

Step 1: Launch an EC2 Instance

1. Log in to AWS Management Console:

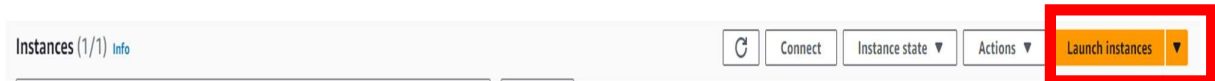
- Go to the AWS Management Console at <https://aws.amazon.com/console/>
- Sign in with your AWS credentials.

2. Navigate to EC2 Dashboard:

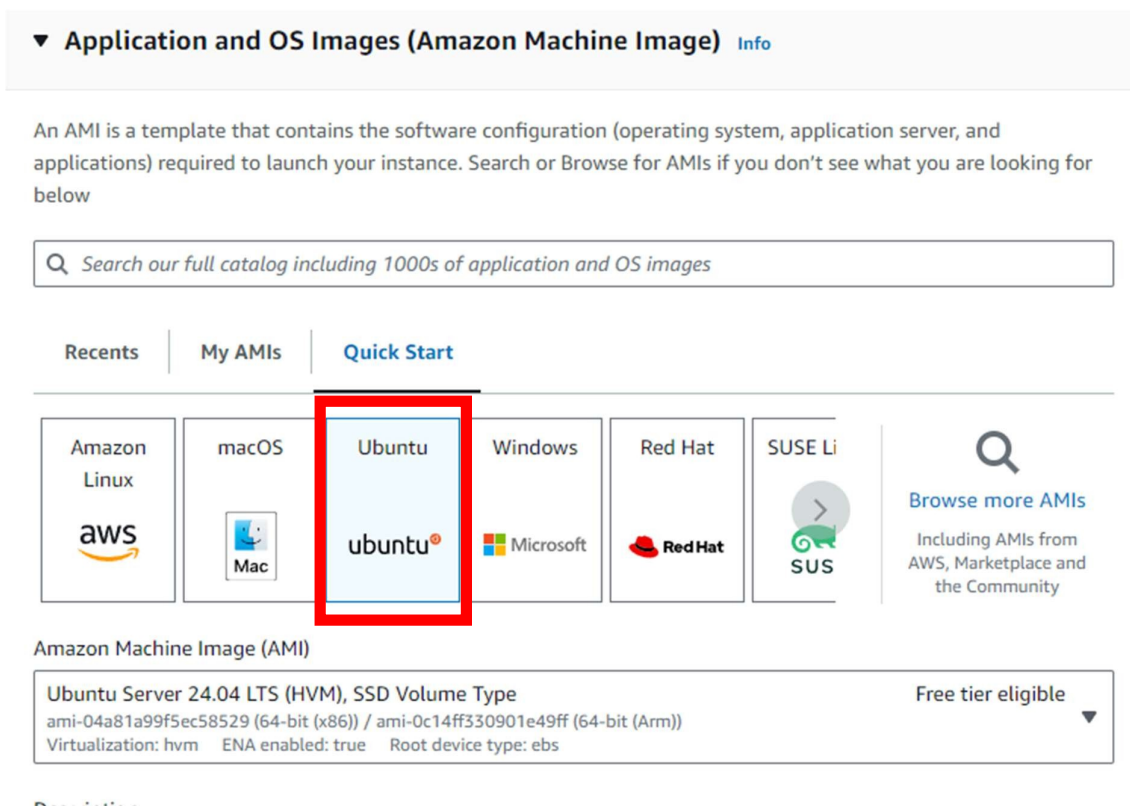
- In the AWS Management Console, type "EC2" in the search bar and select EC2 to navigate to the EC2 Dashboard.

3. Launch an Instance:

- Click on the "Launch Instance" button.



- Choose an Amazon Machine Image (AMI): Select "Ubuntu Server 20.04 LTS (HVM), SSD Volume Type".



- Choose an Instance Type: Select t2.micro (eligible for the free tier).

