Google Kubernetes Engine Qwik Start

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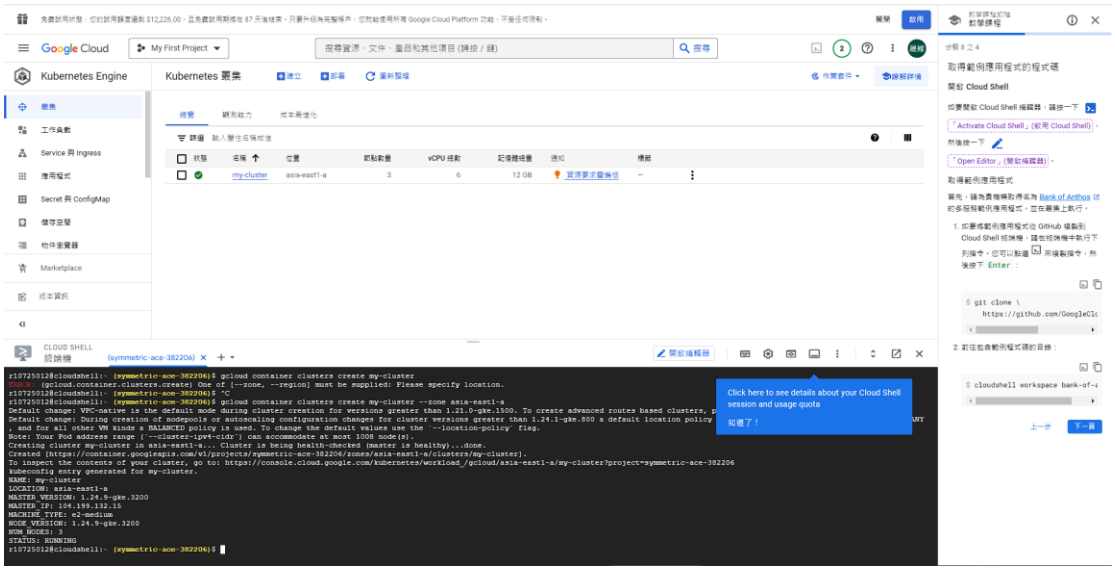
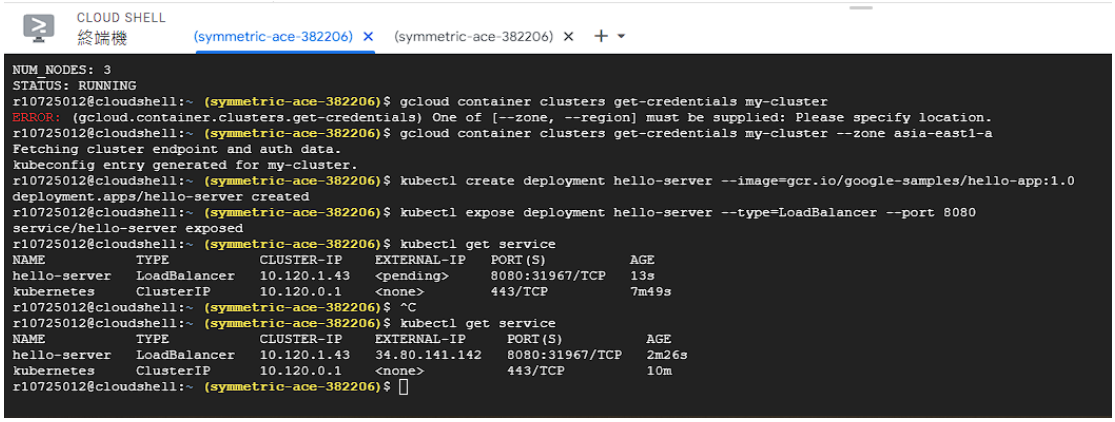
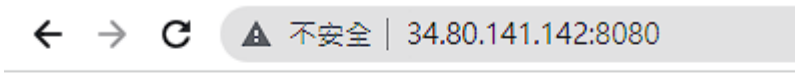
https://cloud.google.com/kubernetes-engine/docs/deploy-app-cluster

Task 1~3 : create GKE cluster and deploy a hello-app service.








```
Hello, world!
Version: 1.0.0
Hostname: hello-server-5597d96dd4-5f5hr
```

