

## Module 3: Amazon EC2

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### Demo Document 1

edureka!

**edureka!**

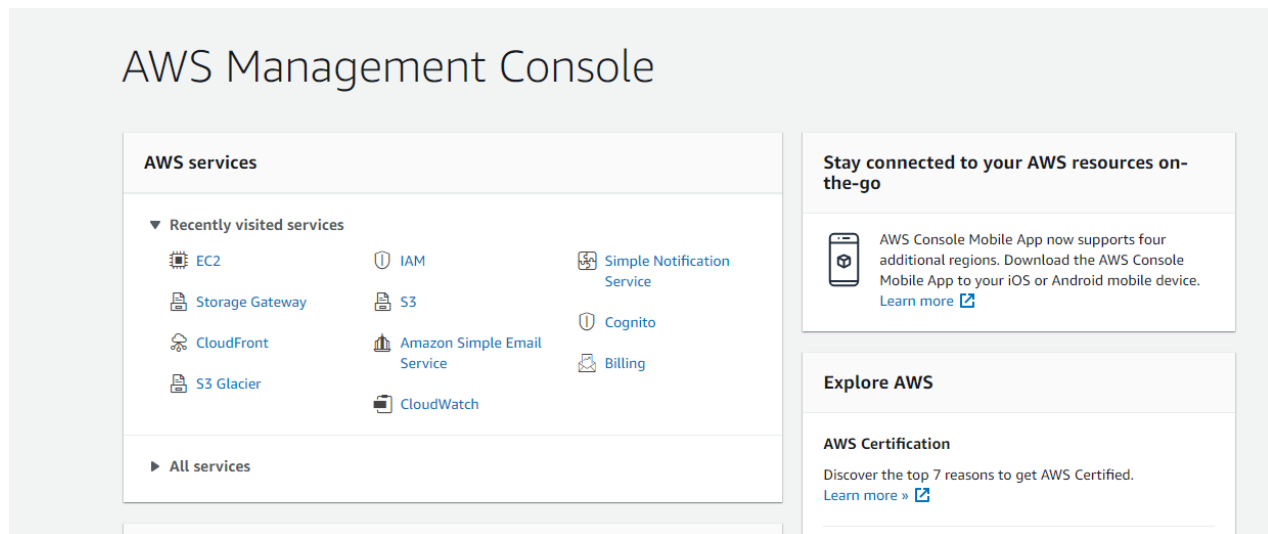
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## Host your Website Inside your EC2 Instance

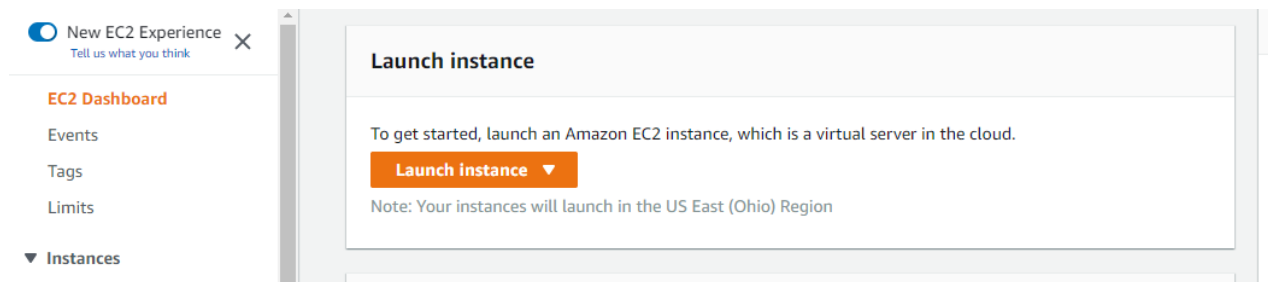
**NOTE:** AWS may revise console interface anytime for further improvements. This demo has been created as of October 2021. Conceptually the service should work as documented here.

### Steps to launch an EC2 Instance:

**Step 1:** In Services menu select EC2 service. Remember EC2 Instance is region specific and EC2 instances created in one region will not be available to other regions.



**Step 2:** In EC2 dashboard scroll down and click on “Launch”.



Step 3: Select an operating system. For this demo let’s select Amazon Linux.

1. Choose AMI

2. Choose Instance Type

3. Configure Instance

4. Add Storage

5. Add Tags

6. Configure Security Group

7. Review

Cancel and Exit

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.

