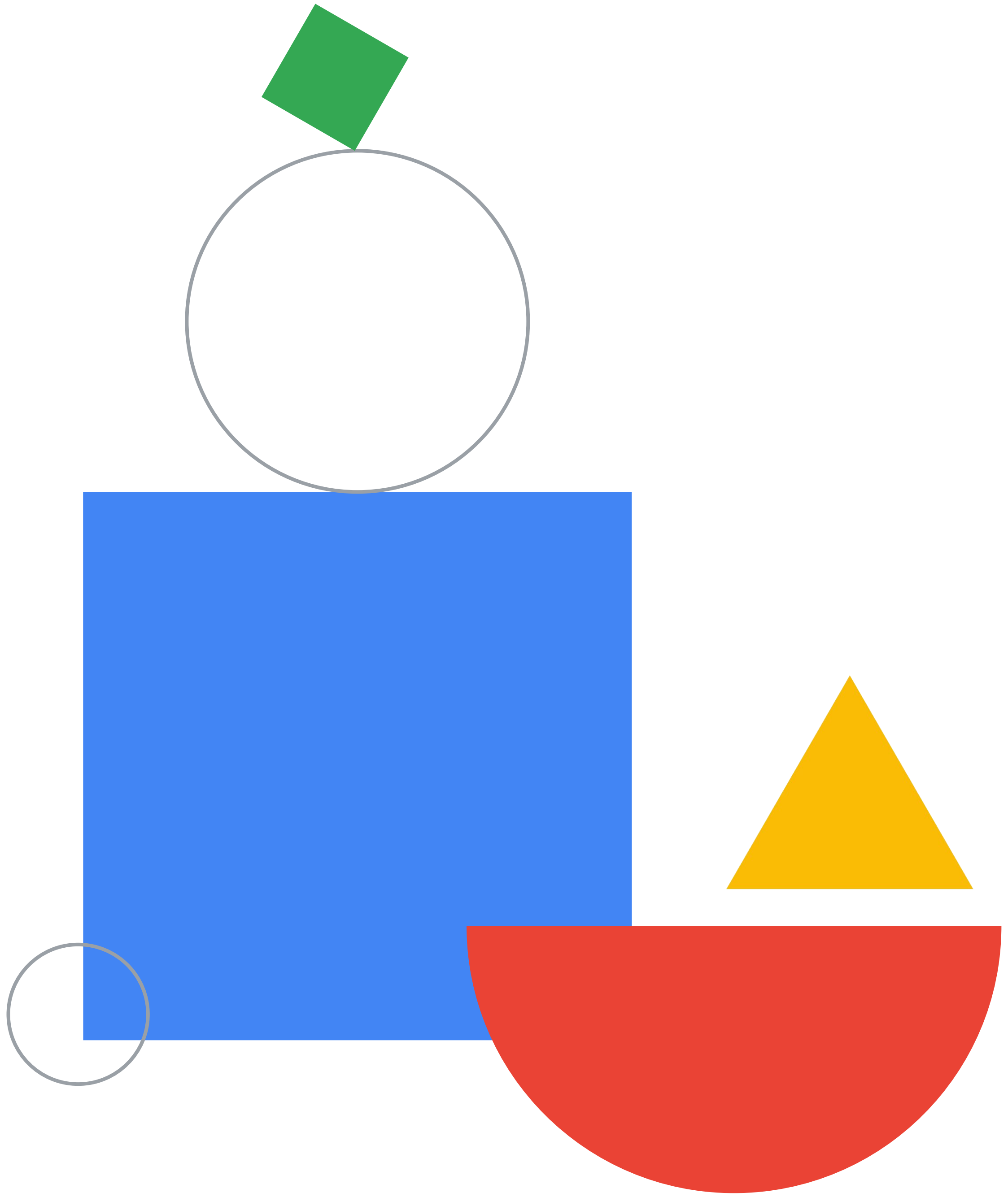
Google Cloud

Preparing for Your Associate Cloud Engineer Journey



Module 5: Configuring Access and Security

Module agenda

01 Managing access for Cymbal Superstore’s cloud solutions

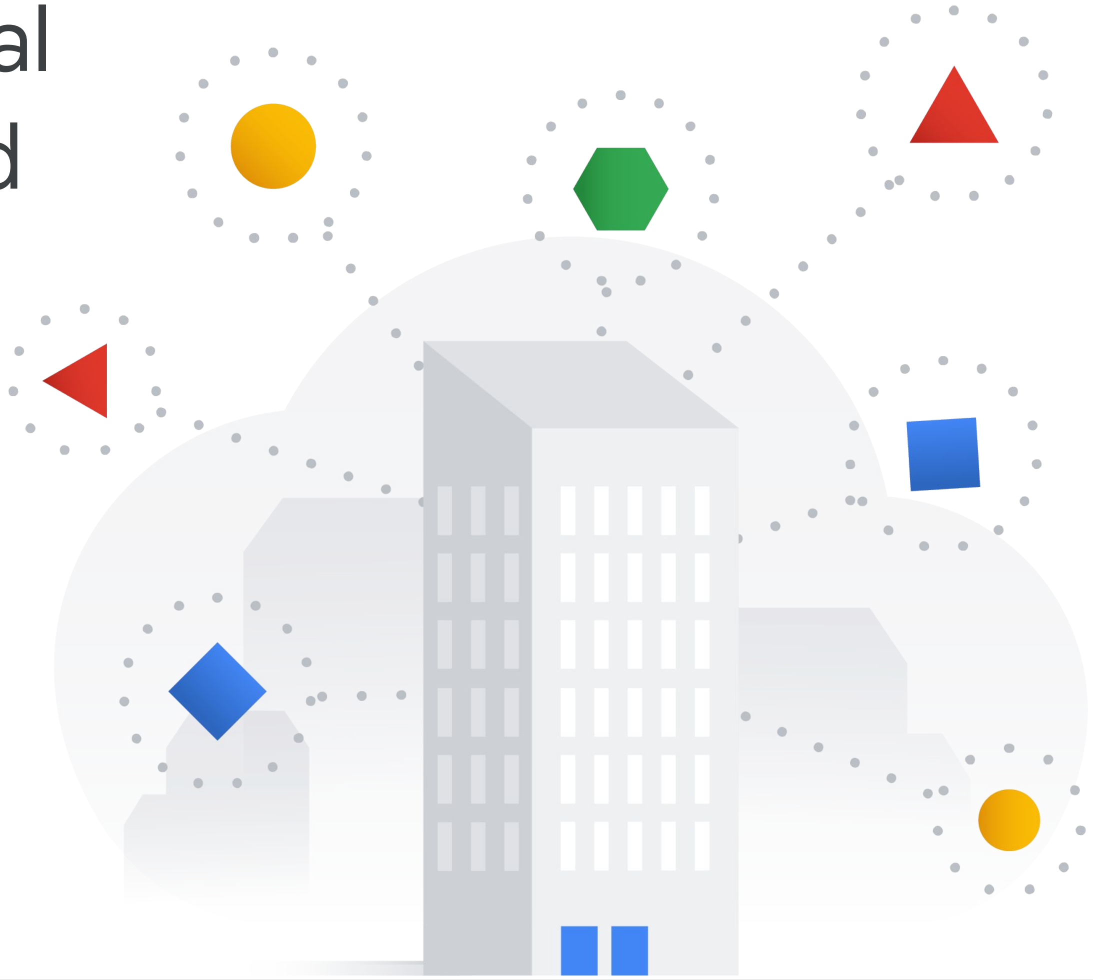
02 Diagnostic questions

03 Review and study planning

Managing access for Cymbal Superstore's cloud solutions

The next step:

ongoing access and security for Cymbal Superstore's cloud solutions



- Managing Identity and Access Management (IAM)
- Managing service accounts
- Viewing audit logs

Cymbal Superstore

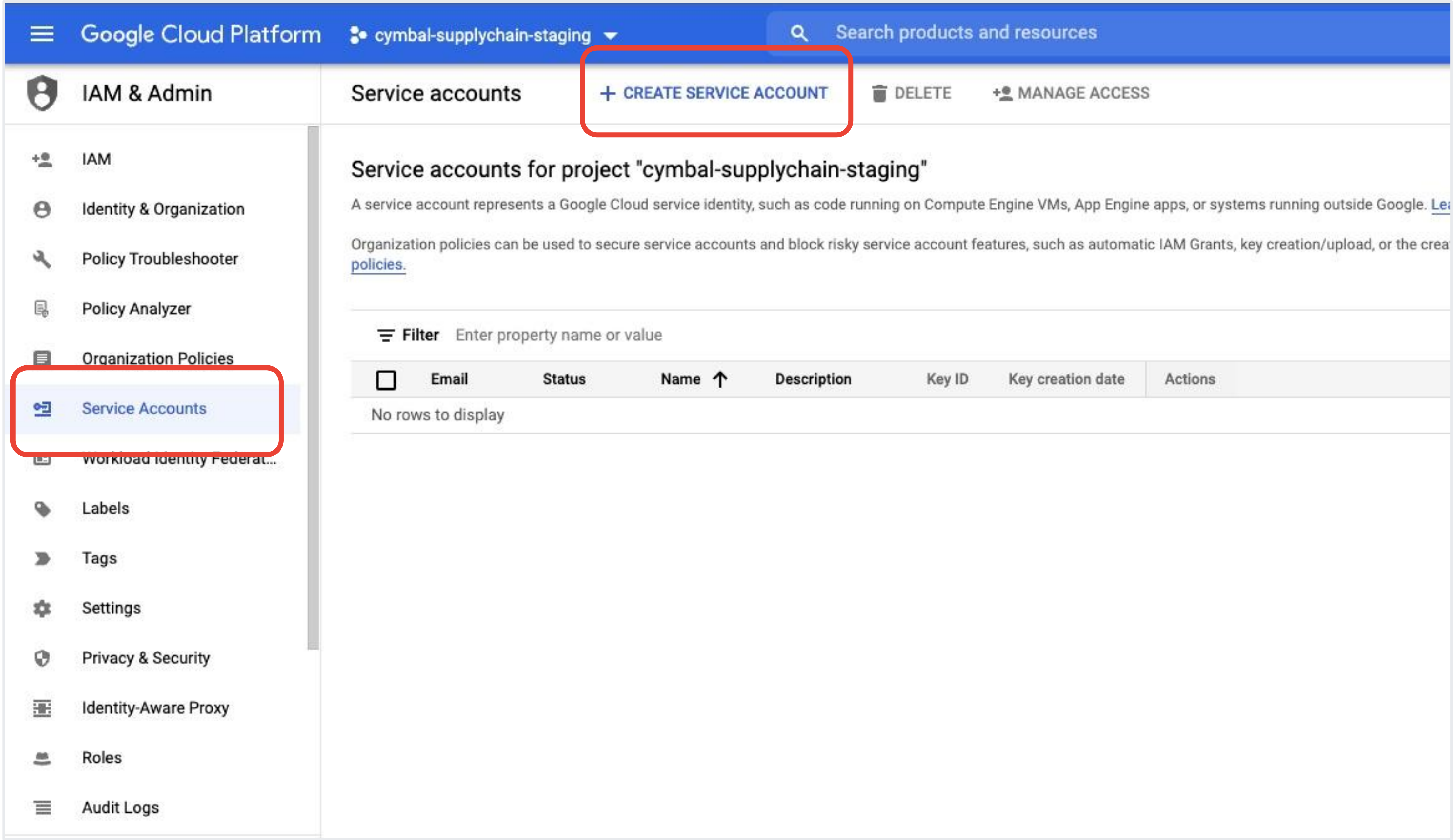
Setting up a service account for Cymbal Superstore's supply chain app

1. Create a service account
2. Assign Permissions
3. Attach to a VM

01

Create a service account:

Where to look



Service accounts for project "cymbal-supplychain-staging"

A service account represents a Google Cloud service identity, such as code running on Compute Engine VMs, App Engine apps, or systems running outside Google. Lea

Organization policies can be used to secure service accounts and block risky service account features, such as automatic IAM Grants, key creation/upload, or the crea policies.