Task 4~3 : Creating Pods and Interacting with Pods

```
r10725012@cloudshell:~ (symmetric-ace-382206)$ kubectl create -f pod.yaml
error: the path "pod.yaml" does not exist
r10725012@cloudshell:~ (symmetric-ace-382206)$ kubectl create -f service.yaml
error: the path "service.yaml" does not exist
r10725012@cloudshell:~ (symmetric-ace-382206)$ touch pod.yaml
r10725012@cloudshell:~ (symmetric-ace-382206)$ nano pod.yaml
r10725012@cloudshell:~ (symmetric-ace-382206)$ cat
^C
r10725012@cloudshell:~ (symmetric-ace-382206)$ ls
pod.yaml  README-cloudshell.txt
r10725012@cloudshell:~ (symmetric-ace-382206)$ nano service.yaml
r10725012@cloudshell:~ (symmetric-ace-382206)$
```

```
r10725012@cloudshell:~ (symmetric-ace-382206)$ kubectl get pods
NAME                             READY   STATUS    RESTARTS   AGE
hello-server-5597d96dd4-5f5hr    1/1     Running   0          46m
monolith                         1/1     Running   0          25s
r10725012@cloudshell:~ (symmetric-ace-382206)$ kubectl describe pods monolith
Name:             monolith
Namespace:        default
Priority:         0
Service Account:  default
Node:             gke-my-cluster-default-pool-1b29ef89-m2hg/10.140.0.4
Start Time:       Mon, 03 Apr 2023 02:40:24 +0000
```

server

CLOUD SHELL
終端機 (symmetric-ace-382206) × (symmetric-ace-382206) × (symmetric-ace-382206) × +

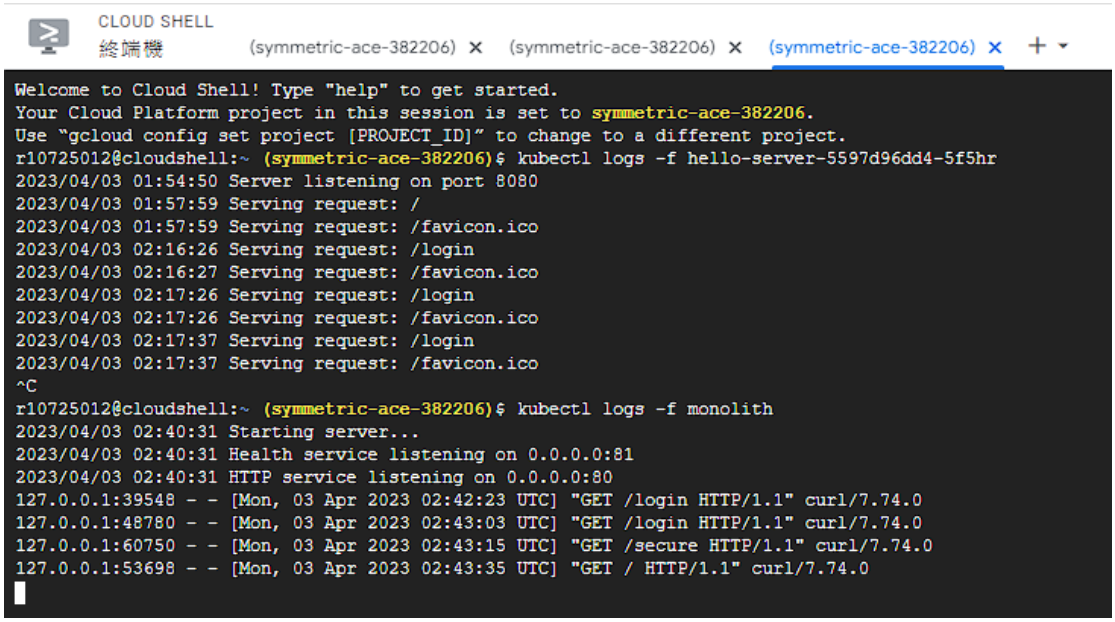
```
r10725012@cloudshell:~ (symmetric-ace-382206)$ kubectl port-forward monolith 10080:80
Forwarding from 127.0.0.1:10080 -> 80
Handling connection for 10080
Handling connection for 10080
Handling connection for 10080
Handling connection for 10080
```

