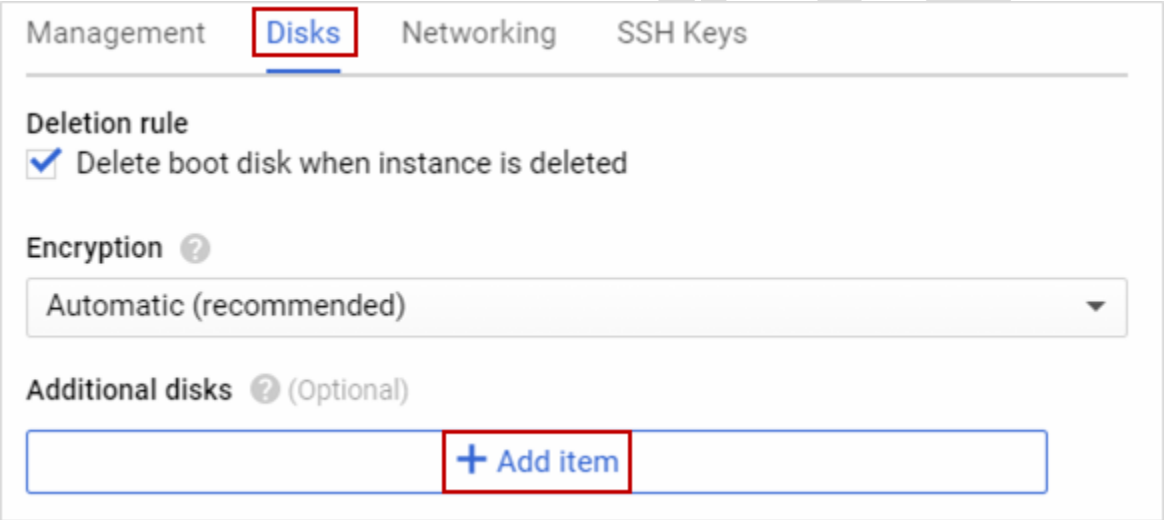


You can verify the instance created below:

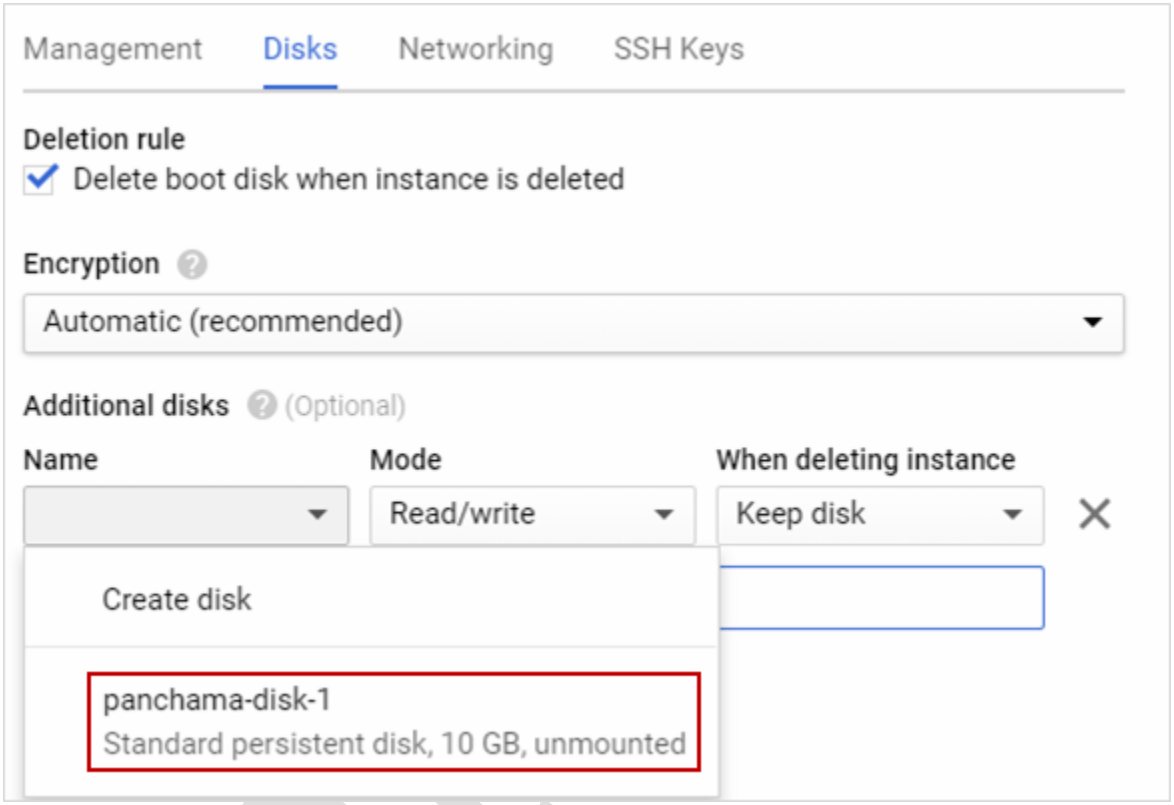


Step 2: Add PD to instance

- *Select **Disks** by expand the **Management tab***



- ***Click Add Item to add the additional disk created for instance***
- ***Select the PD created from the drop down list in Name***



Click Create to launch the instance with disk attached to it

Once the volume is attached, you can connect to the instance, format the PD as per Panchama's requirement and make it available for use.

