

AWS DEPLOYMENT

- PART-1: Model Building and hosting local API
- PART - 2 : Deploying Public API to AWS EC2 server and launch website service



Sign in

Root user
Account owner that performs tasks requiring unrestricted access. [Learn more](#)

IAM user
User within an account that performs daily tasks. [Learn more](#)

Root user email address

[Next](#)

New to AWS?

[Create a new AWS account](#)

Build Mobile and Web Apps Fast

Add authentication and data syncing with AWS Amplify in just a few lines of code

[LEARN MORE](#)



About Amazon.com Sign In

Amazon Web Services uses information from your Amazon.com account to identify you and allow access to Amazon Web Services. Your use of this site is governed by our Terms of Use and Privacy Policy linked below. Your use of Amazon Web Services products and services is governed by the AWS Customer Agreement linked below unless you have entered into a separate agreement with Amazon Web Services or an AWS Value Added Reseller to purchase these products and services. The AWS Customer Agreement was updated on March 31, 2017. For more information about these updates, see [Recent Changes](#).



Root user sign in [?](#)

Email: brightkyereme1@gmail.com

Password [Forgot password?](#)

[Sign In](#)

[Sign in to a different account](#)

[Create a new AWS account](#)

Build Mobile and Web Apps Fast

Add authentication and data syncing with AWS Amplify in just a few lines of code

[LEARN MORE](#)



About Amazon.com Sign In

Amazon Web Services uses information from your Amazon.com account to identify you and allow access to Amazon Web Services. Your use of this site is governed by our Terms of Use and Privacy Policy linked below. Your use of Amazon Web Services products and services is governed by the AWS Customer Agreement linked below unless you have entered into a separate agreement with Amazon Web Services or an AWS Value Added Reseller to purchase these products and services. The AWS Customer Agreement was updated on March 31, 2017. For more information about these updates, see [Recent Changes](#).

The screenshot shows the AWS Management Console with the 'Services' menu open. The 'Compute' section is selected, displaying services like Lambda, Batch, and Elastic Beanstalk. A pink arrow points from the 'Compute' heading towards the 'Select EC2' button at the top right of the search results. The search bar contains the placeholder text 'Find services by names, keywords or acronyms.'

All services

Find services by names, keywords or acronyms.

Compute

- EC2
- Lightsail
- Lambda
- Batch
- Elastic Beanstalk
- Serverless Application Repos...
- AWS Outposts
- EC2 Image Builder

Storage

- S3
- EFS
- FSx
- S3 Glacier
- Storage Gateway
- AWS Backup

Database

- RDS
- DynamoDB

Robotics

- AWS RoboMaker

Customer Enablement

- AWS IQ
- Support
- Managed Services
- Activate for Startups

Blockchain

- Amazon Managed Blockchain

Satellite

- Ground Station

Quantum Technologies

- Amazon Braket

Management & Governance

- AWS Organizations
- CloudWatch

Analytics

- Athena

Machine Learning

- Amazon SageMaker
- Amazon Augmented AI
- Amazon CodeGuru
- Amazon Comprehend
- Amazon Forecast
- Amazon Fraud Detector
- Amazon Kendra
- Amazon Lex
- Amazon Personalize
- Amazon Polly
- Amazon Rekognition
- Amazon Texttract
- Amazon Transcribe
- Amazon Translate
- AWS DeepComposer
- AWS DeepLens
- AWS DeepRacer

AR & VR

- Amazon Sumerian

Application Integration

- Step Functions
- Amazon AppFlow
- Amazon EventBridge
- Amazon MQ
- Simple Notification Service
- Simple Queue Service
- SWF

AWS Cost Management

- AWS Cost Explorer
- AWS Budgets
- AWS Marketplace Subscripti...

Customer Engagement

- Amazon Connect
- Pinpoint
- Simple Email Service

Step 1: Choose an Amazon Machine Image (AMI)

An AMI is a template that contains the software configuration (operating system, application server, and applications) required to launch your instance. You can select an AMI provided by AWS, our user community, or the AWS Marketplace; or you can select one of your own AMIs.

Search for required environment

Quick Start

My AMIs

AWS Marketplace

Community AMIs

Free tier only (i)

ubuntu

Search by Systems Manager parameter

Amazon Linux 2 AMI (HVM), SSD Volume Type - ami-0947d2ba12ee1ff75 (64-bit x86) / ami-007a607c4abd192db (64-bit Arm)

Amazon Linux Free tier eligible

Amazon Linux 2 comes with five years support. It provides Linux kernel 4.14 tuned for optimal performance on Amazon EC2, systemd 219, GCC 7.3, Gilbc 2.26, Binutils 2.29.1, and the latest software packages through extras.

Root device type: ebs Virtualization type: hvm ENA Enabled: Yes

64-bit (x86)
 64-bit (Arm)

Select

Red Hat Enterprise Linux 8 (HVM), SSD Volume Type - ami-098f16afa9edf40be (64-bit x86) / ami-029ba835dd43c34f (64-bit Arm)

Red Hat Free tier eligible

Red Hat Enterprise Linux version 8 (HVM), EBS General Purpose (SSD) Volume Type

Root device type: ebs Virtualization type: hvm ENA Enabled: Yes

64-bit (x86)
 64-bit (Arm)

Select

SUSE Linux Enterprise Server 15 SP2 (HVM), SSD Volume Type - ami-0a782e324655d1cc0 (64-bit x86) / ami-06ec4eaf39ca724d4 (64-bit Arm)

SUSE Linux Free tier eligible

SUSE Linux Enterprise Server 15 Service Pack 2 (HVM), EBS General Purpose (SSD) Volume Type. Public Cloud, Advanced Systems Management, Web and Scripting, and Legacy modules enabled.

