

Step 1 - What is AWS



AWS is Amazon's **cloud** service.

It lets you

1. Rent servers
2. Manage domains
3. Upload objects (mp4 files, jpgs, mp3s ...)
4. Autoscale servers
5. Create k8s clusters

...

The offering we will be focussing on today is **Renting servers**

Step 2 - EC2 servers

VMs on AWS are called **EC2 Servers**

EC2 stands for Elastic compute Version 2.

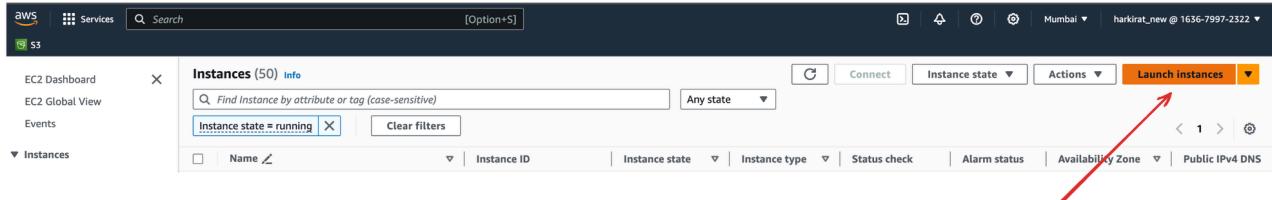
1. **Elastic** - Can increase/decrease the size of the machine
2. **Compute** - It is a machine

You can spin up a new EC2 instance from the aws dashboard

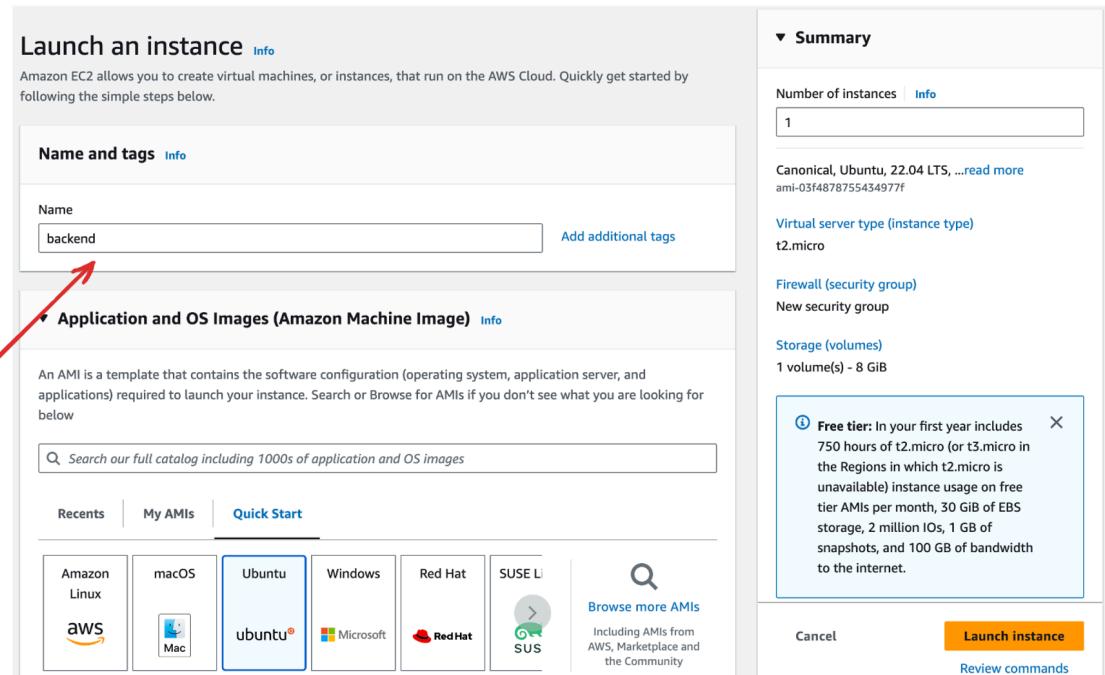
The screenshot shows the AWS Management Console search results for 'ec2'. The search bar at the top contains 'ec2'. On the left, there is a sidebar for 'Amazon S3' with options like Buckets, Access Grants, Access Points, Object Lambda Access, Multi-Region Access, Batch Operations, IAM Access Analyzer, and Block Public Access. Below that is a section for Storage Lens with options like Dashboards, Storage Lens groups, and AWS Organizations. The main search results are categorized under 'Services' and 'Features'. Under 'Services', 'EC2' is listed as 'Virtual Servers in the Cloud'. Under 'Features', 'EC2 Image Builder' is described as 'A managed service to automate build, customize and deploy OS images', 'Recycle Bin' as 'Protect resources from accidental deletion', and 'Amazon Inspector' as 'Continual vulnerability management at scale'. There are also 'See all 13 results' and 'See all 57 results' links.