For more information, see [Formatting and mounting a non-boot persistent disk](#) from GCP documentation.

In the next section, you will see how to reuse existing PD to create replicas of it and use for data restoration.

Assignment 4 : Create PD from snapshots

Highlights:

- *Snapshots are global resources*
- *Multiple disks can be created from single snapshot*

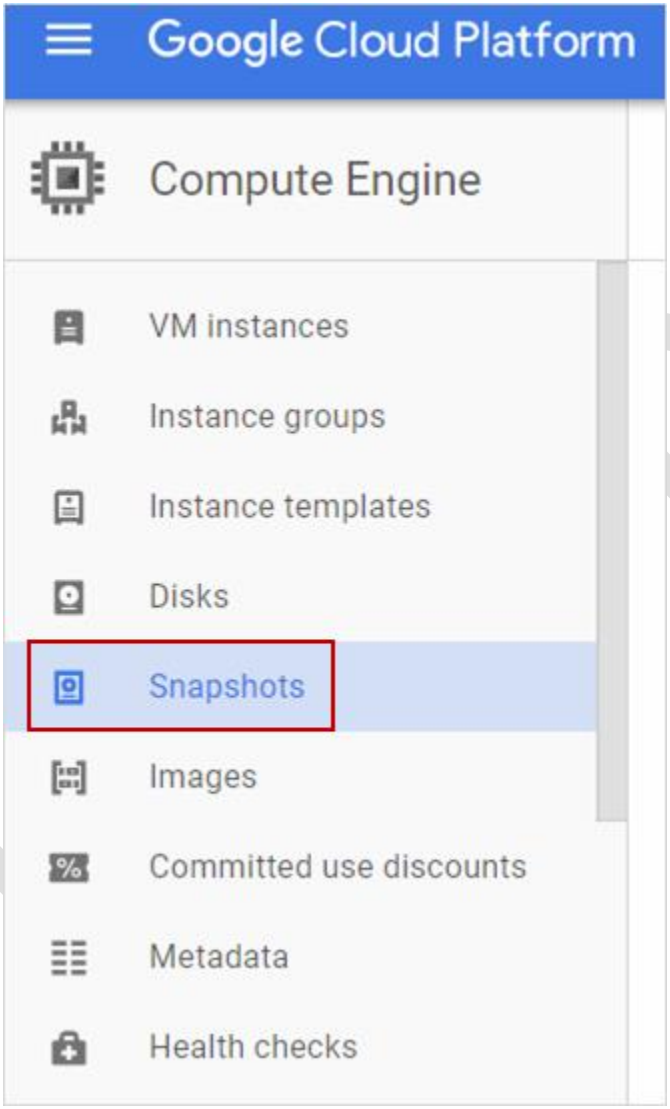
Demosteps:

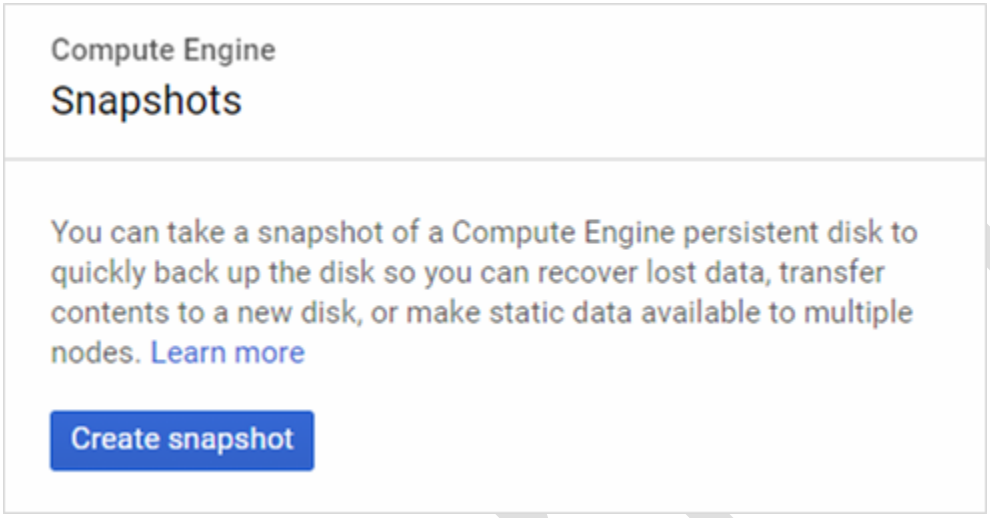
Snapshots are useful to create periodic backup from PD to use as baseline for new volumes or for backup of data. The snapshots are incremental which makes regular snapshots on a PD faster at a much lower rate. Snapshot process takes place asynchronously and the data will be stored into storage buckets owned by GCP.

