

# GCP'de kubernetes cluster kurulumu

GKE Cluster bu şekilde elle kurabilmek mümkün. Fakat bizim amacımız bunları terraform ile otomatize etmek.

## Gerekli Kurulumlar:

otomatize etmeden önce gerekenler;

**google-cloud-cli**

**kubernetes engine api etkinleştirme**

## Google Cloud Cli Kurulumu :

```
sudo apt update  
sudo apt install snapd  
sudo snap install google-cloud-cli --classic
```

google cloud client ile hesabınızın bağlanması için gereken komut

```
gcloud auth application-default login
```

linke girdikten sonra **gcloud CLI** ile gcp mail hesabımızı bağlıyoruz.



## Sign in to the gcloud CLI

You are seeing this page because you ran the following command in the gcloud CLI from this or another machine. If this is not the case, close this tab.

```
gcloud auth application-default login --no-launch-browser
```

Enter the following authorization code in gcloud CLI on the machine you want to log into. This is a credential **similar to your password** and should not be shared with others.

```
4/0AdQt8qhRBa
```

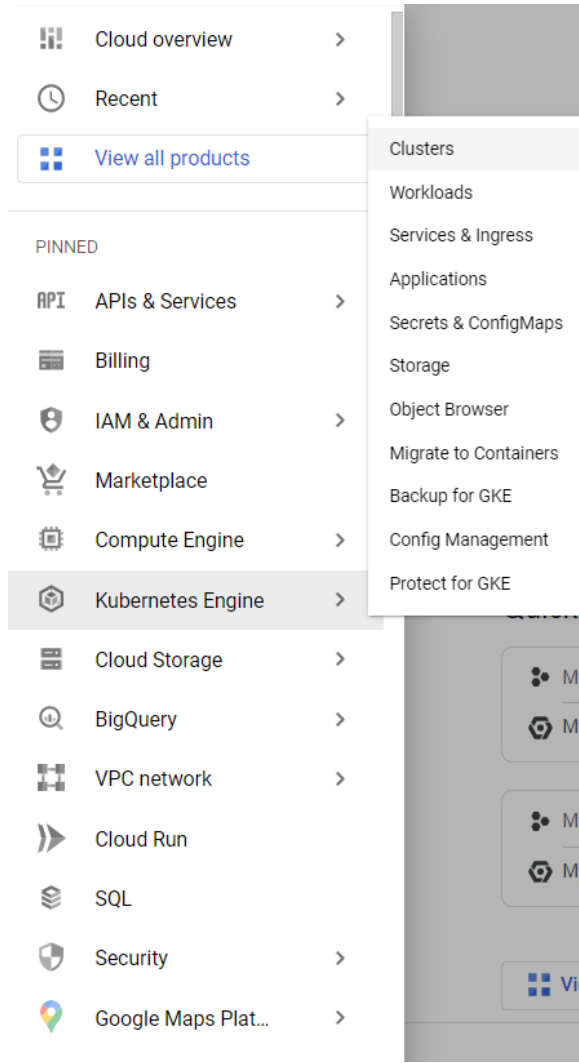
Copy

You can close this tab when you're done.

Enter authorization code kısmına alttaki kodu yapıştırırsak credentials sağlanıyor.

## Kubernetes engine api etkinleştirme:

Kubernetes engine > cluster



## Enable



### Kubernetes Engine API

[Google Enterprise API](#)

Builds and manages container-based applications, powered by the open source Kubernetes technology.

**ENABLE**

[TRY THIS API](#)

## Terraform Kullanımı

```
mkdir tf
vim main.tf
```

## main.tf dosyası

```
provider "google" { # sağlayıcı,proje adı,bölge gibi bilgiler bulunur.
  project = "myproject-361717"
  region = "europe-west3"
  zone = "europe-west3-a"
}
resource "google_compute_network" "vpc_network" { # sanal bir network oluşturur.
  name = "bc-network"
  auto_create_subnetworks= "true"
}

resource "google_container_cluster" "bootcamp" { # Kubernetes cluster tanımı.
  name = "bc-gke"
  remove_default_node_pool = true
  initial_node_count = 1
  network = google_compute_network.vpc_network.name
}

resource "google_service_account" "nodepool" { # Servislerin, Google Cloud'da hangi yetkilere sahip olunacağını buradan ayarlarız.Servislere hesap açıp yetki veririz.Bot hesap g>
  account_id = "bc-serviceaccount"
  display_name = "BC Service Account"
}

resource "google_container_node_pool" "primary_preemptible_nodes" { # node poolu oluşturduğumuz yer.
  name = "bc-node-pool"
  cluster = google_container_cluster.bootcamp.name # bc-gke
  node_count = 1 # 1 adet

  node_config{
    preemptible = true # sunucuyu daha ucuza verir fakat ihtiyacı olduğu anda geri alıp başkasına satabilir.
    machine_type = "e2-medium"

    service_account = google_service_account.nodepool.email
    oauth_scopes = [
      "https://www.googleapis.com/auth/cloud-platform"
    ]
  }
}
```

