Setting up Cloud Run for Anthos on Google Cloud

This guide shows how to set up a new Google Kubernetes Engine cluster (https://cloud.google.com/kubernetes-engine/) with Cloud Run for Anthos on Google Cloud enabled. Because you can use either the Cloud Console or the gcloud command line, the instructions cover both of these. If you are enabling Cloud Run on an already existing cluster, refer to Enabling Cloud Run for Anthos on Google Cloud on existing clusters (https://cloud.google.com/run/docs/gke/enabling-on-existing-clusters)

Note that enabling Cloud Run for Anthos on Google Cloud installs Istio (https://istio.io/) and Knative Serving (https://cloud.google.com/knative/) into the cluster to connect and manage your stateless workloads.

Prerequisites

1. Sign in (https://accounts.google.com/Login) to your Google Account.

   If you don't already have one, sign up for a new account (https://accounts.google.com/SignUp).

2. In the Cloud Console, on the project selector page, select or create a Google Cloud project.

★ **Note**: If you don't plan to keep the resources that you create in this procedure, create a project instead of selecting an existing project. After you finish these steps, you can delete the project, removing all resources associated with the project.

GO TO THE PROJECT SELECTOR PAGE (HTTPS://CONSOLE.CLOUD.GOOGLE.COM/PROJECTSELECT

3. Make sure that billing is enabled for your Google Cloud project. Learn how to confirm billing is enabled for your project (https://cloud.google.com/billing/docs/how-to/modify-project).

Setting up gcloud

Note: This guide assumes you are using a Mac or Linux operating system. If you are using Microsoft Windows, you may need to adjust the command lines.

Although you can use either the Cloud Console console or the gcloud command line to use Cloud Run for Anthos on Google Cloud, you may need to use the gcloud command line for some tasks.

To set up the gcloud command line for Cloud Run for Anthos on Google Cloud:

1. Install and initialize the Cloud SDK (https://cloud.google.com/sdk/docs/).
2. You should set your default project setting for `gcloud` to the one you just created:

   ```
   gcloud config set project PROJECT-ID
   ```

   Replace ***PROJECT-ID*** with the project ID of the project you created.
3. Set `zone` to the desired zone (https://cloud.google.com/compute/docs/regions-zones/#available) for the new cluster. You can use any zone where GKE is supported, for example:

   ```
   gcloud config set compute/zone ZONE
   ```

   Replace ***ZONE*** with your zone.
4. Enable the following APIs for the project, which are needed to create a cluster, build and publish a container into the Google Container registry:

   ```
   gcloud services enable container.googleapis.com containerregistry.googleapis.co
   ```
5. Update installed gcloud components:

   ```
   gcloud components update
   ```
6. Install the `kubectl` command-line tool:

   ```
   gcloud components install kubectl
   ```

Creating a cluster with Cloud Run enabled

These instructions create a cluster with this configuration:

- Cloud Run for Anthos on Google Cloud enabled
- Kubernetes version: see Available GKE versions (https://cloud.google.com/run/docs/gke/cluster-versions)
- Nodes with 2 vCPU

These are the recommended settings for a new cluster.

You can use either the gcloud command line or the console to create a cluster. Click the appropriate tab for instructions.

CONSOLE COMMAND LINE

To create a cluster and enable it for Cloud Run for Anthos on Google Cloud:

1. Go to the Google Kubernetes Engine page in the Cloud Console:

   GO TO GOOGLE KUBERNETES ENGINE (HTTPS://CONSOLE.CLOUD.GOOGLE.COM/KUBERNETES)

2. Click **Create cluster** to open the *Create a Kubernetes cluster* page.
3. Select the **Standard cluster** template, and set the following values in the template:
   - Enter the name you want for your cluster.
   - Choose either *Zonal* or *regional* for the location type: either will work with Cloud Run for Anthos on Google Cloud. Zonal clusters are less expensive, but will incur downtime during master upgrades.
   - Select a zone or region for the cluster, depending on your choice in the previous step. Choose a zone or region close to you, for example, `us-central1-a`.
   - From the dropdown list, select *one of the available versions* (https://cloud.google.com/run/docs/gke/cluster-versions) as the Master cluster version.
   - Select the checkbox **Enable Cloud Run for Anthos**.
4. Click **Create** to create and provision the cluster with the configuration you just completed. It may take a few moments for this process to finish.

Important: Running a GKE configuration like the one described in this page can be costly. GKE is billed differently than Cloud Run (fully managed), so you will be billed for each node in your cluster, even if you have

no services deployed to them. To avoid charges, you should delete your cluster or scale the number of the nodes in the cluster to zero if you are not using it.

Configuring gcloud for cluster and platform

After you create the cluster,

- Set your default platform to `gke`.
- Optionally set defaults for cluster name, and cluster location to avoid subsequent prompts for these when you use the command line.
- Get credentials that allow the gcloud command line to access your cluster.

To set defaults:

1. Set the default platform to `gke`, set your default cluster and cluster location, and then get credentials as follows:

   ```
   gcloud config set run/platform gke
   gcloud config set run/cluster CLUSTER
   gcloud config set run/cluster_location ZONE
   gcloud container clusters get-credentials CLUSTER
   ```

   Replace

   - ***CLUSTER*** with the name of the cluster
   - ***ZONE*** with the location of the cluster.

2. Kubernetes clusters come with a namespace named `default`. For information on namespaces, and why you might want to create and use a namespace other than `default`, refer to namespace (https://kubernetes.io/docs/concepts/overview/working-with-objects/namespaces/) in the Kubernetes documentation. To create a new namespace, run:

   ```
   kubectl create namespace NAMESPACE
   ```

   Replace ***NAMESPACE*** with the Namespace (https://kubernetes.io/docs/concepts/overview/working-with-objects/namespaces/) you want to create.

3. If you created a new namespace in the previous step, and want to use it rather than the `default` namespace, set that new namespace as the one to be used by default when you invoke the gcloud command line:

```
gcloud config set run/namespace NAMESPACE
```

Setting up a custom domain

If you want to use custom domains that apply to the cluster, refer to Using a custom domain (https://cloud.google.com/run/docs/gke/default-domain#using_a_custom_domain). For per-service custom domains, refer to Mapping custom domains (https://cloud.google.com/run/docs/mapping-custom-domains).

Disabling Cloud Run for Anthos on Google Cloud

To disable Cloud Run for Anthos on Google Cloud in your cluster:

1. Go to the Google Kubernetes Engine page in the Cloud Console:

   GO TO GOOGLE KUBERNETES ENGINE (HTTPS://CONSOLE.CLOUD.GOOGLE.COM/KUBERNETES/LIS

2. Click the cluster where you want to disable Cloud Run for Anthos on Google Cloud .
3. Click **Edit**.
4. From the *Cloud Run for Anthos* dropdown, select **Disable**.
5. Click **Save**.

What's next

- Deploying from a container (https://cloud.google.com/run/docs/deploying)
- Building containers (https://cloud.google.com/run/docs/building/containers)
- Troubleshooting (https://cloud.google.com/run/docs/gke/troubleshooting)

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