

Hosting a webserver using Nginx



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What is DigitalOcean?

DigitalOcean is a cloud computing vendor that offers an Infrastructure as a Service (IaaS) platform for software developers. DigitalOcean is very popular with **open source developers** and competes with Amazon Web Services (AWS) and Google Compute Engine.

Why did I use DigitalOcean?

I personally feel comfortable working with the droplets because I can choose the droplet's size, desired geographical region and data center it will run in, and which Linux operating system it will use such as: Ubuntu, CentOS, Debian, Fedora, CoreOS or FreeBSD. Secure Shell (SSH) is also supported for secure communication. Instead of picking a Linux distribution, developers can also create droplets from existing VM images that come with pre-installed applications.

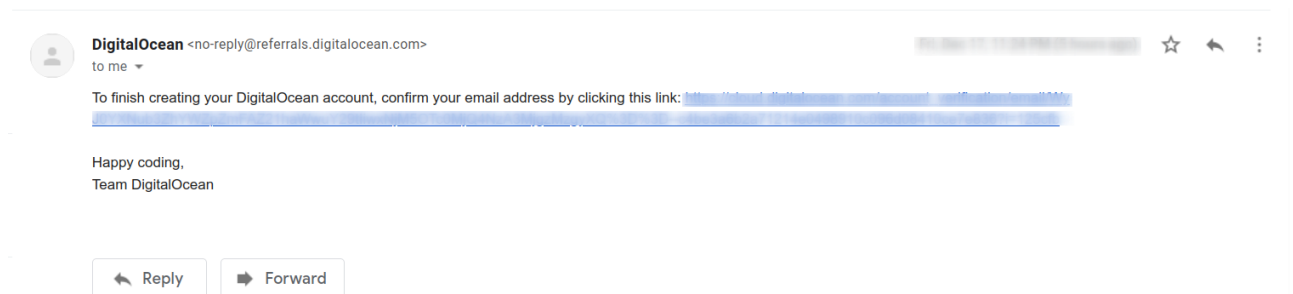
Droplet: To deploy DigitalOcean's Infrastructure as a Service (IaaS) environment, developers launch a private virtual machine (VM) instance, which DigitalOcean calls a "**droplet**".

First create an account in digitalOcean!

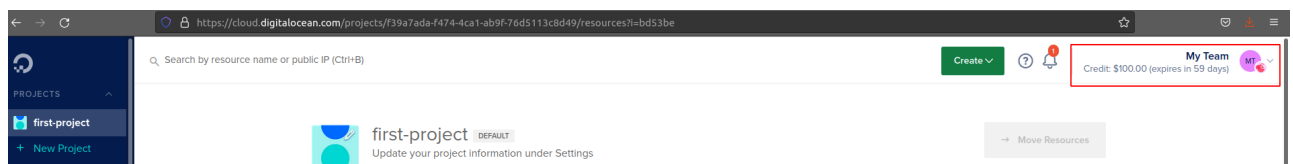
To create an account you must proceed to this page [DigitalOcean](#) and follow the steps down below:

- **Sign up** with your email and create password.

- To verify your account you will receive a link in you email you used to . **Click** the link and you will be verified right away!

