

Creating and managing projects

Google Cloud projects form the basis for creating, enabling, and using all Google Cloud services including managing APIs, enabling billing, adding and removing collaborators, and managing permissions for Google Cloud resources.

This page explains how to create and manage Google Cloud projects using the Resource Manager API and the Google Cloud console.

Before you begin

Read about the project resource in the [Resource hierarchy overview](/resource-manager/docs/cloud-platform-resource-hierarchy#projects) (/resource-manager/docs/cloud-platform-resource-hierarchy#projects). For guidance on setting up your resource hierarchy, see [Decide a resource hierarchy for your Google Cloud landing zone](/architecture/landing-zones/decide-resource-hierarchy) (/architecture/landing-zones/decide-resource-hierarchy).

The following are used to identify your project:

- **Project name:** A human-readable name for your project.

The project name isn't used by any Google APIs. You can edit the project name at any time during or after project creation. Project names do not need to be unique.

- **Project ID:** A globally unique identifier for your project.

A project ID is a unique string used to differentiate your project from all others in Google Cloud. After you enter a project name, the Google Cloud console generates a unique project ID that can be a combination of letters, numbers, and hyphens. We recommend you use the generated project ID, but you can edit it during project creation. After the project has been created, the project ID is permanent.

A project ID has the following requirements:

- Must be 6 to 30 characters in length.
- Can only contain lowercase letters, numbers, and hyphens.
- Must start with a letter.
- Cannot end with a hyphen.
- Cannot be in use or previously used; this includes deleted projects.
- Cannot contain restricted strings, such as `google`, `null`, `undefined`, and `ssl`.

- **Project number:** An automatically generated unique identifier for your project.

Don't include sensitive information such as personally identifiable information (PII) or security data in your project name, project ID, or other resource names. The project ID is used in the name of many other Google Cloud resources, and any reference to the project or related resources exposes the project ID and resource name.

Creating a project

To create a project, you must have the `resourcemanager.projects.create` permission. This permission is included in roles like the Project Creator role (`roles/resourcemanager.projectCreator`). The Project Creator role is granted by default to the entire domain of a new organization resource and to free trial users. For information on how to grant individuals the role and limit organization-resource wide access, see the [Managing Default Organization Roles](/resource-manager/docs/default-access-control) (`/resource-manager/docs/default-access-control`) page.

If you do not specify the parent resource, a parent resource is selected automatically if applicable based on the user account's domain.

You can create a new project using the Google Cloud console, the Google Cloud CLI, or the `projects.create()` (`/resource-manager/reference/rest/v3/projects/create`) method.

Console (#console) gcloudAPI (#api)
(#gcloud)

1. In one of the following development environments, set up the gcloud CLI:


- **Cloud Shell:** to use an online terminal with the gcloud CLI already set up, activate Cloud Shell.

 [Activate Cloud Shell on this page](#)

At the bottom of this page, a Cloud Shell session starts and displays a command-line prompt. It can take a few seconds for the session to initialize.

- **Local shell:** to use a local development environment, [install](/sdk/docs/install) (`/sdk/docs/install`) and [initialize](/sdk/docs/initializing) (`/sdk/docs/initializing`) the gcloud CLI.

2. To create a new project, use the `gcloud projects create` (`/sdk/gcloud/reference/projects/create`) command:

```
gcloud projects create PROJECT_ID 
```

Where *PROJECT_ID* is the ID for the project you want to create. A project ID must start with a lowercase letter, and can contain only ASCII letters, digits, and hyphens, and must be between 6 and 30 characters.

To create a project with an organization resource or a folder as parent, use the `--organization` or `--folder` flags. As a resource can only have one parent, only one of these flags can be used:

```
gcloud projects create PROJECT_ID  --organization=ORGANIZATION_ID 
```

```
gcloud projects create PROJECT_ID  --folder=FOLDER_ID 
```

Creating a project using a service account

You can use a service account to automate project creation. Like user accounts, service accounts can be granted permission to create projects within an organization resource. Service accounts are not allowed to create projects outside of an organization resource and must specify the parent resource when creating a project. Service accounts can create a new project using the gcloud CLI or the `projects.create()` method.

Managing project quotas

If you have fewer than 30 projects remaining in your quota, a notification displays the number of projects remaining in your quota on the **New Project** (<https://console.cloud.google.com/projectcreate>) page. Once you have reached your project limit, to create more projects you must request a project limit increase. Alternatively, you can schedule some projects to be deleted after 30 days on the **Manage Resources Page** (<https://console.cloud.google.com/cloud-resource-manager>). Projects that users have **soft deleted** (`#shutting_down_projects`) count against your quota. These projects fully delete after 30 days.