▼ **Instance type** [Info](#) | [Get advice](#)

Instance type

t2.micro

Family: t2 1 vCPU 1 GiB Memory Current generation: true
On-Demand Windows base pricing: 0.0162 USD per Hour
On-Demand SUSE base pricing: 0.0116 USD per Hour
On-Demand RHEL base pricing: 0.026 USD per Hour
On-Demand Linux base pricing: 0.0116 USD per Hour

Free tier eligible

☐ All generations
[Compare instance types](#)

Additional costs apply for AMIs with pre-installed software

- Configure Instance:
 - Select an existing key pair or create a new one.
 - Network: Choose the default VPC.
 - Subnet: Choose a subnet in the US-East-1 (N. Virginia) region.
 - Enable Auto-assign Public IP.

▼ **Network settings** [Info](#)

Edit

Network [Info](#)

vpc-01f4dd0a574fc4267

Subnet [Info](#)

No preference (Default subnet in any availability zone)

Auto-assign public IP [Info](#)

Enable

Additional charges apply when outside of free tier allowance

Firewall (security groups) [Info](#)

A security group is a set of firewall rules that control the traffic for your instance. Add rules to allow specific traffic to reach your instance.

☒ Create security group
☐ Select existing security group

We'll create a new security group called 'launch-wizard-2' with the following rules:

☒ Allow SSH traffic from

Helps you connect to your instance

Anywhere
0.0.0.0/0

☐ Allow HTTPS traffic from the internet

To set up an endpoint, for example when creating a web server

☒ Allow HTTP traffic from the internet

To set up an endpoint, for example when creating a web server

- Add Storage: Keep the default settings.
- Add Tags: Add a tag to identify your instance (e.g., Key: Name, Value: Nginx).

4. **Review and Launch:**
- Review your instance settings and click "Launch".

▼ Summary

Number of instances

Info

1

Software Image (AMI)

Canonical, Ubuntu, 24.04 LTS, ...read more

ami-04a81a99f5ec58529

Virtual server type (instance type)

t2.micro

Firewall (security group)

New security group

Storage (volumes)

1 volume(s) - 8 GiB

❗ 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, 750 hours of public IPv4 address usage 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

<input checked="" type="checkbox"/>	Name ↗	Instance ID	Instance state	Instance type	Status check	Alarm status	Availability Zone	Public IPv4 DNS	Public IPv4 ...	Elastic IP
<input checked="" type="checkbox"/>	Ngix	i-0c00a91976ab448ec	Running 🔍 🔍	t2.micro	2/2 checks passed	View alarms +	us-east-1b	ec2-3-87-207-51.comp...	3.87.207.51	-

5. Configure Security Group:

- Add a new security group with the following rules:
 - Type: HTTP, Protocol: TCP, Port Range: 80, Source: 0.0.0.0/0
 - Type: SSH, Protocol: TCP, Port Range: 22, Source: 0.0.0.0/0

i-0c00a91976ab448ec (Nginx)

▼ Inbound rules

Name	Security group rule ID	Port range	Protocol	Source	Security groups	Description
-	sgr-0c96d25f45f8dbfc	80	TCP	0.0.0.0/0	launch-wizard-1	-
-	sgr-041906bbea0c8558a	22	TCP	0.0.0.0/0	launch-wizard-1	-

Step 2: Connect to Your Instance

1. Connect to the EC2 Instance:

- In the EC2 Dashboard, select your instance.
- Click on "Connect" and follow the instructions to connect to your instance using SSH.

Step 3: Install Nginx

1. Update Package List:

```
sudo apt update
```

2. Install Nginx:

```
sudo apt install nginx -y
```

3. Start and Enable Nginx:

```
sudo systemctl start nginx
sudo systemctl enable nginx
sudo systemctl status nginx
```

```
root@ip-172-31-89-169:/home/ubuntu# systemctl status nginx
● nginx.service - A high performance web server and a reverse proxy server
   Loaded: loaded (/usr/lib/systemd/system/nginx.service; enabled; preset: enabled)
   Active: active (running) since Sat 2024-07-20 13:09:49 UTC; 58s ago
     Docs: man:nginx(8)
   Main PID: 2112 (nginx)
    Tasks: 2 (limit: 1130)
  Memory: 1.7M (peak: 1.9M)
     CPU: 10ms
    CGroup: /system.slice/nginx.service
            └─2112 "nginx: master process /usr/sbin/nginx -g daemon on; master_process on;"
              └─2113 "nginx: worker process"

Jul 20 13:09:49 ip-172-31-89-169 systemd[1]: Starting nginx.service - A high performance web server and a reverse proxy server...
Jul 20 13:09:49 ip-172-31-89-169 systemd[1]: Started nginx.service - A high performance web server and a reverse proxy server.
root@ip-172-31-89-169:/home/ubuntu#
```