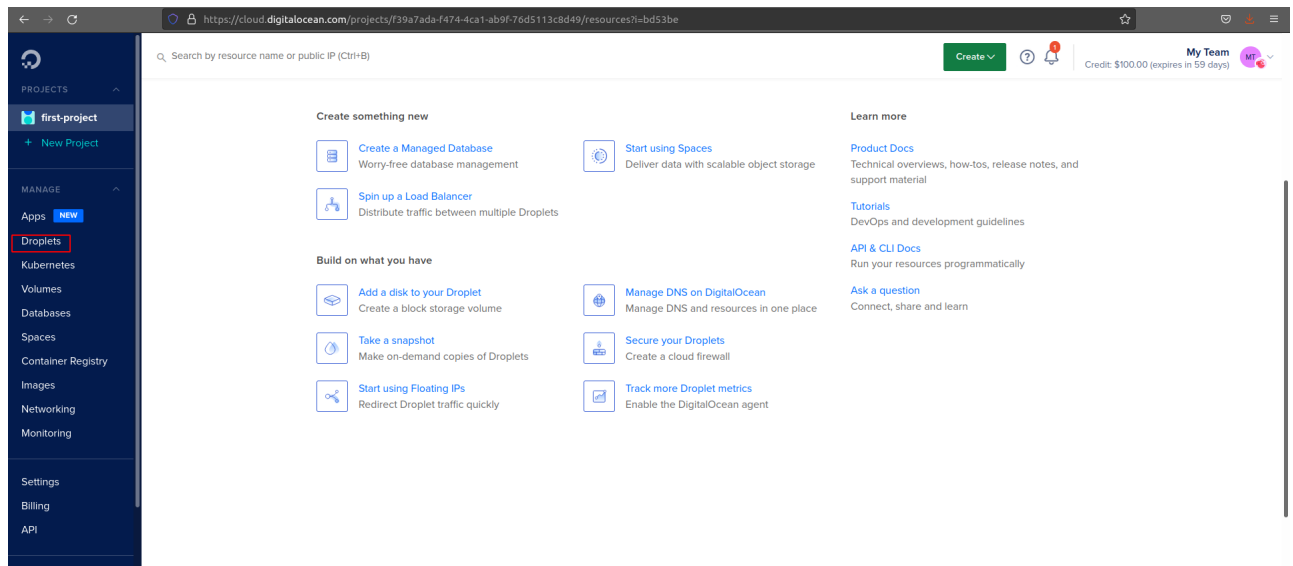


- It will ask you to provide your payment information. But don't worry! It is 100% free for the first 60 days. *(As long as you disable the account before 60 days, you will not find any money deduction from your account.)*