Root device type: ebs Virtualization type: hvm ENA Enabled: Yes

64-bit (x86)
 64-bit (Arm)

Select

Feedback English (US) ▾ © 2008 – 2020, Amazon Internet Services Private Ltd. or its affiliates. All rights reserved. Privacy Policy Terms of Use

1. Choose AMI 2. Choose Instance Type 3. Configure Instance 4. Add Storage 5. Add Tags 6. Configure Security Group 7. Review

Step 2: Choose an Instance Type

Filter by: All instance families ▾ Current generation ▾ Show/Hide Columns

Currently selected: t2.micro (- ECUs, 1 vCPUs, 2.5 GHz, - 1 GiB memory, EBS only)

	Family	Type	vCPUs	Memory (GiB)	Instance Storage (GB)	EBS-Optimized Available	Network Performance	IPv6 Support
<input type="checkbox"/>	t2	t2.nano	1	0.5	EBS only	-	Low to Moderate	Yes
<input checked="" type="checkbox"/>	t2	t2.micro Free tier eligible	1	1	EBS only	-	Low to Moderate	Yes
<input type="checkbox"/>	t2	t2.small	1	2	EBS only	-	Low to Moderate	Yes
<input type="checkbox"/>	t2	t2.medium	2	4	EBS only	-	Low to Moderate	Yes
<input type="checkbox"/>	t2	t2.large	2	8	EBS only	-	Low to Moderate	Yes
<input type="checkbox"/>	t2	t2.xlarge	4	16	EBS only	-	Moderate	Yes
<input type="checkbox"/>	t2	t2.2xlarge	8	32	EBS only	-	Moderate	Yes
<input type="checkbox"/>	t3	t3.nano	2	0.5	EBS only	Yes	Up to 5 Gigabit	Yes
<input type="checkbox"/>	t3	t3.micro	2	1	EBS only	Yes	Up to 5 Gigabit	Yes

click here to continue

make sure this is selected to avoid any charge

Step 7: Review Instance Launch

Ubuntu Server 16.04 LTS (HVM), SSD Volume Type - ami-0f82752aa17ff8f5d

Free tier eligible Ubuntu Server 16.04 LTS (HVM), EBS General Purpose (SSD) Volume Type. Support available from Canonical (<http://www.ubuntu.com/cloud/services>).

Root Device Type: ebs Virtualization type: hvm

Instance Type [Edit instance type](#)

Instance Type	ECUs	vCPUs	Memory (GiB)	Instance Storage (GB)	EBS-Optimized Available	Network Performance
t2.micro	-	1	1	EBS only	-	Low to Moderate

Security Groups [click here to edit the security group](#) [Edit security groups](#)

Security group name: launch-wizard-1
Description: launch-wizard-1 created 2020-11-02T06:27:20.061+05:30

Type (i)	Protocol (i)	Port Range (i)	Source (i)	Description (i)
All traffic	All	All	0.0.0.0/0	

Instance Details [Edit instance details](#)

Storage [Edit storage](#)

[Cancel](#) [Previous](#) [Launch](#)

Step 6: Configure Security Group

A security group is a set of firewall rules that control the traffic for your instance. On this page, you can add rules to allow specific traffic to reach your instance. For example, if you want to set up a web server and allow Internet traffic to reach your instance, add rules that allow unrestricted access to the HTTP and HTTPS ports. You can create a new security group or select from an existing one below. [Learn more](#) about Amazon EC2 security groups.

Assign a security group: Create a new security group

Select an existing security group

Security group name:

Description: launch-wizard-1 created 2020-11-02T06:27:20.061+05:30

Type (i)	Protocol (i)	Port Range (i)	Source (i)	Description (i)
SSH	TCP	22	Custom <input style="width: 100px; height: 20px;" type="button" value="..."/> 0.0.0.0/0	e.g. SSH for Admin Desktop

[Add Rule](#)

Warning
Rules with source of 0.0.0.0/0 allow all IP addresses to access your instance. We recommend setting security group rules to allow access from known IP addresses only.

change the type to "All Traffic"

[Cancel](#) [Previous](#) [Review and Launch](#)

Step 7: Review Instance Launch

Ubuntu Server 16.04 LTS (HVM), SSD Volume Type - ami-0f82752aa17ff8f5d

Free tier eligible Ubuntu Server 16.04 LTS (HVM), EBS General Purpose (SSD) Volume Type. Support available from Canonical (<http://www.ubuntu.com/cloud/services>).

Root Device Type: ebs Virtualization type: hvm

Instance Type [Edit instance type](#)

Instance Type	ECUs	vCPUs	Memory (GiB)	Instance Storage (GB)	EBS-Optimized Available	Network Performance
t2.micro	-	1	1	EBS only	-	Low to Moderate

Security Groups [Edit security groups](#)

Security group name: launch-wizard-1
Description: launch-wizard-1 created 2020-11-02T06:27:20.061+05:30

Type (i)	Protocol (i)	Port Range (i)	Source (i)	Description (i)
All traffic	All	All	0.0.0.0/0	

Instance Details [Edit instance details](#)

Storage [Edit storage](#)

[Cancel](#) [Previous](#) [Launch](#)

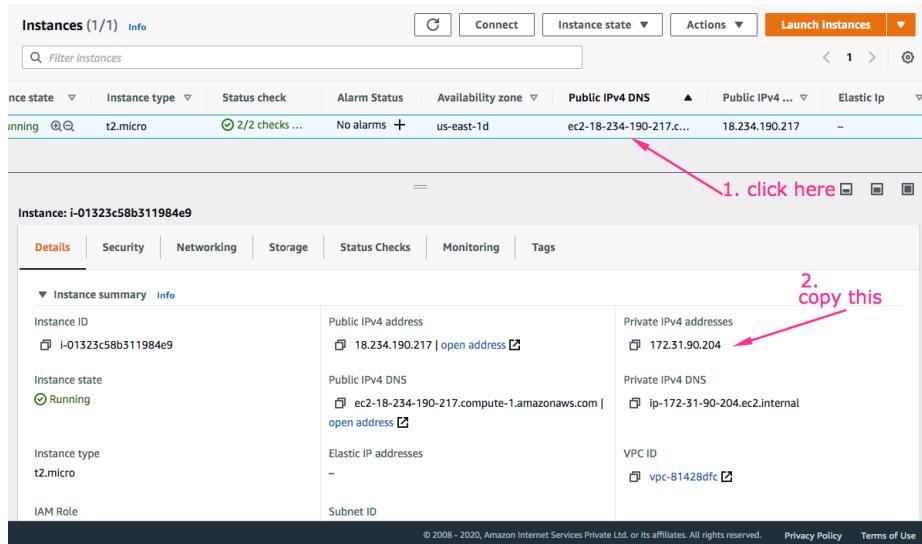
click launch to continue

You need to create a Private Key so that only you can login to the server using SSH protocol

Instance Launched

Instance is Running

You can copy your public key for later use



Instances (1/1) Info

InstanceState ▾ Instance type ▾ Status check Alarm Status Availability zone ▾ Public IPv4 DNS ▾ Public IPv4 ... ▾ Elastic Ip ▾

InstanceState	Instance type	Status check	Alarm Status	Availability zone	Public IPv4 DNS	Public IPv4 ...	Elastic Ip
Running	t2.micro	2/2 checks ...	No alarms	+ us-east-1d	ec2-18-234-190-217.c...	18.234.190.217	-