client

```
r10725012@cloudshell:~ (symmetric-ace-382206)$ TOKEN=$(curl http://127.0.0.1:10080/login -u user|jq -r '.token')
Enter host password for user 'user':
  % Total    % Received % Xferd  Average Speed   Time    Time     Time  Current
                                 Dload  Upload   Total   Spent    Left  Speed
100   222  100   222    0     0    440      0 --:--:-- --:--:-- --:--:--   439
r10725012@cloudshell:~ (symmetric-ace-382206)$ TOKEN=$(curl http://127.0.0.1:10080/login -u user|jq -r '.token')
Enter host password for user 'user':
  % Total    % Received % Xferd  Average Speed   Time    Time     Time  Current
                                 Dload  Upload   Total   Spent    Left  Speed
100   222  100   222    0     0    452      0 --:--:-- --:--:-- --:--:--   452
r10725012@cloudshell:~ (symmetric-ace-382206)$ curl -H "Authorization: Bearer $TOKEN" http://127.0.0.1:10080/secure
{"message":"Hello"}
r10725012@cloudshell:~ (symmetric-ace-382206)$ curl http://127.0.0.1:10080
{"message":"Hello"}
r10725012@cloudshell:~ (symmetric-ace-382206)$ kubectl exec monolith --stdin --tty -c monolith /bin/sh
kubectl exec [POD] [COMMAND] is DEPRECATED and will be removed in a future version. Use kubectl exec [POD] -- [COMMAND] instead.
/ # ping -c 3 google.com
PING google.com (64.233.189.102): 56 data bytes
64 bytes from 64.233.189.102: seq=0 ttl=114 time=1.042 ms
64 bytes from 64.233.189.102: seq=1 ttl=114 time=0.439 ms
64 bytes from 64.233.189.102: seq=2 ttl=114 time=0.381 ms

--- google.com ping statistics ---
3 packets transmitted, 3 packets received, 0% packet loss
round-trip min/avg/max = 0.381/0.620/1.042 ms
/ #
```

logs



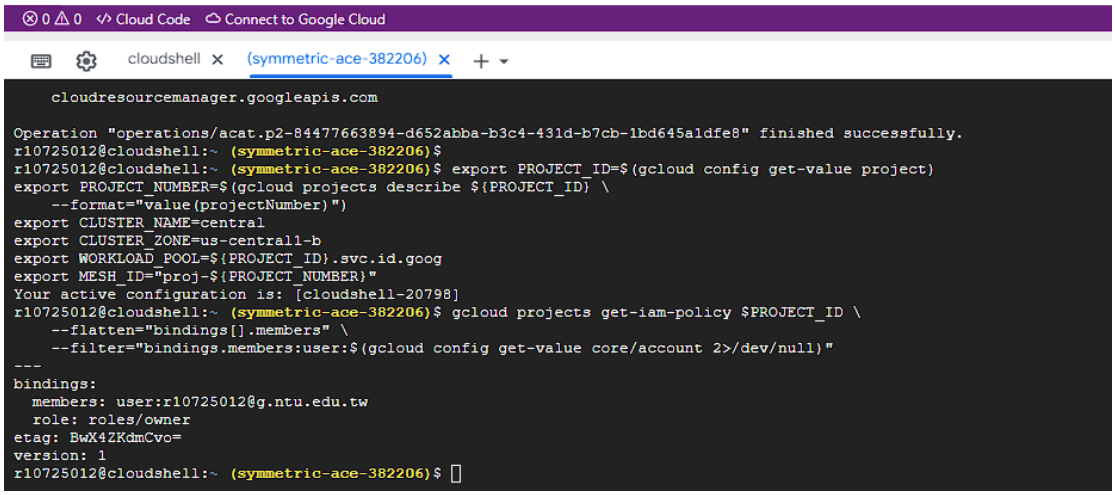
Task5: Create a Service

```
r10725012@cloudshell:~ (symmetric-ace-382206)$ kubectl create -f service.yaml
Error from server (AlreadyExists): error when creating "service.yaml": services "monolith" already exists
r10725012@cloudshell:~ (symmetric-ace-382206)$ kubectl get service
NAME           TYPE           CLUSTER-IP     EXTERNAL-IP      PORT(S)          AGE
hello-server   LoadBalancer   10.120.1.43    34.80.141.142    8080:31967/TCP   50m
kubernetes     ClusterIP      10.120.0.1     <none>           443/TCP          58m
monolith       LoadBalancer   10.120.12.11   35.187.146.146   80:30544/TCP     5m44s
```