Terraform init, tf dosyalarını içeren bir çalışma dizini başlatmak için kullanılır.

```
terraform init
```

```
selman@googleserver:~/tf$ terraform init

Initializing the backend...

Initializing provider plugins...
- Finding latest version of hashicorp/google...
- Installing hashicorp/google v4.34.0...
- Installed hashicorp/google v4.34.0 (signed by HashiCorp)

Terraform has created a lock file .terraform.lock.hcl to record the provider
selections it made above. Include this file in your version control repository
so that Terraform can guarantee to make the same selections by default when
you run "terraform init" in the future.

Terraform has been successfully initialized!

You may now begin working with Terraform. Try running "terraform plan" to see
any changes that are required for your infrastructure. All Terraform commands
should now work.

If you ever set or change modules or backend configuration for Terraform,
rerun this command to reinitialize your working directory. If you forget, other
commands will detect it and remind you to do so if necessary.
```

Terraform plan , Terraform'un altyapınızda yapmayı planladığı değişiklikleri önizlemenize olanak tanıyan bir yürütme planı oluşturur.

```
terraform plan
```

Terraform used the selected providers to generate the following execution plan. Resource actions are indicated with the following symbols:  
+ create

Terraform will perform the following actions:

```
# google_compute_network.vpc_network will be created
+ resource "google_compute_network" "vpc_network" {
  + auto_create_subnetworks = true
  + delete_default_routes_on_create = false
  + gateway_ipv4             = (known after apply)
  + id                      = (known after apply)
  + internal_ipv6_range      = (known after apply)
  + mtu                     = (known after apply)
  + name                    = "bc-network"
  + project                 = (known after apply)
  + routing_mode             = (known after apply)
  + self_link               = (known after apply)
}

# google_container_cluster.bootcamp will be created
+ resource "google_container_cluster" "bootcamp" {
  + cluster_ipv4_cidr      = (known after apply)
  + datapath_provider      = (known after apply)
  + default_max_pods_per_node = (known after apply)
  + enable_binary_authorization = false
  + enable_intranode_visibility = (known after apply)
  + enable_kubernetes_alpha = false
  + enable_legacy_abac      = false
  + enable_shielded_nodes   = true
  + endpoint               = (known after apply)
  + id                    = (known after apply)
  + initial_node_count     = 1
  + label_fingerprint      = (known after apply)
  + location               = (known after apply)
  + logging_service        = (known after apply)
  + master_version         = (known after apply)
  + monitoring_service     = (known after apply)
  + name                   = "bc-gke"
  + network                = "bc-network"
  + networking_mode        = (known after apply)
  + node_locations         = (known after apply)
  + node_version           = (known after apply)
  + operation              = (known after apply)
  + private_ipv6_google_access = (known after apply)
  + project                = (known after apply)
  + remove_default_node_pool = true
}
```

Plan: 4 to add, 0 to change, 0 to destroy.