Instance: i-01323c58b311984e9

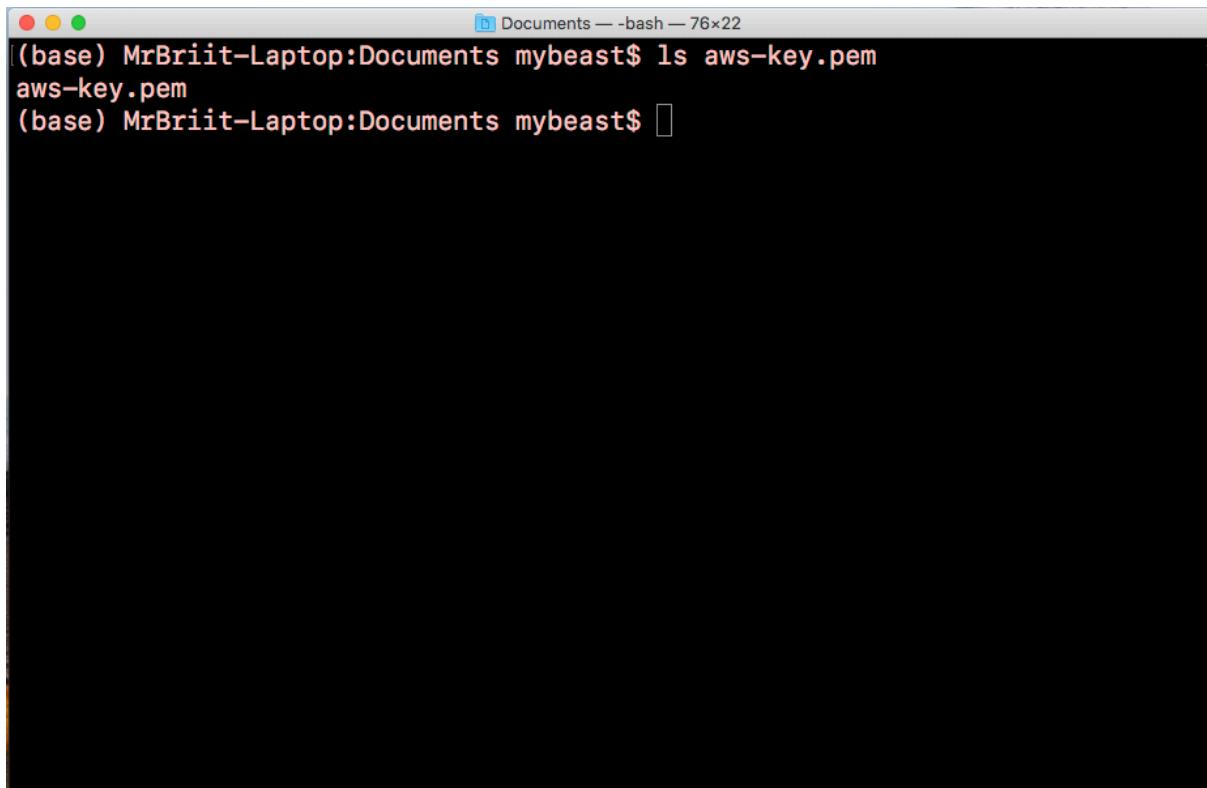
Details Security Networking Storage Status Checks Monitoring Tags

Instance summary Info

Instance ID	Public IPv4 address	Private IPv4 addresses
i-01323c58b311984e9	18.234.190.217 open address	172.31.90.204
Instance state	Public IPv4 DNS	Private IPv4 DNS
Running	ec2-18-234-190-217.compute-1.amazonaws.com open address	ip-172-31-90-204.ec2.internal
Instance type	Elastic IP addresses	VPC ID
t2.micro	-	vpc-81428dfc
IAM Role	Subnet ID	

© 2008 - 2020, Amazon Internet Services Private Ltd. or its affiliates. All rights reserved. Privacy Policy Terms of Use

Go to Terminal on Mac or Command Prompt on Windows.
Make sure your key is in your Present Working Directory



```
Documents — bash — 76x22
(base) MrBriit-Laptop:Documents mybeast$ ls aws-key.pem
aws-key.pem
(base) MrBriit-Laptop:Documents mybeast$ 
```

Type the command `ssh -i aws-key.pem ubuntu@(add your Private Private IPv4 addresses)`

e.g. `ssh -i aws-key.pem ubuntu@172.31.90.204`

You might run into the below error

```
(base) MrBriit-Laptop:Documents mybeast$ ssh -i aws-key.pem ubuntu@18.234.190.217
The authenticity of host '18.234.190.217 (18.234.190.217)' can't be established.
ECDSA key fingerprint is SHA256:SByolh6PAdqAvWx3fH0ff3+438/AmLYmD74xadgBTw.
Are you sure you want to continue connecting (yes/no)? yes
Warning: Permanently added '18.234.190.217' (ECDSA) to the list of known hosts.
@@@@@@@@@@@@@@@@@@@eeeeeeeeeeeeeeeeeeeeeeeeeeeeeeeeeeeeeeeeeeeeeeeeeeeeeeeeeeeeeeee
@      WARNING: UNPROTECTED PRIVATE KEY FILE!      @
@@@@@@@@@@@@@@@@@@@eeeeeeeeeeeeeeeeeeeeeeeeeeeeeeeeeeeeeeeeeeeeeeeeeeeeeeeeeeee
Permissions 0777 for 'aws-key.pem' are too open.
It is required that your private key files are NOT accessible by others.
This private key will be ignored.
Load key "aws-key.pem": bad permissions
ubuntu@18.234.190.217: Permission denied (publickey).
(base) MrBriit-Laptop:Documents mybeast$
```

Type `chmod 400 aws-key.pem` to get rid of the error.