{"message":"Hello"}

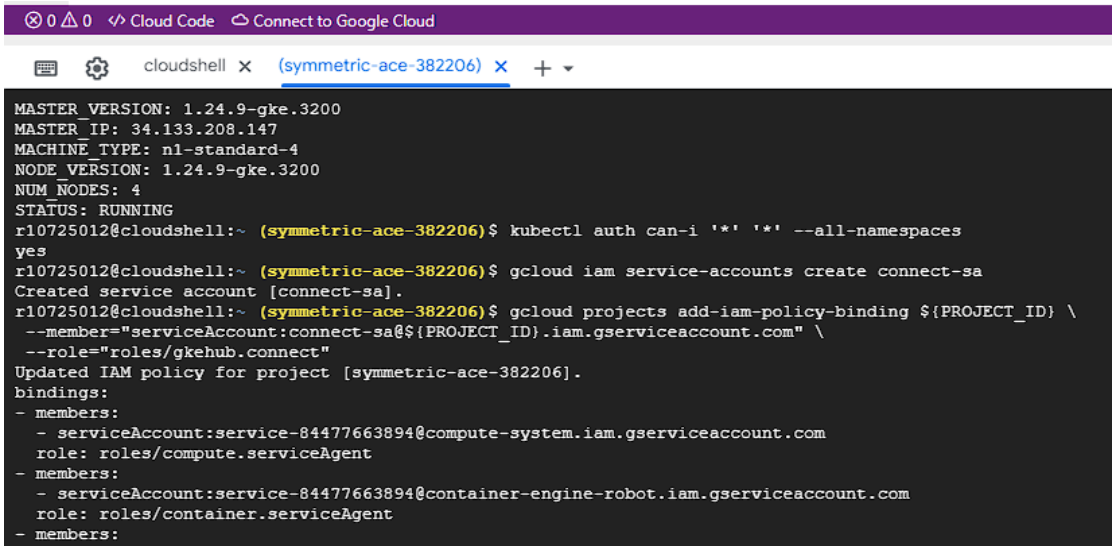
Installing Anthos Service Mesh on GKE

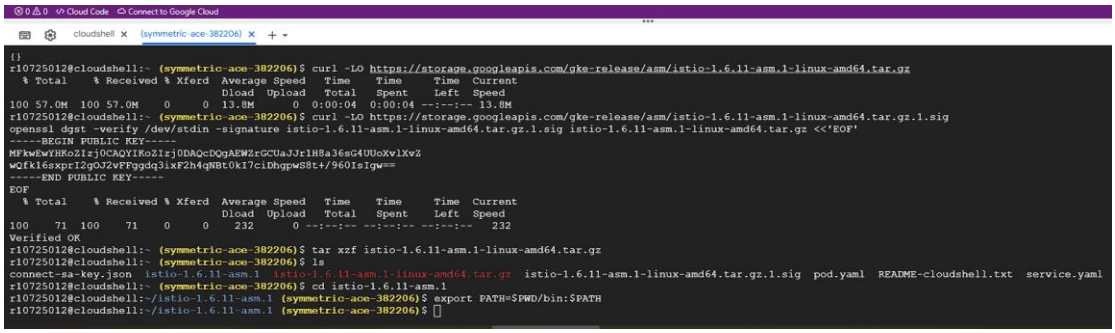
Pretask:



Task1: Set up your GKE cluster

Task2: Prepare to install Anthos Service Mesh





Task3: Preparing Resource Configuration Files
Task4: Install Anthos Service Mesh

```
r10725012@cloudshell:~/istio-1.6.11-asm.1/central (symmetric-ace-382206)$ ^C
r10725012@cloudshell:~/istio-1.6.11-asm.1/central (symmetric-ace-382206)$ history | tail -n 10
   88  kpt pkg get https://github.com/GoogleCloudPlatform/anthos-service-mesh-packages@1.6.8-asm.9 asm
   89  curl -L https://github.com/GoogleContainerTools/kpt/releases/download/v0.39.2/kpt_linux_amd64 > _0_39_2
   90  chmod +x kpt_0_39_2
   91  ls
   92  chmod +x _0_39_2
   93  alias kpt="$(readlink -f _0_39_2)"
   94  kpt version
   95  kpt pkg get https://github.com/GoogleCloudPlatform/anthos-service-mesh-packages@1.6.8-asm.9 asm
   96  history | tail -n 5
   97  history | tail -n 10
```