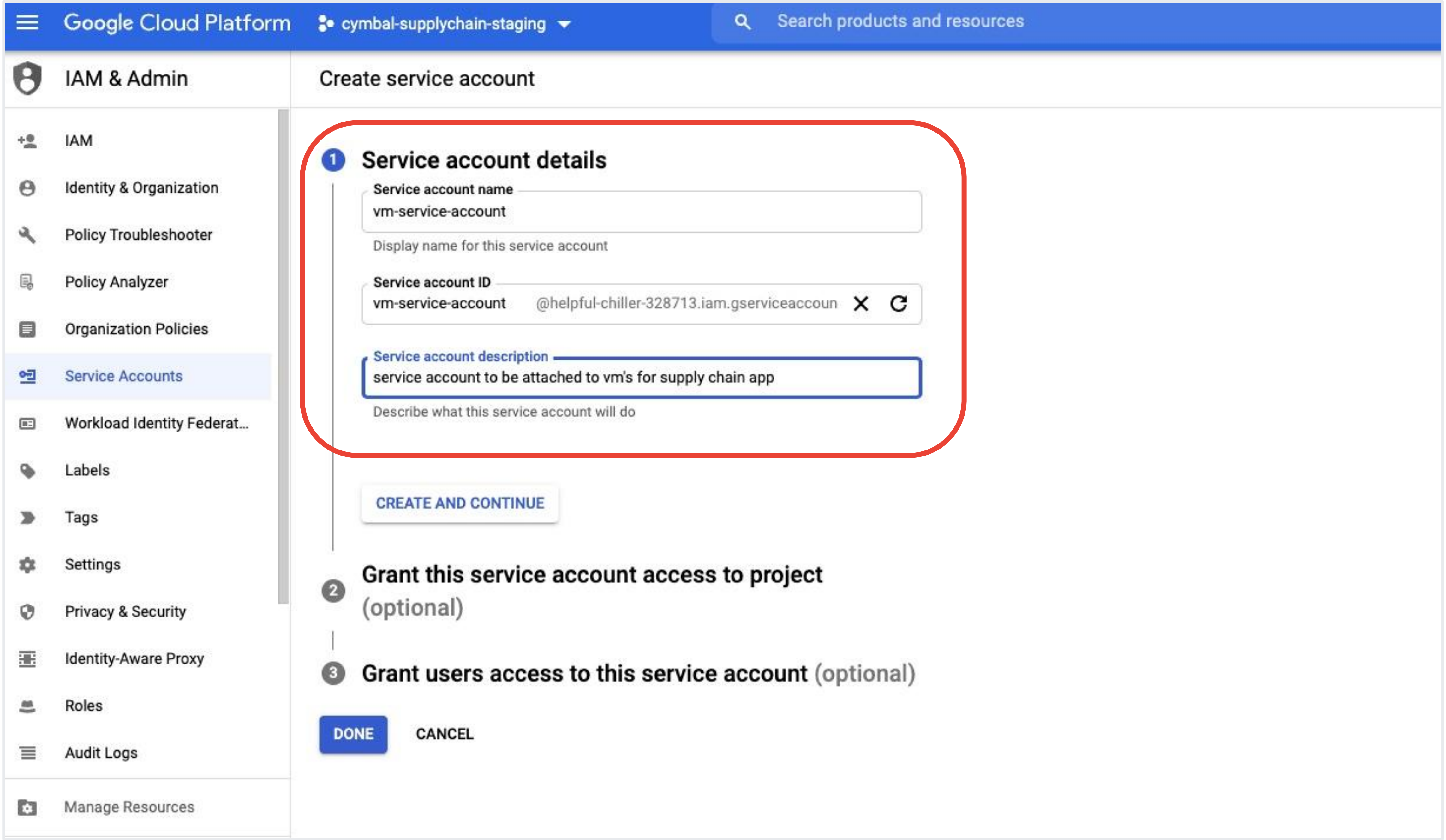
□	Email	Status	Name ↑	Description	Key ID	Key creation date	Actions

No rows to display

01

Create a service account:

Enter service account details



Create service account

1. Service account details

Service account name: vm-service-account

Display name for this service account

Service account ID: vm-service-account @helpful-chiller-328713.iam.gserviceaccoun

Service account description: service account to be attached to vm's for supply chain app

Describe what this service account will do

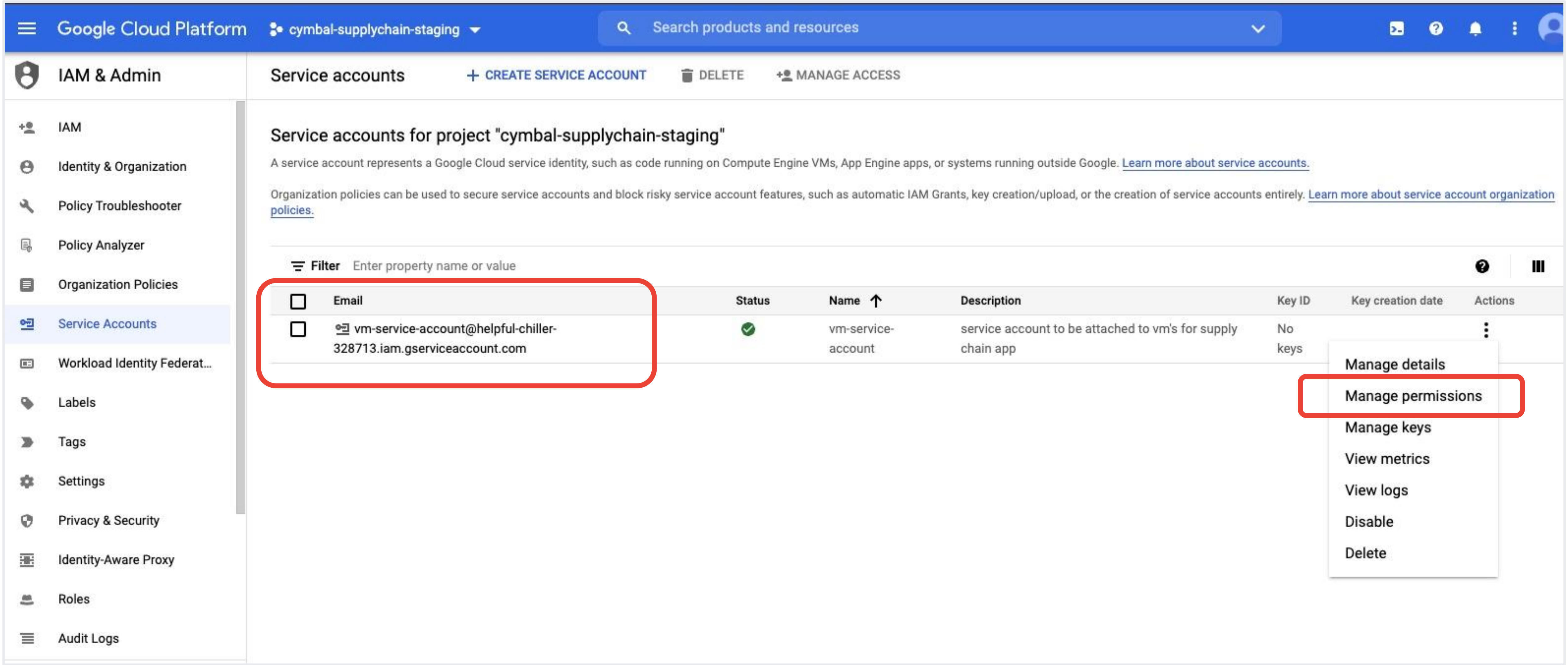
2. Grant this service account access to project (optional)