Q Search for an AMI by entering a search term e.g. "Windows"

Search by Systems Manager parameter

Quick Start

My AMIs

AWS Marketplace

Community AMIs

☐ Free tier only ⓘ

Amazon Linux

Free tier eligible

Amazon Linux 2 AMI (HVM), SSD Volume Type - ami-00dfe2c7ce89a450b (64-bit x86) / ami-031dea1a744251b51 (64-bit Arm)

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. This AMI is the successor of the Amazon Linux AMI that is approaching end of life on December 31, 2020 and has been removed from this wizard.

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

macOS Big Sur 11.5.2 - ami-0b1674fbc9847f6d

The macOS Big Sur AMI is an EBS-backed, AWS-supported image. This AMI includes the AWS Command Line Interface, Command Line Tools for Xcode, Amazon SSM Agent, and Homebrew. The AWS Homebrew Tap includes the latest versions of multiple AWS packages included in the

64-bit (x86)

64-bit (Arm)

Select

Step 4: Select t2.micro (Free tier eligible) and click on “Next Configure Instance Details”.

Step 2: Choose an Instance Type

! 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 (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

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**Step 5:** Keep all the fields as it is. Click on “Add storage”.

## Step 3: Configure Instance Details

Configure the instance to suit your requirements. You can launch multiple instances from the same AML, request Spot instances to take advantage of the lower pricing, assign an access management role to the instance, and more.

Number of instances	1	<a href="#">Launch into Auto Scaling Group</a>
Purchasing option	<input type="checkbox"/> Request Spot instances	
Network	vpc-bcaa30d7 (default)	<a href="#">Create new VPC</a>
Subnet	No preference (default subnet in any Availability Zone)	<a href="#">Create new subnet</a>
Auto-assign Public IP	Use subnet setting (Enable)	
Placement group	<input type="checkbox"/> Add instance to placement group	
Capacity Reservation	Open	

**Step 6:** Do not change any thing and click on “Next: Add Tags”.

## Step 4: Add Storage

Your instance will be launched with the following storage device settings. You can attach additional EBS volumes and instance store volumes to your instance, or edit the settings of the root volume. You can also attach additional EBS volumes after launching an instance, but not instance store volumes. [Learn more](#) about storage options in Amazon EC2.

Volume Type	Device	Snapshot	Size (GiB)	Volume Type	IOPS	Throughput (MB/s)	Delete on Termination	Encryption
Root	/dev/xvda	snap-0350fa19a1ac7579d	8	General Purpose SSD (gp2)	100 / 3000	N/A	<input checked="" type="checkbox"/>	Not Encrypt

[Add New Volume](#)

**Step 7:** Click on “Add another Tag” and add key and key values, click on “Next Configure Security Group”. (Add tags is an optional key-value pair field, mostly used by user to categorize servers. E.g. Production, UAT, SIT etc. This helps administrator during billing of your AWS account.)

Key	Value	Instances	Volumes	Network Interfaces
Name	Edureka-training	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>

[Add another tag](#) (Up to 50 tags maximum)

**Step 8:** Choose the security group and make changes as shown below.**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:

Type	Protocol	Port Range	Source	Description
SSH	TCP	22	Anywhere 0.0.0.0/0, ::/0	e.g. SSH for Admin Desktop
HTTP	TCP	80	Anywhere 0.0.0.0/0, ::/0	e.g. SSH for Admin Desktop

[Add Rule](#)

**Step 9:** Click on “Launch”.**Step 7: Review Instance Launch**

Please review your instance launch details. You can go back to edit changes for each section. Click **Launch** to assign a key pair to your instance and complete the launch process.

**Improve your instances' security. Your security group, launch-wizard-4, is open to the world.**  
 Your instances may be accessible from any IP address. We recommend that you update your security group rules to allow access from known IP addresses only.  
 You can also open additional ports in your security group to facilitate access to the application or service you're running, e.g., HTTP (80) for web servers. [Edit security groups](#)

▼ AMI Details [Edit AMI](#)

**Amazon Linux 2 AMI (HVM), SSD Volume Type - ami-00dfe2c7ce89a450b**

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. This AMI is the successor of the Amazon Linux AMI that is a ...

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

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

**Step 10:** In “Select an existing key pair or create a new key pair” popup, select “Create a new key pair” . Give a name for your key pair.

Do not forget to download key pair. Otherwise you will not be able to connect to your EC2 instances through SSH terminal (Putty, FileZilla, etc.). Finally click on **Launch Instances**.

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. Amazon EC2 supports ED25519 and RSA key pair types.

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](#).

Create a new key pair

Key pair type

☒ RSA
 ☐ ED25519

Key pair name

Shubh

Download Key Pair

...

