



# Deploying a Python Flask app on Heroku

In my [previous post](#) I described on a high level how I developed an API using Flask. I talked briefly about how I hosted it via Heroku. In this post, I am going to go deeper and show you how to deploy the API to Heroku step by step.

## Let`s Get started

After developing application on your local machine you always have the desire to share it with others far away but... you won`t carry your PC and go show them. So, you will then need to host it on the internet so that you provide them a public URL where they can view your work or product.

Heroku is a Platform as a service(PaaS) which abstracts us from dealing with servers, all we have to do is sign up, download a few tools and then upload our code to the platform effortlessly.

Before we continue, please ensure you have basic knowledge of Git, how it works as well as knowledge of how to use the terminal (Command line).

## Heroku CLI

You need to download the Heroku CLI which will enable us deploy and manage our application.

After installation login into the Heroku Cli by running this command in the terminal.

```
heroku login
```

You will be prompted to enter your email address and password. You will only be logged in if these details match the credentials you signed up with on the Heroku platform.

## The application

We are going to deploy the API application I developed and wrote about in this [post](#), though you can follow along with your own application.

I have the application code hosted [here](#) on my Github account. Follow along with me if you do not have an application to use.

Let us start by cloning the application. Open the terminal and paste in this command to clone the application. A gentle reminder that this step will only work if you have Git installed on your computer.

```
git clone https://github.com/jokamjohn/bucket_api_heroku.git
```

Open the folder `bucket_api_heroku` with your favorite text editor or IDE. Create a [virtual environment](#) and install the dependencies by running.

```
pip install -r requirements.txt
```

**Note:** if you are using your own application, make sure you have added a `requirements.txt` file by running `pip freeze > requirements.txt` so that all the application dependencies are added.

## Adding a Procfile

In order for us to successfully deploy any application to Heroku, we must add a `Procfile` to that application.

Before we can add a Procfile, we need to first install a web server called Gunicorn. Run the following command within the application folder.

```
pip install gunicorn
```

Update the requirements file by running

```
pip freeze > requirements.txt
```

Create a new file with `Procfile` as the name and do not add any extension. Add this line below

```
web: gunicorn app:app
```

`web` is used by Heroku to start a web server for the application. The `app:app` specifies the module and application name. In our application we have the app module and our flask application is also called app. If your's are different you can change them.

# Deployment

We are now ready to deploy our application. In the application folder run

```
heroku create kbucket-api-heroku
```

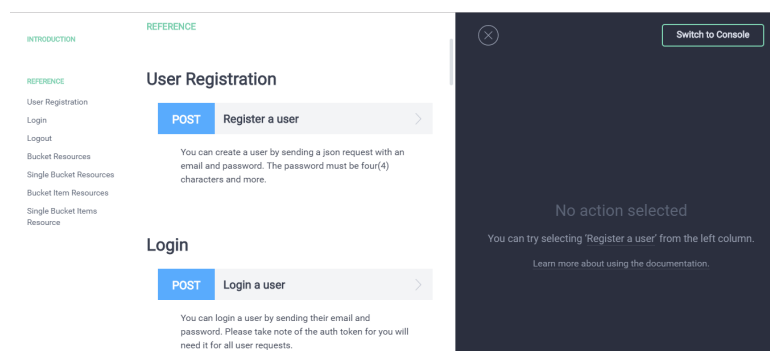
`k-bucket` is the name of the application, this has to be unique across Heroku. So change it to yours otherwise you will be unable to deploy. *You can completely discard the application name for Heroku to assign for you a unique name.*

The output of that command will be similar to this below. Take note of the application URL because it is where your app lives.

```
(venv) G:\PyProjects\bucket_api_heroku>heroku create kbucket-api-heroku
Creating kbucket-api-heroku... done
https://kbucket-api-heroku.herokuapp.com/ | https://git.heroku.com/kbucket-api-heroku.git
```

This <https://git.heroku.com/kbucket-api-heroku.git> is the Heroku git remote repository where our application lives on Heroku. We now have to push our application to the master branch of the above git URL. Here is the state of our application at this stage. Clone the repository if you have not been following along and push to the `Heroku master`.

Now head over to your application URL to see the application API documentation as the homepage.