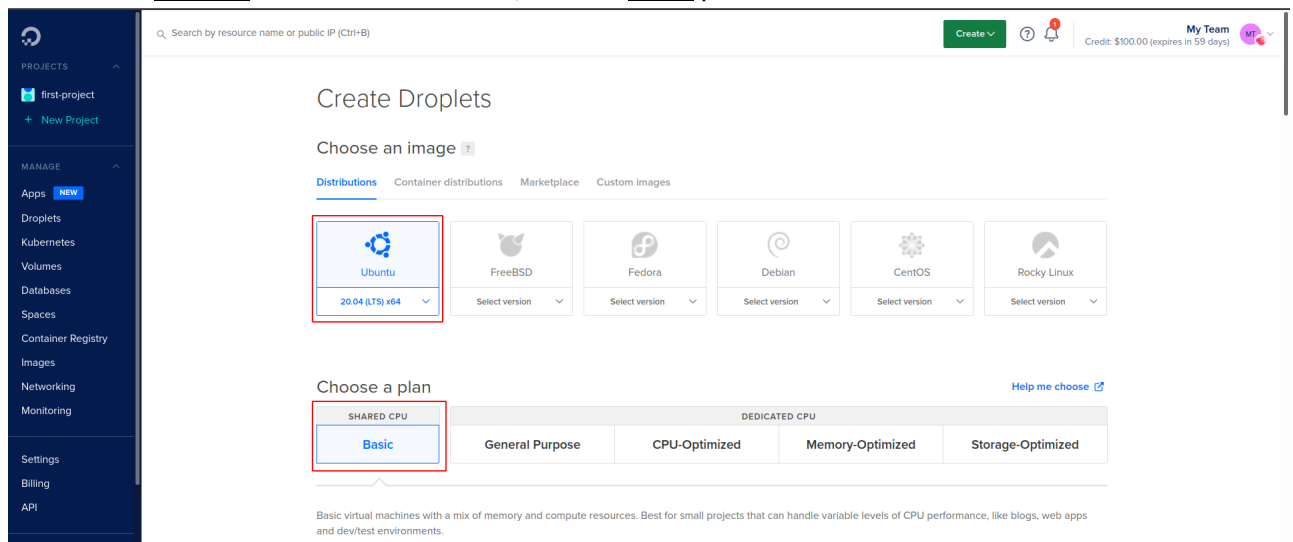


Create a Droplet

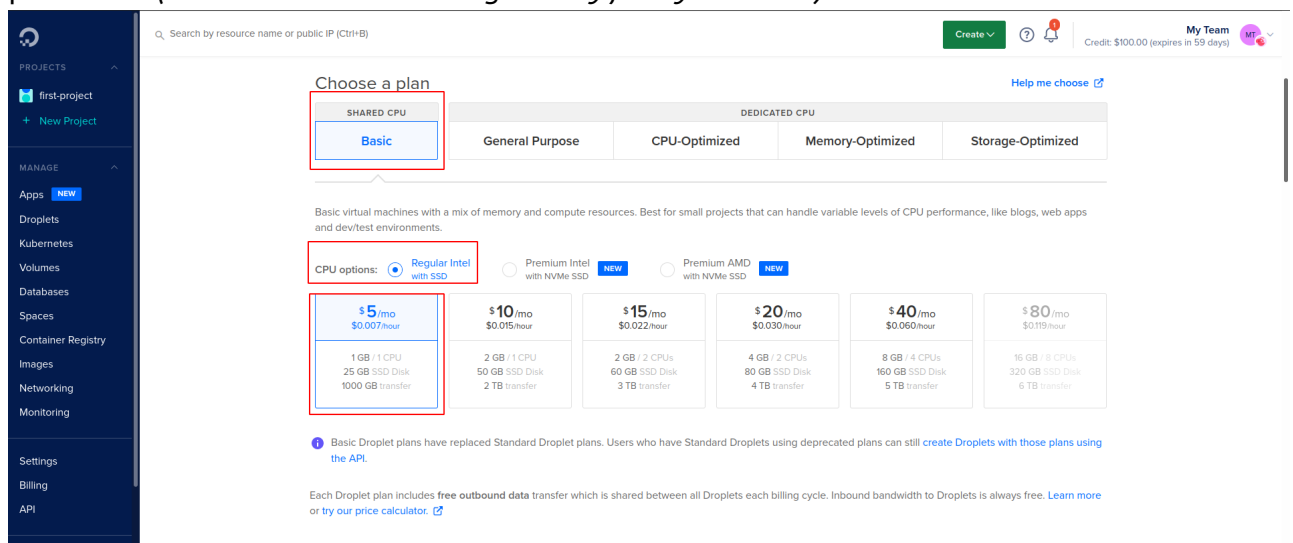
- Select the **Droplet** option for your first project. It will create a droplet form for you.



- First select Ubuntu as the **Distributions**, Choose Basic plan to create the **Plan**.



- Select Regular Intel with SSD for **CPU options**, then select the least amount of plan you will spend per month. (Reminder: It does not charge money from your wallet)



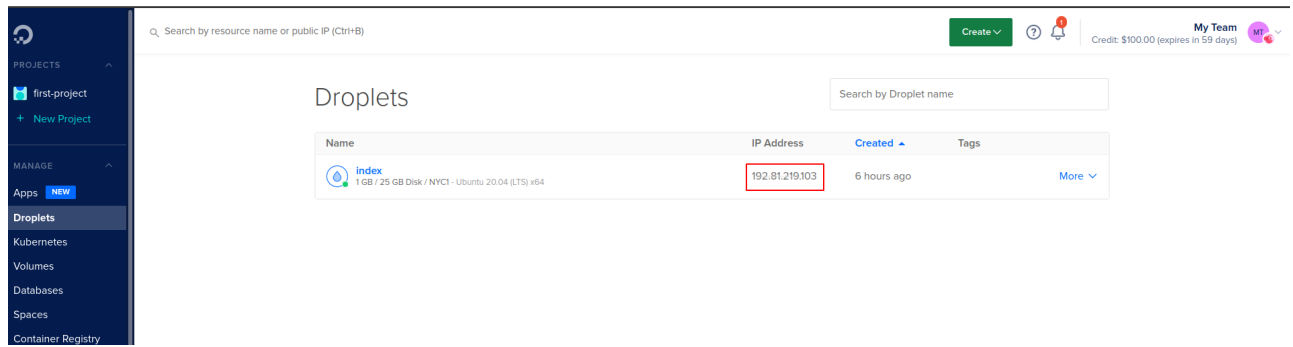
- Select which ever **Datacenter Region** is close to your location. You do not need to change the settings for **VPC Network** or **Additional options**.