Step 4: Configure Nginx to Display "Hello World"

1. Modify the Default Nginx Webpage:

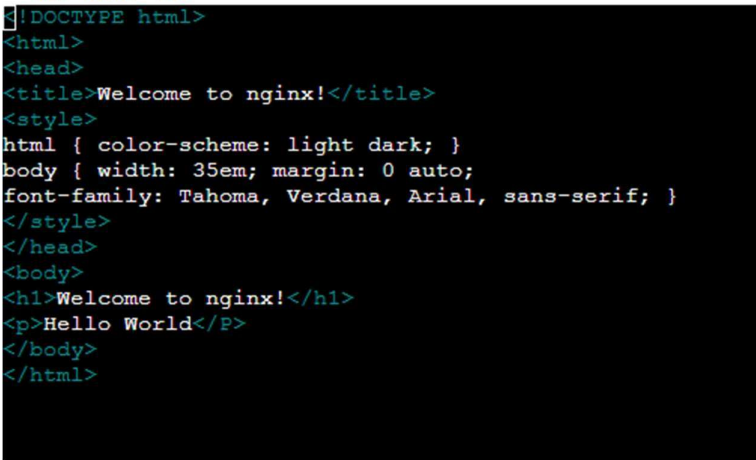
- Open the default Nginx configuration file:

```
sudo nano /var/www/html/index.nginx-debian.html
```

- Replace the content with the following HTML:

```
<!DOCTYPE html>
<html>
<head>
  <title>Welcome to Nginx!</title>
</head>
<body>
  <h1>Hello World</h1>
</body>
</html>
```

GNU nano 7.2



```
<!DOCTYPE html>
<html>
<head>
<title>Welcome to nginx!</title>
<style>
html { color-scheme: light dark; }
body { width: 35em; margin: 0 auto;
font-family: Tahoma, Verdana, Arial, sans-serif; }
</style>
</head>
<body>
<h1>Welcome to nginx!</h1>
<p>Hello World</p>
</body>
</html>
```

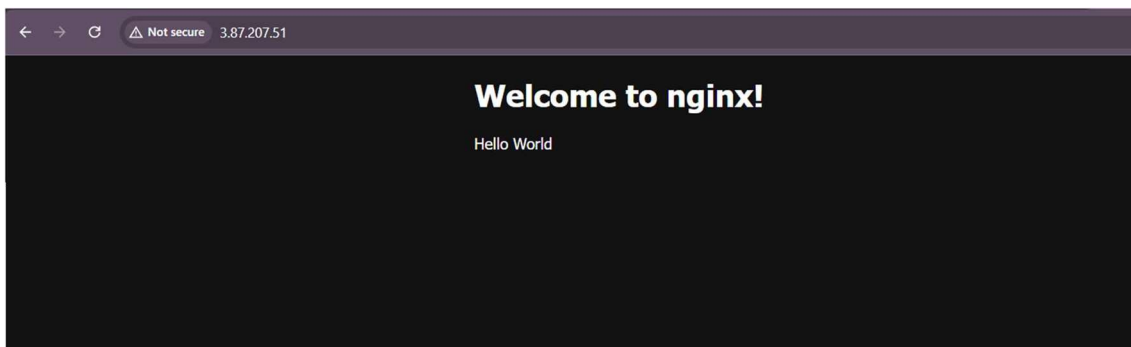
2. Save and Close the File:

- Press `Ctrl + x` to close the file.
- Press `y` to confirm changes, then press `Enter`.

Step 5: Verify the Configuration

1. Open a Web Browser:

- Enter the public IP address of your EC2 instance in the address bar.
- You should see a webpage displaying the message: "Hello World".