3. Download the Anths Service Mesh package.

```
kpt pkg get https://github.com/GoogleCloudPlatform/anthos-service-mesh-packages@1.6.8-asm.9 asm

r10725012@cloudshell:~/istio-1.6.11-asm.1/central (symmetric-ace-382206)$ history | tail -n 10
   88  kpt pkg get https://github.com/GoogleCloudPlatform/anthos-service-mesh-packages@1.6.8-asm.9 asm
   89  curl -L https://github.com/GoogleContainerTools/kpt/releases/download/v0.39.2/
```

```
kpt_linux_amd64 > _0_39_2 (打錯字，應該是 kpt_0_39_2，但不影響結果)
   91  ls
   92  chmod +x _0_39_2
   93  alias kpt="$(readlink -f _0_39_2)"
   94  kpt version (會是 0.39.2)
   95  kpt pkg get https://github.com/GoogleCloudPlatform/anthos-service-mesh-packages@1.6.8-asm.9 asm (ok)
```

Kpt get 錯誤解法

```
r10725012@cloudshell:~/istio-1.6.11-asm.1/central (symmetric-ace-382206)$ cd asm
r10725012@cloudshell:~/istio-1.6.11-asm.1/central/asm (symmetric-ace-382206)$ ls
asm  asm-citadel  asm-patch  asm-patch-citadel  cloudbuild.yaml  CONTRIBUTING.md  id_rsa.enc  known_hosts  Kptfile  kustomize-functions  LICENSE  README.md
r10725012@cloudshell:~/istio-1.6.11-asm.1/central/asm (symmetric-ace-382206)$ kpt cfg set asm gcloud.container.cluster ${CLUSTER_NAME}
kpt cfg set asm gcloud.project.environProjectNumber ${PROJECT_NUMBER}
kpt cfg set asm gcloud.core.project ${PROJECT_ID}
kpt cfg set asm gcloud.compute.location ${CLUSTER_ZONE}
kpt cfg set asm anthos.servicemesh.profile asm-gcp
asm/
set 17 field(s) of setter "gcloud.container.cluster" to value "central"
asm/
set 2 field(s) of setter "gcloud.project.environProjectNumber" to value "84477663894"
asm/
set 30 field(s) of setter "gcloud.core.project" to value "symmetric-ace-382206"
asm/
set 1 field(s) of setter "gcloud.project.projectNumber" to value "84477663894"
asm/
set 16 field(s) of setter "gcloud.compute.location" to value "us-central1-b"
asm/
set 1 field(s) of setter "anthos.servicemesh.profile" to value "asm-gcp"
r10725012@cloudshell:~/istio-1.6.11-asm.1/central/asm (symmetric-ace-382206)$ istioctl install -f asm/cluster/istio-operator.yaml
! global.mtls.enabled is deprecated; use the PeerAuthentication resource instead
  Processing resources for Istio core.
```

```
r10725012@cloudshell:~/istio-1.6.11-asm.1/central/asm (symmetric-ace-382206)$ istioctl install -f asm/cluster/istio-operator.yaml
! global.mtls.enabled is deprecated; use the PeerAuthentication resource instead
  Processing resources for Istio core.2023-04-03T12:44:30.072580Z     error   installer       failed to verify CRD creation; the server could not find the requested resource
✘ Istio core encountered an error: failed to wait for resource: failed to verify CRD creation: the server could not find the requested resource
✘ Istiod encountered an error: failed to wait for resource: resources not ready after 5m0s: timed out waiting for the condition
Deployment/istio-system/istiod
✘ Ingress gateways encountered an error: failed to wait for resource: resources not ready after 5m0s: timed out waiting for the condition
Deployment/istio-system/istio-ingressgateway
- Pruning removed resources2023-04-03T12:54:47.652529Z     warn    installer       retrieving resources to prune type networking.istio.io/v1alpha3, Kind=DestinationRule: no matches for kind "Desti
nationRule" in version "networking.istio.io/v1alpha3" not found
2023-04-03T12:54:48.297633Z     warn    installer       retrieving resources to prune type networking.istio.io/v1alpha3, Kind=EnvoyFilter: no matches for kind "EnvoyFilter" in version "networking.
istio.io/v1alpha3" not found
2023-04-03T12:54:48.799270Z     warn    installer       retrieving resources to prune type networking.istio.io/v1alpha3, Kind=Gateway: no matches for kind "Gateway" in version "networking.istio.io
/v1alpha3" not found
2023-04-03T12:54:49.298562Z     warn    installer       retrieving resources to prune type networking.istio.io/v1alpha3, Kind=VirtualService: no matches for kind "VirtualService" in version "netwo
rking.istio.io/v1alpha3" not found
2023-04-03T12:54:50.034154Z     warn    installer       retrieving resources to prune type security.istio.io/v1beta1, Kind=PeerAuthentication: no matches for kind "PeerAuthentication" in version "
security.istio.io/v1beta1" not found
2023-04-03T12:54:50.954151Z     warn    installer       retrieving resources to prune type admissionregistration.k8s.io/v1beta1, Kind=MutatingWebhookConfiguration: no matches for kind "MutatingWeb
hookConfiguration" in version "admissionregistration.k8s.io/v1beta1" not found
2023-04-03T12:54:51.874501Z     warn    installer       retrieving resources to prune type admissionregistration.k8s.io/v1beta1, Kind=ValidatingWebhookConfiguration: no matches for kind "Validatin
gWebhookConfiguration" in version "admissionregistration.k8s.io/v1beta1" not found
Error: failed to apply manifests: errors occurred during operation
```