You will now see the demo on how to take snapshot and restore PD from it:

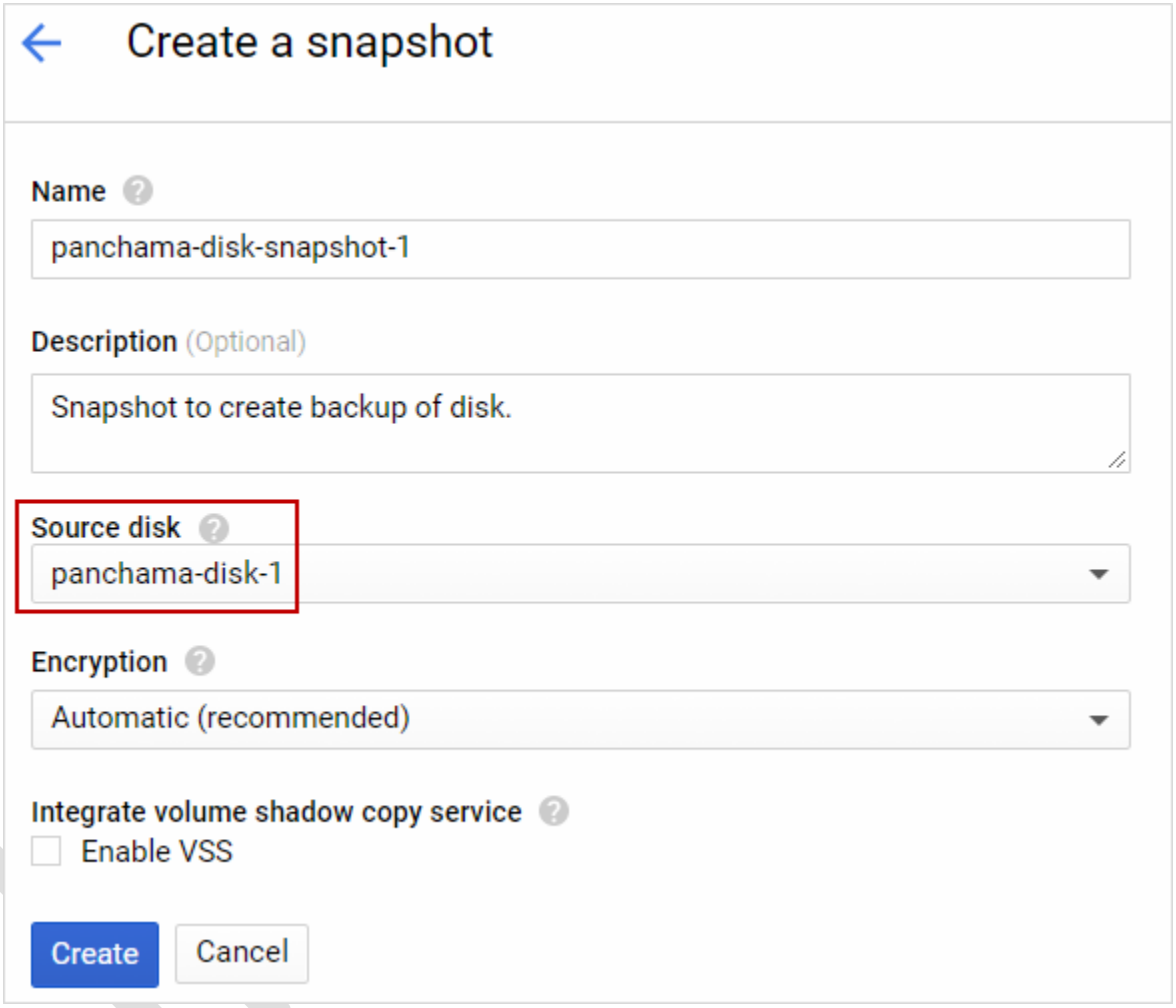
Step 1: Create a snapshot

- *To create a snapshot, navigate to Compute Engine dashboard and click Snapshots*