3. Grant users access to this service account (optional)

02

Assign permissions:

Where to look



Service accounts for project "cymbal-supplychain-staging"

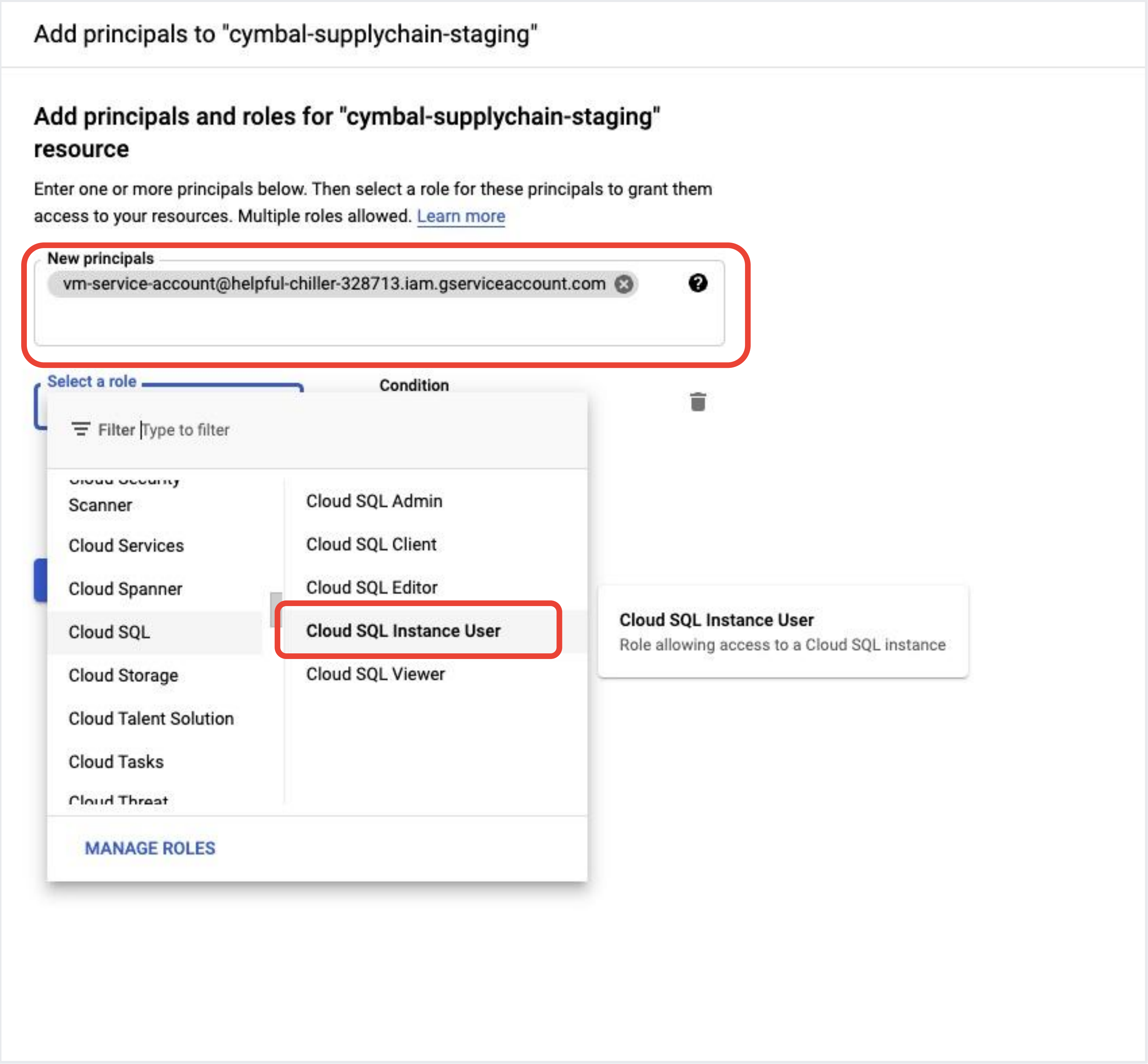
A service account represents a Google Cloud service identity, such as code running on Compute Engine VMs, App Engine apps, or systems running outside Google. Learn more about service accounts.

Organization policies can be used to secure service accounts and block risky service account features, such as automatic IAM Grants, key creation/upload, or the creation of service accounts entirely. Learn more about service account organization policies.