- For **Authentication** choose Password and proceed to insert the password according to the *requirements*. You only need 1 droplet for the **Quantity**. For a **Hostname** choose a meaningful name. *(This will be your droplet name)*

- After you choose a hostname, the Final step is to create the **droplet**.

The process might take up to 1 minute! So, allow the droplet to be created.

- After the Droplet is created, copy the **ip address** and open your **Oracle VM machine**.



Start your Ubuntu terminal

- From your **Virtual Box** log into the server you created in **DigitalOcean**. Follow the command-line and insert the password which you used to create your **droplet**. You might get warnings to upgrade, so follow the command as it directs you.
 - ssh root@yourIpAddress** -> To log into your remote server
 - apt list --upgradable** -> To upgrade if anything needs to update.

```
root@index: ~  
nova@nova-VirtualBox:~$ ssh root@192.81.219.103  
root@192.81.219.103's password:  
Welcome to Ubuntu 20.04.3 LTS (GNU/Linux 5.4.0-88-generic x86_64)  
  
* Documentation:  https://help.ubuntu.com  
* Management:    https://landscape.canonical.com  
* Support:       https://ubuntu.com/advantage  
  
System information as of Sat Dec 18 10:55:47 UTC 2021  
  
System load:  0.0          Users logged in:      1  
Usage of /:   6.0% of 24.06GB IPv4 address for eth0: 192.81.219.103  
Memory usage: 20%          IPv4 address for eth0: 10.10.0.5  
Swap usage:   0%           IPv4 address for eth1: 10.116.0.2  
Processes:    102  
  
1 update can be applied immediately.  
To see these additional updates run: apt list --upgradable  
  
Last login: Sat Dec 18 06:33:50 2021 from 67.83.129.244  
root@index:~# apt list --upgradable
```

- As you upgrade all the files, you need to install the **Nginx**. (*NGINX is open source software for web serving, reverse proxying, caching, load balancing, media streaming, and more.*)

```
sudo apt install nginx -> Allows user to install Nginx to their  
remote server.
```

```

Warning: Permanently added '192.81.219.103' (ECDSA) to the list of known hosts.
root@192.81.219.103's password:
Welcome to Ubuntu 20.04.3 LTS (GNU/Linux 5.4.0-88-generic x86_64)

 * Documentation:  https://help.ubuntu.com
 * Management:    https://landscape.canonical.com
 * Support:       https://ubuntu.com/advantage

System information as of Sat Dec 18 04:34:08 UTC 2021

System load:  0.04               Users logged in:  0
Usage of /:   6.0% of 24.06GB    IPv4 address for eth0: 192.81.219.103
Memory usage: 19%               IPv4 address for eth0: 10.10.0.5
Swap usage:   0%                IPv4 address for eth1: 10.116.0.2
Processes:   105

1 update can be applied immediately.
To see these additional updates run: apt list --upgradable

The programs included with the Ubuntu system are free software;
the exact distribution terms for each program are described in the
individual files in /usr/share/doc/*/copyright.

Ubuntu comes with ABSOLUTELY NO WARRANTY, to the extent permitted by
applicable law.

root@index:~# sudo systemctl status nginx
Unit nginx.service could not be found.
root@index:~# sudo apt install nginx
Reading package lists... Done
Building dependency tree
Reading state information... Done
The following additional packages will be installed:
  fontconfig-config fonts-dejavu-core libfontconfig1 libgd3 libjpeg-turbo8 libjpeg8 libnghttp2-dev libnghttp2-1.0 libnghttp2-dev
  libnghttp2-1.0 libnghttp2-dev libnghttp2-1.0 libnghttp2-dev libnghttp2-1.0 libnghttp2-dev libnghttp2-1.0 libnghttp2-dev
Suggested packages:
  libgd-tools fcgiwrap nginx-doc ssl-cert
The following NEW packages will be installed:
  fontconfig-config fonts-dejavu-core libfontconfig1 libgd3 libjpeg-turbo8 libjpeg8 libnghttp2-dev libnghttp2-1.0 libnghttp2-dev
  libnghttp2-1.0 libnghttp2-dev libnghttp2-1.0 libnghttp2-dev libnghttp2-1.0 libnghttp2-dev libnghttp2-1.0 libnghttp2-dev
0 upgraded, 17 newly installed, 0 to remove and 1 not upgraded.
Need to get 2432 kB of archives.
After this operation, 7891 kB of additional disk space will be used.
Do you want to continue? [Y/n] y

```

- After installing nginx in your remote server, check the status of Nginx to verify.