Then again type the command `ssh -i aws-key.pem ubuntu@(add your Private Private IPv4 addresses)`

e.g. `ssh -i aws-key.pem ubuntu@172.31.90.204`

```
(base) MrBriit-Laptop:Documents mybeast$ ssh -i aws-key.pem ubuntu@18.234.190.217
The authenticity of host '18.234.190.217 (18.234.190.217)' can't be established.
ECDSA key fingerprint is SHA256:SByolh6PAdqAvWx3fH0ff3+438/AmLYmD74xadgBTw.
Are you sure you want to continue connecting (yes/no)? yes
Warning: Permanently added '18.234.190.217' (ECDSA) to the list of known hosts.
@@@@@@@@@@@@@@@eeeeeeeeeeeeeeeeeeeeeeeeeeeeeeeeeeeeeeeeeeeeeeeeeeeeeeeeeeeeeeee
@      WARNING: UNPROTECTED PRIVATE KEY FILE!      @
@@@@@@@@@@@eeeeeeeeeeeeeeeeeeeeeeeeeeeeeeeeeeeeeeeeeeeeeeeeeeeeeeeeeeeeeeee
Permissions 0777 for 'aws-key.pem' are too open.
It is required that your private key files are NOT accessible by others.
This private key will be ignored.
Load key "aws-key.pem": bad permissions
ubuntu@18.234.190.217: Permission denied (publickey).
(base) MrBriit-Laptop:Documents mybeast$ chmod 400 aws-key.pem
(base) MrBriit-Laptop:Documents mybeast$ ssh -i aws-key.pem ubuntu@18.234.190.217
```

```
(base) MrBriit-Laptop:Documents mybeast$ ssh -i aws-key.pem ubuntu@18.234.190.217
The authenticity of host '18.234.190.217 (18.234.190.217)' can't be established.
ECDSA key fingerprint is SHA256:SBYolh6PAdqAvWx3fH0ff3+438/AmLYmD74xadgBTw.
Are you sure you want to continue connecting (yes/no)? [
```

type "yes" to continue

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

WARNING! Your environment specifies an invalid locale.
The unknown environment variables are:
LC_CTYPE=UTF-8 LC_ALL=
This can affect your user experience significantly, including the
ability to manage packages. You may install the locales by running:

sudo apt-get install language-pack-UTF-8
or
sudo locale-gen UTF-8

To see all available language packs, run:
apt-cache search "^language-pack-[a-z][a-z]$"
To disable this message for all users, run:
sudo touch /var/lib/cloud/instance/locale-check.skip
```

ubuntu@ip-172-31-90-204:~\$ [← Now all good, you are in AWS server

Let's check few stuff.

1. Check to see if you have Python 3 installed: *python3 -V*

```
ubuntu@ip-172-31-90-204:~$ python3 -V
Python 3.5.2
ubuntu@ip-172-31-90-204:~$ [
```

2. Let's update all the existing packages: *sudo apt-get update*

3. Check if pip is installed, else install it. *pip*

```
ubuntu@ip-172-31-90-204:~$ pip
The program 'pip' is currently not installed. You can install it by typing:
sudo apt install python-pip
ubuntu@ip-172-31-90-204:~$ 
Get:5 http://us-east-1.ec2.archive.ubuntu.com/ubuntu xenial/universe amd64 Packages [7532 kB]
Get:6 http://us-east-1.ec2.archive.ubuntu.com/ubuntu xenial/universe Translation-en [4354 kB]
Get:7 http://us-east-1.ec2.archive.ubuntu.com/ubuntu xenial/multiverse amd64 Packages [144 kB]
Get:8 http://us-east-1.ec2.archive.ubuntu.com/ubuntu xenial/multiverse Translation-en [106 kB]
Get:9 http://us-east-1.ec2.archive.ubuntu.com/ubuntu xenial-updates/main amd64 Packages [1880 kB]
Get:10 http://us-east-1.ec2.archive.ubuntu.com/ubuntu xenial-updates/main Translation-en [454 kB]
Get:11 http://us-east-1.ec2.archive.ubuntu.com/ubuntu xenial-updates/restricted amd64 Packages [10.2 kB]
Get:12 http://us-east-1.ec2.archive.ubuntu.com/ubuntu xenial-updates/universe amd64 Packages [1195 kB]
Get:13 http://us-east-1.ec2.archive.ubuntu.com/ubuntu xenial-updates/universe Translation-en [348 kB]
Get:14 http://us-east-1.ec2.archive.ubuntu.com/ubuntu xenial-updates/multiverse amd64 Packages [23.0 kB]
Get:15 http://us-east-1.ec2.archive.ubuntu.com/ubuntu xenial-updates/multiverse Translation-en [8632 B]
Get:16 http://us-east-1.ec2.archive.ubuntu.com/ubuntu xenial-backports/main amd64 Packages [9812 B]
Get:17 http://us-east-1.ec2.archive.ubuntu.com/ubuntu xenial-backports/main Translation-en [4456 B]
Get:18 http://us-east-1.ec2.archive.ubuntu.com/ubuntu xenial-backports/universe amd64 Packages [11.3 kB]
Get:19 http://us-east-1.ec2.archive.ubuntu.com/ubuntu xenial-backports/universe Translation-en [4476 B]
Get:20 http://security.ubuntu.com/ubuntu xenial-security/main amd64 Packages [1476 kB]
Get:21 http://security.ubuntu.com/ubuntu xenial-security/main Translation-en [350 kB]
Get:22 http://security.ubuntu.com/ubuntu xenial-security/restricted amd64 Packages [9824 B]
Get:23 http://security.ubuntu.com/ubuntu xenial-security/universe amd64 Packages [773 kB]
Get:24 http://security.ubuntu.com/ubuntu xenial-security/universe Translation-en [218 kB]
Get:25 http://security.ubuntu.com/ubuntu xenial-security/multiverse amd64 Packages [8236 B]
Get:26 http://security.ubuntu.com/ubuntu xenial-security/multiverse Translation-en [2888 B]
Fetched 19.2 MB in 3s (4864 kB/s)
Reading package lists... Done
ubuntu@ip-172-31-90-204:~$ 
```

3.1 If pip is not installed, download pip: *curl -O https://bootstrap.pypa.io/get-pip.py*

3.2 Update

```
ubuntu@ip-172-31-90-204:~$ sudo apt-get update
Hit:1 http://security.ubuntu.com/ubuntu xenial-security InRelease
Hit:2 http://us-east-1.ec2.archive.ubuntu.com/ubuntu xenial InRelease
Hit:3 http://us-east-1.ec2.archive.ubuntu.com/ubuntu xenial-updates InRelease
Hit:4 http://us-east-1.ec2.archive.ubuntu.com/ubuntu xenial-backports InRelease
Reading package lists... Done
ubuntu@ip-172-31-90-204:~$ 
```

3.3 Install pip: *sudo python3 get-pip.py*

