Cloud Computing Applications and Services

(Aplicações e Serviços de Computação em Nuvem)

Google Kubernetes Engine

University of Minho

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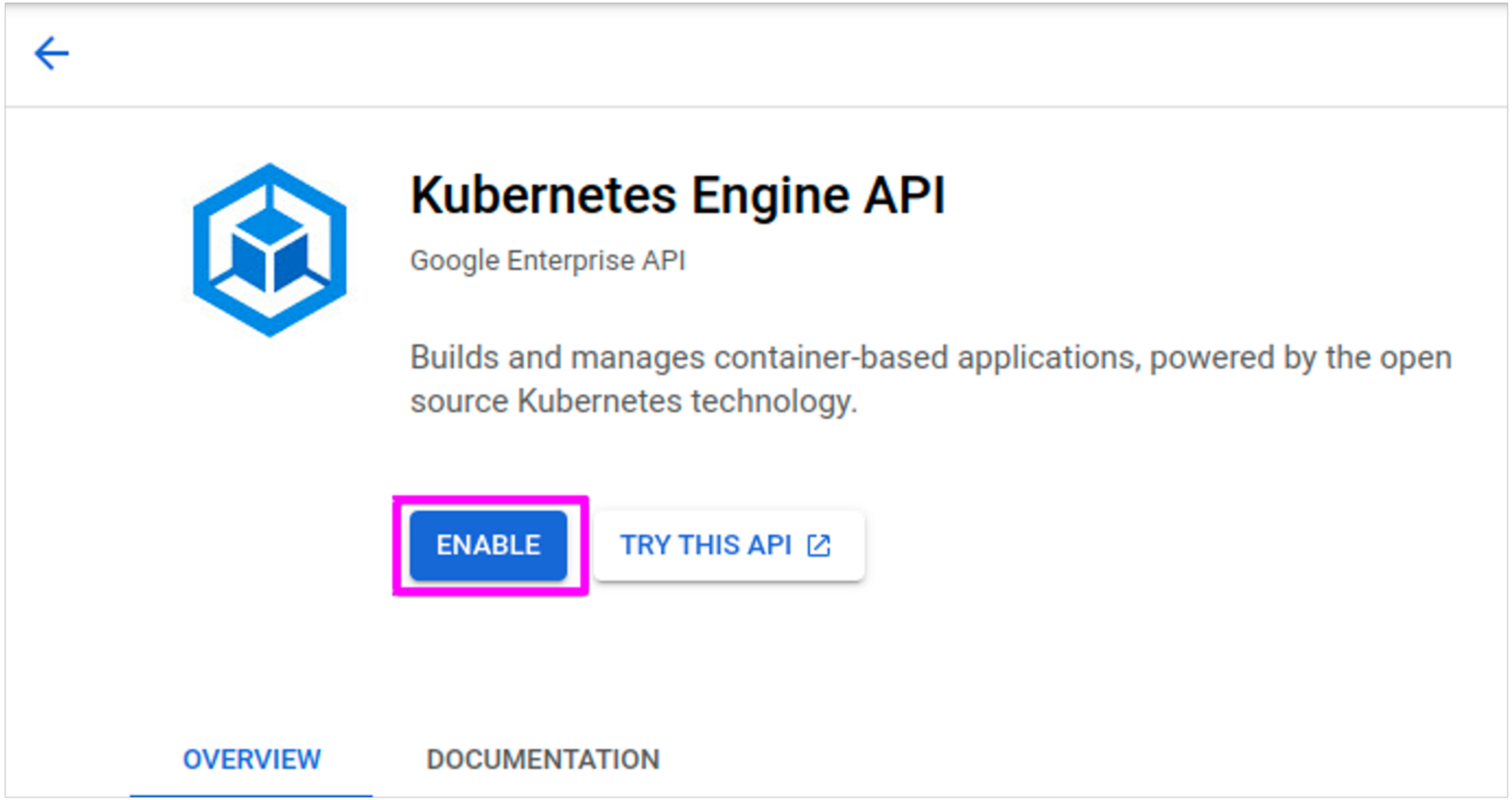
Bootstrap

- Access Google Cloud Console: https://console.cloud.google.com/
- Create a project
  - Associate billing account (check e-mail for coupon)
  - Each account has 50$

Enable Kubernetes Engine API

(Side bar → Kubernetes Engine → Enable)