□	Email	Status	Name ↑	Description	Key ID	Key creation date	Actions
□	vm-service-account@helpful-chiller-328713.iam.gserviceaccount.com	✓	vm-service-account	service account to be attached to vm's for supply chain app	No keys		⋮

02

Assign permissions: Add necessary permissions



Add principals to "cymbal-supplychain-staging"

Add principals and roles for "cymbal-supplychain-staging" resource

Enter one or more principals below. Then select a role for these principals to grant them access to your resources. Multiple roles allowed. Learn more

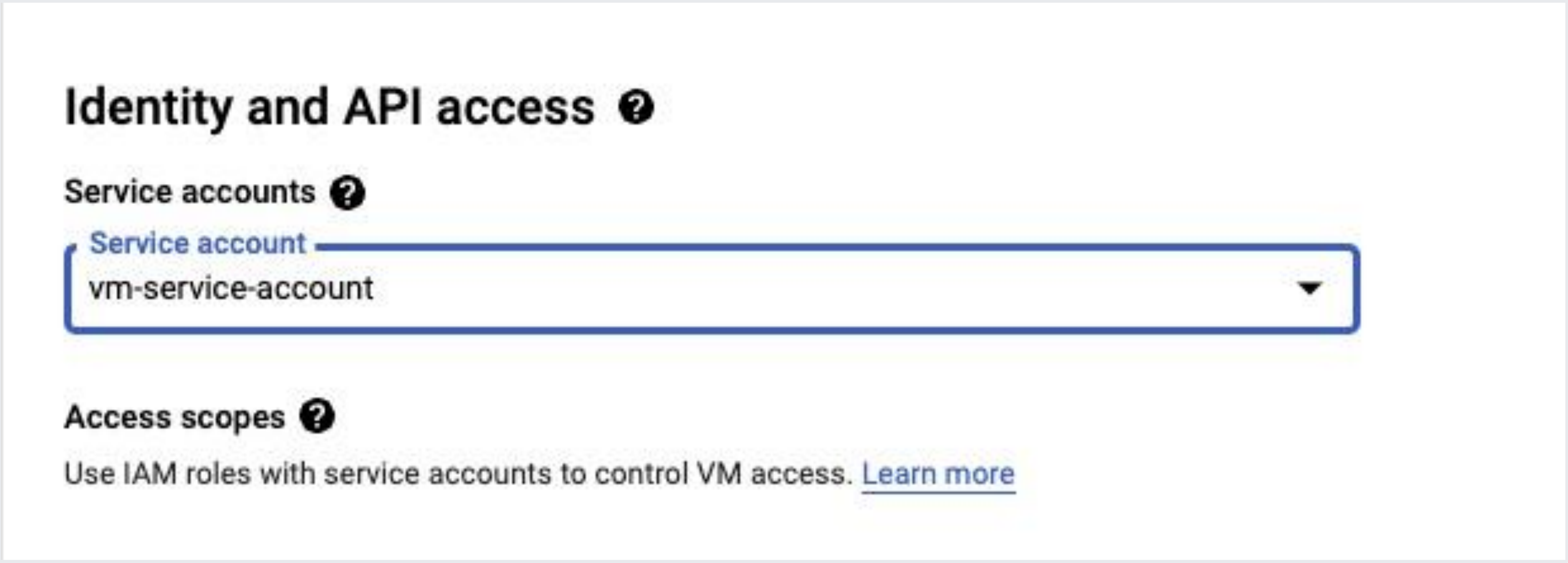
New principals: vm-service-account@helpful-chiller-328713.iam.gserviceaccount.com