Step 3 - Creating a new EC2 server

1. Click on **Launch a new instance**



2. Give a name



3. Select an OS

Hold Cmd and Double-click or press Cmd + Enter to edit points

Launch an instance [Info](#)

Amazon EC2 allows you to create virtual machines, or instances, that run on the AWS Cloud. Quickly get started by following the simple steps below.

Name and tags [Info](#)

Name Add additional tags

Virtual server type (instance type) [Info](#)

t2.micro

Application and OS Images (Amazon Machine Image) [Info](#)

An AMI is a template that contains the software configuration (operating system, application server, and applications) required to launch your instance. Search or Browse for AMIs if you don't see what you are looking for below.

Recents My AMIs Quick Start

Amazon Linux
macOS
Ubuntu
Windows
Red Hat
SUSE

Browse more AMIs
Including AMIs from AWS, Marketplace and the Community

① Free tier: In your first year includes 750 hours of t2.micro (or t3.micro in the Regions in which t2.micro is unavailable) instance usage on free tier AMIs per month, 30 GiB of EBS storage, 2 million IOs, 1 GB of snapshots, and 100 GB of bandwidth to the internet.

Cancel
Launch instance
Review commands

4. Select size

Instance type

t2.micro	Free tier eligible
Family: t2 1 vCPU 1 GiB Memory Current generation: true	
On-Demand Linux base pricing: 0.0124 USD per Hour	
On-Demand Windows base pricing: 0.017 USD per Hour	
On-Demand RHEL base pricing: 0.0724 USD per Hour	
On-Demand SUSE base pricing: 0.0124 USD per Hour	

Get advice on instance type selection...

t2.nano	Free tier eligible
Family: t2 1 vCPU 0.5 GiB Memory Current generation: true	
On-Demand SUSE base pricing: 0.0062 USD per Hour	
On-Demand Linux base pricing: 0.0062 USD per Hour	
On-Demand Windows base pricing: 0.0085 USD per Hour	

t2.micro	Free tier eligible
Family: t2 1 vCPU 1 GiB Memory Current generation: true	
On-Demand Linux base pricing: 0.0124 USD per Hour	
On-Demand Windows base pricing: 0.017 USD per Hour	
On-Demand RHEL base pricing: 0.0724 USD per Hour	
On-Demand SUSE base pricing: 0.0124 USD per Hour	

t2.small	Free tier eligible
Family: t2 1 vCPU 2 GiB Memory Current generation: true	
On-Demand SUSE base pricing: 0.0548 USD per Hour	
On-Demand Linux base pricing: 0.0248 USD per Hour	
On-Demand Windows base pricing: 0.0848 USD per Hour	
On-Demand RHEL base pricing: 0.1096 USD per Hour	

t2.medium	Free tier eligible
Family: t2 2 vCPU 4 GiB Memory Current generation: true	
On-Demand Linux base pricing: 0.0496 USD per Hour	
On-Demand Windows base pricing: 0.0676 USD per Hour	
On-Demand RHEL base pricing: 0.1096 USD per Hour	
On-Demand SUSE base pricing: 0.1496 USD per Hour	

t2.large	Free tier eligible
Family: t2 4 vCPU 8 GiB Memory Current generation: true	
On-Demand Linux base pricing: 0.1992 USD per Hour	
On-Demand Windows base pricing: 0.3344 USD per Hour	
On-Demand RHEL base pricing: 0.4992 USD per Hour	
On-Demand SUSE base pricing: 0.3992 USD per Hour	

Auto-assign public IP [Info](#)

Fnahle

Summary

Number of instances [Info](#)

1

Canonical, Ubuntu, 22.04 LTS, ...[read more](#)

ami-03f4878755434977f

Virtual server type (instance type)

t2.micro

Firewall (security group)

New security group

Storage (volumes)

1 volume(s) - 8 GiB

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Cancel
Launch instance
Review commands

<https://projects.100xdevs.com/pdf/g0AcDSPI74nk45ZZjRdU/aws-1>

4/13

5. Create a new Key pair

Key pair (login) [Info](#)

You can use a key pair to securely connect to your instance. Ensure that you have access to the selected key pair before you launch the instance.