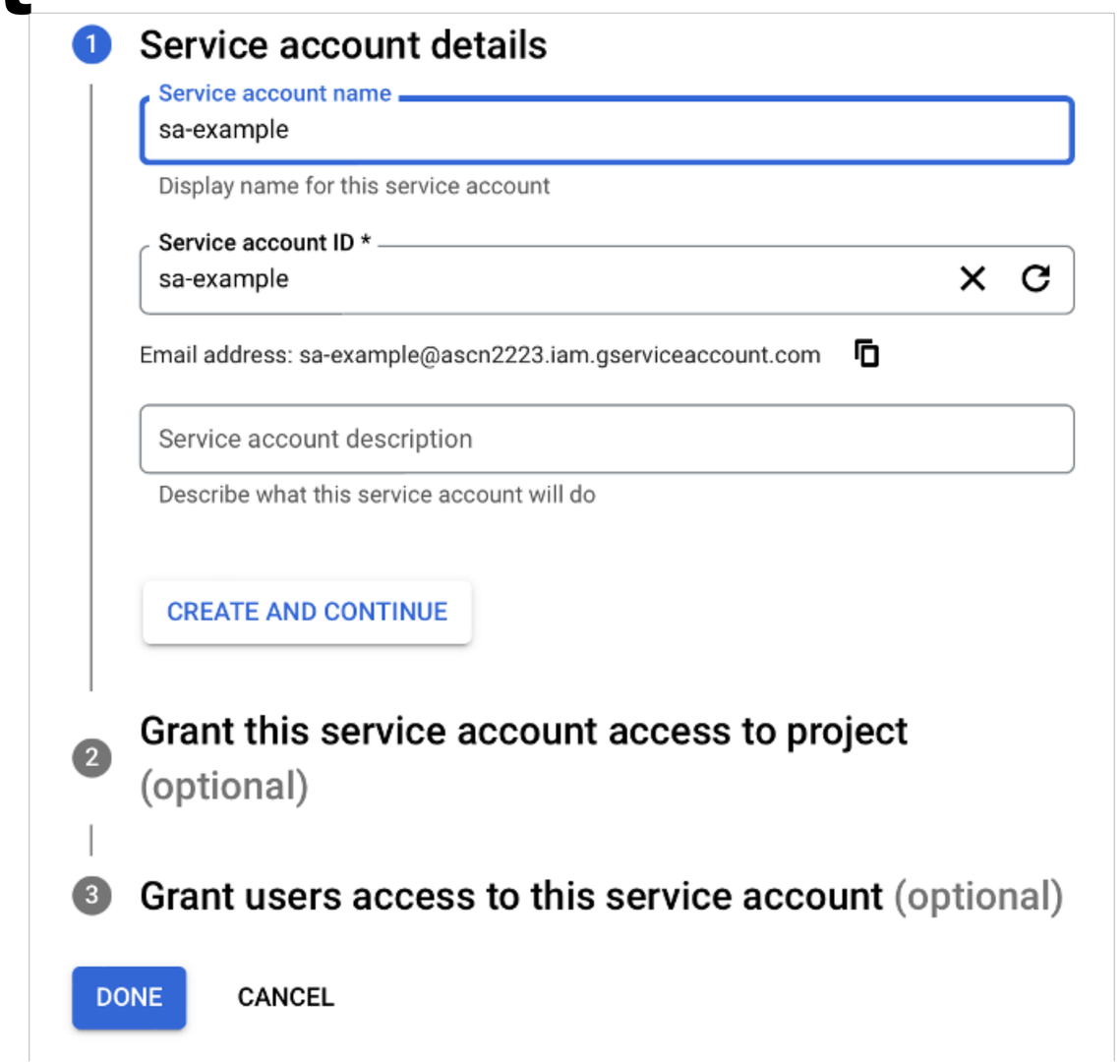
Create a Service Account

(Side bar → IAM & Admin → Service accounts)

