

DevOps Lab

CLOUD COMPUTE - GCP

Compute: Virtual Machine creation

Home task



TASK 1

It's aiming to gain knowledge about the mechanisms of VMs creation in Google Cloud.

Create Virtual Machine in Google cloud by the following ways:

- gcp-ui (complete Lab: [google codelabs: VM creation](#))
-

The screenshot shows the 'VM instance details' page in the Google Cloud console. At the top, there are tabs for 'osfamily: redhat', 'servertype: nginxserver', and 'wayofinstallation: gcp-ui'. Below this, the 'Creation time' is listed as 'Aug 31, 2020, 2:45:30 PM'. A 'Network interfaces' table shows a single interface 'nic0' connected to the 'default' network and subnetwork, with a primary internal IP, no alias IP ranges, an ephemeral external IP, and premium network tier. Other settings include 'Public DNS PTR Record' as 'None', 'Firewalls' allowing HTTP and HTTPS traffic, 'Network tags' as 'http-server, https-server', and 'Deletion protection' enabled. The 'Boot disk' table at the bottom shows a disk named 'nginx-gcp-ui' using the 'centos-7-v20200811' image, with a size of 35 GB, device name 'nginx-gcp-ui', and type 'SSD persistent disk'. A red arrow points to the 'Device name' column.

Name	Network	Subnetwork	Primary internal IP	Alias IP ranges	External IP	Network Tier	IP forwarding	Network details
nic0	default	default		—	Ephemeral	Premium	Off	View details

Name	Image	Size (GB)	Device name	Type	Encryption
nginx-gcp-ui	centos-7-v20200811	35	nginx-gcp-ui	SSD persistent disk	Google Cloud

- gcloud

```
[root@CentOS ~]# gcloud compute instances create nginx-gcloud --zone us-central1-c --custom-cpu=1 --custom-memory=4608MiB --boot-disk-size=35GB --boot-disk-type=pd-ssd --image=centos-7-v20200811 --image-project=centos-cloud --labels=servertype=nginxserver,osfamily=redhat,wayofinstallation=gcloud --deletion-protection --metadata-from-file startup-script=startup_createvm.sh --tags=http-server,https-server
Created [https://www.googleapis.com/compute/v1/projects/devops-lab-2020/zones/us-central1-c/instances/nginx-gcloud].
WARNING: Some requests generated warnings:
  - Disk size: '35 GB' is larger than image size: '20 GB'. You might need to resize the root repartition manually if the operating system does not support automatic resizing. See https://cloud.google.com/compute/docs/disks/add-persistent-disk#resize_pd for details.

NAME          ZONE          MACHINE_TYPE  PREEMPTIBLE  INTERNAL_IP  EXTERNAL_IP  STATUS
nginx-gcloud  us-central1-c  custom-1-4608  false        10.128.0.10  35.244.140.10  RUNNING
[root@CentOS ~]#
```

- terraform (all settings should be provided via variables (tfvars), add URL ("http://IP.Address/") to output)

```
root@CentOS-~/GCP/task2
}
+ network_interface {
+   name           = (known after apply)
+   network        = "default"
+   network_ip     = (known after apply)
+   subnetwork     = (known after apply)
+   subnetwork_project = (known after apply)
+   access_config {
+     nat_ip       = (known after apply)
+     network_tier = (known after apply)
+   }
+ }
+ scheduling {
+   automatic_restart = (known after apply)
+   on_host_maintenance = (known after apply)
+   preemptible       = (known after apply)
+   node_affinities {
+     key      = (known after apply)
+     operator = (known after apply)
+     values   = (known after apply)
+   }
+ }
}

Plan: 1 to add, 0 to change, 0 to destroy.

Changes to Outputs:
+ External_IP = (known after apply)

Do you want to perform these actions?
  Terraform will perform the actions described above.
  Only 'yes' will be accepted to approve.

  Enter a value: yes

google_compute_instance.nginx-server: Creating...
google_compute_instance.nginx-server: Still creating... [10s elapsed]
google_compute_instance.nginx-server: Creation complete after 15s [id=projects/devops-lab-2020/zones/us-central1-c/instances/nginx-terraform]

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

Outputs:
External_IP = 
```

TASK 2

It's aiming to gain knowledge about the mechanisms of Persistent disk creation in Google Cloud.

Create Persistent Disk and attach it to one of existing Virtual machine (nginx-gcp-ui).