You have to download the **private key file** (\*.pem file) before you can continue. **Store it in a secure and accessible location.** You will not be able to download the file again after it's created.

Cancel

Launch Instances

**Step 11:** Get **Public IP or DNS name** to connect it through internet. Also note the Instance Id to connect through CLI.

✓

Edureka-training

i-0c0a113212f4cf90d

Running

t2.micro

Initializing

No alarms

+

us-east-2c

Instance: i-0c0a113212f4cf90d (Edureka-training)

×

Details

Security

Networking

Storage

Status checks

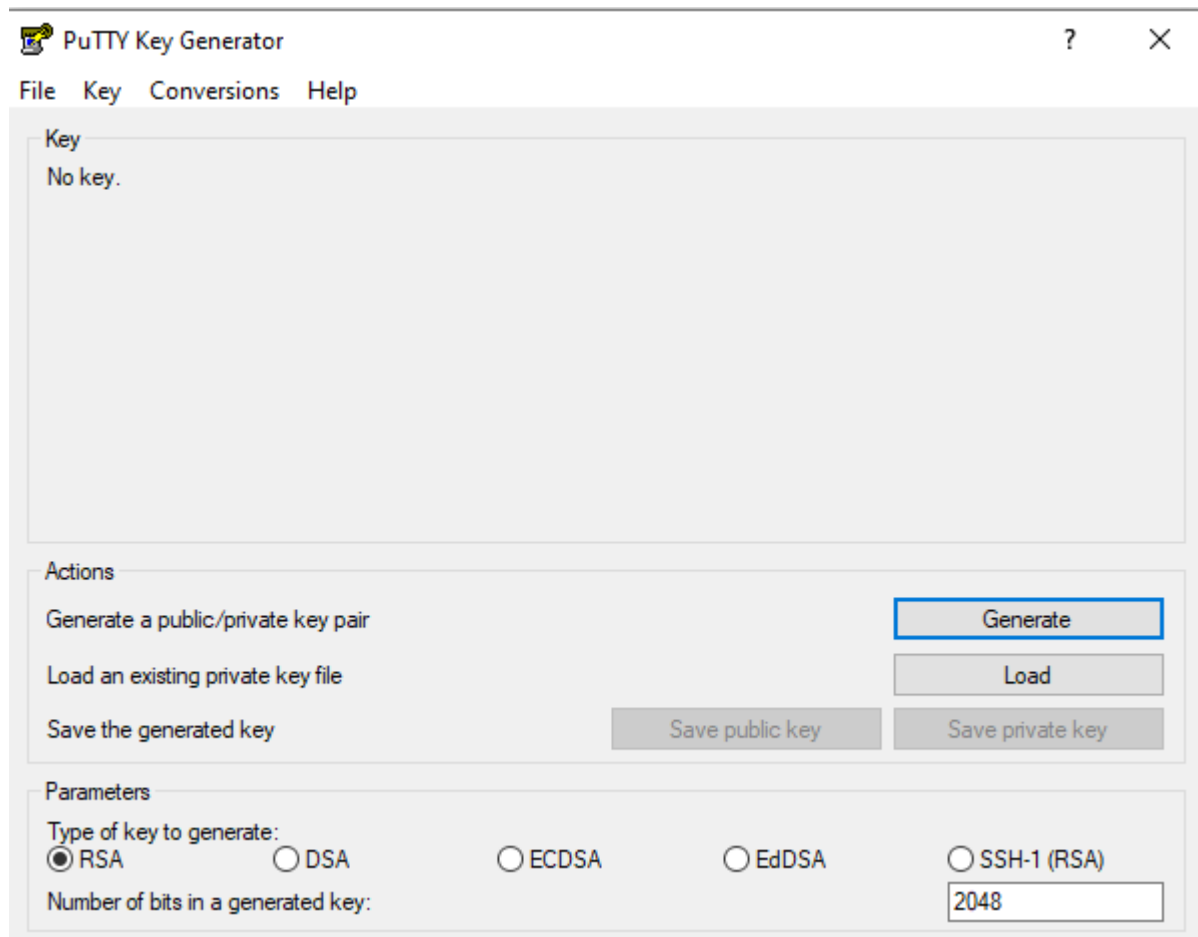
Monitoring

Tags

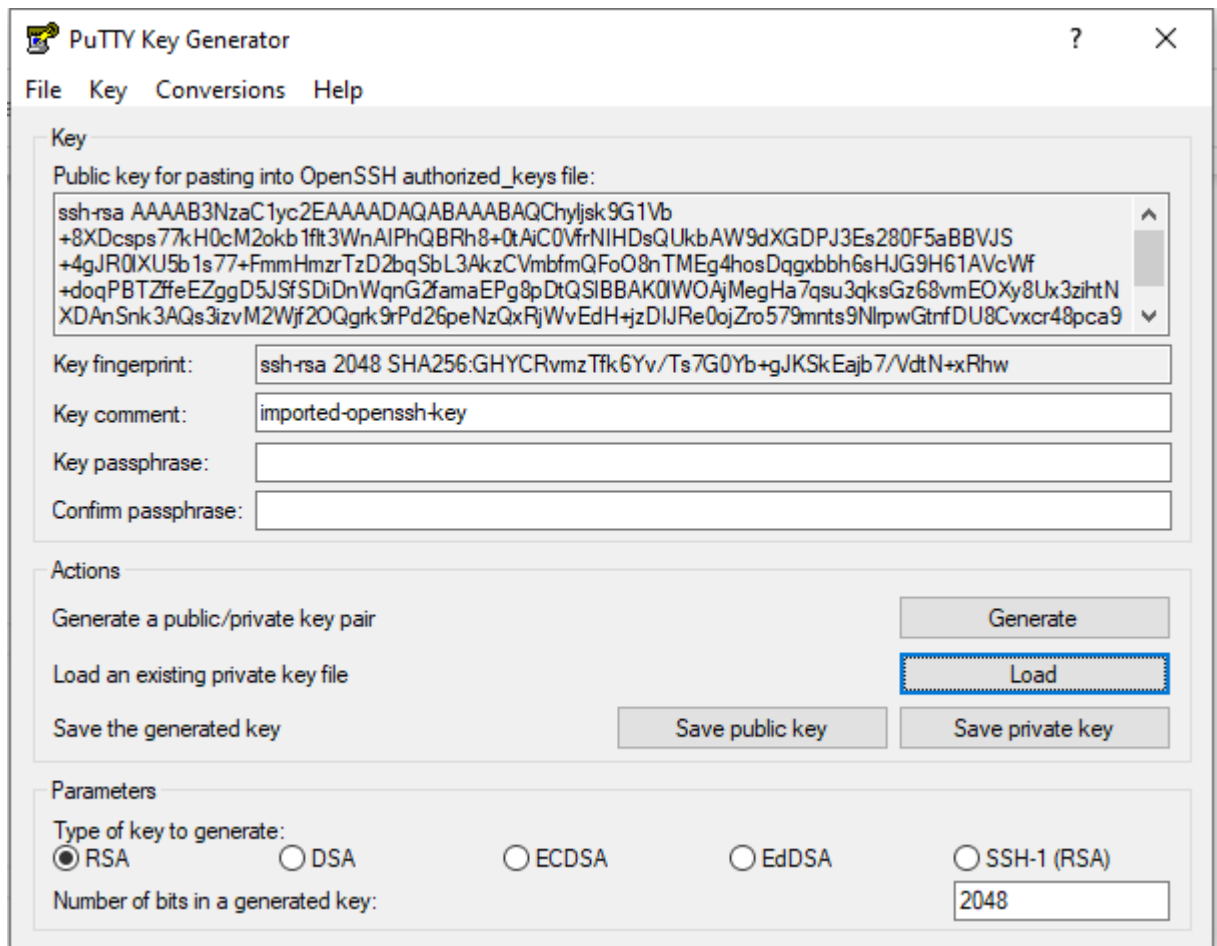
▼ Instance summary Info

<div>Instance ID</div> <div>i-0c0a113212f4cf90d (Edureka-training)</div>	<div>Public IPv4 address</div> <div>3.141.170.144   <a href="#">open address</a></div>	<div>Private IPv4 addresses</div> <div>172.31.47.32</div>
<div>IPv6 address</div> <div>-</div>	<div>Instance state</div> <div>Running</div>	<div>Public IPv4 DNS</div> <div>ec2-3-141-170-144.us-east-</div>

**Step 12:** Download PuTTY through <https://www.putty.org> and install it. In your task bar of your local system, search for PuTTYgen and select it. PuTTYgen dialogue box appears, then select **Load** option. Search for the key pair file which would be in the .pem format and open it