Step 6: Stop the EC2 Instance

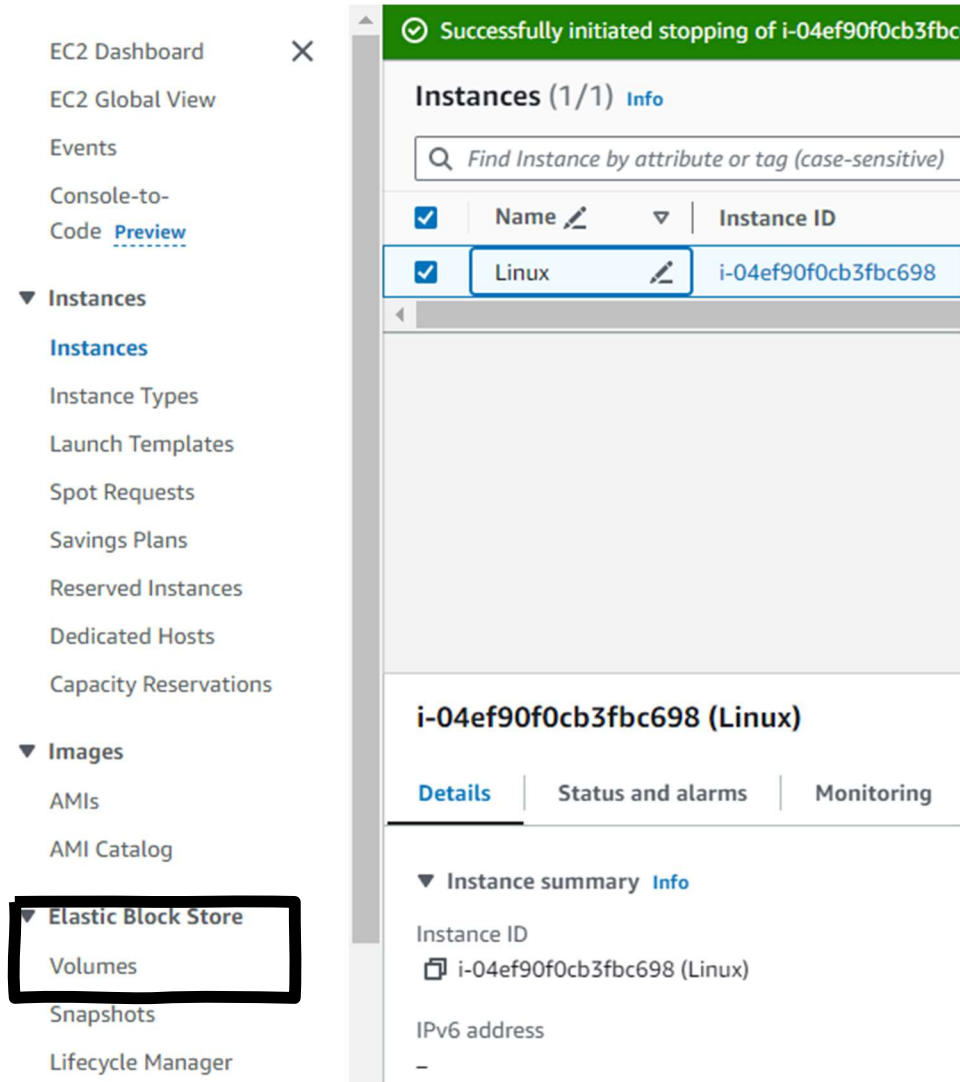
1. Stop the EC2 Instance:

- In the EC2 Dashboard, select your instance.
- Click on "Instance State" and then "Stop Instance".
- Confirm the action.

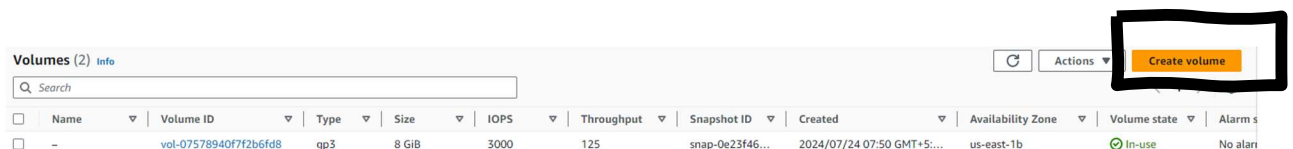
Step 7: Create and Attach an EBS Volume

1. Create an EBS Volume:

- In the AWS Management Console, go to the EC2 Dashboard.
- In the left-hand menu, under "Elastic Block Store", click "Volumes".