Cloud SQL Instance User
Role allowing access to a Cloud SQL instance

03

Add to a VM instance

Where to look



Identity and API access

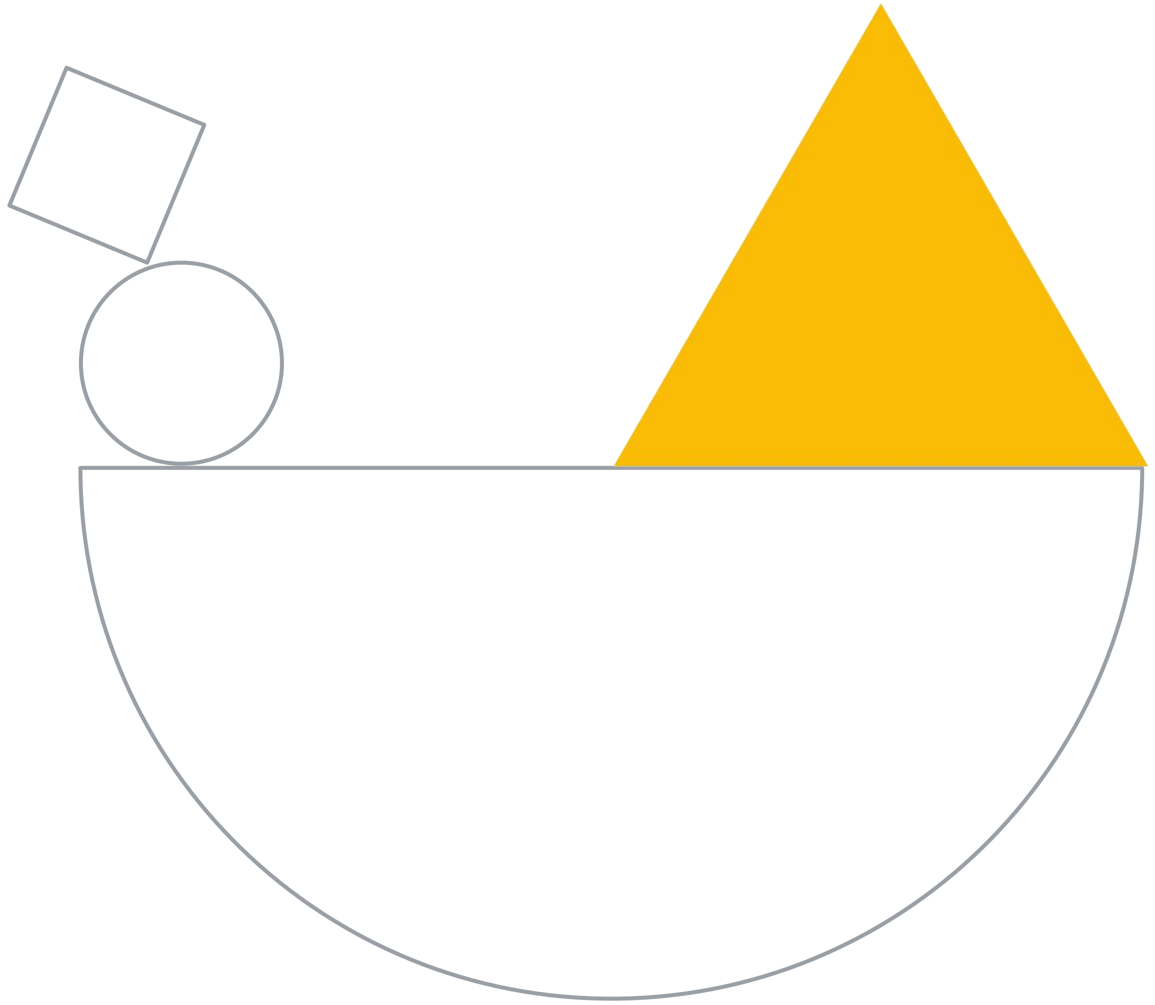
Service accounts

Service account: vm-service-account

Access scopes

Use IAM roles with service accounts to control VM access. Learn more

Diagnostic questions



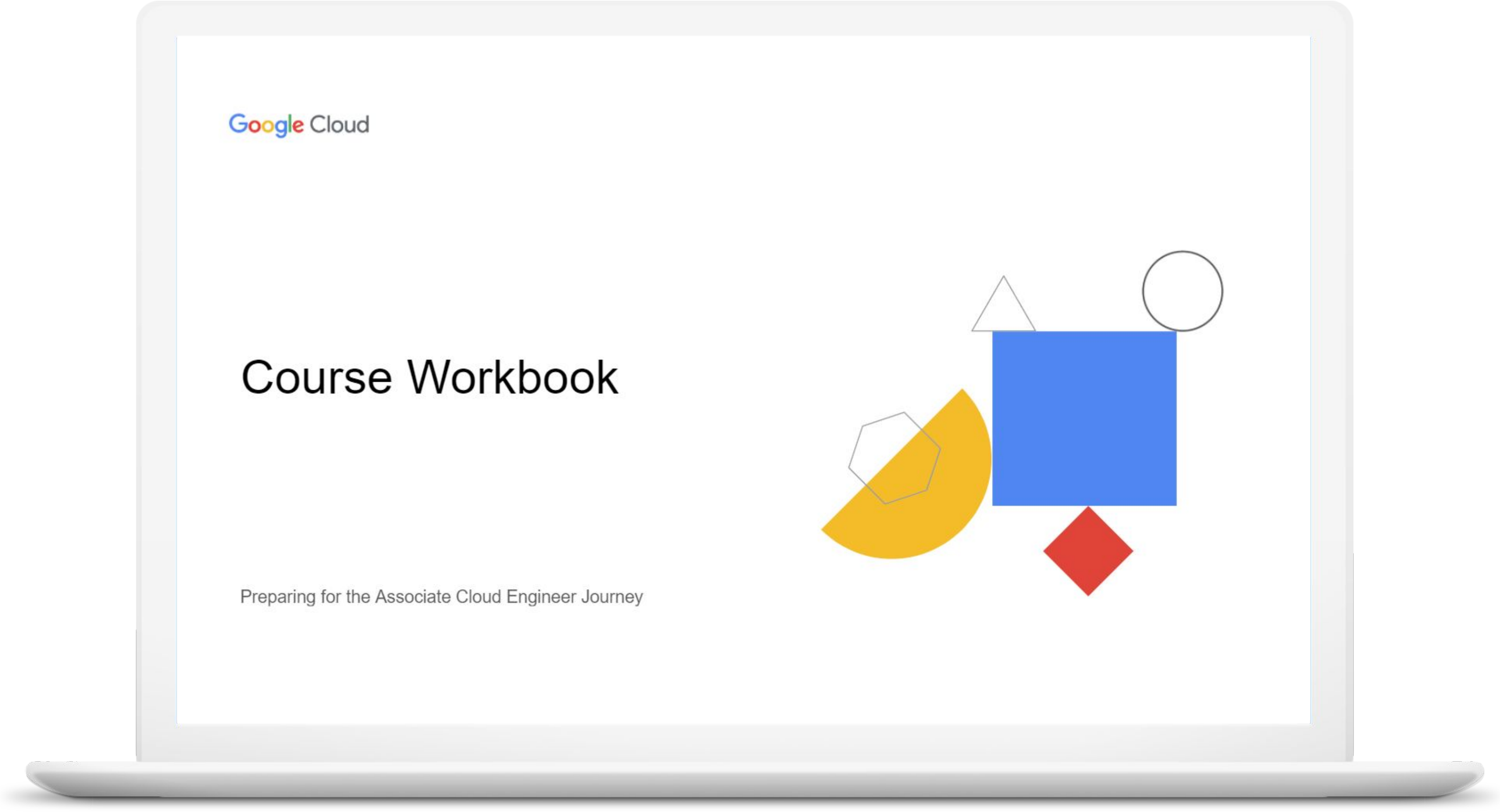
Please complete the diagnostic questions now

- Forms are provided for you to answer the diagnostic questions
- The instructor will provide you a link to the forms
- The diagnostic questions are also available in the workbook

Review and study planning

Your study plan:

Ensuring successful operation of a cloud solution



Google Cloud

Course Workbook

Preparing for the Associate Cloud Engineer Journey

5.1 Managing Identity and Access Management (IAM)

5.2 Managing service accounts

5.3 Viewing audit logs

5.1 Managing Identity and Access Management (IAM)

Tasks include:

- Viewing IAM policies
- Creating IAM policies
- Managing the various role types and defining custom IAM roles (e.g., basic, predefined and custom)

5.1 Diagnostic Question 01 Discussion

You need to configure access to Cloud Spanner from the GKE cluster that is supporting Cymbal Superstore's ecommerce microservices application. You want to specify an account type to set the proper permissions.

What should you do?

A. Assign permissions to a Google account referenced by the application.

B. Assign permissions through a Google Workspace account referenced by the application.

C. Assign permissions through service account referenced by the application.

D. Assign permissions through a Cloud Identity account referenced by the application.

Assign access to members using IAM

Member Identity

Google Account	userid@gmail.com
Service Account	1234@cloudservices.gserviceaccount.com
Google Group	groupname@googlegroups.com
Cloud Identity or Google Workspace Domain	alias@example.com

5.1 Diagnostic Question 02 Discussion

You are trying to assign roles to the dev and prod projects of Cymbal Superstore's e-commerce app but are receiving an error when you try to run **set-iam policy**. The projects are organized into an ecommerce folder in the Cymbal Superstore organizational hierarchy. You want to follow best practices for the permissions you need while respecting the practice of least privilege.