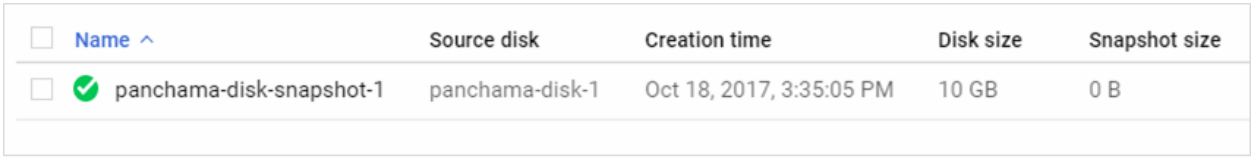

Google Cloud Platform
Compute Engine
VM instances
Instance groups
Instance templates
Disks
Snapshots
Images
Committed use discounts
Metadata
Health checks



Select the required PD form the list Source Disk

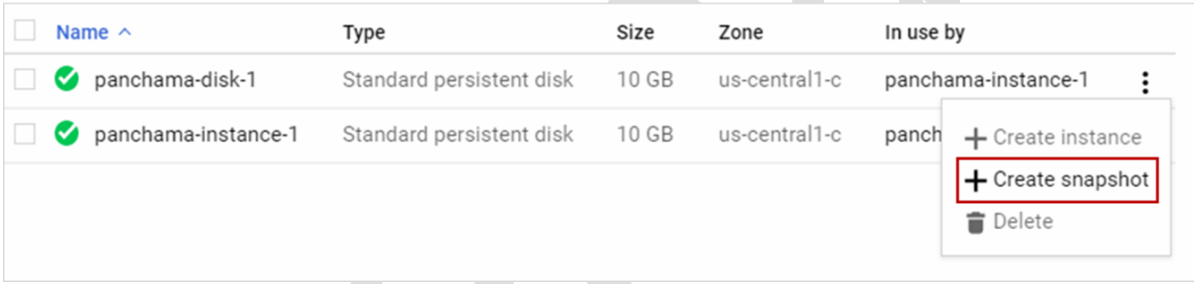


*The list of completed snapshots can be seen in the **Snapshots** dashboard.*



Name	Source disk	Creation time	Disk size	Snapshot size
panchama-disk-snapshot-1	panchama-disk-1	Oct 18, 2017, 3:35:05 PM	10 GB	0 B

*You can also create snapshot of a disk by selecting **Create snapshot** as shown:*

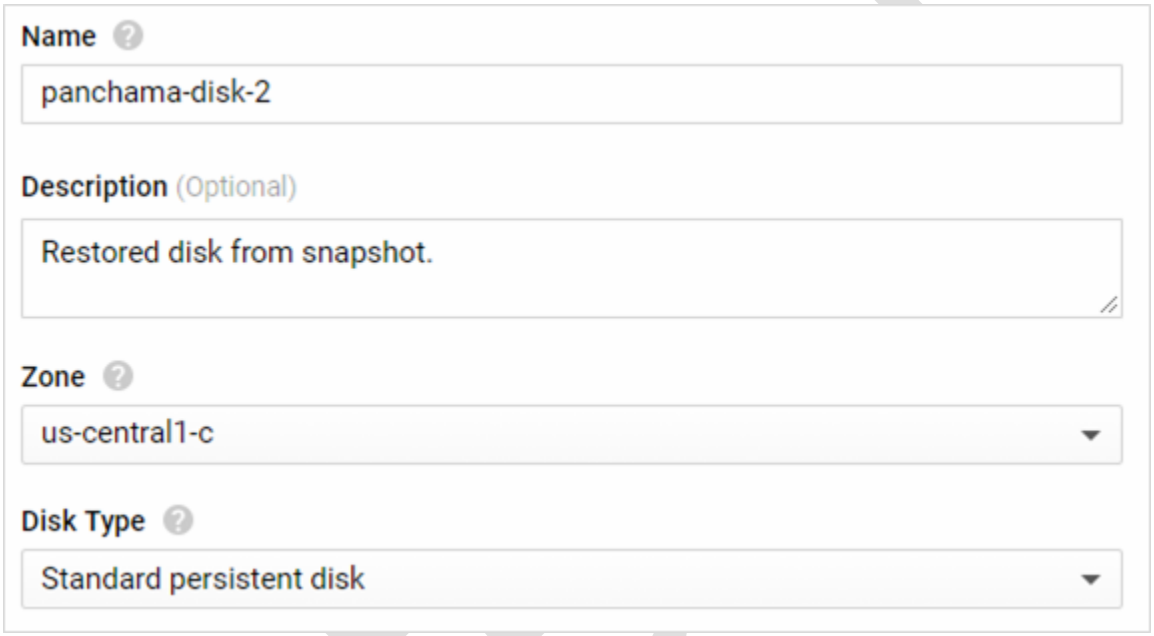


Snapshots that are taken from encrypted volumes are automatically encrypted. Volumes that are created from encrypted snapshots are also automatically encrypted.