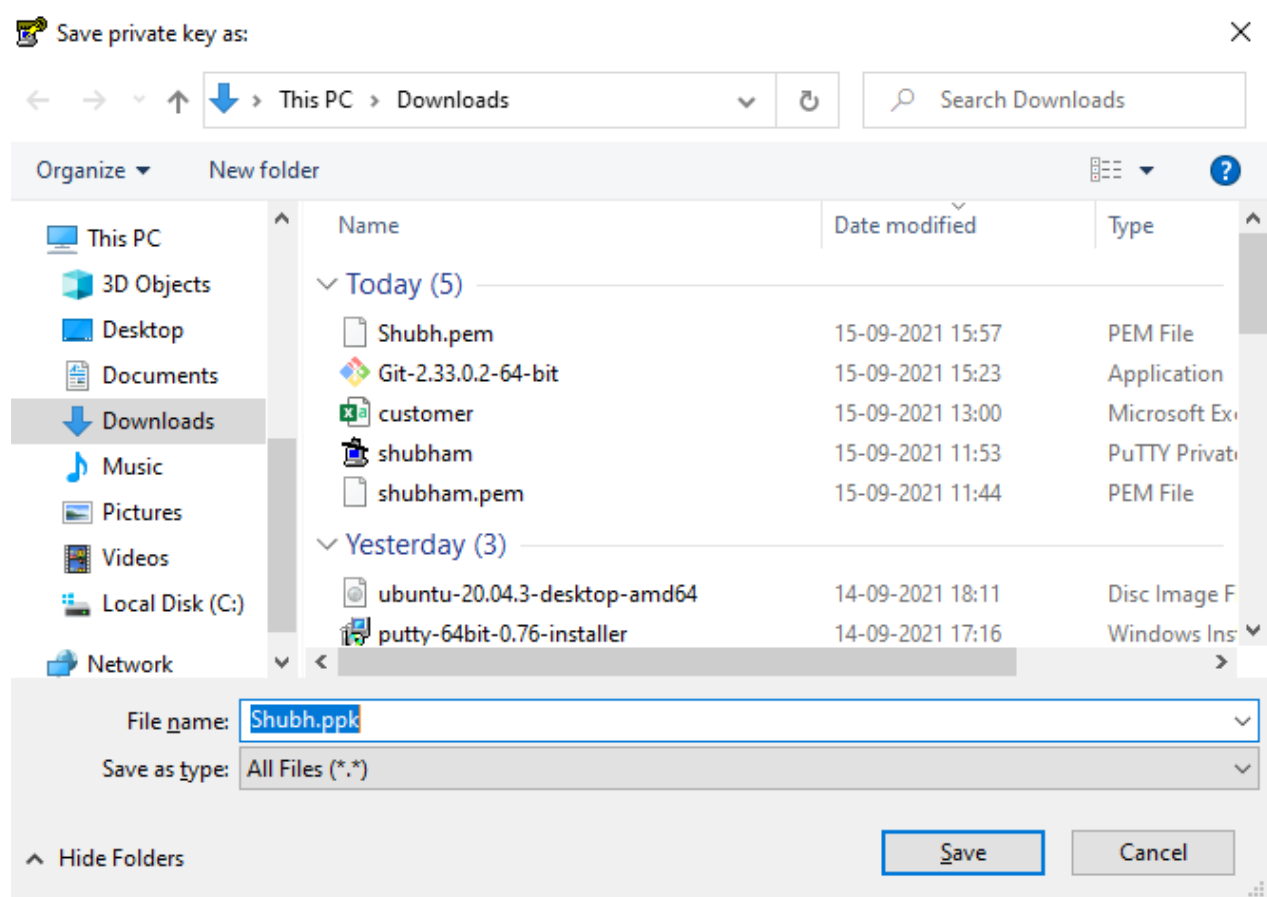


**Step 13:** Click on “Load”, make file type as “All Files”, select the downloaded .pem file to convert it to .ppk file, and click on “Save private key”.