Key pair name - required

Select [Create new key pair](#)

Please choose a key pair or choose the option to proceed with a key pair

Summary

Number of instances [Info](#)
1

Canonical, Ubuntu, 22.04 LTS, ...[read more](#)
ami-03f4878755434977f

Virtual server type (instance type)
t2.micro

6. Select Size

Configure storage [Info](#) Advanced

1x 8 GiB gp2 Root volume (Not encrypted)

Free tier eligible customers can get up to 30 GB of EBS General Purpose (SSD) or Magnetic storage [X](#)

Add new volume

The selected AMI contains more instance store volumes than the instance allows. Only the first 0 instance store volumes from the AMI will be accessible from the instance

Click refresh to view backup information [Edit](#)

The tags that you assign determine whether the instance will be backed up by any Data Lifecycle Manager policies.

0 x File systems [Edit](#)

Advanced details [Info](#)

Canonical, Ubuntu, 22.04 LTS, ...[read more](#)
ami-03f4878755434977f

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Cancel [Launch instance](#) [Review commands](#)

7. Allow traffic on http/https

Step 4 - SSH into server

1. Give ssh key permissions

```
chmod 700 kirat-class.pem
```

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2. ssh into machine

```
ssh -i kirat-class.pem ubuntu@ec2-65-0-180-32.ap-south-1.compute.amazonaws.com
```

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3. Clone repo

```
git clone https://github.com/hkirat/sum-server
```

Copy



If your aws machine shows you the following error, your aws machine doesn't have access to the internet

Solution - <https://www.tecmint.com/resolve-temporary-failure-in-name-resolution/>

```
ubuntu@ip-172-31-11-253:~$ ping google.com
ping: google.com: Temporary failure in name resolution
ubuntu@ip-172-31-11-253:~$
```

4. Install Node.js



<https://www.digitalocean.com/community/tutorials/how-to-install-node-js-on-ubuntu-20-04>

5. Install all dependencies

```
cd sum-server
npm install
```

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6. Start backend

```
node index.js
```

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Step 5 - Install the repo

Clone the repo

```
https://github.com/hkirat/sum-server
```

Copy

Step 6 - Try hitting the server

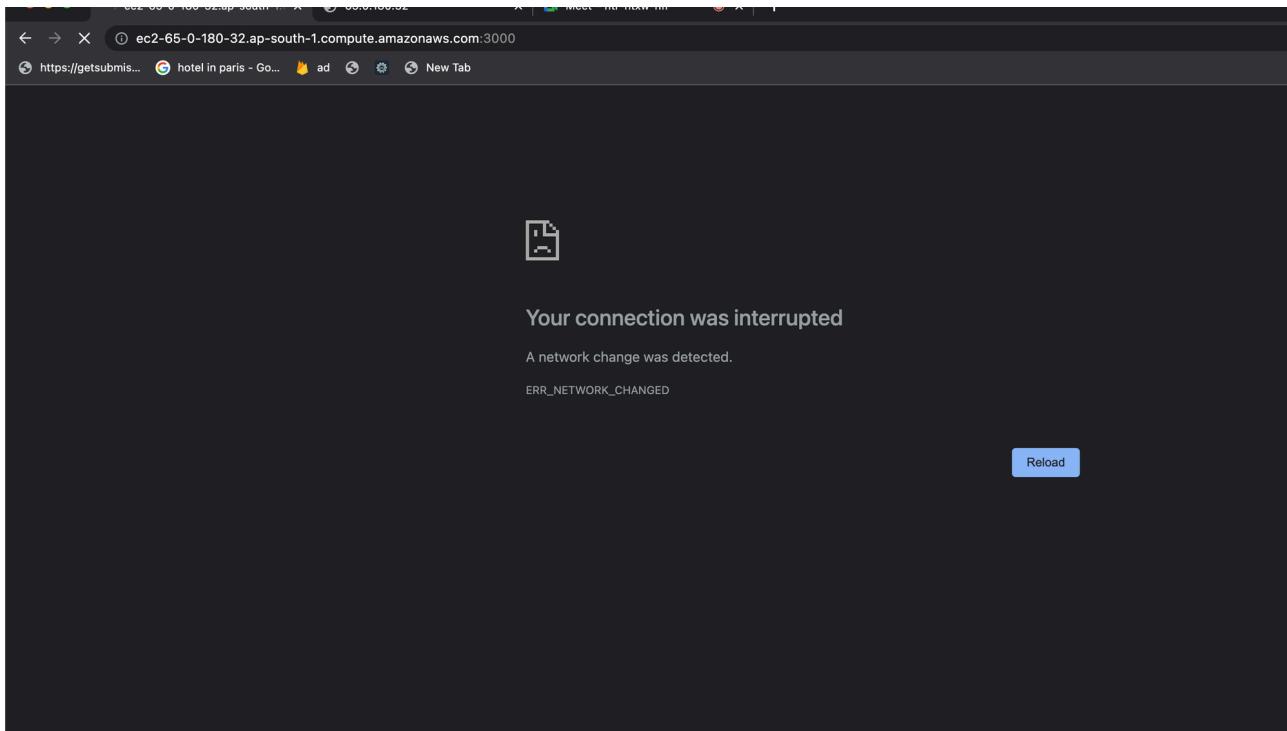
You have an ip/DNS that you can hit to access your ec2 server