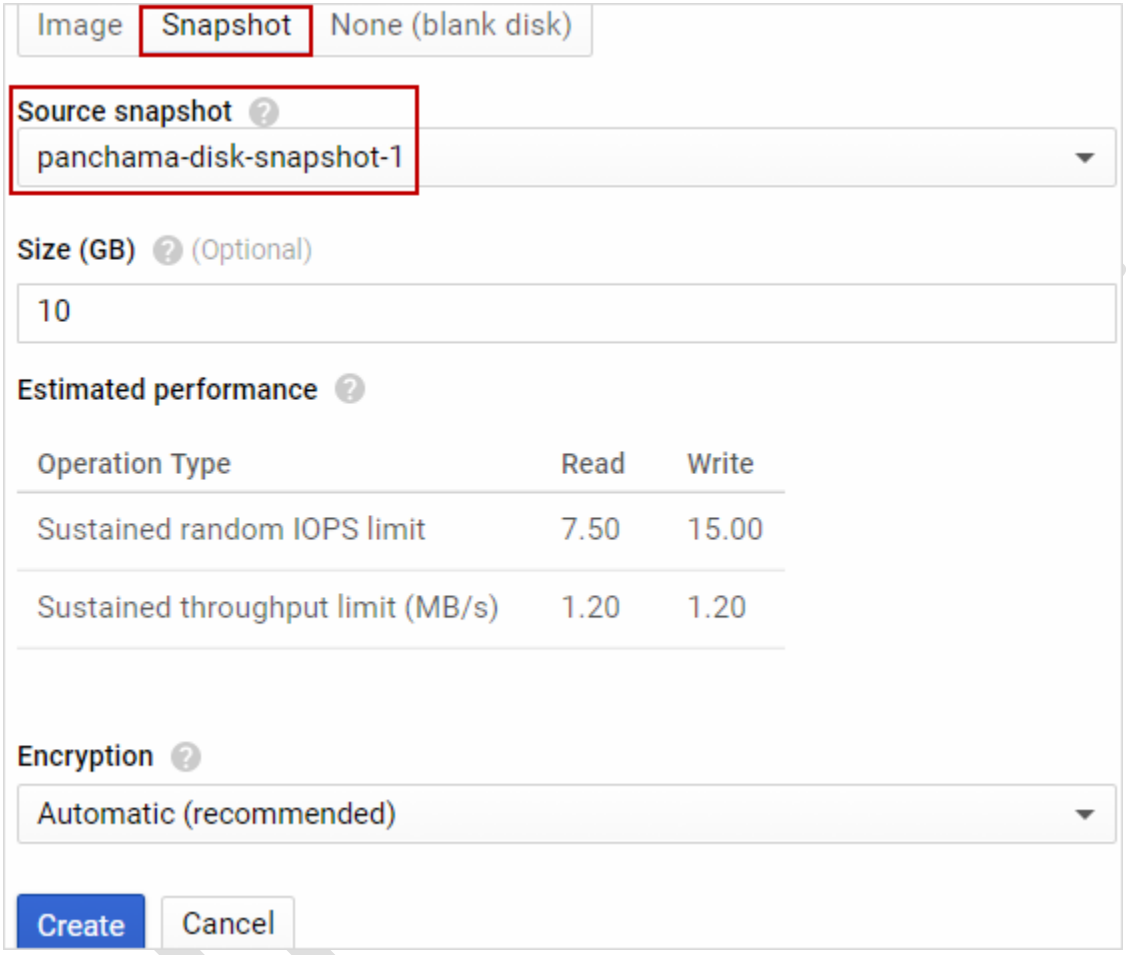
Taking a snapshot will not impact any ongoing read/write operations into the PD. The data blocks till the point-in-time of initiating snapshot will be considered. Hence you can take a snapshot of an attached volume that is in use.

Step 2: Restore PD from snapshot

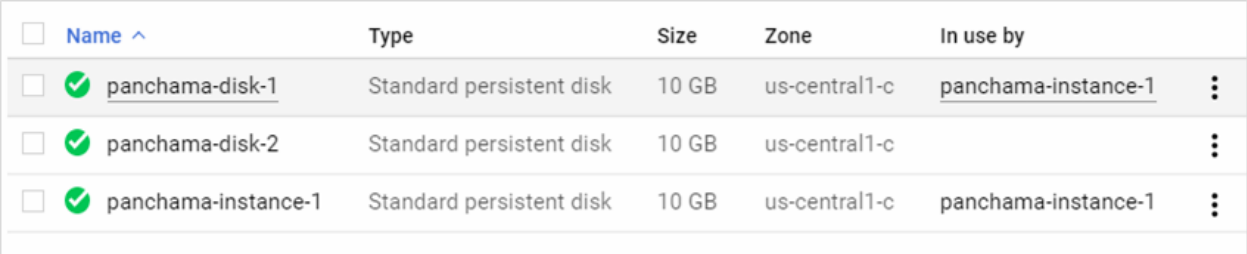
- *To create an PD out of an existing snapshot, navigate to **Disks***