To request additional capacity for projects in your quota, use the **Request Project Quota Increase** (https://support.google.com/code/contact/project_quota_increase) form. More information about quotas and why they are used can be found at the **Free Trial Project Quota Requests** (<https://support.google.com/cloud/answer/6330231>) support page. For more

information about billing reports, see the [Billing Reports \(/billing/docs/how-to/reports\)](/billing/docs/how-to/reports) support page.

Identifying projects

To interact with Google Cloud resources, you must provide the identifying project information for every request. A project is identified by its project ID and project number.

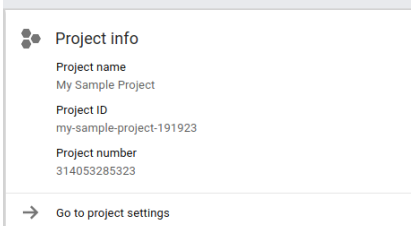
To get the project ID and the project number, do the following:

1. Go to the **[Dashboard page](https://console.cloud.google.com/home)** (<https://console.cloud.google.com/home>) in the Google Cloud console.

[Go to the Dashboard page](https://console.cloud.google.com/home) (<https://console.cloud.google.com/home>)

2. Click the **Select from** drop-down list at the top of the page. In the **Select from** window that appears, select your project.

The project ID and project number are displayed on the project Dashboard **Project info** card:



In the above example, the project name is **My Sample Project** and the project ID is **my-sample-project-191923**.

Get an existing project

You can get an existing project using the Google Cloud console or the `projects.get()` (</resource-manager/reference/rest/v3/projects/get>) method.

If you are not a project owner, you must have the permissions included in the Browser role (`roles/browser`).

Console (#console) **gcloudAPI** (#api)
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- **Local shell:** to use a local development environment, [install](#) (/sdk/docs/install) and [initialize](#) (/sdk/docs/initializing) the gcloud CLI.
2. To get the metadata for a project, use the [gcloud projects describe](#) (/sdk/gcloud/reference/projects/describe) command:

```
gcloud projects describe PROJECT_ID
```

Where *PROJECT_ID* is the ID of the project you want to view.

Listing projects

List all projects under a resource

To list all projects that are direct children of a resource, use the v3 [projects.list](#) (/resource-manager/reference/rest/v3/projects/list) method, with the parent resource specified in the query:

Request:

```
GET https://cloudresourcemanager.googleapis.com/v3/projects
```

```
{
  "parent": "folders/662951040570"
}
```

Response:

```
{
  "projects": [
```

```
{
  "name": "projects/951040570662",
  "parent": "folders/662951040570",
  "projectId": "tokyo-rain-123",
  "state": "ACTIVE",
  "displayName": "Tokyo Rain"
  "createTime": "2013-11-13T20:31:53.308Z"
  "updateTime": "2013-11-13T20:31:53.308Z"
  "etag": "BwWU1Z6XEfY="
}
]
```

Search for projects

To search for projects matching the specified query, use `gcloud alpha resource-manager projects search`, passing the query in the `--query` flag. The scope of search is all the projects for which the user has `projects.get` permission.

gcloudAPI (#api)
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2. To get the list of all projects use `gcloud alpha projects search` (/sdk/gcloud/reference/alpha/projects/search) command:

```
gcloud alpha projects search --query="displayName=rek*"
<table output showing the projects with display names starting from
gcloud alpha projects search --query="state:DELETE_REQUESTED"
```

```
<table output showing the projects for which delete has been request
```

If you specify the `parent.type` and `parent.id` fields in your request body, then the `resourcemanager.projects.list` permission is checked on the parent. If the user has this permission, all projects under the parent are returned after the remaining filters have been applied.

If the user lacks this permission, then all projects for which the user has the `resourcemanager.projects.get` permission are returned after remaining filters have been applied.

If no filter is specified, the call returns projects for which the user has `resourcemanager.projects.get` permissions.

Updating projects

You can update projects using the Google Cloud console or the `projects.patch()` (`/resource-manager/reference/rest/v3/projects/patch`) method.

The only fields that can be updated are the project name and labels. For more information about updating projects, see the [project API reference page](#) (`/resource-manager/reference/rest/v3/projects`).

To move a project within your resource hierarchy, see [Moving a project](#) (`/resource-manager/docs/moving-projects-folders`). To migrate a project from one organization resource to another, see [Migrating projects](#) (`/resource-manager/docs/project-migration`).