Clean-up gcloud container clusters delete central

Implementing Cloud Run canary deployments with Git branches and Cloud Build

Before Task:

Add run rules and enable APIs and set git configdata.

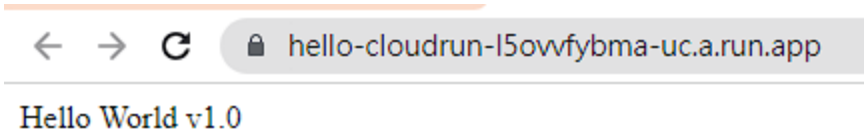
Your active configuration is: [cloudshell-21755]

```
r10725012@cloudshell:~ (symmetric-ace-382206)$ export PROJECT_ID=$(gcloud config get-value project)
export PROJECT_NUMBER=$(gcloud projects describe $PROJECT_ID --format='value(projectNumber)')
Your active configuration is: [cloudshell-21755]
r10725012@cloudshell:~ (symmetric-ace-382206)$ gcloud services enable \
  cloudresourcemanager.googleapis.com \
  container.googleapis.com \
  sourcerepo.googleapis.com \
  cloudbuild.googleapis.com \
  containerregistry.googleapis.com \
  run.googleapis.com
Operation "operations/acf.p2-84477663894-0765d724-8d25-4b12-8ffb-58f3711267d0" finished successfully.
r10725012@cloudshell:~ (symmetric-ace-382206)$ gcloud projects add-iam-policy-binding $PROJECT_ID \
--member=serviceAccount:$PROJECT_NUMBER@cloudbuild.gserviceaccount.com \
  --role=roles/run.admin
Updated IAM policy for project [symmetric-ace-382206].
bindings:
- members:
  - serviceAccount:84477663894@cloudbuild.gserviceaccount.com
  role: roles/cloudbuild.builds.builder
- members:
```

```
r10725012@cloudshell:~ (symmetric-ace-382206)$ git config --global user.email "r10725012@ntu.edu.tw"
git config --global user.name "colaguff"
r10725012@cloudshell:~ (symmetric-ace-382206)$ git clone https://github.com/GoogleCloudPlatform/software-delivery-workshop cloudrun-progression
cd cloudrun-progression/labs/cloudrun-progression
rm -rf ../../.git
Cloning into 'cloudrun-progression'...
remote: Enumerating objects: 833, done.
remote: Counting objects: 100% (211/211), done.
remote: Compressing objects: 100% (113/113), done.
remote: Total 833 (delta 149), reused 105 (delta 98), pack-reused 622
Receiving objects: 100% (833/833), 525.64 KiB | 2.55 MiB/s, done.
Resolving deltas: 100% (406/406), done.
r10725012@cloudshell:~/cloudrun-progression/labs/cloudrun-progression (symmetric-ace-382206)$ sed "s/PROJECT/${PROJECT_ID}/g" branch-trigger.json-tmpl > branch-trigger.json
sed "s/PROJECT/${PROJECT_ID}/g" master-trigger.json-tmpl > master-trigger.json
sed "s/PROJECT/${PROJECT_ID}/g" tag-trigger.json-tmpl > tag-trigger.json
r10725012@cloudshell:~/cloudrun-progression/labs/cloudrun-progression (symmetric-ace-382206)$ gcloud source repos create cloudrun-progression
git init
```

