Google Compute Engine

*Estimated reading time: 4 minutes*

Create machines on [Google Compute Engine](https://cloud.google.com/compute/). You will need a Google account and a project ID. See <https://cloud.google.com/compute/docs/projects> for details on projects.

Credentials

The Google driver uses [Application Default Credentials](https://developers.google.com/identity/protocols/application-default-credentials) to get authorization credentials for use in calling Google APIs.

So if docker-machine is used from a GCE host, authentication will happen automatically via the built-in service account. Otherwise, [install gcloud](https://cloud.google.com/sdk/) and get through the oauth2 process with gcloud auth login.

Or, manually download the credentials.json file to the local, and set the GOOGLE\_APPLICATION\_CREDENTIALS environment variable point to its location, such as:

export GOOGLE\_APPLICATION\_CREDENTIALS=$HOME/gce-credentials.json

Example

To create a machine instance, specify --driver google, the project ID and the machine name.

$ gcloud auth login

$ docker-machine create --driver google --google-project PROJECT\_ID vm01

$ docker-machine create --driver google \

--google-project PROJECT\_ID \

--google-zone us-central1-a \

--google-machine-type f1-micro \

vm02

Options

* --google-address: Instance’s static external IP (name or IP).
* --google-disk-size: The disk size of instance.
* --google-disk-type: The disk type of instance.
* --google-machine-image: The absolute URL to a base VM image to instantiate.
* --google-machine-type: The type of instance.
* --google-network: Specify network in which to provision VM.
* --google-preemptible: Instance preemptibility.
* --google-project: **required** The ID of your project to use when launching the instance.
* --google-scopes: The scopes for OAuth 2.0 to Access Google APIs. See [Google Compute Engine Doc](https://cloud.google.com/storage/docs/authentication).
* --google-subnetwork: Specify subnetwork in which to provision VM.
* --google-tags: Instance tags (comma-separated).
* --google-use-existing: Don’t create a new VM, use an existing one. This is useful when you’d like to provision Docker on a VM you created yourself, maybe because it uses create options not supported by this driver.
* --google-use-internal-ip-only: When this option is used during create, the new VM will not be assigned a public IP address. This is useful only when the host running docker-machine is located inside the Google Cloud infrastructure; otherwise, docker-machine can’t reach the VM to provision the Docker daemon. The presence of this flag implies --google-use-internal-ip.
* --google-use-internal-ip: When this option is used during create it will make docker-machine use internal rather than public NATed IPs. The flag is persistent in the sense that a machine created with it retains the IP. It’s useful for managing docker machines from another machine on the same network e.g. while deploying swarm.
* --google-username: The username to use for the instance.
* --google-zone: The zone to launch the instance.

The GCE driver will use the ubuntu-1604-xenial-v20161130 instance image unless otherwise specified. To obtain a list of image URLs run:

gcloud compute images list --uri

Google Compute Engine supports [image families](https://cloud.google.com/compute/docs/images#image_families). An image family is like an image alias that always points to the latest image in the family. To create an instance from an image family, set --google-machine-image to the family’s URL.

The following command will show images and which family they belong to (if any):

gcloud compute images list

To obtain a family URL, replace <PROJECT> and <FAMILY> in the following template.

https://www.googleapis.com/compute/v1/projects/<PROJECT>/global/images/family/<FAMILY>

For example, to create an instance from the latest Ubuntu 16 LTS image, specify https://www.googleapis.com/compute/v1/projects/ubuntu-os-cloud/global/images/family/ubuntu-1604-lts.

ENVIRONMENT VARIABLES AND DEFAULT VALUES

| **CLI option** | **Environment variable** | **Default** |
| --- | --- | --- |
| --google-address | GOOGLE\_ADDRESS | - |
| --google-disk-size | GOOGLE\_DISK\_SIZE | 10 |
| --google-disk-type | GOOGLE\_DISK\_TYPE | pd-standard |
| --google-machine-image | GOOGLE\_MACHINE\_IMAGE | ubuntu-1510-wily-v20151114 |
| --google-machine-type | GOOGLE\_MACHINE\_TYPE | f1-standard-1 |
| --google-network | GOOGLE\_NETWORK | default |
| --google-preemptible | GOOGLE\_PREEMPTIBLE | - |
| **--google-project** | GOOGLE\_PROJECT | - |
| --google-scopes | GOOGLE\_SCOPES | devstorage.read\_only,logging.write |
| --google-subnetwork | GOOGLE\_SUBNETWORK | - |
| --google-tags | GOOGLE\_TAGS | - |
| --google-use-existing | GOOGLE\_USE\_EXISTING | - |
| --google-use-internal-ip | GOOGLE\_USE\_INTERNAL\_IP | - |
| --google-username | GOOGLE\_USERNAME | docker-user |
| --google-zone | GOOGLE\_ZONE | us-central1-a |