An App Engine app is made up of a single application resource that consists of one or more services. Each service can be configured to use different runtimes and to operate with different performance settings. Within each service, you deploy versions of that service. Each version then runs within one or more instances, depending on how much traffic you configured it to handle.

**Components of an application**

Your App Engine app is created under your Google Cloud project when you create an [application resource](https://cloud.google.com/appengine/docs/standard/python/console). The App Engine application is a top-level container that includes the service, version, and instance resources that make up your app. When you create your App Engine app, all your resources are created in the [region](https://cloud.google.com/appengine/docs/locations) that you choose, including your app code along with a collection of settings, credentials, and your app's metadata.

Each App Engine application includes at least one service, the default service, which can hold many versions, depending on your app's billing status. For more information, see [Limits](https://cloud.google.com/appengine/docs/standard/python/an-overview-of-app-engine#limits) below.

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## The Services

Use services in App Engine to factor your large apps into logical components that can securely share App Engine features and communicate with one another. Generally, your App Engine services behave like [microservices](https://wikipedia.org/wiki/Microservices). Therefore, you can run your whole app in a single service or you can design and deploy multiple services to run as [a set of microservices](https://cloud.google.com/appengine/docs/standard/python/microservices-on-app-engine).

For example, an app that handles your customer requests might include separate services that each handle different tasks, such as:

* API requests from mobile devices
* Internal, administration-type requests
* Backend processing such as billing pipelines and data analysis

Each service in App Engine consists of the source code from your app and the corresponding App Engine configuration files. The set of files that you deploy to a service represent a single version of that service and each time that you deploy to that service, you are creating additional versions within that same service.

## Versions

Having multi

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**Versions**

Having multi

 multiple versions of your app within each service allows you to quickly switch between different versions of that app for rollbacks, testing, or other temporary events. You can route traffic to one or more specific versions of your app by [migrating](https://cloud.google.com/appengine/docs/standard/python/migrating-traffic) or [splitting](https://cloud.google.com/appengine/docs/standard/python/splitting-traffic) traffic.

## Instances

The versions within your services run on one or more instances. By default, App Engine scales your app to match the load. Your apps will scale up the number of instances that are running to provide consistent performance, or scale down to minimize idle instances and reduces costs. For more information about instances, see [How Instances are Managed](https://cloud.google.com/appengine/docs/standard/python/how-instances-are-managed).

## Application requests

Each of your app's services and each of the versions within those services must have a unique name. You can then use those unique names to target and route traffic to specific resources using URLs, for example:

https://**VERSION\_ID**-dot-**SERVICE\_ID**-dot-**PROJECT\_ID**.[***REGION\_ID***](https://cloud.google.com/appengine/docs/standard/python/an-overview-of-app-engine#appengine-urls).r.appspot.com

Incoming user requests are routed to the services or versions that are configured to handle traffic. You can also target and route requests to specific services and versions. For more information, see [Handling Requests](https://cloud.google.com/appengine/docs/standard/python/how-requests-are-handled).

### Logging application requests

When your application handles a request, it can also write its own logging messages to [stdout and stderr](https://wikipedia.org/wiki/Standard_streams" \t "_blank). For details about your app's logs, see [Writing Application Logs](https://cloud.google.com/appengine/docs/standard/python/logs).

## Limits

The maximum number of services and versions that you can deploy depends on your app's pricing:

| **Limit** | **Free app** | **Paid app** |
| --- | --- | --- |
| Maximum services per app | 5 | 105 |
| Maximum versions per app | 15 | 210 |

There is also a limit to the number of instances for each service with basic or manual scaling:

| **Maximum instances per manual/basic scaling version** | | |
| --- | --- | --- |
| **Free app** | **Paid app US** | **Paid app EU** |
| 20 | 25 (200 for us-central) | 25 |

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