```
Hit:4 http://us-east-1.ec2.archive.ubuntu.com/ubuntu xenial-backports InRelease
Reading package lists... Done
ubuntu@ip-172-31-90-204:~$ sudo python3 get-pip.py
DEPRECATION: Python 3.5 reached the end of its life on September 13th, 2020. Please upgrade your Python as Python 3.5 is no longer maintained. pip 21.0 will drop support for Python 3.5 in January 2021. pip 21.0 will remove support for this functionality.
WARNING: The directory '/home/ubuntu/.cache/pip' or its parent directory is not owned or is not writable by the current user. The cache has been disabled. Check the permissions and owner of that directory. If executing pip with sudo, you may want sudo's -H flag.
Collecting pip
  Downloading pip-20.2.4-py2.py3-none-any.whl (1.5 MB)
    #####| 1.5 MB 19.9 MB/s
Collecting setuptools
  Downloading setuptools-50.3.2-py3-none-any.whl (785 kB)
    #####| 785 kB 35.2 MB/s
Collecting wheel
  Downloading wheel-0.35.1-py2.py3-none-any.whl (33 kB)
Installing collected packages: pip, setuptools, wheel
Successfully installed pip-20.2.4 setuptools-50.3.2 wheel-0.35.1
ubuntu@ip-172-31-90-204:~$ 
```

3.4 Check if pip is working: *pip*



```
Documents — ubuntu@ip-172-31-90-204: ~ — ssh -i aw
  Downloading wheel-0.35.1-py2.py3-none-any.whl (33 kB)
  Installing collected packages: pip, setuptools, wheel
    Successfully installed pip-20.2.4 setuptools-50.3.2 wheel-0.35.1
ubuntu@ip-172-31-90-204:~$ pip

[Usage:
  pip <command> [options]

[Commands:
  install                  Install packages.
  download                Download packages.
  uninstall               Uninstall packages.
  freeze                   Output installed packages in requirements format.
  list                     List installed packages.
  show                     Show information about installed packages.
  check                   Verify installed packages have compatible dependencies.
  config                  Manage local and global configuration.
  search                  Search PyPI for packages.
  cache                   Inspect and manage pip's wheel cache.
  wheel                   Build wheels from your requirements.
  hash                    Compute hashes of package archives.
  completion              A helper command used for command completion.
  debug                  Show information useful for debugging.
  help                    Show help for commands.

[General Options:
  -h, --help                Show help.
  --isolated               Run pip in an isolated mode, ignoring environment variables and user configuration.
  -v, --verbose              Give more output. Option is additive, and can be used up to 3 times.
  -V, --version              Show version and exit.
  -q, --quiet                Give less output. Option is additive, and can be used up to 3 times (corresponding to WARNING, ERROR, and CRITICAL logging levels).
  --log <path>              Path to a verbose appending log.
  --no-input                Disable prompting for input.
  --proxy <proxy>            Specify a proxy in the form [user:passwd@[]proxy.server:port].
  --retries <retries>        Maximum number of retries each connection should attempt (default 5 times).
  --timeout <sec>            Set the socket timeout (default 15 seconds).
  --exists-action <action>   Default action when a path already exists: (s)witch, (i)gnore, (w)ipe, (b)ackup, (a)bort.
  --trusted-host <hostname> Mark this host or host:port pair as trusted.
```

4. Install Flask: *sudo pip install flask*

4.1 Install the following as well

```
sudo pip install flask_cors
sudo apt-get install apache2
sudo pip install sklearn
sudo apt-get install libapache2-mod-wsgi-py3
```

5. Let's do some configurations: `sudo vi /etc/apache2/sites-enabled/000-default.conf`

Copy and paste the following as shown in the video:

```
DocumentRoot /home/ubuntu/mlapp  
WSGIProcessGroup flaskapp threads=5 python-home=/usr/local/lib/python3.5/site-packages/ user=ubuntu  
WSGIScriptAlias / /home/ubuntu/mlapp/flaskapp.wsgi  
<Directory /home/ubuntu/mlapp>  
    WSGIProcessGroup flaskapp  
    WSGIApplicationGroup %{GLOBAL}  
    Require all granted  
</Directory>
```

5.1 Now press **escape(esc)** followed by `:wq!` then press **enter** to exit

6. Create file flaskapp.wsgi at mlapp directory with content below

The Web Server Gateway(wsgi) Interface is a simple calling convention for web servers to forward requests to web applications

Steps:

6.1. first create a directory: `mkdir mlapp`

6.2 cd to the directory: `cd mlapp/`

6.3 vi flaskapp.wsgi

6.4 Copy and paste the following as shown in the video

```
import sys  
import site  
site.addsitedir('/home/ubuntu/.local/lib/python3.5/site-packages')  
sys.path.insert(0, '/home/ubuntu/mlapp')  
from app import app as application
```

7. Make sure you have saved your model and app.py file

Move your files to AWS

NB: do this from a new Terminal or Command Prompt

7.1. cd to the deployment folder

Then type: `scp -i (path to was key) -r app.py ubuntu@(add your public key here):/home/ubuntu/mlapp`

e.g. `scp -i /Users/mybeast/Documents/aws-key.pem -r app.py ubuntu@18.234.190.217:/home/ubuntu/mlapp`

`scp -i /Users/mybeast/Documents/aws-key.pem -r model.pkl ubuntu@18.234.190.217:/home/ubuntu/mlapp`

NB: You can use **winscp** on **Windows** to move the files instead of **scp(which is for Mac)**

```
Last login: Mon Nov  2 06:53:02 on ttys000
You have mail.
(base) MrBriit-Laptop:~ mybeast$ cd /Documents/flight_deployment
-bash: cd: /Documents/flight_deployment: No such file or directory
(base) MrBriit-Laptop:~ mybeast$ cd Documents
(base) MrBriit-Laptop:Documents mybeast$ cd flight_deployment ← cd to the deployment file
(base) MrBriit-Laptop:flight_deployment mybeast$ scp -i /Users/mybeast/Documents/aws-key.pem -r app.py ubuntu@18.234.190.217:/home/ubuntu/mlapp
app.py                                         100% 8621    12.6KB/s   00:00
(base) MrBriit-Laptop:flight_deployment mybeast$
```

7.2 Confirm to see if you have all files: `ls`

```
[ubuntu@ip-172-31-90-204:~/mlapp]
[ubuntu@ip-172-31-90-204:~/mlapp]$ ls
app.py  flask  model.pkl
[ubuntu@ip-172-31-90-204:~/mlapp]$
```

8. Restart the server: `sudo apachectl restart`

8.1 Check log incase you run into any error: `cat /var/log/apache2/error.log`