What should you do?

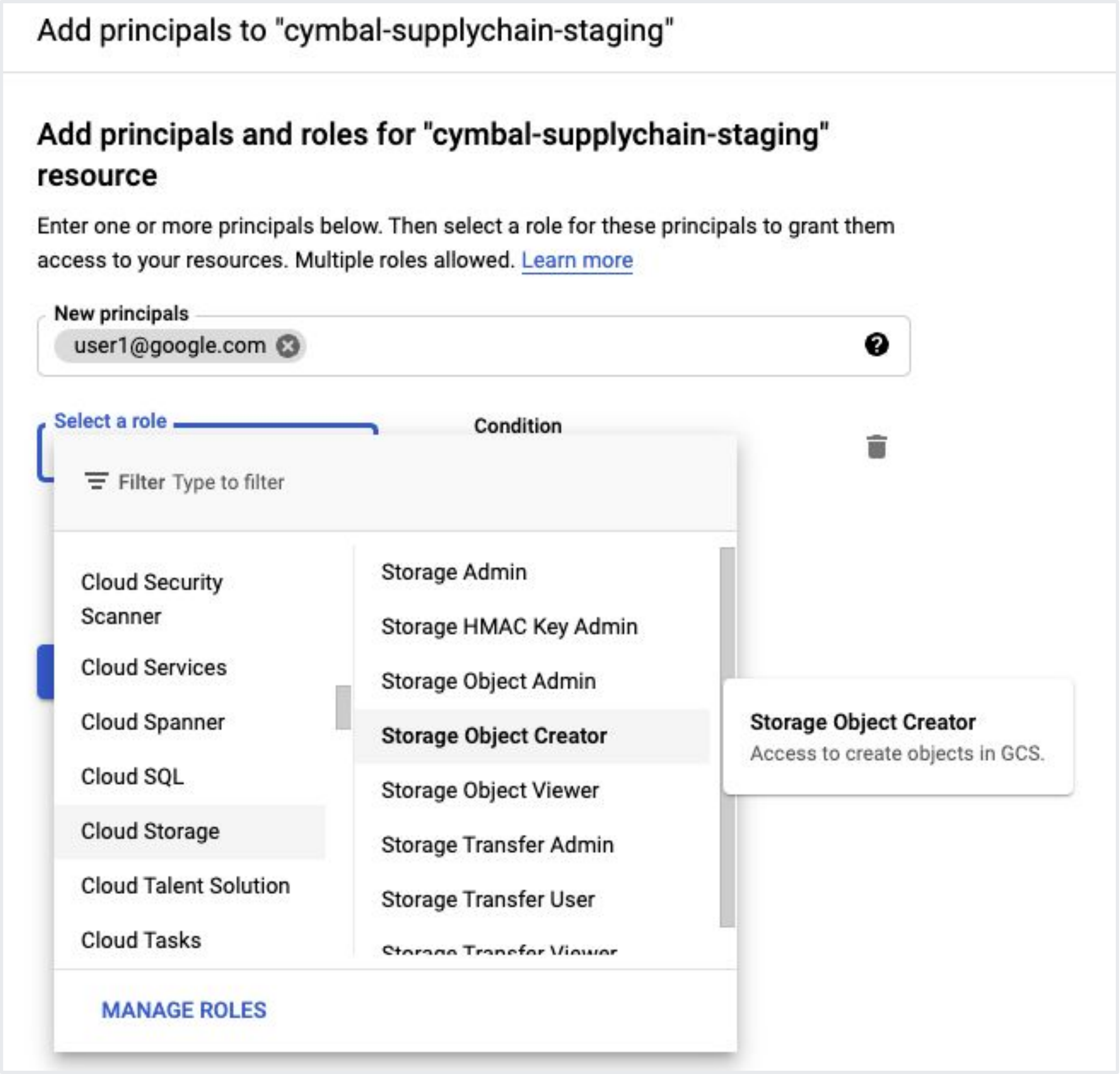
A. Ask your administrator for resourcemanager.projects.setIamPolicy roles for each project.

B. Ask your administrator for the roles/resourcemanager.folderIamAdmin for the ecommerce folder.

C. Ask your administrator for the roles/resourcemanager.organizationAdmin for Cymbal Superstore.

D. Ask your administrator for the roles/iam.securityAdmin role in IAM.

Assign roles in the IAM interface



Add principals to "cymbal-supplychain-staging"

Add principals and roles for "cymbal-supplychain-staging" resource

Enter one or more principals below. Then select a role for these principals to grant them access to your resources. Multiple roles allowed. Learn more

New principals: user1@google.com

Select a role

Condition

Storage Object Creator
Access to create objects in GCS.

5.1 Diagnostic Question 03 Discussion

You have a custom role implemented for administration of the dev/test environment for Cymbal Superstore’s transportation management application. You are developing a pilot to use Cloud Run instead of Cloud Functions. You want to ensure your administrators have the correct access to the new resources.

What should you do?

