<https://www.vioan.eu/blog/2016/10/10/deploy-your-flask-python-app-on-ubuntu-with-apache-gunicorn-and-systemd/>

Deploy your Flask Web Application on Ubuntu 16.04 with Apache, Gunicorn and systemd

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I still get questions from time to time about how to deploy a python web application using [Apache](https://www.apache.org/) and not [NGINX](https://www.nginx.com/). Here is a quick tutorial to deploy your Flask application on [Ubuntu 16.04](https://www.ubuntu.com/) or any linux distribution (considering relevant changes) using [Apache](https://www.apache.org/), [Gunicorn](http://gunicorn.org/) and [systemd](https://github.com/systemd/systemd). Until some weeks ago I used supervisord instead of systemd but nowadays I prefer to use systemd because is already there, installed, part of system. And also the reason to look into systemd and to switch was that I had to deploy an application on SLES (SUSE Linux Enterprise Server) and there is no supervisord package available in repos.

**Note: This is a very basic configuration to get everything running. It is just for learning and to get the idea how everything is connected.**

So, let's start:

* + install and configure apache:

# apt-get install apache2

As result we should get the default apache webpage in browser (<http://your-ip-here>)

* + we have to enable proxy modules for apache:

# a2enmod

and give this list of modules to enable:

proxy proxy\_ajp proxy\_http rewrite deflate headers proxy\_balancer proxy\_connect proxy\_html

(Below referring to Apache2 SSL if need to enable SSL - maybe just that instead and no need below)

* + Add our application to apache web server config file. Add the following lines (inside VirtualHost block) to /etc/apache2/sites-available/000-default.conf. **Make a backup of this file before you modify it**

<VirtualHost \*:80>  
 # ----- other info ---- in the file

# below are additional info to add in

<Proxy \*>  
 Order deny,allow  
 Allow from all  
 </Proxy>  
 ProxyPreserveHost On  
 <Location "/~~flaskapp~~">  
 ProxyPass "<http://server-ip:5000/>"  
 ProxyPassReverse "<http://server-ip:5000/>"  
 </Location>  
</VirtualHost>

* + restart apache to see if is working:

# service apache2 restart

* + everything is ok right now, but we want to use Gunicorn as our application server, so let’s configure it

in the same place where your Flask application is (/home/flaskappuser/flaskapp/ in my case) create a gunicorn.~~conf~~py file with the following content:

accesslog = "/home/ubuntu/pcba\_allocation/logs/gunicorn\_access.log"  
errorlog = "/home/ubuntu/pcba\_allocation/logs/gunicorn\_error.log"

* + now we can try to test our app again by running it using gunicorn:

# gunicorn -c gunicorn.py -b 0.0.0.0:5000 wsgi:app

check the browser and see if you app is working. Should work 😃

* + make sure that everything in flaskappuser home directory belongs to this user

# chown -R flaskappuser:flaskappuser /home/flaskappuser/

Now we have one more step. We want to monitor our Flask app and to restart it on crashing or to have nice start/stop commands for it. Or to have it started automatically on reboot. In order to do that we can use systemd which is available already in Ubuntu 16.04.

For that we have to create a .service file for our app. Here is my file: (/etc/systemd/system/flaskapp.service):

**[Unit]**  
Description**=**flaskapp  
After**=**network.target

**[Service]**  
User**=**flaskappuser  
Restart**=**on-failure  
WorkingDirectory**=**/home/flaskappuser/flaskapp/  
ExecStart**=**/home/flaskappuser/flaskapp/flaskvenv/bin/gunicorn -c /home/flaskappuser/flaskapp/gunicorn.conf -b 0.0.0.0:5000 app:app

**[Install]**  
WantedBy**=**multi-user.target

activate our .service file

# systemctl daemon-reload

enable it at boot/restart

# systemctl enable flaskapp

start our app

# systemctl start flaskapp

Check if our app is running:

(flaskvenv) root@apache-flask:~/flaskapp# tail -f /var/log/syslog  
Oct 10 14:25:59 guest systemd[1]: Started ACPI event daemon.  
Oct 10 14:26:03 guest systemd[1]: Started flaskapp.

(flaskvenv) root@apache-flask:~/flaskapp# ps aux | grep gunicorn  
flaskappuser 7263 0.2 2.9 64904 22492 ? Ss 14:26 0:00 /home/flaskappuser/flaskapp/flaskvenv/bin/python3.5 /home/flaskappuser/flaskapp/flaskvenv/bin/gunicorn -c /home/flaskappuser/flaskapp/gunicorn.conf -b 0.0.0.0:5000 app:app

check the app in your browser:

[*http://your-ip-here/flaskapp*](http://your-ip-here/flaskapp)

you can stop your app with:

# systemctl stop flaskapp

Done!

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