```
[ubuntu@ip-172-31-90-204:~/mlapp] cat /var/log/apache2/error.log
Mon Nov  2 02:47:12.697609 2020] [mpm_event:notice] [pid 13213:tid 139764900919168] AH00489: Apache/2.4.18 (Ubuntu)
 configured -- resuming normal operations
Mon Nov  2 02:47:12.697718 2020] [core:notice] [pid 13213:tid 139764900919168] AH00094: Command line: '/usr/sbin/
apache2'
Mon Nov  2 02:53:09.043249 2020] [mpm_event:notice] [pid 13213:tid 139764900919168] AH00491: caught SIGTERM, shu-
ting down
Mon Nov  2 02:53:10.129793 2020] [mpm_event:notice] [pid 13756:tid 140699402794880] AH00489: Apache/2.4.18 (Ubuntu)
 mod_wsgi/4.3.0 Python/3.5.2 configured -- resuming normal operations
Mon Nov  2 02:53:10.129986 2020] [core:notice] [pid 13756:tid 140699402794880] AH00094: Command line: '/usr/sbin/
apache2'
Mon Nov  2 10:39:52.418885 2020] [mpm_event:notice] [pid 13756:tid 140699402794880] AH00494: SIGHUP received. A
ttempting to restart
Mon Nov  2 10:39:52.431636 2020] [mpm_event:notice] [pid 13756:tid 140699402794880] AH00489: Apache/2.4.18 (Ubuntu)
 mod_wsgi/4.3.0 Python/3.5.2 configured -- resuming normal operations
Mon Nov  2 10:39:52.431662 2020] [core:notice] [pid 13756:tid 140699402794880] AH00094: Command line: '/usr/sbin/
apache2'
Mon Nov  2 10:40:34.583215 2020] [wsgi:error] [pid 29359:tid 140699292579584] [remote 157.36.87.192:0] mod_wsgi
 pid=29359, process='flaskapp', application='%\\"GLOBAL\\\"'): Failed to parse WSGI script file '/home/ubuntu/mlap
p/flaskapp.wsgi'.
Mon Nov  2 10:40:34.583262 2020] [wsgi:error] [pid 29359:tid 140699292579584] [remote 157.36.87.192:0] mod_wsgi
 pid=29359]: Exception occurred processing WSGI script '/home/ubuntu/mlapp/flaskapp.wsgi'.
Mon Nov  2 10:40:34.583322 2020] [wsgi:error] [pid 29359:tid 140699292579584] [remote 157.36.87.192:0]   File "/
home/ubuntu/mlapp/flaskapp.wsgi", line 1 ← there's an error here
Mon Nov  2 10:40:34.583337 2020] [wsgi:error] [pid 29359:tid 140699292579584] [remote 157.36.87.192:0]     import
sys
Mon Nov  2 10:40:34.583360 2020] [wsgi:error] [pid 29359:tid 140699292579584] [remote 157.36.87.192:0]
^
Mon Nov  2 10:40:34.583370 2020] [wsgi:error] [pid 29359:tid 140699292579584] [remote 157.36.87.192:0] SyntaxEr
ror: invalid syntax
[ubuntu@ip-172-31-90-204:~/mlapp]
```

8.2 Use *vi* (*File Name*). to see the error and fix it.

e.g *vi flaskapp.wsgi*

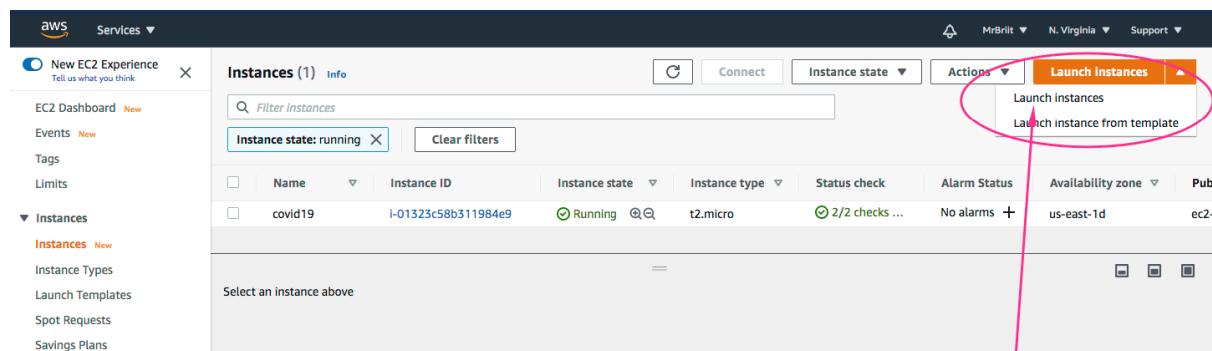
8.3.3 restart the server again

9. Test your App by copying and pasting your public key (e.g. 157.36.87.192) into your browser

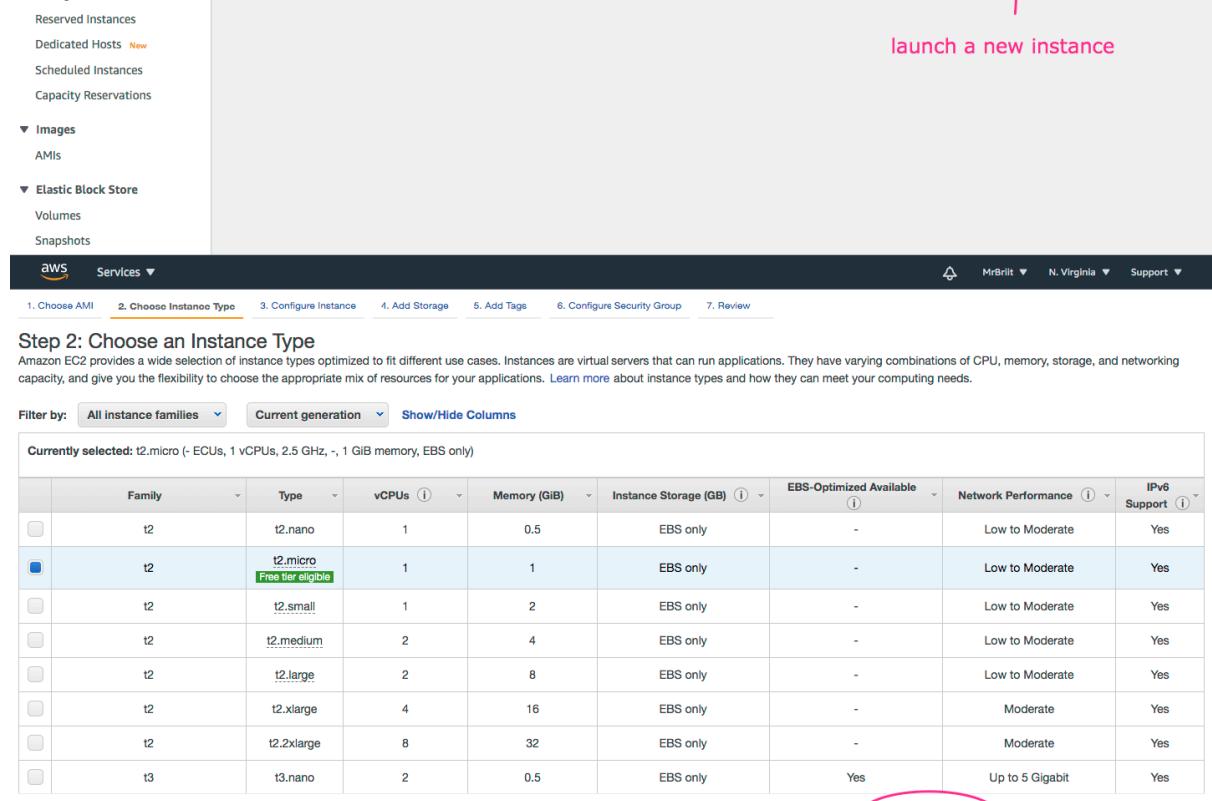
PART 2

We have so far run it from localhost, let's see how we can make configure it well on AWS.

Let's create another instance, just like we did previously.



launch a new instance



Step 2: Choose an Instance Type

Amazon EC2 provides a wide selection of instance types optimized to fit different use cases. Instances are virtual servers that can run applications. They have varying combinations of CPU, memory, storage, and networking capacity, and give you the flexibility to choose the appropriate mix of resources for your applications. [Learn more](#) about instance types and how they can meet your computing needs.

Filter by: All instance families ▾ Current generation ▾ Show/Hide Columns

Currently selected: t2.micro (- ECUs, 1 vCPUs, 2.5 GHz, -, 1 GiB memory, EBS only)

	Family	Type	vCPUs	Memory (GiB)	Instance Storage (GiB)	EBS-Optimized Available	Network Performance	IPv6 Support
<input type="checkbox"/>	t2	t2.nano	1	0.5	EBS only	-	Low to Moderate	Yes
<input checked="" type="checkbox"/>	t2	t2.micro Free tier eligible	1	1	EBS only	-	Low to Moderate	Yes
<input type="checkbox"/>	t2	t2.small	1	2	EBS only	-	Low to Moderate	Yes
<input type="checkbox"/>	t2	t2.medium	2	4	EBS only	-	Low to Moderate	Yes
<input type="checkbox"/>	t2	t2.large	2	8	EBS only	-	Low to Moderate	Yes
<input type="checkbox"/>	t2	t2.xlarge	4	16	EBS only	-	Moderate	Yes
<input type="checkbox"/>	t2	t2.2xlarge	8	32	EBS only	-	Moderate	Yes
<input type="checkbox"/>	t3	t3.nano	2	0.5	EBS only	Yes	Up to 5 Gigabit	Yes

Cancel Previous **Review and Launch** Next: Configure Instance Details

1. Choose AMI 2. Choose Instance Type 3. Configure Instance 4. Add Storage 5. Add Tags 6. Configure Security Group 7. Review

Step 7: Review Instance Launch

View Details

Amazon Linux 2 AMI (HVM), SSD Volume Type - ami-0947d2ba12ee1ff5

Free tier eligible Amazon Linux 2 comes with five years support. It provides Linux kernel 4.14 tuned for optimal performance on Amazon EC2, systemd 219, GCC 7.3, Glibc 2.26, Binutils 2.29.1, and the latest software packages through extras.

