Google Cloud Fundamentals: Getting Started with Deployment Manager and Cloud Monitoring

45 minutes

Free

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Overview

In this lab, you create a deployment using Deployment Manager and use it to maintain a consistent state of your deployment. You will also view resource usage in a VM instance using Cloud Monitoring.

Objectives

In this lab, you will learn how to perform the following tasks:

Create a Deployment Manager deployment.

Update a Deployment Manager deployment.

View the load on a VM instance using Cloud Monitoring.

Task 1: Sign in to the Google Cloud Platform (GCP) Console

For each lab, you get a new GCP project and set of resources for a fixed time at no cost.

Make sure you signed into Qwiklabs using an incognito window.

Note the lab's access time (for example, img/time.png and make sure you can finish in that time block.

There is no pause feature. You can restart if needed, but you have to start at the beginning.

When ready, click img/start\_lab.png.

Note your lab credentials. You will use them to sign in to Cloud Platform Console. img/open\_google\_console.png

Click Open Google Console.

Click Use another account and copy/paste credentials for this lab into the prompts.

If you use other credentials, you'll get errors or incur charges.

Accept the terms and skip the recovery resource page.

Do not click End Lab unless you are finished with the lab or want to restart it. This clears your work and removes the project.

Task 2: Confirm that needed APIs are enabled

Make a note of the name of your GCP project. This value is shown in the top bar of the Google Cloud Platform Console. It will be of the form qwiklabs-gcp- followed by hexadecimal numbers.

In the GCP Console, on the Navigation menu (Navigation menu), click APIs & services.

Scroll down in the list of enabled APIs, and confirm that these APIs are enabled:

Cloud Deployment Manager v2 API

Cloud Runtime Configuration API

Cloud Monitoring API

If one or more APIs is missing, click the Enable APIs and Services button at top. Search for the above APIs by name and enable each for your current project. (You noted the name of your GCP project above.)

Task 3: Create a Deployment Manager deployment

In GCP console, on the top right toolbar, click the Open Cloud Shell button (Activate Cloud Shell). Click Continue.

For your convenience, place the zone that Qwiklabs assigned you to into an environment variable called MY\_ZONE. At the Cloud Shell prompt, type this partial command:

export MY\_ZONE=

followed by the zone that Qwiklabs assigned you to. Your complete command will look similar to this:

export MY\_ZONE=us-central1-a

At the Cloud Shell prompt, download an editable Deployment Manager template:

gsutil cp gs://cloud-training/gcpfcoreinfra/mydeploy.yaml mydeploy.yaml

In the Cloud Shell, use the sed command to replace the PROJECT\_ID placeholder string with your Google Cloud Platform project ID using this command:

sed -i -e "s/PROJECT\_ID/$DEVSHELL\_PROJECT\_ID/" mydeploy.yaml

In the Cloud Shell, use the sed command to replace the ZONE placeholder string with your Google Cloud Platform zone using this command:

sed -i -e "s/ZONE/$MY\_ZONE/" mydeploy.yaml

View the mydeploy.yaml file, with your modifications, with this command:

cat mydeploy.yaml

The file will look something like this:

resources:

- name: my-vm

type: compute.v1.instance

properties:

zone: us-central1-a

machineType: zones/us-central1-a/machineTypes/n1-standard-1

metadata:

items:

- key: startup-script

value: "apt-get update"

disks:

- deviceName: boot

type: PERSISTENT

boot: true

autoDelete: true

initializeParams:

sourceImage: https://www.googleapis.com/compute/v1/projects/debian-cloud/global/images/debian-9-stretch-v20180806

networkInterfaces:

- network: https://www.googleapis.com/compute/v1/projects/qwiklabs-gcp-dcdf854d278b50cd/global/networks/default

accessConfigs:

- name: External NAT

type: ONE\_TO\_ONE\_NAT

Do not use the above text literally in your own mydeploy.yaml file. Be sure that the zone that is named on the zone: and machineType: lines in your file matches the zone to which Qwiklabs assigned you. Be sure that the GCP project ID on the network: line in your file matches the project ID to which Qwiklabs assigned you, not the one in this example.

