

Using GCP Deployment Manager to deploy resources

Requirement: Deploy VM instances along with firewall rules, to servers in US and EU using Google Cloud Shell

Environment: GCP Console, GCP Shell, Deployment Manager, YAML and JINJA files

Key results: Login using your GCP subscription, create or reuse earlier VM instances and follow the below

From Shell, create a folder **dminfra** using mkdir command, change dir to dminfra and open Shell Editor. Using the editor create 2 new files in the dminfra directory called config.yaml and instance-template.jinja

Copy the file contents as below (see that your Editor does not show YAML syntax errors):

CONFIG.YAML

imports:

- path: instance-template.jinja

resources:

Create the auto-mode network

- name: mynetwork
type: compute.v1.network
properties:
autoCreateSubnetworks: true

Create the firewall rule

- name: mynetwork-allow-http-ssh-rdp-icmp
type: compute.v1.firewall
properties:
network: \$(ref.mynetwork.selfLink)
sourceRanges: ["0.0.0.0/0"]

allowed:

- IPProtocol: TCP

ports: [22, 80, 3389]

- IPProtocol: ICMP

Create the mynet-us-vm instance

- name: mynet-us-vm

type: instance-template.jinja

properties:

zone: us-central1-a

machineType: n1-standard-1

network: \$(ref.mynetwork.selfLink)

subnetwork: regions/us-central1/subnetworks/mynetwork

Create the mynet-eu-vm instance

- name: mynet-eu-vm

type: instance-template.jinja

properties:

zone: europe-west1-d

machineType: n1-standard-1

network: \$(ref.mynetwork.selfLink)

subnetwork: regions/europe-west1/subnetworks/mynetwork

//

INSTANCE-TEMPLATE.JINJA

resources:

- name: {{ env["name"] }}

type: compute.v1.instance

properties:

machineType: zones/{{ properties["zone"] }}/machineTypes/{{ properties["machineType"] }}

zone: {{ properties["zone"] }}

networkInterfaces:

- network: {{ properties["network"] }}

subnetwork: {{ properties["subnetwork"] }}

accessConfigs:

- name: External NAT

type: ONE_TO_ONE_NAT

disks:

- deviceName: {{ env["name"] }}

type: PERSISTENT

boot: true

autoDelete: true

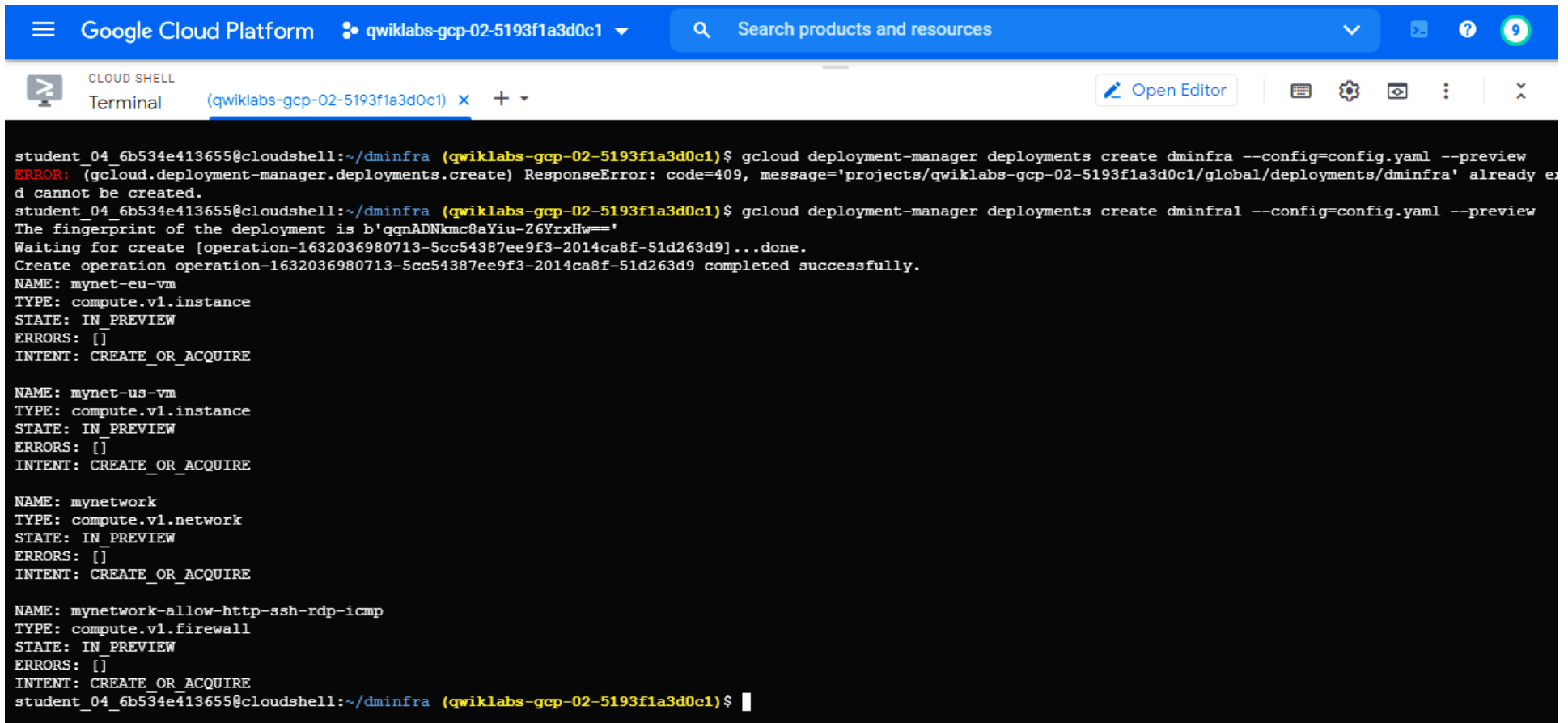
initializeParams:

sourceImage: <https://www.googleapis.com/compute/v1/projects/debian-cloud/global/images/family/debian-9>

//

Exit Shell Editor and from the Shell prompt enter the command

```
gcloud deployment-manager deployments create dminfra --config=config.yaml --preview
```



The screenshot shows a Google Cloud Platform Cloud Shell terminal window. The top bar includes the Google Cloud Platform logo, the project name 'qwiklabs-gcp-02-5193f1a3d0c1', and a search bar. The terminal window has a title bar 'CLOUD SHELL Terminal' and a tab '(qwiklabs-gcp-02-5193f1a3d0c1)'. The terminal content shows a user running 'gcloud deployment-manager deployments create dminfra --config=config.yaml --preview'. An error message is displayed: 'ERROR: (gcloud.deployment-manager.deployments.create) ResponseError: code=409, message='projects/qwiklabs-gcp-02-5193f1a3d0c1/global/deployments/dminfra' already exists and cannot be created.' The user then runs 'gcloud deployment-manager deployments create dminfra1 --config=config.yaml --preview'. The output shows the deployment is successful, with details for 'mynet-eu-vm', 'mynet-us-vm', 'mynetwork', and 'mynetwork-allow-http-ssh-rdp-icmp' resources, all in 'IN_PREVIEW' state.

```
student_04_6b534e413655@cloudshell:~/dminfra (qwiklabs-gcp-02-5193f1a3d0c1)$ gcloud deployment-manager deployments create dminfra --config=config.yaml --preview
ERROR: (gcloud.deployment-manager.deployments.create) ResponseError: code=409, message='projects/qwiklabs-gcp-02-5193f1a3d0c1/global/deployments/dminfra' already exists and cannot be created.
student_04_6b534e413655@cloudshell:~/dminfra (qwiklabs-gcp-02-5193f1a3d0c1)$ gcloud deployment-manager deployments create dminfra1 --config=config.yaml --preview
The fingerprint of the deployment is b'qqnADNkmc8aYiu-Z6YrxHw=='
Waiting for create [operation-1632036980713-5cc54387ee9f3-2014ca8f-51d263d9]...done.
Create operation operation-1632036980713-5cc54387ee9f3-2014ca8f-51d263d9 completed successfully.
NAME: mynet-eu-vm
TYPE: compute.v1.instance
STATE: IN_PREVIEW
ERRORS: []
INTENT: CREATE_OR_ACQUIRE

NAME: mynet-us-vm
TYPE: compute.v1.instance
STATE: IN_PREVIEW
ERRORS: []
INTENT: CREATE_OR_ACQUIRE

NAME: mynetwork
TYPE: compute.v1.network
STATE: IN_PREVIEW
ERRORS: []
INTENT: CREATE_OR_ACQUIRE

NAME: mynetwork-allow-http-ssh-rdp-icmp
TYPE: compute.v1.firewall
STATE: IN_PREVIEW
ERRORS: []
INTENT: CREATE_OR_ACQUIRE
student_04_6b534e413655@cloudshell:~/dminfra (qwiklabs-gcp-02-5193f1a3d0c1)$
```