Root Device Type: ebs Virtualization type: hvm

Instance Type [Edit instance type](#)

Instance Type	ECUs	vCPUs	Memory (GiB)	Instance Storage (GB)	EBS-Optimized Available	Network Performance
t2.micro	-	1	1	EBS only	-	Low to Moderate

Security Groups [Edit security groups](#)

Type (i)	Protocol (i)	Port Range (i)	Source (i)	Description (i)
All traffic	All	All	0.0.0.0/0	

Instance Details [Edit instance details](#)

Cancel Previous **Launch**

Feedback English (US) © 2008 - 2020, Amazon Internet Services Private Ltd. or its affiliates. All rights reserved. Privacy Policy Terms of Use

1. Choose AMI 2. Choose Instance Type 3. Configure Instance 4. Add Storage 5. Add Tags 6. Configure Security Group 7. Review

Step 6: Configure Security Group

A security group is a set of firewall rules that control the traffic for your instance. On this page, you can add rules to allow specific traffic to reach your instance. For example, if you want to set up a web server and allow Internet traffic to reach your instance, add rules that allow unrestricted access to the HTTP and HTTPS ports. You can create a new security group or select from an existing one below. [Learn more about Amazon EC2 security groups.](#)

Custom TCP Rule Create a new security group Select an existing security group

group name:

Description:

Protocol (i)	Port Range (i)	Source (i)	Description (i)
All	0 - 65535	Custom	0.0.0.0/0
e.g. SSH for Admin Desktop			

All traffic SSH SMTP DNS (UDP) DNS (TCP) HTTP POP3 IMAP LDAP HTTPS SMB SMTPS IMAPS POP3S MS SQL NFS MySQL/Aurora RDP Redshift PostgreSQL Oracle-RDS WinRM-HTTP

0.0.0.0/0 allow all IP addresses to access your instance. We recommend setting security group rules to allow access from known IP addresses only.

Cancel Previous **Review and Launch**

© 2008 - 2020, Amazon Internet Services Private Ltd. or its affiliates. All rights reserved. Privacy Policy Terms of Use

1. Choose AMI 2. Choose Instance Type 3. Configure Instance 4. Add Storage 5. Add Tags 6. Configure Security Group 7. Review

Step 7: Review Instance Launch

View Details

Amazon Linux 2 AMI (HVM), SSD Volume Type - ami-0947d2ba12ee1ff5

Free tier eligible Amazon Linux 2 comes with five years support. It provides Linux kernel 4.14 tuned for optimal performance on Amazon EC2, systemd 219, GCC 7.3, Glibc 2.26, Binu packages through extras.

Root Device Type: ebs Virtualization type: hvm

Instance Type

Instance Type	ECUs	vCPUs
t2.micro	Variable	1

Security Groups

Security group name	Description
launch-wizard-8	launch-wizard-8 created 2020-11-08T16:21:25.106+05:30

Select an existing key pair or create a new key pair

A key pair consists of a **public key** that AWS stores, and a **private key file** that you store. Together, they allow you to connect to your instance securely. For Windows AMIs, the private key file is required to obtain the password used to log into your instance. For Linux AMIs, the private key file allows you to securely SSH into your instance.

Note: The selected key pair will be added to the set of keys authorized for this instance. Learn more about [removing existing key pairs from a public AMI](#).

Choose an existing key pair **Select a key pair** aws-key

I acknowledge that I have **access** to the selected private key file (aws-key.pem), and that without this file, I won't be able to log into my instance.

Cancel **Launch Instances**

Instance Details Storage

The screenshot shows the AWS Launch Status page. At the top, there's a navigation bar with the AWS logo, 'Services ▾', and user information 'MrBriit ▾ N. Virginia ▾ Support ▾'. Below the navigation is a section titled 'Launch Status' with a green header bar. Inside, a message says 'Your instances are now launching' with a checkmark icon. A pink arrow points from the text 'Click here' at the top right towards this message. Below it, another message says 'Get notified of estimated charges' with an info icon. At the bottom left, there's a section titled 'How to connect to your instances' with a note about instances launching and a link to 'View Instances'. On the right, there's a list of helpful resources like 'How to connect to your Linux instance' and 'Amazon EC2: User Guide'. The footer contains links for 'Feedback', 'English (US) ▾', '© 2008 - 2020, Amazon Internet Services Private Ltd. or its affiliates. All rights reserved.', 'Privacy Policy', and 'Terms of Use'.

Start from a New terminal or Commandline.

STEPS.

1. Start ssh session: `ssh -i [directory where was is located]/aws-key.pem ec2-user@[add your public key]`

e.g. `ssh -i Documents/aws-key.pem ec2-user@100.25.198.89`

