

# Demo – Deploy and Serve a Static Website

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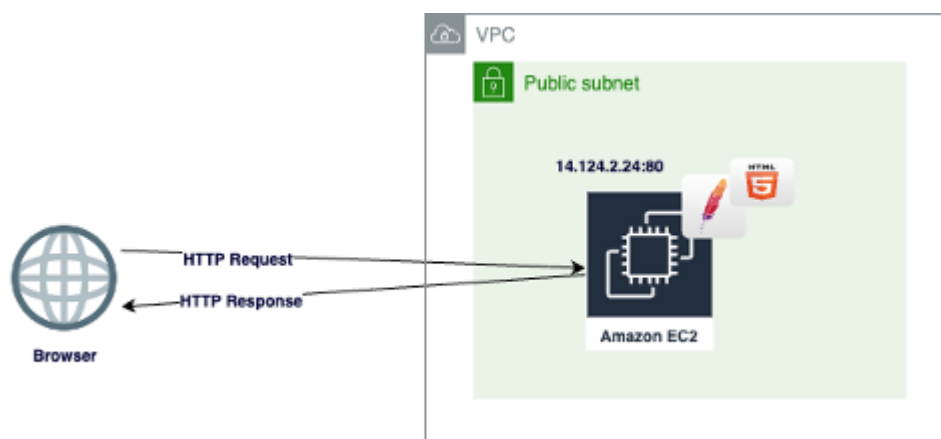
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## Introduction

In this demo, we are going to deploy a simple HTML website on an AWS EC2 Ubuntu Machine. To do so, we are going to:

- Create a simple HTML page.
- Create the networking and compute resources on AWS.
- Install the Apache2 webserver.
- Deploy the HTML page.
- Configure the webserver to serve the application on port 80.



The webpage to be deployed is nothing but a simple HTML page:

```
<!DOCTYPE html>
<html>
  <head>
    <title>My First Application</title>
  </head>
  <body>
    <p>I have no idea what I'm doing.</p>
  </body>
</html>
```

## Solution

### Compute and Networking Resources

#### SSH Keypair

1. Navigate to the **EC2** service, **Key Pairs** option from the left menu.
2. Create a Keypair.
3. The key will be automatically downloaded. Move it to a hidden directory.
4. Modify the permissions to read only: `chmod 400 <keyName>.pem`

#### Security Group

1. Navigate to the **Security group** option from the left menu.
2. Specify a name: aws-demo.
3. Attach it to the default VPC.
4. Enable ports **22** and **80** to all IPv4 addresses.

sg-033efe7a6f716f9cd - aws-demo Actions

Details

Security group name  
aws-demo

Security group ID  
sg-033efe7a6f716f9cd

Description  
aws-demo

VPC ID  
vpc-06635860

Owner  
167468750739

Inbound rules count  
2 Permission entries

Outbound rules count  
1 Permission entry

Inbound rules

Outbound rules

Tags

You can now check network connectivity with Reachability Analyzer

Run Reachability Analyzer

Inbound rules (2)

Filter security group rules

Manage tags

Edit inbound rules

	Name	Security group rule...	IP version	Type	Protocol	Port range	Source
<input type="checkbox"/>	-	sgr-02a708580c2556ecf	IPv4	SSH	TCP	22	0.0.0.0/0
<input type="checkbox"/>	-	sgr-092e6efd301a1e2da	IPv4	HTTP	TCP	80	0.0.0.0/0

## EC2 instance

Navigate to **AWS EC2** —> **instances** —> **Launch instances**, with the following parameters:

- **Name:** webserver
- **AMI:** Ubuntu Server 20.04 LTS (HVM), SSD Volume Type
- **Instance Type:** t3.medium (Or any type of your choice)
- **Key pair name:** aws-demo
- **Network Settings:**
  - **Select existing security group:** aws-demo
- **Configure storage:** 1 x 25 GiB gp2 Root volume

