

Kubernetes Engine Course
Kubernetes Engine and gcloud Command List
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CLI /SDK Project Commands

-List Projects

gcloud projects list

-Set Your Default Project In GCP

gcloud config set project mykubeproject

-Set Your Default Region

gcloud config set compute/region "us-east1"

-List Compute Regions

gcloud compute zones list

-Describe List Compute Zones

gcloud compute zones list

-Print List All the URI in a zone

```
gcloud compute zones list --uri
```

Describe a Project

```
gcloud compute project-info describe --project mykubeproject
```

Setup IDE Environment

This will let you authenticate with Google Cloud SDK which obtains access credentials via a web-based authorization flow and sets the configuration.

```
gcloud auth login
```

After downloading your version we need to initialize the IDE environment and connect to GCP.

Gcloud init will initialize and configure your SDK with GCP. Multiple account can be managed as well.

#“gcloud init”

Then pick a configuration (Project) and follow prompts. Set account and project, region and zone

Install Emulators.. > Available for

- Bigtable
- Datastore
- Firestore
- Pub/Sub

Use the follow commands to install emulator for Pub/Sub

gcloud components install pubsub-emulator

gcloud components update

To start the Pub/Sub emulator

gcloud beta emulators pubsub start

```
C:\Users\HPE Workstation\AppData\Local\Google\Cloud SDK>gcloud components install pubsub-emulator
All components are up to date.

C:\Users\HPE Workstation\AppData\Local\Google\Cloud SDK>gcloud components update
All components are up to date.

C:\Users\HPE Workstation\AppData\Local\Google\Cloud SDK>gcloud beta emulators pubsub start
Executing: cmd /c C:\Users\HPE Workstation\AppData\Local\Google\Cloud SDK\google-cloud-sdk\platform\pubsub
lator\bin\cloud-pubsub-emulator.bat --host=localhost --port=8085
[pubsub] This is the Google Pub/Sub fake.
[pubsub] Implementation may be incomplete or differ from the real system.
[pubsub] Jun 06, 2019 6:57:36 PM com.google.cloud.pubsub.testing.v1.Main main
[pubsub] INFO: IAM integration is disabled. IAM policy methods and ACL checks are not supported
[pubsub] Jun 06, 2019 6:57:37 PM io.gapi.emulators.netty.NettyUtil applyJava7LongHostnameWorkaround
[pubsub] INFO: Unable to apply Java 7 long hostname workaround.
[pubsub] Jun 06, 2019 6:57:37 PM com.google.cloud.pubsub.testing.v1.Main main
[pubsub] INFO: Server started, listening on 8085
```

Install Kubectl and Minikube

Install kubectl for SDK use.

gcloud components install kubectl

Install minikube cli so you can access from SDK

gcloud components install minikube

Snapshots

Get list of snapshots in your current project

gcloud compute snapshots list

Snapshot from an existing disk

gcloud compute disks snapshot

Roles

gcloud iam roles copy

Deployment Manager

gcloud deployment-manager deployments create example-deployment --config configuration-file.yaml \ --preview

Kubernetes Engine

Container Commands for GCP Cloud Developer Exam

You may want to practice these... Very important to understand how to increase cluster size and enable autoscaling for the cluster

Be sure to Create a Kubernetes Cluster and configure it to host an application

Understand how to make the cluster auto repairable and upgradable. Hint – Node auto-upgrades and auto-repairing feature

-Setup

```
export PROJECT_ID=$(gcloud config get-value project -q)
```

```
docker build -t gcr.io/$PROJECT_ID/hello-app:v1 .docker images
```

- Gcloud Container Commands

Remember to set project

```
gcloud config set project
```

Remember to set zone or region

```
gcloud config set compute/zone us-central1-b
```

Kube Login credentials

```
gcloud auth application-default login
```

Create container cluster with three nodes in US Central

```
gcloud container clusters create hello-cluster --num-nodes=3 --zone us--central-b
```

Obtain credentials from cluster.

```
gcloud container clusters get-credentials mykubeccluster
```

View context

```
kubectl config current-context
```

List Clusters

```
gcloud container clusters list
```

Describe cluster

```
gcloud container clusters describe cluster-name
```

```
gcloud docker -- push gcr.io/${PROJECT_ID}/hello-app:v1
```

Delete or Add a Node

```
gcloud container clusters resize [CLUSTER_NAME] \
```

```
--node-pool [NODE_POOL] \  
  --size [SIZE]
```

- *Kubect! Commands*

```
kubect! run hello-web --image=gcr.io/${PROJECT_ID}/hello-app:v1 --port 8080
```

```
kubect! get pods
```

```
kubect! get nodes
```

```
kubect! expose deployment hello-web --type=LoadBalancer --port 8080
```

```
kubect! get services
```

```
kubect! scale deployment hello-web --replicas=3 Add (Expand)
```

GSUTIL - Managing buckets and objects in Cloud Storage

Create nearline Storage Bucket named mybucket

```
gsutil mb -c nearline gs://devopsbucket
```

List all storage buckets in project

```
gsutil ls
```

View bucket information

```
gsutil ls -L -b gs://mybucket
```

Cloud Build

Run a Cloud Build Script

```
gcloud builds submit --config helloworld.yaml
```

Cloud Source Repository

Create New Repository

```
gcloud source repos create mynewrepository
```

List available repositories

```
gcloud source repos list
```

Clone a Cloud Source Repositories

```
gcloud source repos clone CloudDeveloper --project=cloud-developer-242517
```

Describe a repository

```
gcloud source repos describe
```

Compute Engine Certificate Mapping

Verify your certificate has been provisioned for your resources

```
gcloud app domain-mappings list
```

Map certificates and update

```
gcloud app domain-mappings update DOMAIN --certificate-management='AUTOMATIC'
```

Upload Certificates

```
gcloud app ssl-certificates create --display-name CERT_DISPLAY_NAME --certificate  
CERT_DIRECTORY_PATH --private-key KEY_DIRECTORY_PATH
```

List Create and Delete Compute Engine Certificates

`gcloud compute ssl-certificates`

Add Metadata

`gcloud compute project-info add-metadata --metadata <KEY>=<VALUE>`

API

Enable API

`gcloud services enable pubsub.googleapis.com`

Disable API

`gcloud services disable pubsub.googleapis.com`

List Services

`gcloud services list`

Curl Command

Gcurl

`https://serviceusage.googleapis.com/v1/projects/357084163378/services/pubsub.googleapis.com:enable`

SSH Keys

View Project wide SSH Keys

gcloud compute project-info describe

View Compute Instance SSH Keys

gcloud compute instance describe gcpvm1

generate SSH Key Linux

`ssh-keygen -t rsa -f ~/.ssh/[KEY_FILENAME] -C [USERNAME]`

Networking

Create Custom VPC

`gcloud compute --project=massive-dynamo-244818 networks create devops1 --description="This is a test vpc" --subnet-mode=custom`

Create Custom Subnets

`gcloud compute --project=massive-dynamo-244818 networks subnets create NAME --network=devops1 --region=REGION --range=IP_RANGE`

Create Auto Mode VPC

`gcloud compute --project=massive-dynamo-244818 networks create devops1 --description="This is a test vpc" --subnet-mode=auto`

Create Subnets Auto Mode and add FW Rule for ingress SSH

gcloud compute --project=massive-dynamo-244818 firewall-rules create devops1-allow-ssh --description="Allows TCP connections from any source to any instance on the network using port 22." --direction=INGRESS --priority=65534 --network=devops1 --action=ALLOW --rules=tcp:22 --source-ranges=0.0.0.0/0