Terraform apply, terraform plan tarafından oluşan yürütme planını gerçekleştirir.

```
terraform apply
```

```

google_compute_network.vpc_network: Still creating... [30s elapsed]
google_compute_network.vpc_network: Creation complete after 34s [id=projects/myproject-361717/global/networks/bc-network]
google_container_cluster.bootcamp: Creating...
google_container_cluster.bootcamp: Still creating... [10s elapsed]
google_container_cluster.bootcamp: Still creating... [20s elapsed]
google_container_cluster.bootcamp: Still creating... [30s elapsed]
google_container_cluster.bootcamp: Still creating... [40s elapsed]
google_container_cluster.bootcamp: Still creating... [50s elapsed]
google_container_cluster.bootcamp: Still creating... [1m0s elapsed]
google_container_cluster.bootcamp: Still creating... [1m10s elapsed]
google_container_cluster.bootcamp: Still creating... [1m20s elapsed]
google_container_cluster.bootcamp: Still creating... [1m30s elapsed]
google_container_cluster.bootcamp: Still creating... [1m40s elapsed]
google_container_cluster.bootcamp: Still creating... [1m50s elapsed]
google_container_cluster.bootcamp: Still creating... [2m0s elapsed]
google_container_cluster.bootcamp: Still creating... [2m10s elapsed]
google_container_cluster.bootcamp: Still creating... [2m20s elapsed]
google_container_cluster.bootcamp: Still creating... [2m30s elapsed]
google_container_cluster.bootcamp: Still creating... [2m40s elapsed]
google_container_cluster.bootcamp: Still creating... [2m50s elapsed]
google_container_cluster.bootcamp: Still creating... [3m0s elapsed]
google_container_cluster.bootcamp: Still creating... [3m10s elapsed]
google_container_cluster.bootcamp: Still creating... [3m20s elapsed]
google_container_cluster.bootcamp: Still creating... [3m30s elapsed]
google_container_cluster.bootcamp: Still creating... [3m40s elapsed]
google_container_cluster.bootcamp: Still creating... [3m50s elapsed]
google_container_cluster.bootcamp: Still creating... [4m0s elapsed]
google_container_cluster.bootcamp: Still creating... [4m10s elapsed]
google_container_cluster.bootcamp: Still creating... [4m20s elapsed]
google_container_cluster.bootcamp: Still creating... [4m30s elapsed]
google_container_cluster.bootcamp: Still creating... [4m40s elapsed]
google_container_cluster.bootcamp: Still creating... [4m50s elapsed]
google_container_cluster.bootcamp: Still creating... [5m0s elapsed]
google_container_cluster.bootcamp: Still creating... [5m10s elapsed]
google_container_cluster.bootcamp: Still creating... [5m20s elapsed]
google_container_cluster.bootcamp: Still creating... [5m30s elapsed]
google_container_cluster.bootcamp: Still creating... [5m40s elapsed]
google_container_cluster.bootcamp: Still creating... [5m50s elapsed]
google_container_cluster.bootcamp: Still creating... [6m0s elapsed]
google_container_cluster.bootcamp: Still creating... [6m10s elapsed]
google_container_cluster.bootcamp: Still creating... [6m20s elapsed]
google_container_cluster.bootcamp: Still creating... [6m30s elapsed]
google_container_cluster.bootcamp: Still creating... [6m40s elapsed]
google_container_cluster.bootcamp: Still creating... [6m50s elapsed]
google_container_cluster.bootcamp: Still creating... [7m0s elapsed]
google_container_cluster.bootcamp: Still creating... [7m10s elapsed]
google_container_cluster.bootcamp: Creation complete after 7m13s [id=projects/myproject-361717/locations/europe-west3-a/clusters/bc-gke]
google_container_node_pool.primary_preemptible_nodes: Creating...
google_container_node_pool.primary_preemptible_nodes: Still creating... [10s elapsed]
google_container_node_pool.primary_preemptible_nodes: Still creating... [20s elapsed]
google_container_node_pool.primary_preemptible_nodes: Still creating... [30s elapsed]
google_container_node_pool.primary_preemptible_nodes: Still creating... [40s elapsed]
google_container_node_pool.primary_preemptible_nodes: Still creating... [50s elapsed]
google_container_node_pool.primary_preemptible_nodes: Still creating... [1m0s elapsed]
google_container_node_pool.primary_preemptible_nodes: Still creating... [1m10s elapsed]
google_container_node_pool.primary_preemptible_nodes: Creation complete after 1m15s [id=projects/myproject-361717/locations/europe-west3-a/clusters/bc-gke/nodePools/bc-node-pool]
Apply complete! Resources: 3 added, 0 changed, 0 destroyed.

```

## Sonuç:

Kubernetes Engine

Clusters

Workloads

Services & Ingress

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Migrate to Containers

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Config Management

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Filter

Enter property name or value

<input type="checkbox"/>	Status	Name	Location	Number of nodes	Total vCPUs	Total memory	Notifications	Labels
<input type="checkbox"/>		<a href="#">bc-gke</a>	europe-west3-a	1	2	4 GB	—	<div></div>

Oluşturduğum kubernetes cluster'a bağlanmak için

<input type="checkbox"/> Status	Name ↑	Location	Number of nodes	Total vCPUs	Total memory	Notifications	Labels
<input type="checkbox"/>	<a href="#">bc-gke</a>	europe-west3-a	1	2	4 GB		—

Edit  
Connect  
Delete

## Connect to the cluster

You can connect to your cluster via command-line or using a dashboard.

### Command-line access

Configure [kubectl](#) command line access by running the following command:

```
$ gcloud container clusters get-credentials bc-gke --zone europe-west3-a --project myproject-361717
```

[RUN IN CLOUD SHELL](#)

### Cloud Console dashboard

You can view the workloads running in your cluster in the Cloud Console [Workloads dashboard](#).

[OPEN WORKLOADS DASHBOARD](#)

OK

```
gcloud container clusters get-credentials bc-gke --zone europe-west3-a --project myproject-361717
```

```
parlaksyma@cloudshell:~ (myproject-361717)$ kubectl get node
NAME                                STATUS    ROLES    AGE    VERSION
gke-bc-gke-bc-node-pool-fbde53fb-hprm Ready    <none>   78m    v1.22.11-gke.400
parlaksyma@cloudshell:~ (myproject-361717)$
```