`sudo systemctl status nginx` -> To check the status of Nginx, whether it is active or inactive.

```

Processing triggers for libc-bin (2.31-0ubuntu9.2) ...
root@index:~# sudo systemctl status nginx
● nginx.service - A high performance web server and a reverse proxy server
   Loaded: loaded (/lib/systemd/system/nginx.service; enabled; vendor preset: enabled)
   Active: active (running) since Sat 2021-12-18 04:40:58 UTC; 24s ago
     Docs: man:nginx(8)
    Main PID: 2241 (nginx)
      Tasks: 2 (limit: 1136)
     Memory: 5.2M
    CGroup: /system.slice/nginx.service
            └─2241 nginx: master process /usr/sbin/nginx -g daemon on; master_process on;
              └─2242 nginx: worker process

Dec 18 04:40:58 index systemd[1]: Starting A high performance web server and a reverse proxy server...

```

- Get inside of the folder `/var/www/html/` and edit the default file `"index.nginx-debian.html"` with vi editor.

`cd /var/www/html/` -> It allows user to change directory *(in this case to the `var/www/html/`)*

`ls` -> To list all the files *(in this case inside of the `/var/www/html/`)*

`vi index.nginx-debian.html` -> To edit the html file *(it is an editor and it will edit the `index.nginx-debian.html` file)*

```

root@index:~# cd /var/www/html/
root@index:/var/www/html# ls
index.nginx-debian.html
root@index:/var/www/html# vi index.nginx-debian.html

```

- After you open the html file you open with an editor. Start editing the way you want your webpage to look like! The **vi** editor requires specific key control.

vi Text Editor

What is vi editor? The vi editor is the most popular and commonly used Unix text editor. It is usually available in all Linux Distributions. It works in two modes, Command and Insert. Command mode takes the user commands, and the Insert mode is for editing text.

```
i -> To insert any character
a -> Write after cursor (goes into insert mode)
A -> Write at the end of line (goes into insert mode)
ESC -> Terminate insert mode
u -> Undo last change
U -> Undo all changes to the entire line
o -> Open a new line (goes into insert mode)
dd -> Delete line
3dd -> Delete 3 lines.
D -> Delete contents of line after the cursor
C -> Delete contents of a line after the cursor and insert new text.
Press ESC key to end insertion.
dw -> Delete word
4dw -> Delete 4 words
cw -> Change word
x -> Delete character at the cursor
r -> Replace character
R -> Overwrite characters from cursor onward
s -> Substitute one character under cursor continue to insert
S -> Substitute entire line and begin to insert at the beginning of the
line
~ -> Change case of individual character
```

- You should be in the **command mode** to execute these commands. VI editor is case-sensitive so make sure you type the commands in the right letter-case.
 - Make sure you press the right command otherwise you will end up making undesirable changes to the file. You can also enter the insert mode by pressing a, A, o, as required.