A. Make the change to the custom role locally and run an update on the custom role.

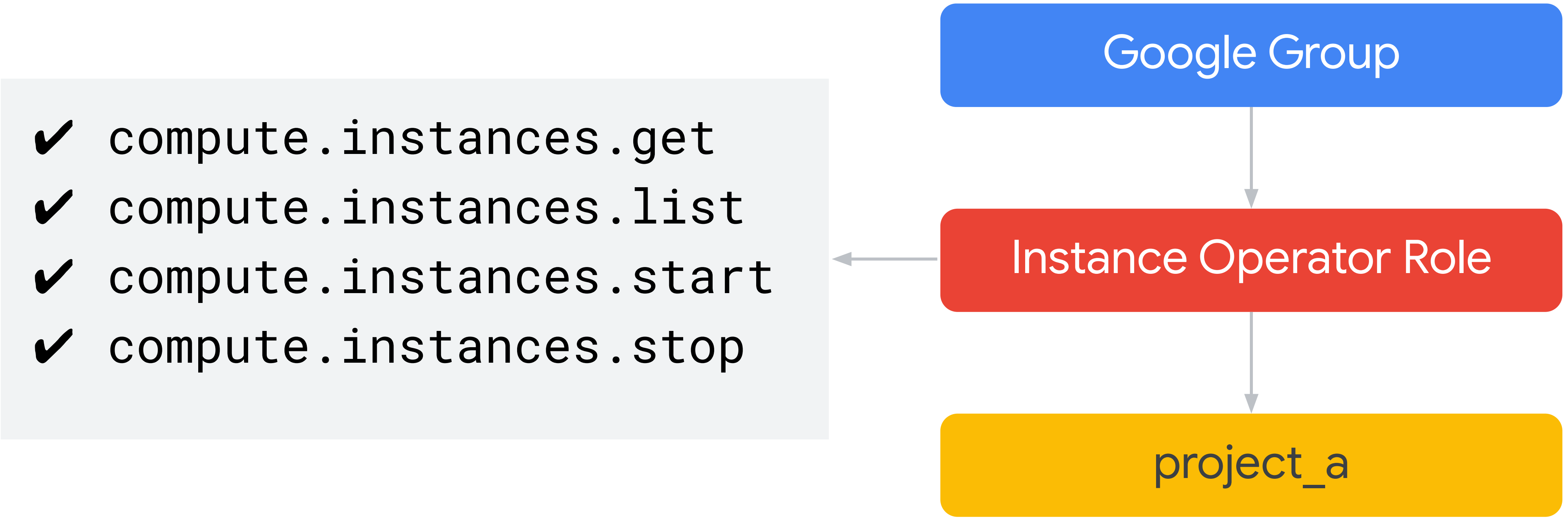
B. Delete the custom role and recreate a new custom role with required permissions.

C. Copy the existing role, add the new permissions to the copy, and delete the old role.

D. Create a new role with needed permissions and migrate users to it.

Google Cloud

Create custom roles



- ✔ compute.instances.get
- ✔ compute.instances.list
- ✔ compute.instances.start
- ✔ compute.instances.stop

5.1 Managing Identity and Access Management (IAM)

Courses

Google Cloud Fundamentals: Core Infrastructure

- M2 Getting Starting with Google Cloud

Architecting with Google Compute Engine

- M4 Identity and Access Management (IAM)

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Essential Google Cloud Infrastructure: Core Services

- M1 Identity and Access Management (IAM)

Skill Badges

Google Cloud

Set Up and Configure a Cloud Environment in Google Cloud Quest

Documentation

Overview | Cloud IAM Documentation

Preparing a Google Kubernetes Engine environment for production

5.2 Managing service accounts

Tasks include:

- Creating service accounts
- Using Service Accounts in IAM policies with minimum permissions
- Assigning service accounts to resources
- Managing IAM of a Service Account
- Managing service account impersonation
- Creating and managing short-lived service account credentials

5.2 Diagnostic Question 04 Discussion

Which of the scenarios below is an example of a situation where you should use a service account?

A. To directly access user data

B. For development environments

C. For interactive analysis

D. For individual GKE pods

Create, use, and assign service accounts

01

To create a service account:

```
gcloud iam
service-accounts create
```

02

To assign policies:

```
gcloud projects
add-iam-policy
```

03

Attach a service account to a resource as you create it

```
gcloud compute instances create
cymbal-vm --service-account \
<name-of-service-account@gservic
eaccount.com> \
      --scopes
https://www/googleapis.com/auth/
cloud-platform
```

5.2 Diagnostic Question 05 Discussion

Cymbal Superstore is implementing a mobile app for end users to track deliveries that are en route to them. The app needs to access data about truck location from Pub/Sub using Google recommended practices.

What kind of credentials should you use?

A. API key

B. OAuth 2.0 client

C. Environment provided service account

D. Service account key

Types of authentication keys

01

API Key

To access public data

02

OAuth2.0 Client

To access private end-user data

03

Environment provided service account

To access resources with a service account internal to Google Cloud

04

Service account key

To access resources with a service account outside of Google Cloud

5.2 Managing service accounts

Courses

Google Cloud Fundamentals: Core Infrastructure

- M2 Getting Starting with Google Cloud

Architecting with Google Compute Engine

- M4 Identity and Access Management (IAM)

=

Essential Google Cloud Infrastructure: Core Services

- M1 Identity and Access Management (IAM)

Documentation

Authenticating as a service account | Authentication

Authentication overview

5.3 Viewing audit logs

5.3 Diagnostic Question 06 Discussion

Which Cloud Audit log is disabled by default with a few exceptions?

A. Admin Activity audit logs

B. Data Access audit logs

C. System Event audit logs

D. Policy Denied audit logs

5.3 Diagnostic Question 07 Discussion

You are configuring audit logging for Cloud Storage. You want to know when objects are added to a bucket.

Which type of audit log entry should you monitor?

A. Admin Activity log entries

B. ADMIN_READ log entries

C. DATA_READ log entries

D. DATA_WRITE log entries

Types of entries in Cloud Storage audit logs

Admin Activity logs

- Modify configuration of project, bucket or object
- Creating and deleting buckets

Data Access logs

- Admin_read
  - Listing buckets and bucket information
- Data_read
  - Listing object data and object information
- Data_write
  - Creating and deleting objects

5.3 Viewing audit logs

Courses

Google Cloud Fundamentals: Core Infrastructure

- M7 Deployment and Monitoring

Architecting with Google Compute Engine

- M7 Resource Monitoring

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Essential Google Cloud Infrastructure: Core Services

- M4 Resource Monitoring

Documentation

Cloud Audit Logs overview | Cloud Logging

Cloud Audit Logs with Cloud Storage

Knowledge Check 1

What kind of account is meant for machine-to-machine communication in Google Cloud?

A. User Account

B. Google Workspace account

C. Service Account

D. Cloud Identity account

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[✓ C. Service Account]

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Knowledge Check 2

You are authenticating an application to service APIs. Both resources are internal to the Google Cloud environment. What type of credentials should you use?

A. User account credentials

B. Locally stored keys

C. API keys

D. Temporary credentials

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