Task1: Creating your Cloud Run service

Task2: Enabling dynamic developer deployments



Tigger when build/deploy for any branch other than master

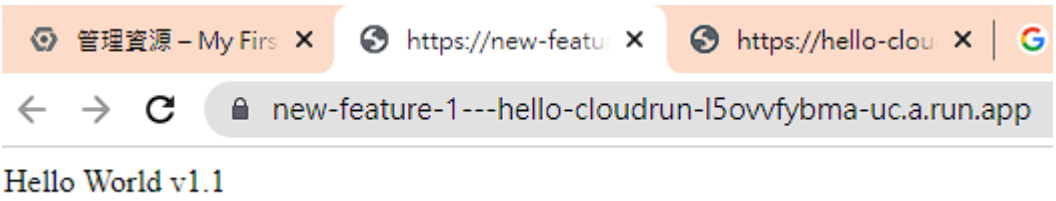
Edit v1.1 app.py

There is a new build

View the v1.1 web page

```
r10725012@cloudshell:~/cloudrun-progression/labs/cloudrun-progression (symmetric-ace-382206)$ BRANCH_URL=$(gcloud run services describe hello-cloudrun  \
  --platform managed  \
  --region us-central1 \
  --format=json | jq \
  --raw-output ".status.traffic[] | select (.tag==\"new-feature-1\")|.url")

echo $BRANCH_URL
https://new-feature-1---hello-cloudrun-l5ovvfybma-uc.a.run.app
```

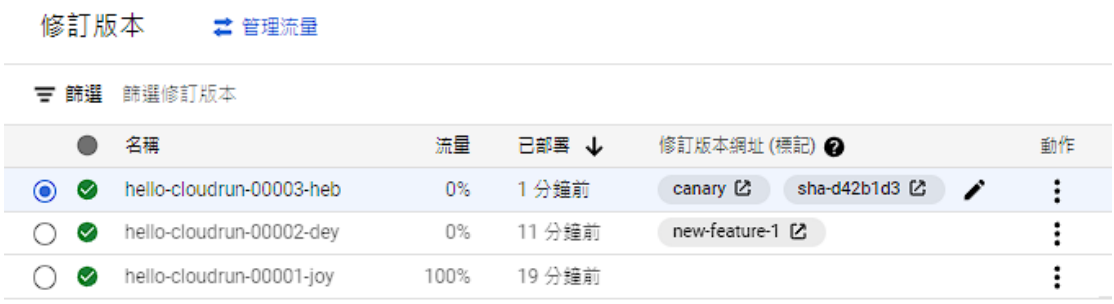


Hello World v1.1

Task3: Automating canary testing

Merge branch to maser and git push gcp master.
See a third revision.

```
r10725012@cloudshell:~/cloudrun-progression/labs/cloudrun-progression (symmetric-ace-382206)$ git checkout master
Switched to branch 'master'
r10725012@cloudshell:~/cloudrun-progression/labs/cloudrun-progression (symmetric-ace-382206)$ git branch
* master
  new-feature-1
r10725012@cloudshell:~/cloudrun-progression/labs/cloudrun-progression (symmetric-ace-382206)$ git merge new-feature-1
Updating 41b08a6..d42b1d3
Fast-forward
 app.py | 2 +-
 1 file changed, 1 insertion(+), 1 deletion(-)
```




```
r10725012@cloudshell:~/cloudrun-progression/labs/cloudrun-progression (symmetric-ace-382206)$ gcloud run services update-traffic  ${_SERVICE_NAME} --to-re
${_REGION}
ERROR: (gcloud.run.services.update-traffic) argument --region: expected one argument
Usage: gcloud run services update-traffic [[SERVICE] --namespace=NAMESPACE] [optional flags]
  optional flags may be  --async | --clear-tags | --cluster |
                         --cluster-location | --context | --help |
                         --kubeconfig | --namespace | --platform | --region |
                         --remove-tags | --set-tags | --to-latest |
                         --to-revisions | --to-tags | --update-tags

For detailed information on this command and its flags, run:
  gcloud run services update-traffic --help
r10725012@cloudshell:~/cloudrun-progression/labs/cloudrun-progression (symmetric-ace-382206)$ CANARY_URL=$(gcloud run services describe hello-cloudrun \
  --platform managed \
  --region us-central1 \
  --format=json | jq \
  --raw-output ".status.traffic[] | select (.tag==\"canary\")|.url")

echo $CANARY_URL
https://canary---hello-cloudrun-15ovvfybma-uc.a.run.app
r10725012@cloudshell:~/cloudrun-progression/labs/cloudrun-progression (symmetric-ace-382206)$
```