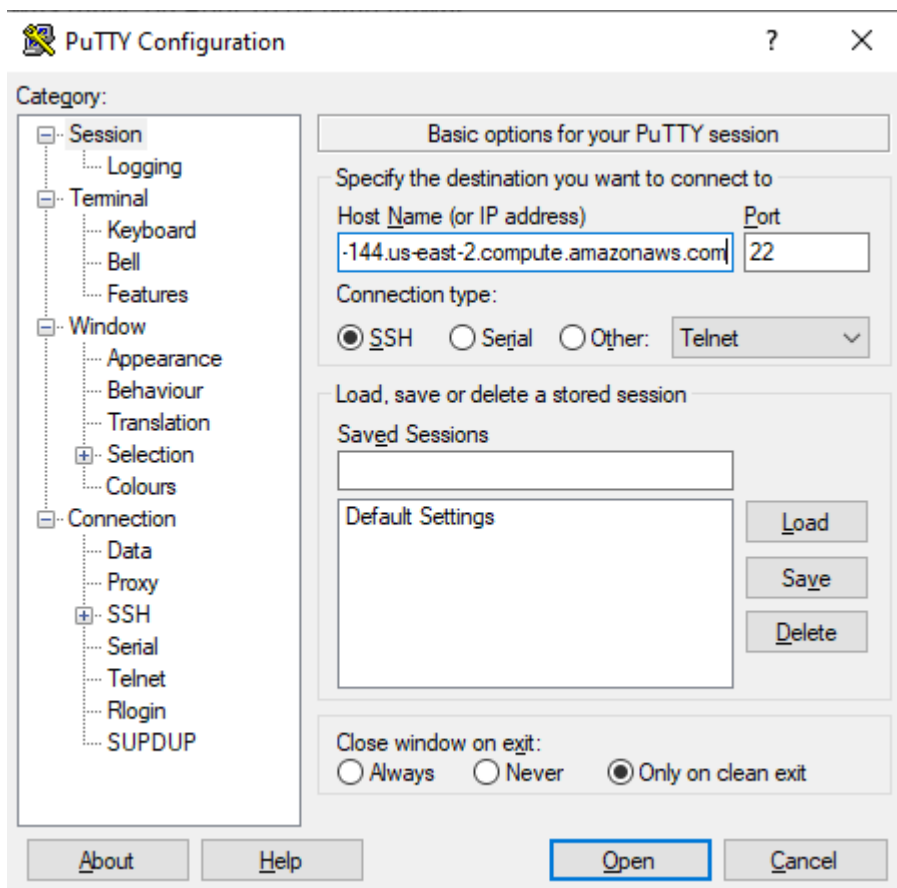


Give a name to the .ppk file and save it in your system.

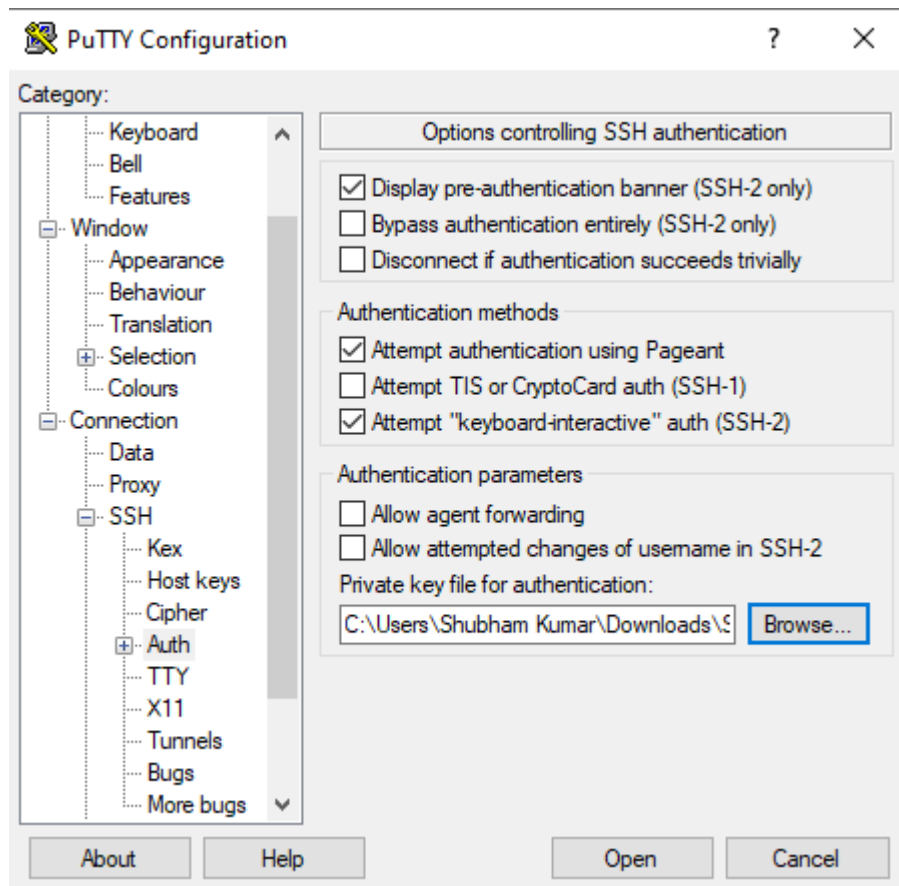




**Step 14:** Open putty and paste the copied **Instance DNS**.



**Step 15:** Select SSH>Auth>Browser and upload your key-pair (ppk file).



**Step 16:** To login and start working with your instance type the **User Name** of instance.

```
ec2-user@ip-172-31-47-32:~  
login as: ec2-user  
Authenticating with public key "imported-openssh-key"  
  
  ____|  __|_  )  
  _| (  _ /   Amazon Linux 2 AMI  
  __| \__|__|  
  
https://aws.amazon.com/amazon-linux-2/  
[ec2-user@ip-172-31-47-32 ~]$
```