Instance summary for i-0caa7add01375a246 (myfirstapp) Info

Updated less than a minute ago

Refresh

Connect

Instance state

Actions

Instance ID  
i-0caa7add01375a246 (myfirstapp)

IPv6 address  
-

Hostname type

IP name: ip-172-31-33-204.eu-west-1.compute.internal

Answer private resource DNS name

IPv4 (A)

Auto-assigned IP address

54.170.153.250 [Public IP]

IAM Role

-

Public IPv4 address  
54.170.153.250 | open address

Instance state

Pending

Private IP DNS name (IPv4 only)

ip-172-31-33-204.eu-west-1.compute.internal

Instance type

t2.micro

VPC ID

vpc-06635860

Subnet ID

subnet-71dd6b2b

Private IPv4 addresses  
172.31.33.204

Public IPv4 DNS

ec2-54-170-153-250.eu-west-1.compute.amazonaws.com | open address

Elastic IP addresses

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AWS Compute Optimizer finding

Opt-in to AWS Compute Optimizer for recommendation s.

Learn more

Auto Scaling Group name

-

▼ Instance details <a href="#">Info</a>		
Platform Ubuntu (Inferred)	AMI ID ami-0d2a4a5d69e46ea0b	Monitoring disabled
Platform details Linux/UNIX	AMI name ubuntu/images/hvm-ssd/ubuntu-focal-20.04-amd64-server-20220610	Termination protection Disabled
Stop protection Disabled	Launch time Thu Sep 08 2022 15:00:54 GMT+0300 (Eastern European Summer Time) (4 minutes)	AMI location amazon/ubuntu/images/hvm-ssd/ubuntu-focal-20.04-amd64-server-20220610
Instance auto-recovery Default	Lifecycle normal	Stop-hibernate behavior disabled
AMI Launch index 0	Key pair name coe-demo-key	State transition reason -
Credit specification standard	Kernel ID -	State transition message -
Usage operation RunInstances	RAM disk ID -	Owner 167468750739
ClassicLink -	Enclaves Support -	Boot mode -
Allow tags in instance metadata Disabled	Use RBN as guest OS hostname Disabled	Answer RBN DNS hostname IPv4 Enabled

SSH to the machine: `ssh ubuntu@<Public IP address> -i <path to key>.pem`

```
Warning: Permanently added '54.170.153.250' (ED25519) to the list of known hosts.
Welcome to Ubuntu 20.04.4 LTS (GNU/Linux 5.13.0-1029-aws x86_64)
```

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

```
System information as of Thu Sep  8 12:06:30 UTC 2022
```

```
System load:  0.0           Processes:            105
Usage of /:   19.2% of 7.58GB Users logged in:       0
Memory usage: 20%          IPv4 address for eth0: 172.31.33.204
Swap usage:   0%
```

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

```
The list of available updates is more than a week old.
To check for new updates run: sudo apt update
```

```
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.
```