Build a deployment from the template:

gcloud deployment-manager deployments create my-first-depl --config mydeploy.yaml

When the deployment operation is complete, the gcloud command displays a list of the resources named in the template and their current state.

Confirm that the deployment was successful. In the GCP Console, on the Navigation menu (Navigation menu), click Compute Engine > VM instances. You will see that a VM instance called my-vm has been created, as specified by the template.

Click on the VM instance's name to open its VM instance details screen.

Scroll down to the Custom metadata section. Confirm that the startup script you specified in your Deployment Manager template has been installed.

Click Check my progress to verify the objective.

Create a Deployment Manager deployment

Task 4: Update a Deployment Manager deployment

Return to your Cloud Shell prompt. Launch the nano text editor to edit the mydeploy.yaml file:

nano mydeploy.yaml

Find the line that sets the value of the startup script, value: "apt-get update", and edit it so that it looks like this:

value: "apt-get update; apt-get install nginx-light -y"

Do not disturb the spaces at the beginning of the line. The YAML templating language relies on indented lines as part of its syntax. As you edit the file, be sure that the v in the word value in this new line is immediately below the k in the word key on the line above it.

Press Ctrl+O and then press Enter to save your edited file.

Press Ctrl+X to exit the nano text editor.

Return to your Cloud Shell prompt. Enter this command to cause Deployment Manager to update your deployment to install the new startup script:

gcloud deployment-manager deployments update my-first-depl --config mydeploy.yaml

Wait for the gcloud command to display a message confirming that the update operation was completed successfully.

In the GCP console, on the Navigation menu (Navigation menu), click Compute Engine > VM instances.

Click on the my-vm VM instance's name to open its VM instance details pane.

Scroll down to the Custom metadata section. Confirm that the startup script has been updated to the value you declared in your Deployment Manager template.

Click Check my progress to verify the objective.

Update the Deployment Manager deployment

Task 5: View the Load on a VM using Cloud Monitoring

In the GCP Console, on the Navigation menu (Navigation menu), click Compute Engine > VM instances.

To open a command prompt on the my-vm instance, click SSH in its row in the VM instances list.

In the ssh session on my-vm, execute this command to create a CPU load:

dd if=/dev/urandom | gzip -9 >> /dev/null &

This Linux pipeline forces the CPU to work on compressing a continuous stream of random data.

Leave the window containing your SSH session open while you proceed with the lab.

Create a Monitoring workspace

You will now setup a Monitoring workspace that's tied to your Qwiklabs GCP Project. The following steps create a new account that has a free trial of Monitoring.

In the Google Cloud Platform Console, click on Navigation menu > Monitoring.

Wait for your workspace to be provisioned.

When the Monitoring dashboard opens, your workspace is ready.

Overview.png

Click on Settings option from the left panel and confirm that the GCP project which Qwiklabs created for you is shown under the GCP Projects section.

allocated\_projects

Run the commands shown on screen in the SSH window of your VM instance to install both the Monitoring and Logging agents.

curl -sSO https://dl.google.com/cloudagents/install-monitoring-agent.sh

sudo bash install-monitoring-agent.sh

curl -sSO https://dl.google.com/cloudagents/install-logging-agent.sh

sudo bash install-logging-agent.sh

Once both of the agents have been installed on your project's VM, click Metrics Explorer under the main Cloud Monitoring menu on the far left.

In the Metric pane of Metrics Explorer, select the resource type VM instance and the metric CPU usage.

In the resulting graph, notice that CPU usage increased sharply a few minutes ago.

Terminate your workload generator. Return to your ssh session on my-vm and enter this command:

kill %1

End your lab