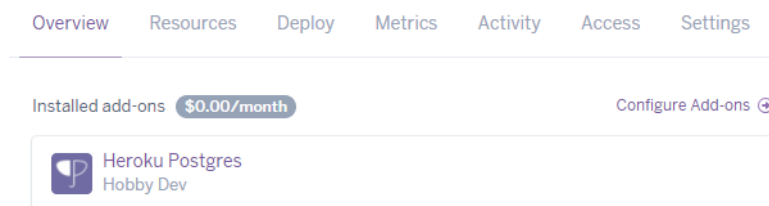


## Homepage

# Database

As you might already know by now, our application needs a database to save data. It uses the Postgresql database to persist this data.

Heroku is intelligent enough to scan through our application code and assign it a Postgres database. If you look at the your Heroku application dashboard under `overview` you will see a configured add-on called Heroku Postgres as shown below.



## Dashboard overview

Do not get very excited yet, we still have to populate the database with our tables. To do this we add one more line in our `Procfile` .

```
release: python manage.py db upgrade
```

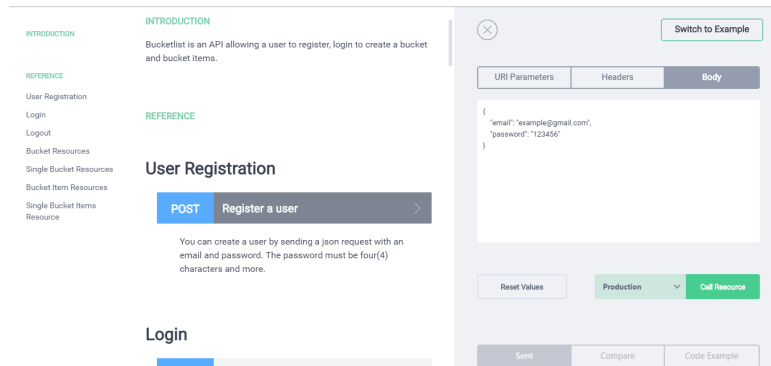
The command `db upgrade` from the `manage.py` file populates the table schema from the database migration file into the database.

Commit the changes and push to the Heroku master git repository or clone and use this repository.

## Testing the application

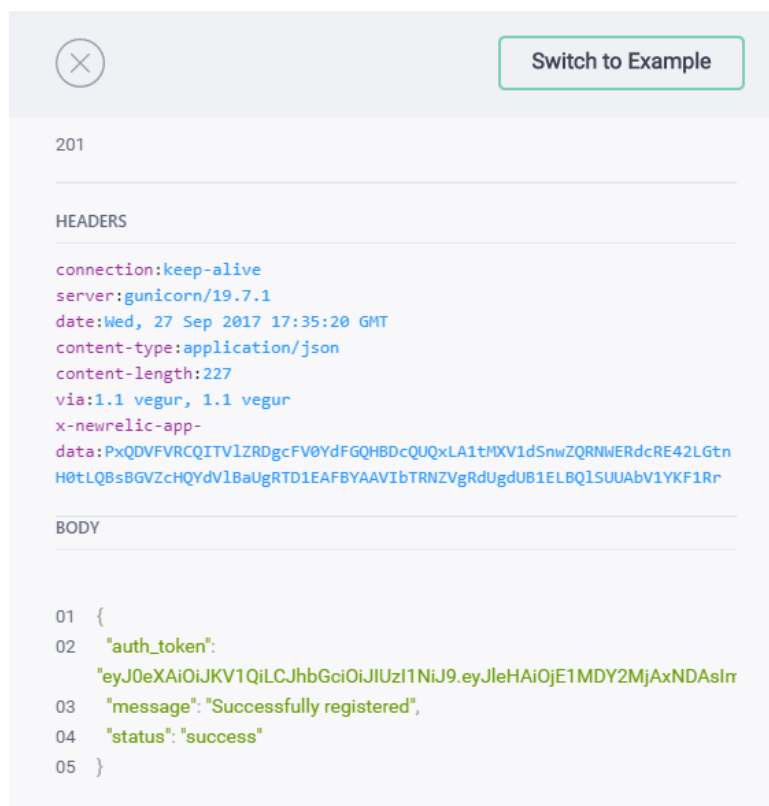
We can now finally test out our live API application. Head over to the application homepage and click on the `Register a user` under the reference section. Then click on `switch to`

console choose production so that the data we send can be persisted into the database. Click on body to display the sample email and password data.



API documentation and console

A 201 code is returned when a user is successfully created as shown below.



Successful user creation

Congratulations you have deployed your first app to Heroku.