- 1) Complete Lab [goolge codelabs: persistent disk](#) with using your VM name

```
@nginx-gcp-ui ~]$ sudo mkdir /mnt/mydisk
@nginx-gcp-ui ~]$ ls -l /dev/disk/by-id
total 0
lrwxrwxrwx. 1 root root  9 Aug 31 18:22 google-nginx-gcp-ui -> ../../sda
lrwxrwxrwx. 1 root root 10 Aug 31 18:22 google-nginx-gcp-ui-part1 -> ../../sda1
lrwxrwxrwx. 1 root root 10 Aug 31 18:22 google-nginx-gcp-ui-part2 -> ../../sda2
lrwxrwxrwx. 1 root root  9 Aug 31 18:33 google-persistent-disk-1 -> ../../sdb
lrwxrwxrwx. 1 root root  9 Aug 31 18:22 scsi-0Google_PersistentDisk_nginx-gcp-ui -> ../../sda
lrwxrwxrwx. 1 root root 10 Aug 31 18:22 scsi-0Google_PersistentDisk_nginx-gcp-ui-part1 -> ../../sda1
lrwxrwxrwx. 1 root root 10 Aug 31 18:22 scsi-0Google_PersistentDisk_nginx-gcp-ui-part2 -> ../../sda2
lrwxrwxrwx. 1 root root  9 Aug 31 18:33 scsi-0Google_PersistentDisk_persistent-disk-1 -> ../../sdb
@nginx-gcp-ui ~]$ sudo mkfs.ext4 -F -E \
> lazy_itable_init=0,lazy_journal_init=0,discard \
> /dev/disk/by-id/scsi-0Google_PersistentDisk_persistent-disk-1
mke2fs 1.42.9 (28-Dec-2013)
Discarding device blocks: done
Filesystem label=
OS type: Linux
Block size=4096 (log=2)
Fragment size=4096 (log=2)
Stride=0 blocks, Stripe width=0 blocks
13107200 inodes, 52428800 blocks
2621440 blocks (5.00%) reserved for the super user
First data block=0
Maximum filesystem blocks=2199912448
1600 block groups
32768 blocks per group, 32768 fragments per group
8192 inodes per group
Superblock backups stored on blocks:
    32768, 98304, 163840, 229376, 294912, 819200, 884736, 1605632, 2654208,
    4096000, 7962624, 11239424, 20480000, 23887872
Allocating group tables: done
Writing inode tables: done
Creating journal (32768 blocks): done
Writing superblocks and filesystem accounting information: done

@nginx-gcp-ui ~]$ df -H
Filesystem      Size  Used Avail Use% Mounted on
devtmpfs        2.3G  0  2.3G   0% /dev
tmpfs           2.3G  0  2.3G   0% /dev/shm
tmpfs           2.3G  8.9M  2.3G   1% /run
tmpfs           2.3G  0  2.3G   0% /sys/fs/cgroup
/dev/sda2       28G  2.3G  26G   8% /
/dev/sda1       210M  12M  198M   6% /boot/efi
tmpfs           451M  0  451M   0% /run/user/1000
tmpfs           451M  0  451M   0% /run/user/0
/dev/sdb        212G  63M  206G   1% /mnt/mydisk
@nginx-gcp-ui ~$
```

- 2) Create terraform configuration to do the same via terraform (use VM: nginx-gcp-terraform).

For reference:

- [google_compute_disk](#)
- [google_compute_attached_disk](#)

```
root@CentOS-:/GCP/task2
+ id = (known after apply)
+ instance = "projects/devops-lab-2020/zones/us-central1-c/instances/nginx-terraform"
+ mode = "READ_WRITE"
+ project = (known after apply)
+ zone = (known after apply)
}

# google_compute_disk.nginx-server will be created
+ resource "google_compute_disk" "nginx-server" {
+   creation_timestamp = (known after apply)
+   id = (known after apply)
+   label_fingerprint = (known after apply)
+   last_attach_timestamp = (known after apply)
+   last_detach_timestamp = (known after apply)
+   name = "mydisk1"
+   physical_block_size_bytes = (known after apply)
+   project = (known after apply)
+   self_link = (known after apply)
+   size = 200
+   source_image_id = (known after apply)
+   source_snapshot_id = (known after apply)
+   type = "pd-standard"
+   users = (known after apply)
+   zone = "us-central1-c"
+ }

Plan: 2 to add, 0 to change, 0 to destroy.

Do you want to perform these actions?
Terraform will perform the actions described above.
Only 'yes' will be accepted to approve.

Enter a value: yes

google_compute_disk.nginx-server: Creating...
google_compute_disk.nginx-server: Still creating... [10s elapsed]
google_compute_disk.nginx-server: Creation complete after 13s [id=projects/devops-lab-2020/zones/us-central1-c/disks/mydisk1]
google_compute_attached_disk.nginx-server: Creating...
google_compute_attached_disk.nginx-server: Still creating... [10s elapsed]
google_compute_attached_disk.nginx-server: Creation complete after 12s [id=projects/devops-lab-2020/zones/us-central1-c/instances/nginx-terraform/mydisk1]

Apply complete! Resources: 2 added, 0 changed, 0 destroyed.

Outputs:
External IP =
```