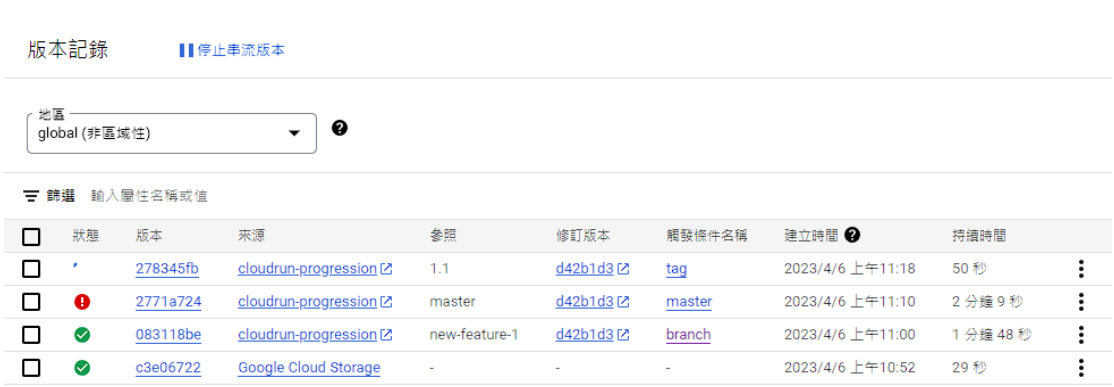
```
r10725012@cloudshell:~/cloudrun-progression/labs/cloudrun-progression (symmetric-ace-382206)$ curl -H "Authorization: Bearer $(gcloud auth print-identity-token)" $CANAR
Hello World v1.1r10725012@cloudshell:~/cloudrun-progression/labs/cloudrun-progression (symmetrLIVE_URL=$(gcloud run services describe hello-cloudrun \hello-cloudrun \
  --platform managed \
  --region us-central1 \
  --format=json | jq \
  --raw-output ".status.url")

for i in {0..20};do
    curl -H "Authorization: Bearer $(gcloud auth print-identity-token)" $LIVE_URL; echo \n
done
Hello World v1.0n
Hello World v1.0n
Hello World v1.0n
Hello World v1.0n
Hello World v1.0n
Hello World v1.0n
Hello World v1.0n
Hello World v1.0n
Hello World v1.0n
```

Task4: Releasing to production

set up the tag trigger, create a new tag and push to the remote repository

```
r10725012@cloudshell:~/cloudrun-progression/labs/cloudrun-progression (symmetric-ace-382206)$ gcloud beta builds triggers create cloud-source-repositories \
  --trigger-config tag-trigger.json
Created [https://cloudbuild.googleapis.com/v1/projects/symmetric-ace-382206/locations/global/triggers/fdf4243b-2f4b-4873-83b3-f25ab2403e46].
NAME: tag
CREATE_TIME: 2023-04-06T03:18:28+00:00
STATUS:
r10725012@cloudshell:~/cloudrun-progression/labs/cloudrun-progression (symmetric-ace-382206)$ git tag 1.1
git push gcp 1.1
Total 0 (delta 0), reused 0 (delta 0), pack-reused 0
To https://source.developers.google.com/p/symmetric-ace-382206/r/cloudrun-progression
 * [new tag]         1.1 -> 1.1
```



the revision is updated to indicate the prod tag and it is serving 100% of live traffic


修訂版本
管理流量
篩選
篩選修訂版本
名稱
流量
已部署
修訂版本網址 (標記)
動作
hello-cloudrun-00003-heb
100%
8 分鐘前
canary
sha-d42b1d3
prod
hello-cloudrun-00002-dey
0%
18 分鐘前
new-feature-1
hello-cloudrun-00001-joy
0%
27 分鐘前