- Click on the "Create Volume" button.



- Configure the volume:
 - Size: 20 GiB.
 - Availability Zone: Select the same availability zone as your EC2 instance.
- Click "Create Volume".

Volume settings

Volume type [Info](#)

General Purpose SSD (gp3) ▼

General Purpose SSD gp3 is now the default selection. gp3 provides up to 20% lower cost per GB than gp2. [Learn More](#)

Size (GiB) [Info](#)

20

Min: 1 GiB, Max: 16384 GiB. The value must be an integer.

IOPS [Info](#)

3000

Min: 3000 IOPS, Max: 16000 IOPS. The value must be an integer.

Throughput (MiB/s) [Info](#)

125

Min: 125 MiB, Max: 1000 MiB. Baseline: 125 MiB/s.

Availability Zone [Info](#)

us-east-1b ▼

Snapshot ID - optional [Info](#)

Don't create volume from a snapshot ▼

↺

Encryption [Info](#)

Use Amazon EBS encryption as an encryption solution for your EBS resources associated with your EC2 instances.

☐ Encrypt this volume

Tags - optional [Info](#)

A tag is a label that you assign to an AWS resource. Each tag consists of a key and an optional value. You can use tags to search and filter your resources or track your AWS costs.

No tags associated with the resource.

Add tag

You can add 50 more tags.

Snapshot summary [Info](#)

↺

Click refresh to view backup information

The volume type that you select and the tags that you assign determine whether the volume will be backed up by any Data Lifecycle Manager policies.

Cancel

Create volume

2. Attach the EBS Volume to the EC2 Instance:

- After the volume is created, select it from the Volumes list.
- Click on "Actions" and select "Attach Volume".

Volumes (1/2) [Info](#)

Q Search

	Name	Volume ID	Size	Availability Zone
<input type="checkbox"/>	-	vol-07578940f7f2b6fd8	8 GiB	us-east-1b
<input checked="" type="checkbox"/>	-	vol-07074bc4fc9aac98	20 GiB	us-east-1b

↺

Actions ▲

Create volume

Modify volume

Create snapshot

Create snapshot lifecycle policy

Delete volume

Attach volume

Detach volume


Force detach volume

Manage auto-enabled I/O

- Choose the instance you stopped earlier from the "Instance" dropdown menu.

- For "Device", you can use the default value (e.g., `/dev/sdf`).
- Click "Attach".


Basic details

Volume ID
 vol-07074bc4fcf9aac98

Availability Zone
us-east-1b

Instance [Info](#)

i-04ef90f0cb3fbc698 ▼




Only instances in the same Availability Zone as the selected volume are displayed.

Device name [Info](#)

/dev/sdf ▼

Recommended device names for Linux: `/dev/sda1` for root volume. `/dev/sd[f-p]` for data volumes.

 Newer Linux kernels may rename your devices to `/dev/xvdf` through `/dev/xvdp` internally, even when the device name entered here (and shown in the details) is `/dev/sdf` through `/dev/sdp`.