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- **Local shell:** to use a local development environment, [install](#) (/sdk/docs/install) and [initialize](#) (/sdk/docs/initializing) the gcloud CLI.
2. To update a project's name or labels, use the [gcloud alpha projects update](#) (/sdk/gcloud/reference/alpha/projects/update) command:

```
gcloud alpha projects update PROJECT_ID \
  --name=NAME \
  --update-labels=KEY=VALUE, ...
```

Where:

- *PROJECT_ID* is the ID of the project you want to update.
- *NAME* is the new name you want to assign to the project.
- *KEY=VALUE*, ... is a list of the key=value pairs of labels you want to update. If a label already exists, its value is modified. If it does not exist, a new label is created.

For more information and additional flags that can be used with this command, see the [Google Cloud CLI SDK](#) (/sdk/gcloud/reference/alpha/projects/update).

Shutting down (deleting) projects

You can shut down projects using the Google Cloud console or the [projects.delete](#) (/resource-manager/reference/rest/v3/projects/delete) method in the API. A project must have a lifecycle state of **ACTIVE** to be shut down in this way.

This method immediately marks a project to be deleted. A notification email is sent to the user who initiated the delete operation and the Technical category contacts that are listed in [Essential Contacts](#) (/resource-manager/docs/managing-notification-contacts) on a best effort basis; if the notification fails to send, the project is still marked to be deleted. If there's no contact in the Technical category, the fallback contact isn't notified.

A project that is marked for deletion isn't usable. If the project has a billing account associated with it, that association is broken and isn't reinstated if the project delete operation is canceled. After 30 days, the project is fully deleted. Until it is fully deleted, the project might still be visible, although it isn't usable.

To stop the project delete process during the 30-day period, see the [steps to restore a project](#) (#restoring_a_project).

Warning: You can recover most resources if you restore a project within the 30-day period. Some services have delays in restoring and you might need to wait some time for services to be restored. Some resources, such as Cloud Storage or Pub/Sub resources, are deleted much sooner. These resources might not be fully recoverable even if you restore the project within the 30-day period. In some cases, projects may continue to incur charges for a period of time after shutdown. To avoid unexpected charges, [disable billing](#) (/billing/docs/how-to/modify-project#disable_billing_for_a_project) before shutting down the project. The billing account must be manually linked again after the project is restored.

At the end of the 30-day period, the project and all of its resources are deleted and cannot be recovered. Until it is deleted, the project counts towards your project quota.

To help ensure that you don't delete any important projects, you can enable [change risk recommendations](#) (/recommender/docs/change-risk-recommendations). Change risk recommendations generate warnings when you try to delete projects that Google Cloud has identified as important.

If you have set up billing for a project, it might not be completely deleted until the current billing cycle ends and your account is successfully charged. The number and types of services in use can also affect when the system permanently deletes a project. To learn more about data retention and safe deletion, see [How Google retains data we collect](#) (https://policies.google.com/technologies/retention).

To shut down a project:

[Console](#) (#console) [gcloudAPI](#) (#api)
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2. To delete a project, use the `gcloud projects delete` (/sdk/gcloud/reference/projects/delete) command:

```
gcloud projects delete PROJECT_ID
```

Where *PROJECT_ID* is the ID of the project you want to delete.

Troubleshooting project deletion

If the process to shut down a project fails, you can find more information at [Troubleshooting project deletion](/resource-manager/docs/troubleshooting-project-deletion) (/resource-manager/docs/troubleshooting-project-deletion).

Restoring a project

Project owners can restore a deleted project within the 30-day recovery period that starts when the project is shut down. Restoring a project returns it to the state it was in before it was shut down, with certain exceptions:

- Billing is disabled on the project when the [project is shut down](#) (#shutting_down_projects) and billing is **not** automatically enabled on restored projects. The [Cloud Billing account must be manually linked](#) (/billing/docs/how-to/modify-project#enable_billing_for_an_existing_project) again after the project is restored. You might need to wait a few hours before you can successfully link a recently restored project to a billing account.
- You can recover most resources if you restore a project within the 30-day period. Some services have delays in restoring and you might need to wait some time for services to be restored.
- Some resources, such as Cloud Storage or Pub/Sub resources, are deleted much sooner. These resources might not be fully recoverable even if you restore the project within the 30-day period.
- Some services might need to be restarted manually. For more information, see [Restarting Google Cloud Services](#) (/billing/docs/how-to/restart-services).

You must have the `resourcemanager.projects.undelete` permission on the project you wish to restore. To restore a project:

(#gcloud)

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- **Local shell:** to use a local development environment, [install](#) (/sdk/docs/install) and [initialize](#) (/sdk/docs/initializing) the gcloud CLI.

2. To restore a project, use the `gcloud projects undelete` (/sdk/gcloud/reference/projects/undelete) command:

```
gcloud projects undelete PROJECT_ID
```

Where *PROJECT_ID* is the project ID or project number of the project you want to restore.

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