**Step to connect to your Instance:**

**Step 1:** Connect to your EC2 instance from SSH terminal.

- Launch Ubuntu instance in your console
- For Linux, Unix and Mac users -- **.pem** key pair can be used directly
- For Window users -- Convert **.pem** file to PPK file using PuTTYgen software

The different usernames for the AMIs are:

AMI Type	User Name
Linux AMI	ec2-user
Centos	centos
Debian	admin or root
<u>Feroda</u>	ec2-user or <u>feroda</u>
RHEL	ec2-user or root
SUSE	ec2-user or root
Ubuntu	ubuntu or root
Custom AMI	Check with AMI provider

- The default username for a Ubuntu machine is **ubuntu**

Use the command prompt to connect to your EC2 instance and type the following code.

```
ssh -i <.pem file Absolute path> username@public-IP
```

```
ssh -i C:/Users/Edureka/Downloads/Key.pem ec2-user@13.1.53.42
```

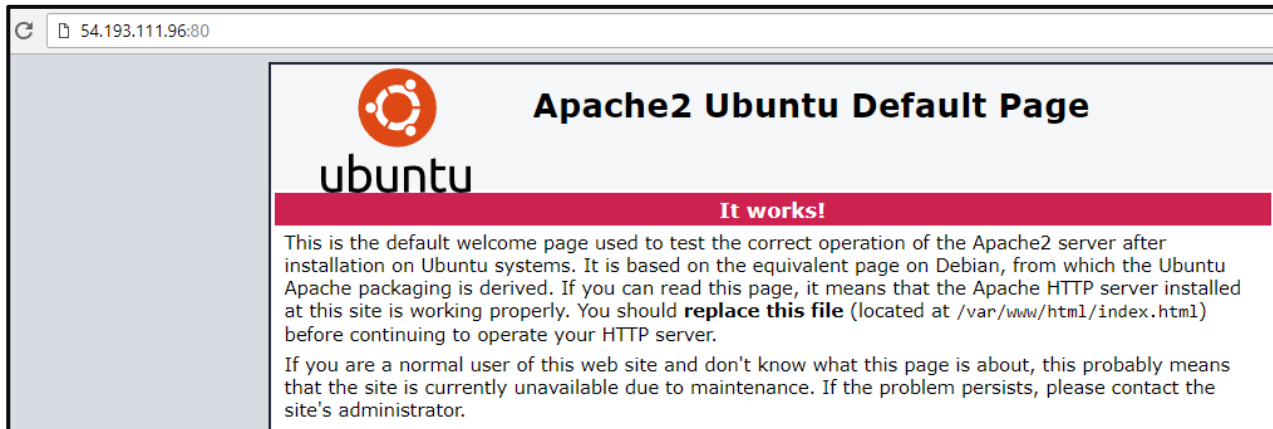
**Step 2:** Install your Apache server.

- Install your Apache server by typing the below code

```
sudo apt-get update
```