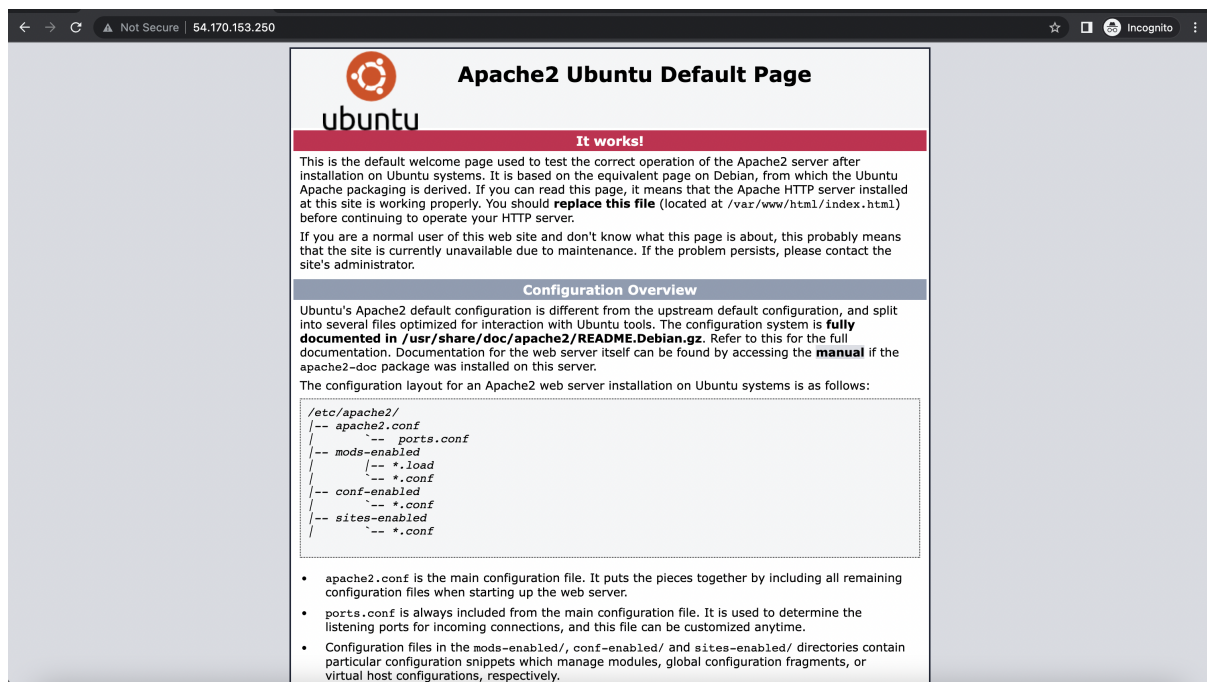
```
Ubuntu comes with ABSOLUTELY NO WARRANTY, to the extent permitted by
applicable law.
```

```
To run a command as administrator (user "root"), use "sudo <command>".
See "man sudo_root" for details.
```

```
ubuntu@ip-172-31-33-204:~$ █
```

## Apache2 Installation and configuration

1. Update the local package index to reflect the latest upstream changes: `sudo apt-get update`
2. Install the **Apache2** webserver: `sudo apt-get install -y apache2`
3. Verify that the deployment worked by performing a request to the machine using its public IP. The Apache2 default page must be loaded on the browser:



## Application Deployment

Perform the following steps to deploy the application:

```
# Create a directory
sudo mkdir /var/www/myfirstapp
# Change the ownership to www-data
sudo chown -R www-data:www-data /var/www/myfirstapp
# Change the directory permissions
sudo chmod -R 755 /var/www/myfirstapp
# Create the index.html file and paste the HTML code into it
sudo nano /var/www/myfirstapp/index.html
# Create the log directory
sudo mkdir /var/log/myfirstapp
# Change the ownership of the directory
sudo chown -R www-data:www-data /var/log/myfirstapp/
```

## Webserver Configuration

1. Create the virtual host file: `sudo nano /etc/apache2/sites-available/myfirstapp.conf`

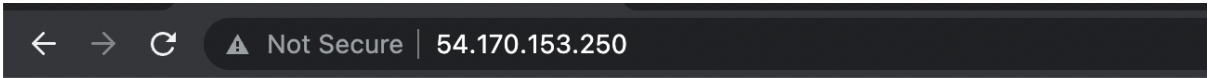
## 2. Paste the configuration below:

```
<VirtualHost *:80>
    DocumentRoot /var/www/myfirstapp
    ErrorLog /var/log/myfirstapp/error.log
    CustomLog /var/log/myfirstapp/requests.log combined
</VirtualHost>
```

## Enable the configuration:

```
# Enable the site configuration
sudo a2ensite myfirstapp.conf
# Disable the default configuration
sudo a2dissite 000-default.conf
# Test the configuration
sudo apache2ctl configtest
# Restart apache
sudo systemctl restart apache2
```

Perform a request on the server. The response will change this time, loading the custom page that was configured.



I have no idea what I'm doing.