```
(base) MrBriit-Laptop:Documents mybeast$ ssh -i aws-key.pem ec2-user@100.25.198.89
              _\   _ )
              -|_ ( -- /   Amazon Linux 2 AMI
              ___\_\--|__|_
https://aws.amazon.com/amazon-linux-2/
25 package(s) needed for security, out of 39 available
Run "sudo yum update" to apply all updates.
-bash: warning: setlocale: LC_CTYPE: cannot change locale (UTF-8): No such file or directory
[ec2-user@ip-172-31-60-157 ~]$
```

2. Update all existing packages: `sudo yum update`

NB: Press yes when prompted

3. Install apache: `sudo yum install httpd`

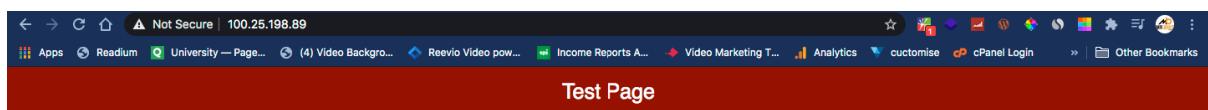
NB: Press yes when prompted

4. Start server: `sudo service httpd start`

```
[ec2-user@ip-172-31-60-157 ~]$ sudo service httpd start
Redirecting to /bin/systemctl start httpd.service
[ec2-user@ip-172-31-60-157 ~]$ 
```

5. Test your default page. Copy and paste your public key in your browser

You should see a default page like this



This page is used to test the proper operation of the Apache HTTP server after it has been installed. If you can read this page, it means that the Apache HTTP server installed at this site is working properly.

If you are a member of the general public:

The fact that you are seeing this page indicates that the website you just visited is either experiencing problems, or is undergoing routine maintenance.

If you would like to let the administrators of this website know that you've seen this page instead of the page you expected, you should send them e-mail. In general, mail sent to the name "webmaster" and directed to the website's domain should reach the appropriate person.

For example, if you experienced problems while visiting www.example.com, you should send e-mail to "webmaster@example.com".

If you are the website administrator:

You may now add content to the directory /var/www/html/. Note that until you do so, people visiting your website will see this page, and not your content. To prevent this page from ever being used, follow the instructions in the file /etc/httpd/conf.d/welcome.conf.

You are free to use the image below on web sites powered by the Apache HTTP Server:



6. Navigate to the home folder: `cd /`

`cd home`

```
[ec2-user@ip-172-31-60-157 ~]$ cd /
[ec2-user@ip-172-31-60-157 /]$ cd home
[ec2-user@ip-172-31-60-157 home]$ ls
ec2-user
```

7. Copy your index.html file to your apache server.

Refer to **7.1. of PART 1** to do that

e.g. `scp -i /Users/mybeast/Documents/aws-key.pem -r index.html ec2-user@100.25.198.89:/home/ec2-user`

```
(base) MrBrit-Laptop:flight_deployment mybeast$ scp -i /Users/mybeast/Documents/aws-key.pem -r index.html ec2-user@100.25.198.89:/home/ec2-user
/etc/profile.d/lang.sh: line 19: warning: setlocale: LC_CTYPE: cannot change locale (UTF-8): No such file or directory
index.html                                              100%   12KB  12.9KB/s  00:00
(base) MrBrit-Laptop:flight_deployment mybeast$ 
```

```
[ec2-user@ip-172-31-60-157 home]$ ls
ec2-user
[ec2-user@ip-172-31-60-157 home]$ cd ec2-user
[ec2-user@ip-172-31-60-157 ~]$ ls
index.html
[ec2-user@ip-172-31-60-157 ~]$ 
```

8. Copy the `index.html` file to `var` directory

`sudo cp index.html /var/www/html`

```
[ec2-user@ip-172-31-60-157 ~]$ sudo cp index.html /var/www/html
[ec2-user@ip-172-31-60-157 ~]$ 
```

9. Refresh your default page, or copy and paste your public key into your browser.

Refresh the below page



This page is used to test the proper operation of the Apache HTTP server after it has been installed. If you can read this page, it means that the Apache HTTP server installed at this site is working properly.

If you are a member of the general public:

The fact that you are seeing this page indicates that the website you just visited is either experiencing problems, or is undergoing routine maintenance.
If you would like to let the administrators of this website know that you've seen this page instead of the page you expected, you should send them e-mail. In general, mail sent to the name "webmaster" and directed to the website's domain should reach the appropriate person.
For example, if you experienced problems while visiting www.example.com, you should send e-mail to "webmaster@example.com".

If you are the website administrator:

You may now add content to the directory "/var/www/html/". Note that until you do so, people visiting your website will see this page, and not your content. To prevent this page from ever being used, follow the instructions in the file /etc/httpd/conf.d/welcome.conf.

You are free to use the image below on web sites powered by the Apache HTTP Server:



You should be seeing your default page now

A screenshot of a web browser window showing a customised URL. The page title is "Year Of Marriage Prediction" and the prediction year is "2019". The form contains fields for Gender (Female), Year of Birth (1989), Height (123 cm), Religion (Christian), Caste (Patel), Mother Tongue (English), and Country. The background of the browser window is orange.

You can get a customised URL from such places as bluest,godaddy, etc.