

**DevOps Lab**

## **CLOUD COMPUTE - GCP**

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**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' with a primary internal IP of '10.128.0.2' and an external IP of 'Ephemeral'. Other settings like 'Public DNS PTR Record' (None), 'Firewalls' (Allow HTTP and HTTPS traffic), 'Network tags' (http-server, https-server), and 'Deletion protection' (Enabled) are also visible. At the bottom, the 'Boot disk' table lists a disk named 'nginx-gcp-ui' using the 'centos-7-v20200811' image, with a size of 35 GB and device name 'nginx-gcp-ui', which is highlighted by a red arrow. The disk type is 'SSD persistent disk'.

Name	Network	Subnetwork	Primary internal IP	Alias IP ranges	External IP	Network Tier	IP forwarding	Network details
nic0	default	default	10.128.0.2	—	Ephemeral	Premium	Off	<a href="#">View details</a>

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-I-4608  false        10.128.0.4   34.123.63.53  RUNNING
[root@CentOS ~]#
```

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

```
root@CentOS~# terraform apply -var-file=terraform.tfvars

+ 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 = 34.123.63.53
[root@CentOS task2]#
```

## 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

```
[root@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  0.9M  2.3G   1% /run
tmpfs           2.3G  0  2.3G   0% /sys/fs/cgroup
/dev/sda2       38G  2.3G   36G   6% /
/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  201G   1% /mnt/mydisk
[root@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 = 34.123.63.53
```