*Provide disk details as per Panchama's requirement and select **Snapshots** under Source **type***



- ***You can see a new disk created from the snapshot provided***



Name	Type	Size	Zone	In use by
panchama-disk-1	Standard persistent disk	10 GB	us-central1-c	panchama-instance-1
panchama-disk-2	Standard persistent disk	10 GB	us-central1-c	
panchama-instance-1	Standard persistent disk	10 GB	us-central1-c	panchama-instance-1

In the next section, you will see how to detach and delete an PD if it is no longer required.

Assignment 5: Detach and delete PD

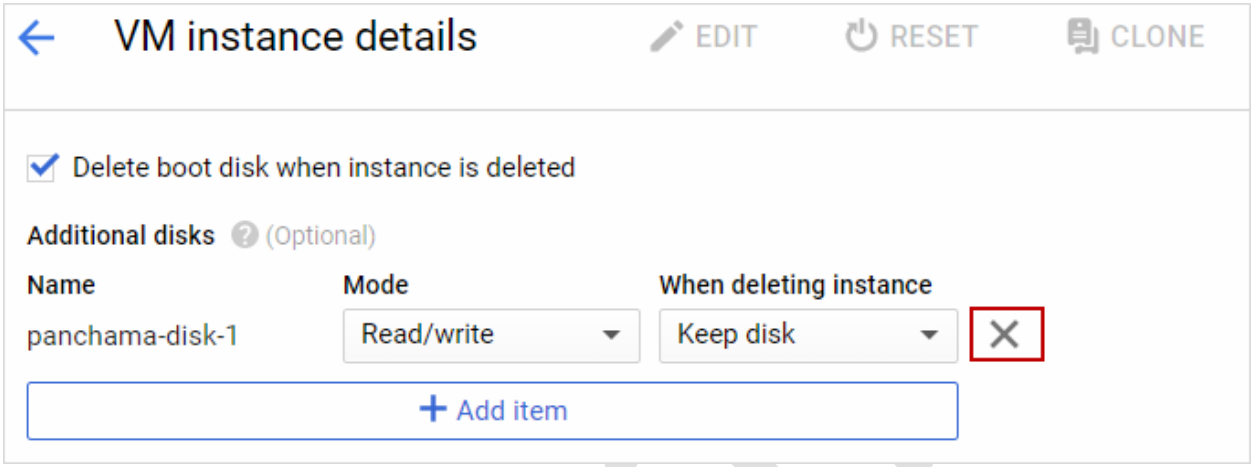
You can detach a GCP PD from an instance explicitly or by terminating the instance. However, if the instance is running, you must first unmount the volume from the instance.

If PD is the root device of an instance, you must stop the instance before you can detach the volume.

Use the following command to unmount the disk mounted on location '/mnt/disks/PD1' .

sudo umount /mnt/disks/PD1

- *To detach a disk, first stop the instance so that any data can be saved.*
- *Select the instance of which disk needed to be detached.*
- *Click EDIT, cancel the attached disk under Additional disks.*



Once a disk is deleted, the data stored will also be gone and the volume cannot be attached to any instance. You need to make sure that the data is properly backed up as snapshots so that this can be re-used at any point of time.

Assignment 6 : Host a static website

Highlights:

Upload static web files in cloud storage and server website through HTTPS

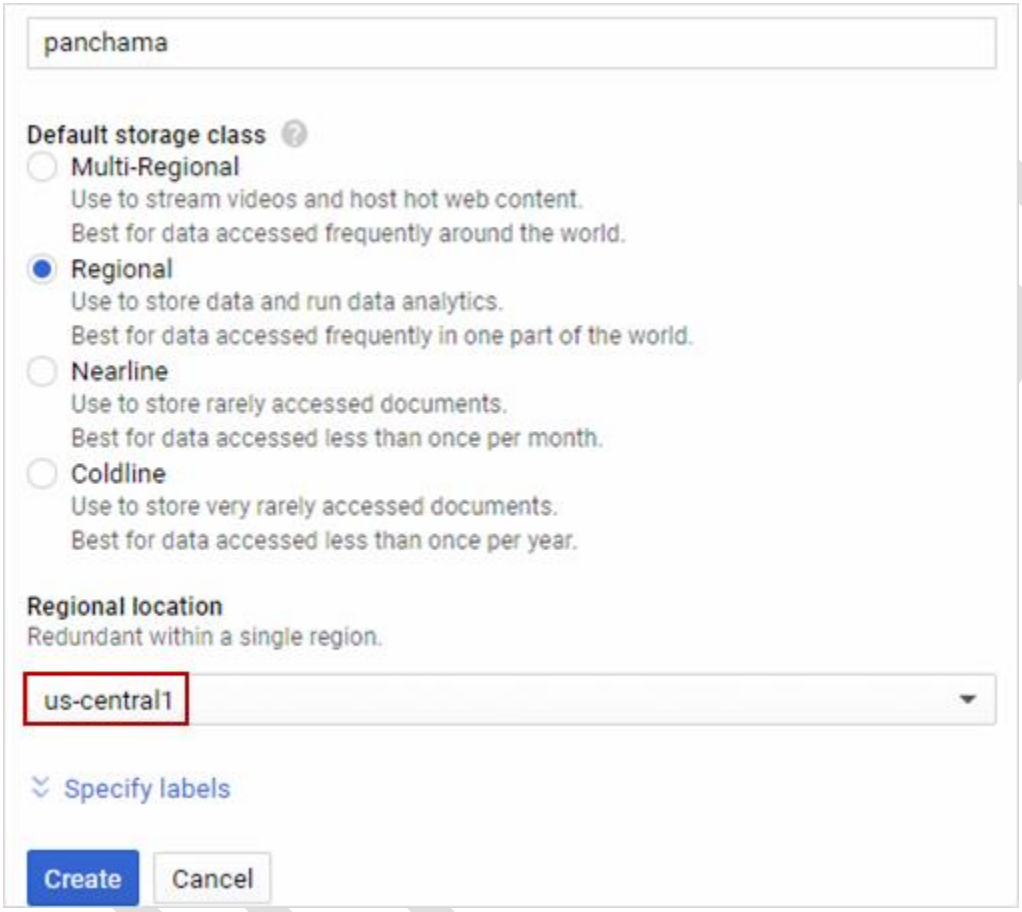
Registered domain can be used to create bucket and server trough HTTP

Demosteps:

Panchama wants measure the performance of static web hosting in cloud storage bucket, as per requirement it will then register the domain. You will now see the demo on host static website in cloud storage:

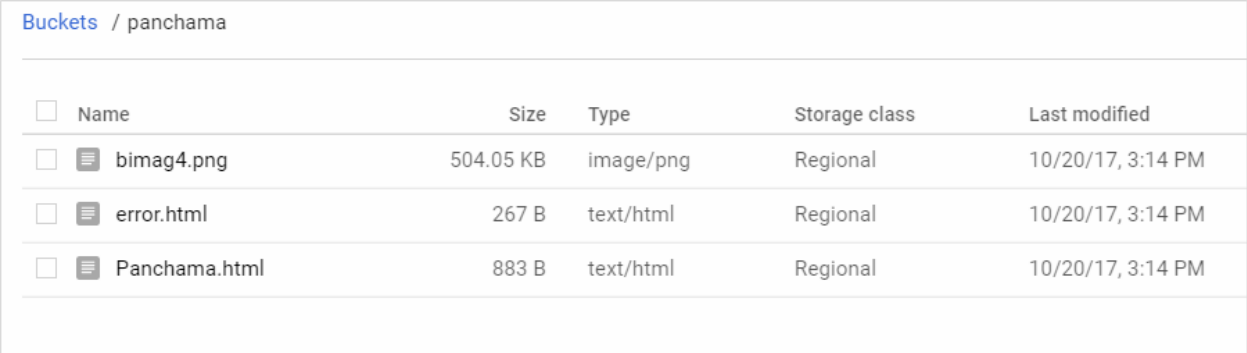
Step 1:

Navigate to cloud storage and create the bucket in a specific region as per Panchama's requirement.


panchama
Default storage class
Multi-Regional
Use to stream videos and host hot web content.
Best for data accessed frequently around the world.
Regional
Use to store data and run data analytics.
Best for data accessed frequently in one part of the world.
Nearline
Use to store rarely accessed documents.
Best for data accessed less than once per month.
Coldline
Use to store very rarely accessed documents.
Best for data accessed less than once per year.
Regional location
Redundant within a single region.
us-central1
Specify labels
Create
Cancel