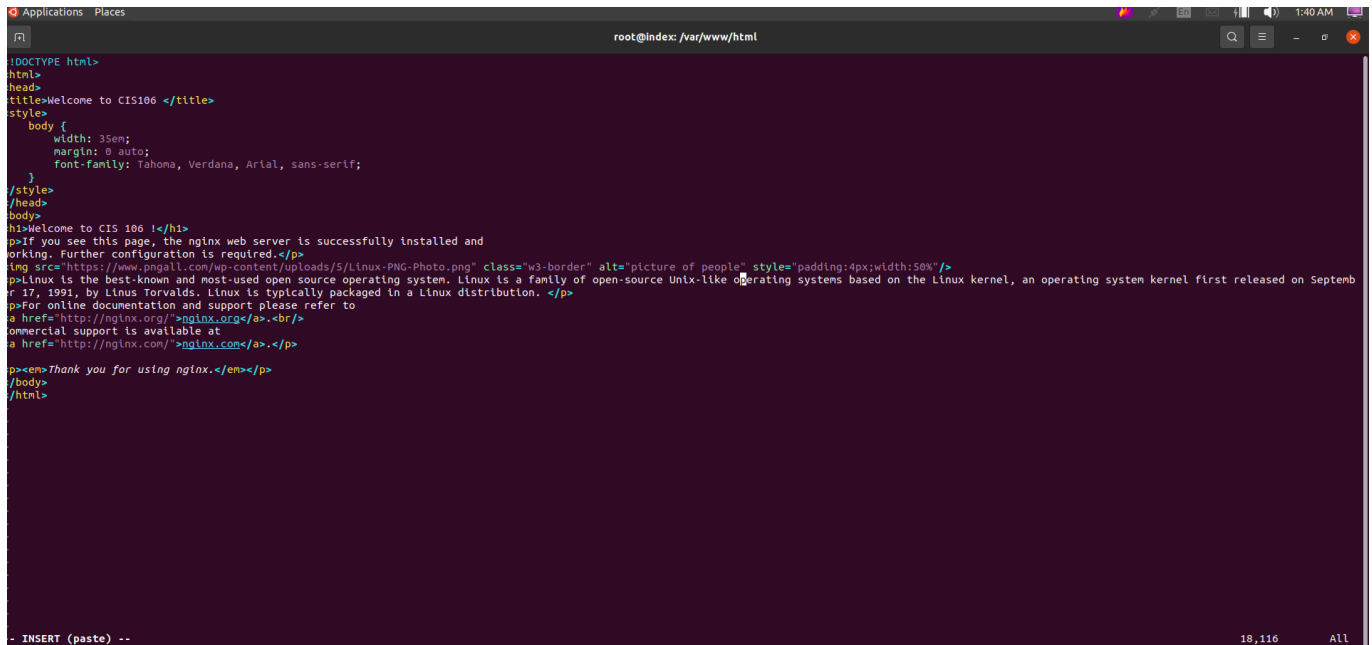
Moving within a file

```
k -> Move cursor up
j -> Move cursor down
h -> Move cursor left
l -> Move cursor right
```

- You need to be in the command mode to move within a file. The default keys for navigation are mentioned below else; You can also use the arrow keys on the keyboard.

Saving and Closing the file

```
Shift+zz -> Save the file and quit
:w -> Save the file but keep it open
:q -> Quit without saving
:wq -> Save the file and quit
```

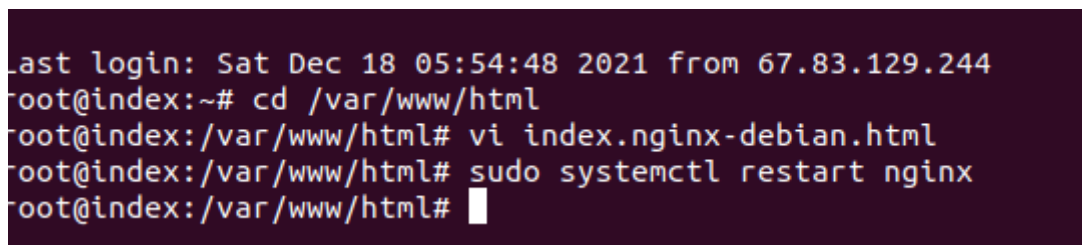


```
root@index: /var/www/html
DOCTYPE html>
<html>
<head>
<title>Welcome to CIS106 </title>
<style>
  body {
    width: 35em;
    margin: 0 auto;
    font-family: Tahoma, Verdana, Arial, sans-serif;
  }
</style>
</head>
<body>
<h1>Welcome to CIS 106 !</h1>
<p>If you see this page, the nginx web server is successfully installed and
working. Further configuration is required.</p>

<p>Linux is the best-known and most-used open source operating system. Linux is a family of open-source Unix-like operating systems based on the Linux kernel, an operating system kernel first released on September 17, 1991, by Linus Torvalds. Linux is typically packaged in a Linux distribution. </p>
<p>For online documentation and support please refer to
<a href="http://nginx.org/">nginx.org</a>.<br/>
commercial support is available at
<a href="http://nginx.com/">nginx.com</a>.</p>
<p><em>Thank you for using nginx.</em></p>
</body>
</html>
```