If all is well, you should get the above results, if not there might be issue in syntax or some properties/ resources is missing; use below command to delete any earlier deployment and redeploy. Correct syntax errors in any like TAB SPACES in YAML file

gcloud deployment-manager deployments delete dminfra - Please delete earlier failed deployment for new deployment

Once errors are gone in PREVIEW, now do actual deployment using update command:

```
gcloud deployment-manager deployments update dminfra
```

Google Cloud Platform qwiklabs-gcp-02-5193f1a3d0c1 Search products and resources

CLOUD SHELL Terminal (quiklabs-gcp-02-5193f1a3d0c1) + Open Editor

```
TYPE: compute.v1.firewall
STATE: IN_PREVIEW
ERRORS: []
INTENT: CREATE_OR_ACQUIRE
student_04_6b534e413655@cloudshell:~/dminfra (quiklabs-gcp-02-5193f1a3d0c1)$ gcloud deployment-manager deployments update dminfra1
The fingerprint of the deployment is b'9sDBmVZC1Cl_yURaQD2qmw=='
Waiting for update [operation-1632037050961-5cc543caece7e-329ccfc6-fc5d7e73]...done.
Update operation operation-1632037050961-5cc543caece7e-329ccfc6-fc5d7e73 completed successfully.
NAME: mynet-eu-vm
TYPE: compute.v1.instance
STATE: COMPLETED
ERRORS: []
INTENT:

NAME: mynet-us-vm
TYPE: compute.v1.instance
STATE: COMPLETED
ERRORS: []
INTENT:

NAME: mynetwork
TYPE: compute.v1.network
STATE: COMPLETED
ERRORS: []
INTENT:

NAME: mynetwork-allow-http-ssh-rdp-icmp
TYPE: compute.v1.firewall
STATE: COMPLETED
ERRORS: []
INTENT:
student_04_6b534e413655@cloudshell:~/dminfra (quiklabs-gcp-02-5193f1a3d0c1)$
```

For your reference below are the screenshots of the two files:



```
config.yaml x instance-template.jinja
3
4 resources:
5 # Create the auto-mode network
6 - name: mynetwork
7   type: compute.v1.network
8   properties:
9     autoCreateSubnetworks: true
10
11 # Create the firewall rule
12 - name: mynetwork-allow-http-ssh-rdp-icmp
13   type: compute.v1.firewall
14   properties:
15     network: $(ref.mynetwork.selfLink)
16     sourceRanges: ["0.0.0.0/0"]
17     allowed:
18       - IPProtocol: TCP
19         ports: [22, 80, 3389]
20       - IPProtocol: ICMP
21
22 # Create the mynet-us-vm instance
23 - name: mynet-us-vm
24   type: instance-template.jinja
25
```

The screenshot shows the Google Cloud Platform Cloud Shell Editor interface. The top navigation bar includes the Google Cloud Platform logo, the project ID 'qwiklabs-gcp-02-5193f1a3d0c1', and a search bar. The main editor area displays a file named 'instance-template.jinja' with the following content:

```
1 resources:
2 - name: {{ env["name"] }}
3   type: compute.v1.instance
4   properties:
5     machineType: zones/{{ properties["zone"] }}/machineTypes/{{ properties["machineType"] }}
6     zone: {{ properties["zone"] }}
7     networkInterfaces:
8       - network: {{ properties["network"] }}
9         subnetwork: {{ properties["subnetwork"] }}
10      accessConfigs:
11        - name: External NAT
12          type: ONE_TO_ONE_NAT
13    disks:
14      - deviceName: {{ env["name"] }}
15        type: PERSISTENT
16        boot: true
17        autoDelete: true
18        initializeParams:
19          sourceImage: https://www.googleapis.com/compute/v1/projects/debian-cloud/global/images/family/debian-11
```

Hope you will be able to launch various resources using templates, instead of manually creating them from Google Console GUI.

Disclaimer: All the above content is part of the Google Cloud Platform and used here for study and demonstration purpose only. Prepared and executed by Bhadale IT Pvt Ltd in GCP