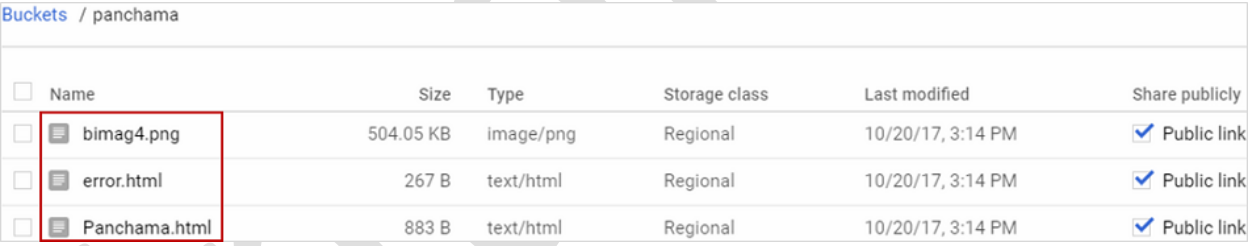
Step 2:

Upload required static files in bucket, as shown below static html files, image and an error file is uploaded.



Step 3:

Make sure the file is made publicly accessible to serve it on HTTPS.



Step 4:

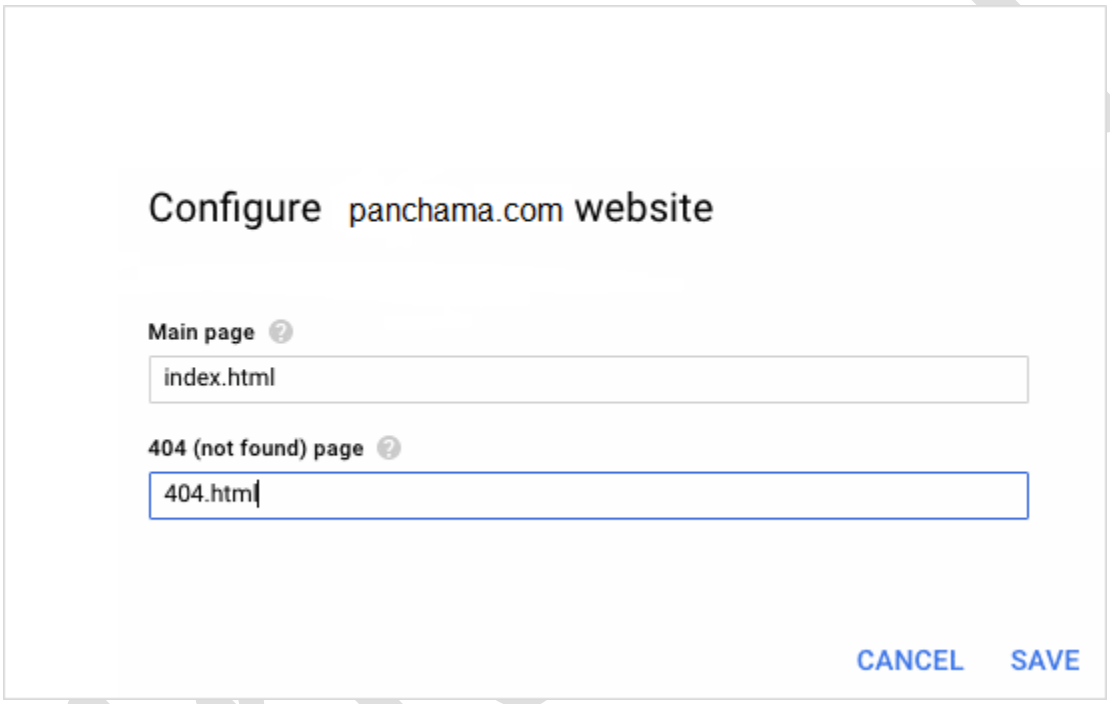
Copy the URL in browser in below format by specifying the bucket and object name as shown.

https://storage.googleapis.com/panchama/Panchama.html

Step 5:

Verify the output of the static html you uploaded in bucket.

If you created the bucket with verified domain, you can specify the index and error html files by clicking settings icon and edit website configuration as shown below.



Assignment 7 : Creating data transfers

Highlights:

Use the Google Cloud Platform Console to set up and manage transfer jobs

Demosteps:

Setting up a transfer job

1. *Open the Transfer page in the Google Cloud Platform Console. Click Create transfer job.*
2. *Let's select GOOGLE CLOUD STORAGE*
3. *Then select **Google Cloud Storage bucket** and enter source bucket name.*
4. *Under **Select destination**, choose a sink bucket or create a new one. To transfer files to a new bucket, click **Browse** and then click the **New bucket** icon.*
5. *Enable overwrite/delete options if needed. By default, Storage Transfer Service overwrites an object if the source version is different from the sink version. No other objects are overwritten or deleted. You can enable additional overwrite/delete options under **Transfer options**.*
6. *Under **Configure transfer**, schedule your transfer job to **Run now** (one time) or **Run daily** at a time in your local timezone.*
7. *Click **Create**.*