- Start or Restart your nginx to run as a webpage.

```
sudo systemctl start nginx -> Starts nginx
sudo systemctl stop nginx -> Stops nginx
sudo systemctl restart nginx -> Restarts nginx
sudo systemctl enable nginx -> Enables nginx
```

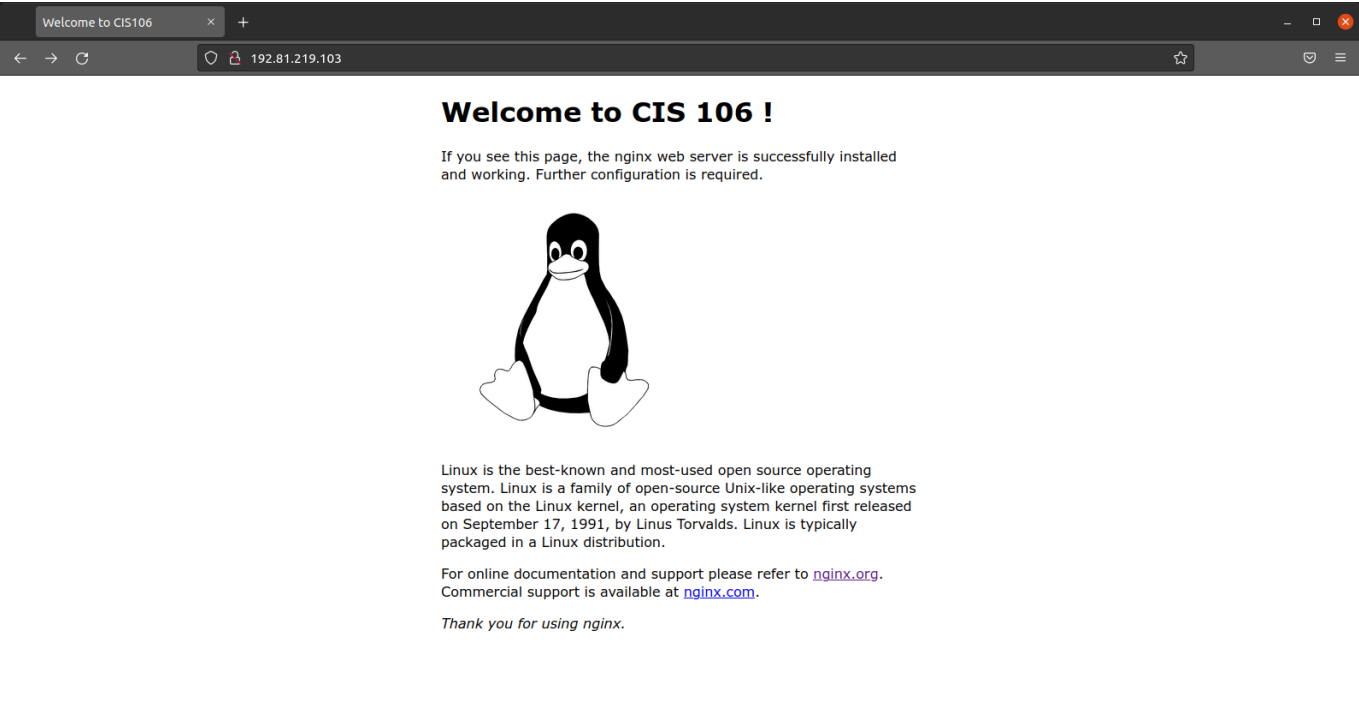


```
root@index:~# cd /var/www/html
root@index:/var/www/html# vi index.nginx-debian.html
root@index:/var/www/html# sudo systemctl restart nginx
root@index:/var/www/html#
```

- The Last step is to copy your remote server ip address and search it any search engine.
 - [Google](#)
 - [Microsoft Edge](#)
 - [Mozilla Firefox](#)
- Once you search your **IP address**, your webpage should be visible to you and the people who has access to the remote server's IP address.

Nginx Page

Congratulations! you have successfully accomplished to host a webpage using Nginx!!



Source Cited

Source1 Source2 Source3