Instance ID = i-0e4f854af3b210f99	X	Clear filters				
▼ Instance type	▼ Status check	Alarm status	Availability Zone	▼ Public IPv4 DNS	▼ Public IPv4 ...	Elastic IP
Q t2.micro	2/2 checks passed	View alarms +	ap-south-1b	ec2-65-0-180-32.ap-so...	65.0.180.32	-

Try visiting the backend

your_domain:3000 Copy

Notice you **can't** visit the website during this time



Security group

Instance: i-0e4f854af3b210f99 (kirat-test-backend)

sg-02dfb75955cbab399 (launch-wizard-82)

Inbound rules

Name	Security group rule ID	Port range	Protocol	Source	Security groups	Description
-	sgr-0706ed28fc7d64005	80	TCP	::/0	launch-wizard-82	-
-	sgr-00af5afb172ae42b3	22	TCP	0.0.0.0/0	launch-wizard-82	-
-	sgr-03176ca91948cd3aa	22	TCP	::/0	launch-wizard-82	-
-	sgr-0484c02d49ee84067	443	TCP	0.0.0.0/0	launch-wizard-82	-
-	sgr-06a2f4a09be104504	80	TCP	0.0.0.0/0	launch-wizard-82	-
-	sgr-04ddc60cb64fdd420	443	TCP	::/0	launch-wizard-82	-

You can either open port 8080, or process on port 80

Inbound rules (6)

Manage tags Edit inbound rules

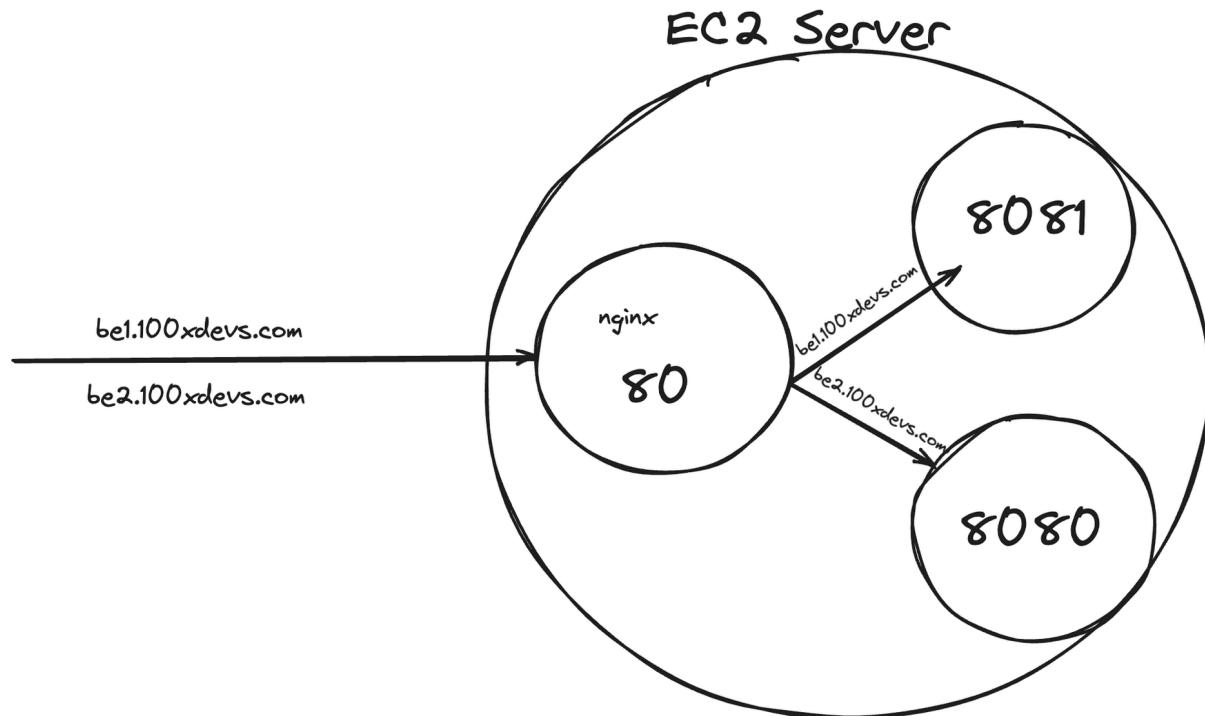
Name	Security group rule ID	Type	Protocol	Port range	Source
-	sgr-0706ed28fc7d64005	HTTP	TCP	80	::/0
-	sgr-00af5afb172ae42b3	SSH	TCP	22	0.0.0.0/0
-	sgr-03176ca91948cd3aa	SSH	TCP	22	::/0
-	sgr-0484c02d49ee840...	HTTPS	TCP	443	0.0.0.0/0
-	sgr-06a2f4a09be104504	HTTP	TCP	80	0.0.0.0/0
-	sgr-04ddc60cb64fdd420	HTTPS	TCP	443	::/0