+ CREATE SERVICE ACCOUNT

1 Service account details

Fill the *Service account name* and click on *“Create and continue”*



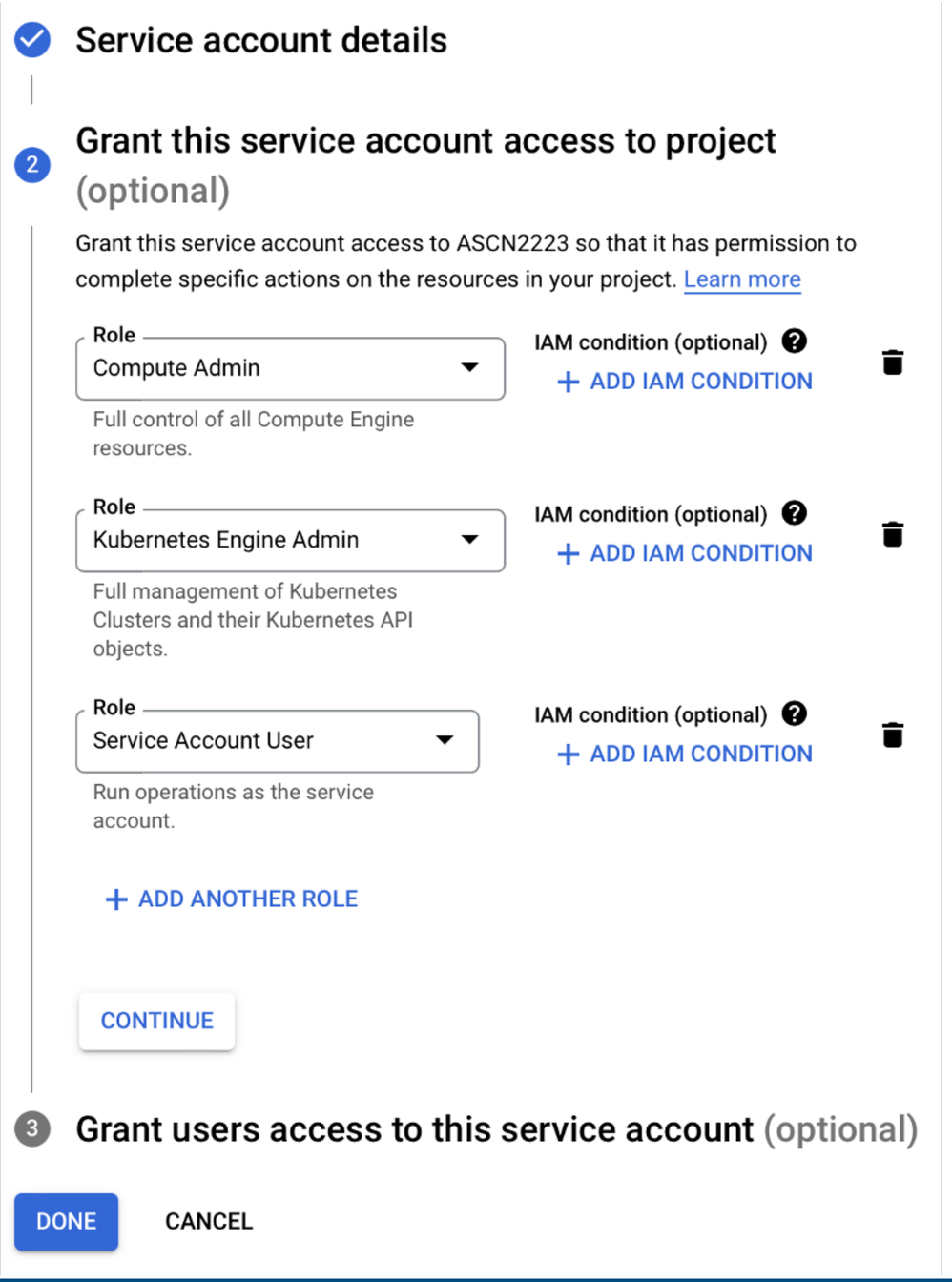
Create a Service Account

(Side bar → IAM & Admin → Service accounts)

2 Grant this service account access to project

Grant the following Roles to the service account:

- Compute Admin
- Kubernetes Engine Admin
- Service Account User

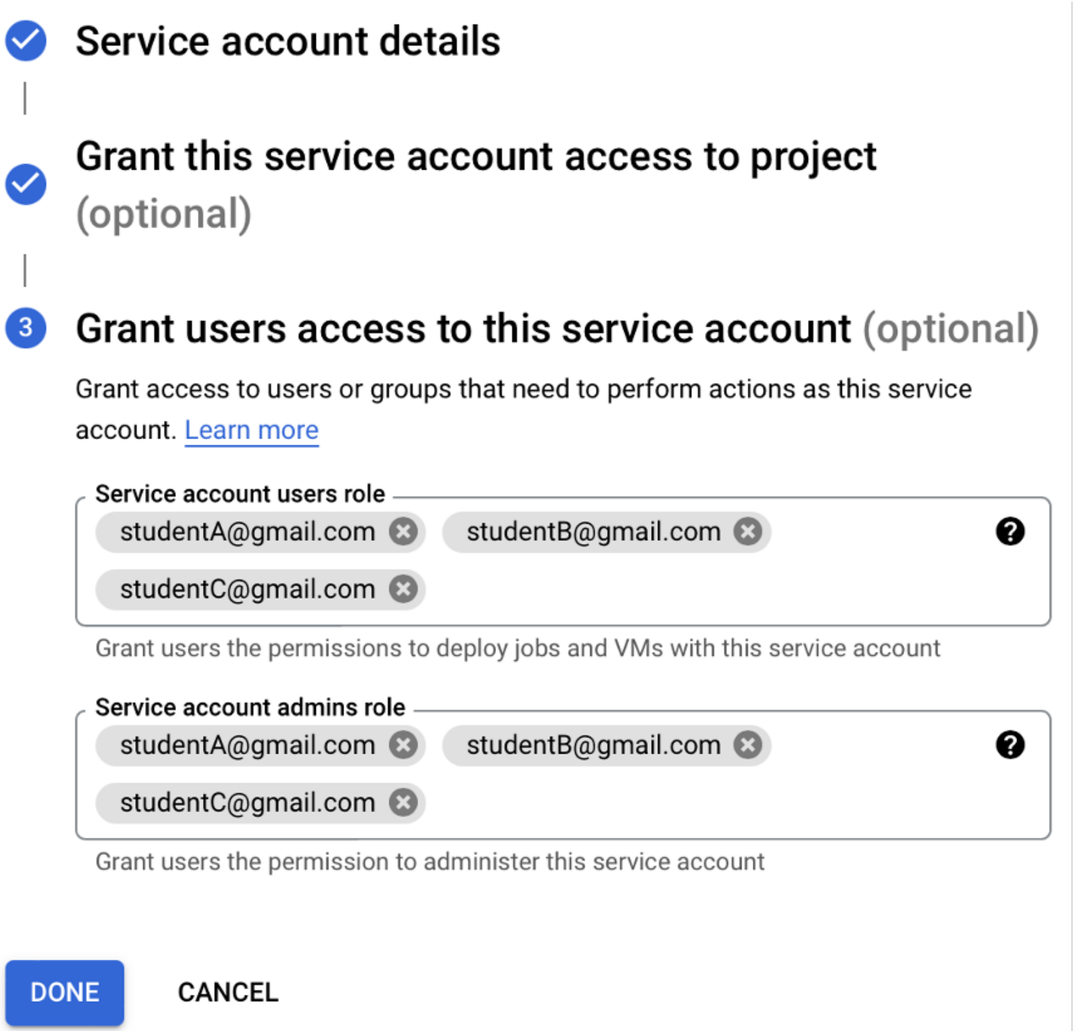


Create a Service Account

(Side bar → IAM & Admin → Service accounts)

3 Grant users access to this service account

Add the email of each element of the group to both *“Service account users role”* and *“Service account admins role”*



