

DevOps Tech Test

Task 1

Start a new Terraform working directory satisfying the following requirements

1. Provision a regional `private` K8s cluster on GKE
2. A dedicated service account should be used (instead of the default one), and the service account should be created as part of the script
3. It should be creating a `new VPC` instead of using the default one
4. Subnet should be created in the `London` region, and the cluster should use this subnet. Make sure CIDR ranges used by the cluster are in the `RFC1918 24-bit block`
5. Create two node-pools, one with 2 nodes without auto-scaling, another with 0 node by default with auto-scaling enabled. Allow the auto-scaling node-pool to use preemptible nodes4.
6. Allow outbound internet access to the private cluster without assigning external-IP addresses to it.

OUTPUT:

* I am trying to give maximum possible output screenshots on the console.

* Created Private cluster with two node-pools with 2 nodes without auto-scaling, another 0 node with auto-scaling on to use preemptible nodes4.

✓ assessment-private-cluster



Your cluster has one or more unschedulable pods. [Auto-scaling documentation](#)

[VIEW DETAILS AND POSSIBLE ACTIONS](#)

DETAILS

NODES

STORAGE

OBSERVABILITY

LOGS

Node pools

Filter Filter node pools



Name ↑	Status	Version	Number of nodes	Machine type	Image type	Auto-scaling	IPv4 pod IP add
assessment-preemptible-node-pool	✓ OK	1.24.9-gke.3200	0	e2-micro	Container-optimised OS with containerd (cos_containerd)	0 - 4 nodes in total	10.136.0.0/14
assessment-primary-node-pool	✓ OK	1.24.9-gke.3200	2	e2-micro	Container-optimised OS with containerd (cos_containerd)	Off	10.136.0.0/14

* Created Private cluster with europe-west2 zone for primary node-pool with 2 nodes

* Here I have used the trial version of the GCP, which came with a 250GB credit.

✓ assesment-primary-node-pool

Cluster	assessment-private-cluster
Node version	1.24.9-gke.3200

Size

Number of nodes	2
Auto-scaling ?	Off
Node zones	europe-west2-a

Nodes

Image type	Container-optimised OS with containerd (cos_containerd)
Machine type	e2-micro
Boot disk type	Balanced persistent disk
Boot disk size (per node)	100 GB
Boot disk encryption	Google-managed
Provisioning model	Standard
Compact placement ?	Disabled

* Mentioning error when tried to minimize the disk size.

← Manage disk  CREATE INSTANCE  CREATE SNAPSHOT  CREATE IMAGE 

✓ gke-assessment-priva-assesment-primar-516a868a-hmd5

Properties

Size * GB ?

! Disk size can't be smaller than 100 GB

Snapshot schedule

Select or create a snapshot schedule ▼

Labels

Key 1	
goog-gke-node	<input type="text" value="Value 1"/>
Key 2	
goog-gke-volume	<input type="text" value="Value 2"/>

+ ADD LABEL

Type	Balanced persistent disk
Architecture	x86/64
Zone	europe-west2-a
In use by	gke-assessment-priva-assesment-primar-516a868a-hmd5
Source image	gke-1249-gke3200-cos-97-16919-235-1-v230120-c-pre

* Created subnet in london region.

assessment-subnet-london

VPC Network

[assesment](#)

Region

europe-west2

IP stack type

IPv4 (single-stack)

IP ranges

IP range	IP version	Access type
10.0.0.0/24	IPv4	Internal

Secondary IPv4 ranges

Subnet range name	Secondary IPv4 range
gke-assessment-private-cluster-pods-c1362e5d	10.136.0.0/14
gke-assessment-private-cluster-services-c1362e5d	10.140.0.0/20

Gateway

10.0.0.1

Private Google Access

On

Task 2

In the same Terraform working directory, add the following:

1. Create another resource for a new big query dataset called vmo2_tech_test (No need to create a table or add any data).
2. Create a local module that assigns specific roles to specific datasets using google_bigquery_dataset_access resource
3. The requirement for the module is to support the following variable type:

```
...  
bigquery_role_assignment = {  
  vmo2_tech_test = {          # dataset name  
    role = "roles/bigquery.dataEditor" # gcp role  
    user = "<your_email_address>"    # google email address of user  
  }  
}
```

OUTPUT:

* Created Big query dataset named vm02_tech_test.

The screenshot shows the Google Cloud BigQuery interface. On the left is the navigation menu with categories like Analysis, Migration, and Administration. The main area is split into two panes. The left pane, titled 'Explorer', shows a search bar and a list of resources under the project 'assessment-380119', including 'vmo2_tech_test'. The right pane, titled 'Data set info', displays the following details for the 'vmo2_tech_test' dataset:

Data set ID	assessment-380119.vmo2_tech_test
Created	11 Mar 2023, 18:33:22 UTC
Default table expiry	1 hr
Last modified	11 Mar 2023, 23:53:33 UTC
Data location	europa-west2
Description	This is the dataset for the given vmo2_tech_test
Default collation	
Case insensitive	false
Labels	env : default
Tags	

* Assigned specific roles to specific datasets using google_bigquery dataset_access resource. Assigned owner.

This screenshot shows the 'Dataset permissions' panel for the 'vmo2_tech_test' dataset. The panel includes a search bar, a list of permissions, and a table of roles and principals. The 'Show inherited permissions' checkbox is checked. The table lists the following roles and principals:

Role/Principal	Inheritance
BigQuery Data Owner (2)	
agilakara@gmail.com	
bqowner@assessment-380119.iam.gserviceaccount.com	
Kubernetes Engine Service Agent (1)	
Owner (5)	
173714090238-compute@developer.gserviceaccount.com	
173714090238@cloudbuild.gserviceaccount.com	
173714090238@cloudservices.gserviceaccount.com	
agilakara@gmail.com	
assessment-sa@assessment-380119.iam.gserviceaccount.com	

* Output in the terraform after successful code apply.

```
Plan: 1 to add, 1 to change, 0 to destroy.
module.bigquery_access.google_bigquery_dataset_access.vmo2_tech_test[
"vmo2_tech_test"]: Creating...
_access.vmo2_tech_test["vmo2_tech_test"]: Creation complete after 2s
[id=projects/assessment-380119/datasets/vmo2_tech_test]

Apply complete! Resources: 1 added, 1 changed, 0 destroyed.
```