Step 7 - nginx

<https://www.nginx.com/resources/glossary/nginx/>

NGINX is open source software for web serving, reverse proxying, caching, load balancing, media streaming, and more. It started out as a web server designed for maximum performance and stability. In addition to its HTTP server capabilities, NGINX can also function as a proxy server for email (IMAP, POP3, and SMTP) and a reverse proxy and load balancer for HTTP, TCP, and UDP servers.

What is a reverse proxy?



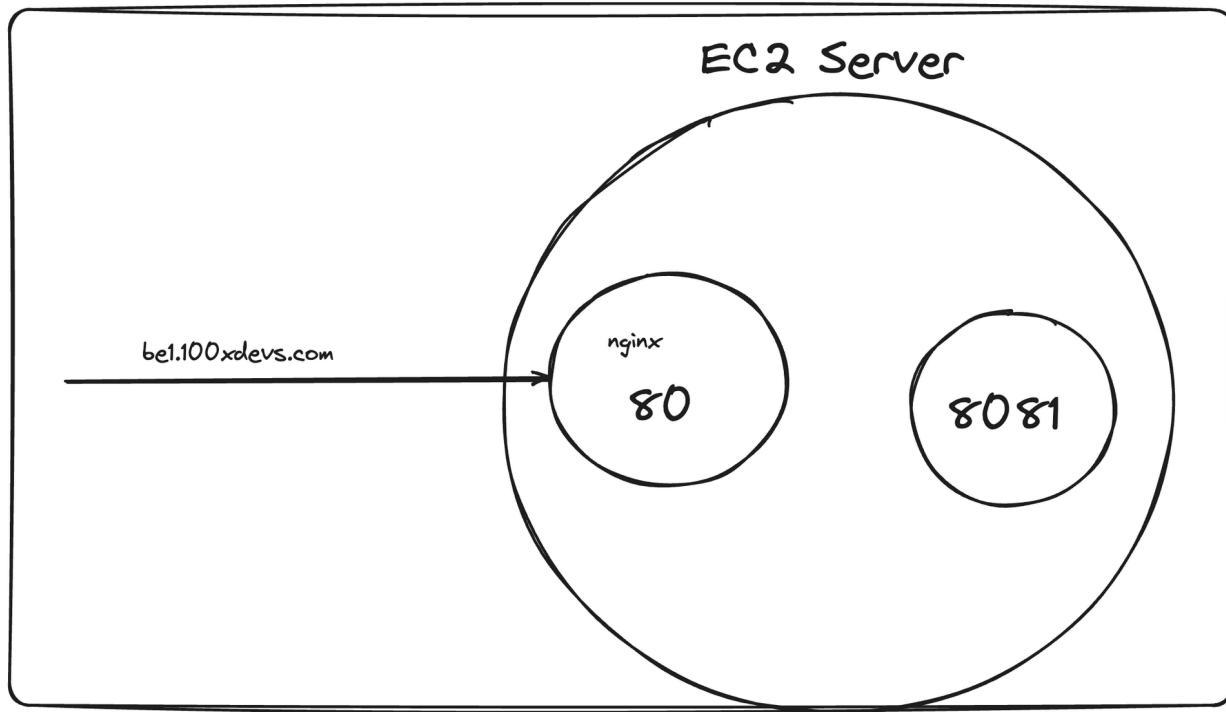
Installing nginx

```
sudo apt update  
sudo apt install nginx
```