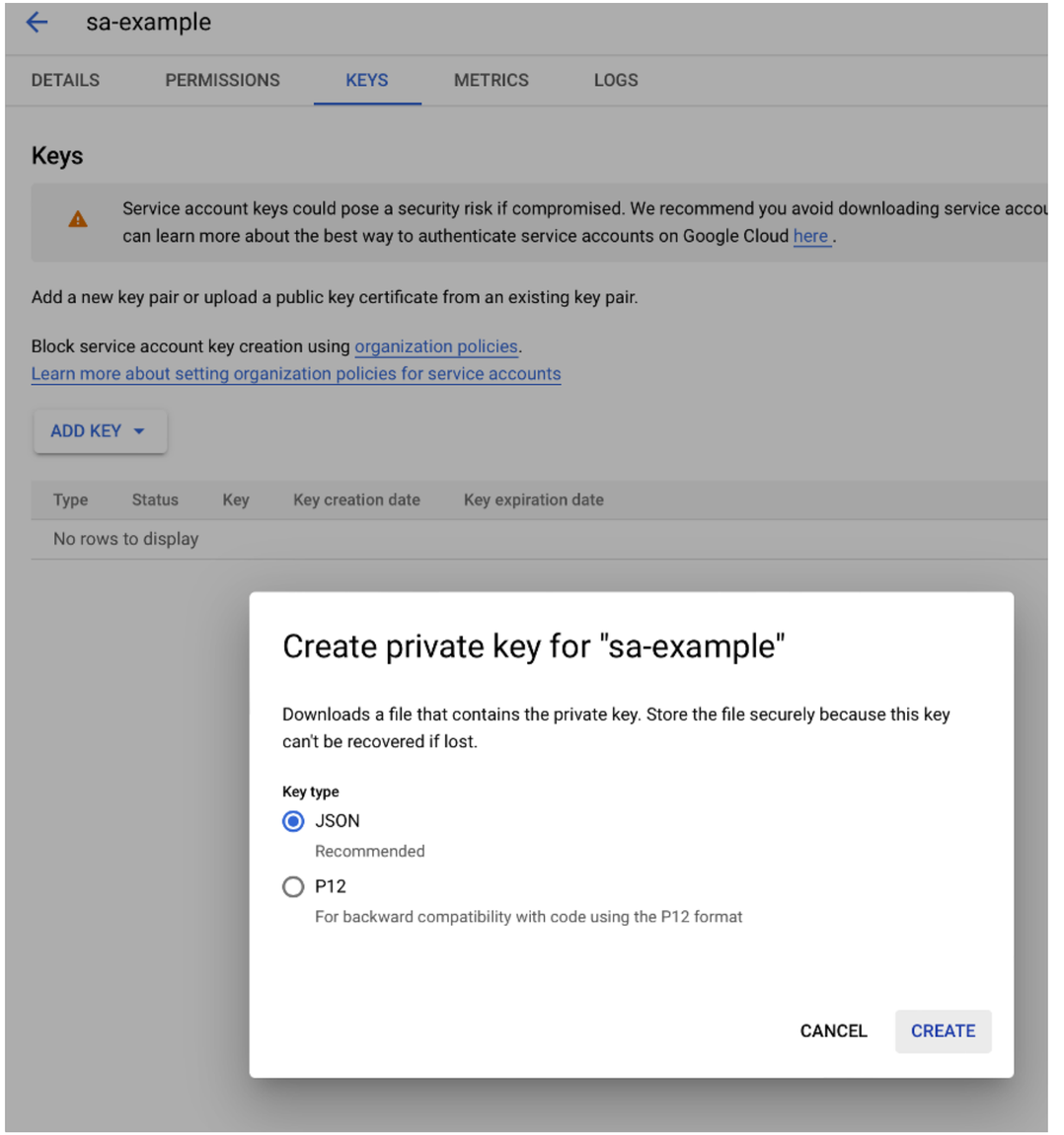
Get Service Account Keys

(Side bar → IAM & Admin → Service accounts)

1. Select your service account
2. On top select *“Keys”*
3. Select *“ADD KEY”* → *“Create new key”*
3. Select *“JSON”* → *“CREATE”*

Note: The downloaded file should be used as the credential file by the GKE_cluster_create playbook.

Important: This file has private credentials and should not be added to your project’s GitHub repository.



Install and Configure Google Cloud CLI

- The Google Cloud CLI must be installed and configured on the machine where the Ansible playbooks will run.
- Access the link https://cloud.google.com/sdk/docs/install and follow the installation instructions for the corresponding operating system.
- Configure the Google Cloud CLI with the following command:

```
gcloud init
```

GKE - Kubernetes Cluster

- Kubernetes cluster resources (e.g., control plane and nodes) are managed by Google Cloud.
- GKE has access to other Google services (e.g., load balancing, storage, monitoring, …).
- Users can interact directly with the cluster through the gcloud CLI tool (e.g., create, configure, destroy cluster).
- gcloud CLI installs and configures kubectl so that users can deploy K8s objects at the GKE cluster (e.g., pods, services, …).
- Ansible gcp_container_cluster module can be used to interact with gcloud CLI.

GKE - Kubernetes Cluster