Cancel

Attach volume

Step 8: Start the EC2 Instance and Ensure the New Size Reflects

- 1. Start the EC2 Instance:**
 - In the EC2 Dashboard, select your instance.
 - Click on "Instance State" and then "Start Instance".
 - Wait for the instance to be in the "running" state.
- 2. Connect to Your EC2 Instance:**
 - In the EC2 Dashboard, select your instance.
 - Click on "Connect" and follow the instructions to connect to your instance using SSH.
- 3. Check the Attached Volume:**
 - Run the following command to check the attached volume:

```
lsblk
```
 - You should see the volume listed (e.g., `/dev/xvdf`).


```

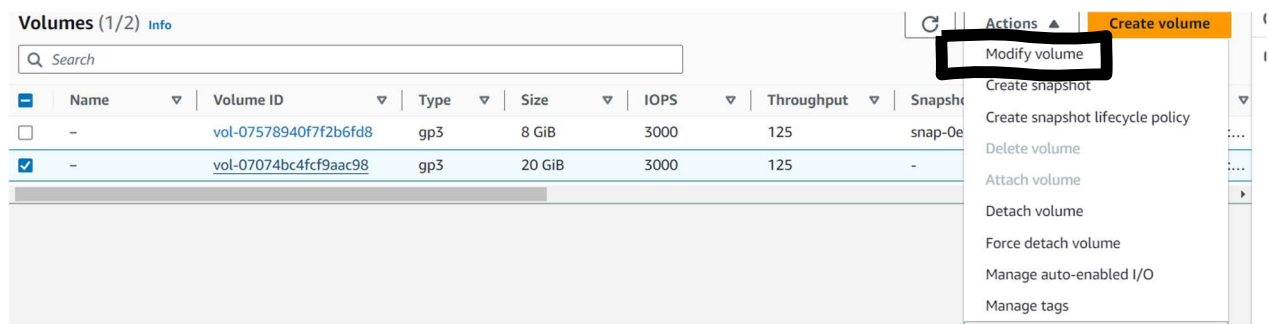
root@ip-172-31-87-19:/home/ubuntu# lsblk
NAME        MAJ:MIN RM  SIZE RO TYPE MOUNTPOINTS
loop0        7:0      0 25.2M  1 loop /snap/amazon-ssm-agent/7993
loop1        7:1      0 55.7M  1 loop /snap/core18/2829
loop2        7:2      0 38.8M  1 loop /snap/snapd/21759
xvda         202:0     0   8G   0 disk
├─xvda1      202:1     0   7G   0 part /
├─xvda14     202:14    0   4M   0 part
├─xvda15     202:15    0 106M   0 part /boot/efi
└─xvda16     259:0     0 913M   0 part /boot
xvdf         202:80    0  20G   0 disk

```

Step 9: Resize the Attached Volume Using AWS Management Console

1. Resize the EBS Volume:

- In the EC2 Dashboard, select "Volumes" under "Elastic Block Store".
- Select the volume you attached and click on "Actions" -> "Modify Volume".



- Change the size to a larger value (e.g., 30 GiB) and click "Modify".
- Confirm the modification in the pop-up dialog.

Step 10: Start the EC2 Instance and Ensure the New Size Reflects

4. Start the EC2 Instance:

- In the EC2 Dashboard, select your instance.
- Click on "Instance State" and then "Start Instance".
- Wait for the instance to be in the "running" state.

5. Connect to Your EC2 Instance:

- In the EC2 Dashboard, select your instance.
- Click on "Connect" and follow the instructions to connect to your instance using SSH.

6. Check the Attached Volume:

- Run the following command to check the attached volume:

```
lsblk
```

- You should see the volume listed (e.g., /dev/xvdf).

```

root@ip-172-31-87-19:/home/ubuntu# lsblk
NAME        MAJ:MIN     RM  SIZE RO TYPE MOUNTPOINTS
loop0        7:0         0 25.2M  1 loop /snap/amazon-ssm-agent/7993
loop1        7:1         0 55.7M  1 loop /snap/core18/2829
loop2        7:2         0 38.8M  1 loop /snap/snapd/21759
xvda        202:0        0   8G   0 disk
├─xvda1     202:1        0   7G   0 part /
├─xvda14    202:14       0   4M   0 part
├─xvda15    202:15       0 106M   0 part /boot/efi
└─xvda16    259:0        0 913M   0 part /boot
xvdbf       202:14592    0  30G   0 disk
root@ip-172-31-87-19:/home/ubuntu# █

```

Conclusion

By following this project guide, you have successfully launched an EC2 instance, created and attached an EBS volume, resized the volume, and ensured the new size is reflected in the EC2 instance. This hands-on experience demonstrates the practical skills required for managing EC2 instances and EBS volumes in AWS.

Additional Resources

- [AWS EC2 Documentation](#)
- [AWS EBS Documentation](#)
- [Ubuntu Server Documentation](#)