Copy

This should start a **nginx server** on port 80

Try visiting the website



Create reverse proxy

```
sudo rm sudo vi /etc/nginx/nginx.conf          Copy  
sudo vi /etc/nginx/nginx.conf
```

```
events {                                              Copy
```

```
    # Event directives...  
}
```

```
http {  
    server {  
        listen 80;  
        server_name be1.100xdevs.com;
```

```
    location / {  
        proxy_pass http://localhost:8080;  
        proxy_http_version 1.1;  
        proxy_set_header Upgrade $http_upgrade;  
        proxy_set_header Connection 'upgrade';  
        proxy_set_header Host $host;  
        proxy_cache_bypass $http_upgrade;  
    }
```

```
}
```

```
sudo nginx -s reload
```

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Start the Backend server

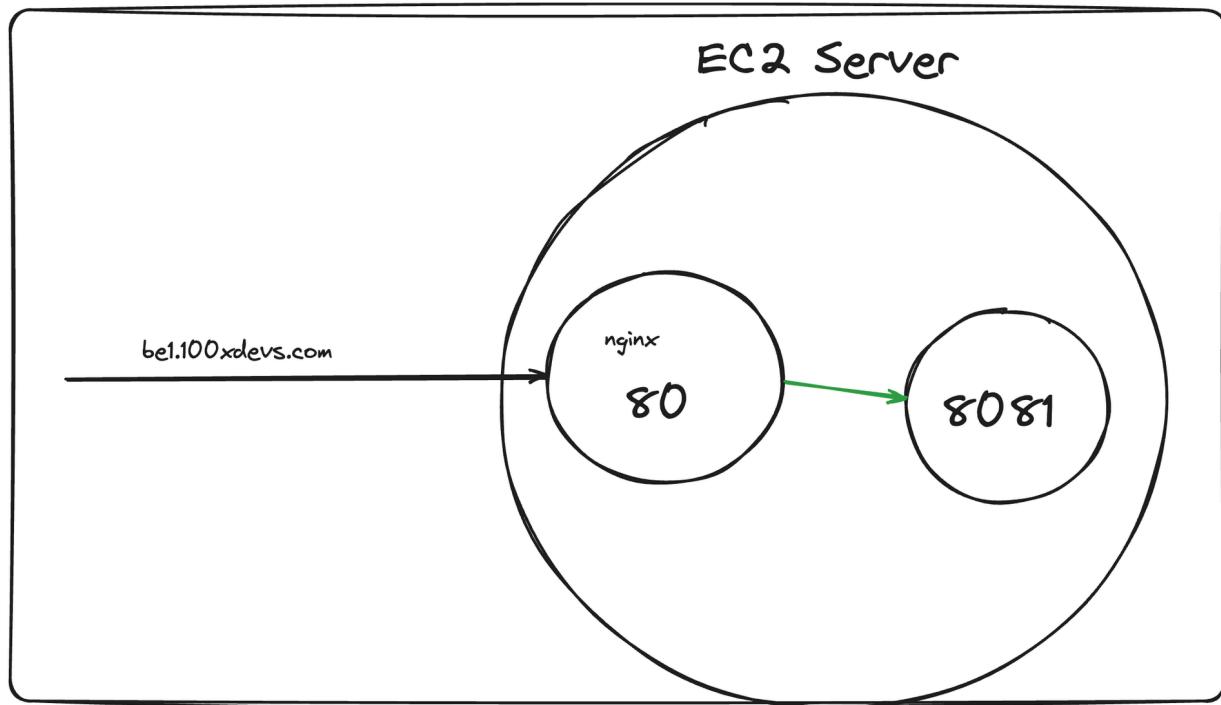
```
node index.js
```

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Visit the website

<https://be1.100xdevs.com/>

Copy



Step 8 - Certificate management

Use <https://certbot.eff.org/>