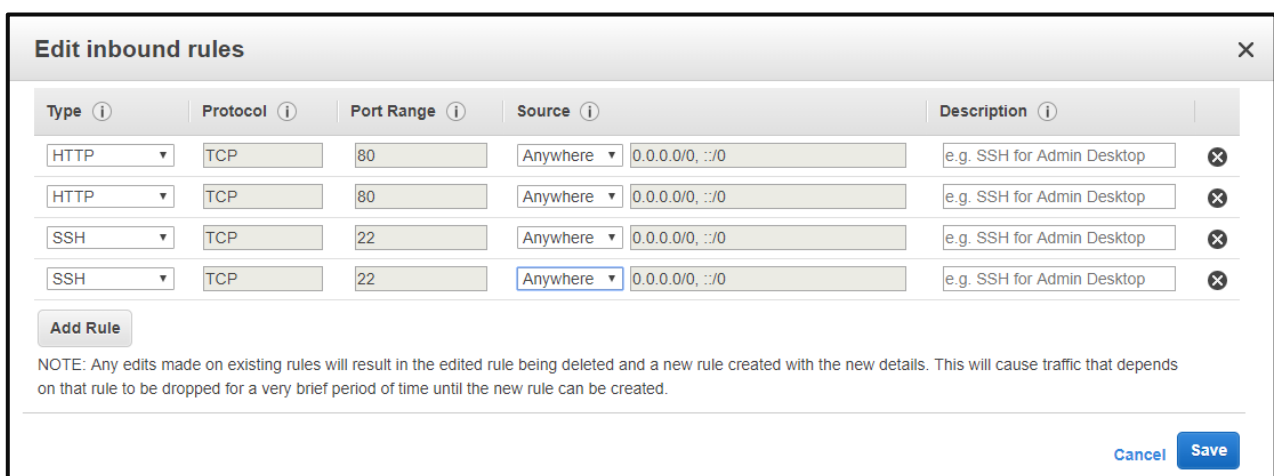
```
sudo apt-get install apache2
```

**Step3:** Test whether your apache server is running, by typing `http://Public IP address:80` in your browser.



**Step4:** Troubleshoot.

- Check your security group, if you are not able to connect to the EC2 from the Internet



**Step5:** Create a Website.

- Create the directory

```
sudo mkdir -p /var/www/edureka123456.tk/public_html
```

- To give permissions to the folder you created, type the following code

```
sudo chmod -R 755 /var/www
```

- To change the permissions, type the following code

```
sudo chown -R $USER:$USER /var/www/edureka123456.tk/public_html
```

```
ubuntu@ip-172-31-4-153:~$ sudo chown -R $USER:$USER /var/www/edureka123456.com/public_html
ubuntu@ip-172-31-4-153:~$ sudo chmod -R 755 /var/www
```

- To enter the directory you have created, type the following code

```
cd /var/www/edureka123456.tk/public_html
```

- To create an index.html file, type the following code

```
nano /var/www/edureka123456.tk/public_html/index.html
```

```
<!DOCTYPE html>
<html>
<head>
<style>
.a{  background-color: #2471A3;
color: white;
padding: 12px 20px;
border: none;
border-radius: 4px;
cursor: pointer;
float: center;  }
```



```
.bg {background-image: url("https://bit.ly/2OEVTYp");
/* Full height */ height: 100%;
background-position: center;
background-repeat: no-repeat;
background-size: cover; }
.label {
    color: white;
    padding: 8px;
    font-family: Arial;
}
</style>
</head>
<body class="bg" style="padding: 210px 0; background-color:
#dbfcf9;">
<center>
    <h3><font size="24"> <font color="white">Welcome to edureka
website</font></h3>
</center>
</body>
</html>
```

**Step6:** Create a Host file.

- To create a host file, type the below code

```
cd /etc/apache2/sites-available/
```

```
sudo cp /etc/apache2/sites-available/000-default.conf  
/etc/apache2/sites-available/edureka123456.tk.conf
```

```
ubuntu@ip-172-31-6-148:/var/www/edureka123456.tk/public_html$ cd /etc/apache2/si  
tes-available/  
ubuntu@ip-172-31-6-148:/etc/apache2/sites-available$ sudo cp /etc/apache2/sites-  
available/000-default.conf /etc/apache2/sites-available/edureka123456.tk.conf
```

- Edit the virtual host file as

```
sudo nano /etc/apache2/sites-available/edureka123456.tk.conf
```

- Type the code in it

```
<VirtualHost *:80>  
  
ServerAdmin info@edureka123456.tk  
ServerName edureka123456.tk  
ServerAlias www.edureka123456.tk  
DocumentRoot /var/www/edureka123456.tk/public_html  
ErrorLog ${APACHE_LOG_DIR}/error.log  
CustomLog ${APACHE_LOG_DIR}/access.log combined  
  
</VirtualHost>
```

**Step7:** Enable the host file.

- To enable the host file, type the following code

```
sudo a2ensite edureka123456.tk.conf
```

```
GNU nano 2.9.3
VirtualHost *:80>
ServerAdmin info@edurekal23456.com
ServerName edurekal23456.com
ServerAlias www.edurekal23456.com
DocumentRoot /var/www/edurekal23456.com/public_html
ErrorLog ${APACHE_LOG_DIR}/error.log
CustomLog ${APACHE_LOG_DIR}/access.log combined

</VirtualHost>

# vim: syntax=apache ts=4 sw=4 sts=4 sr noet
```

- To disable the default host file, type the following code

```
sudo a2dissite 000-default.conf
```

**Step8:** Restart the Apache server.

```
sudo service apache2 restart
```

**Step9:** Point your local host file to the website you have created.

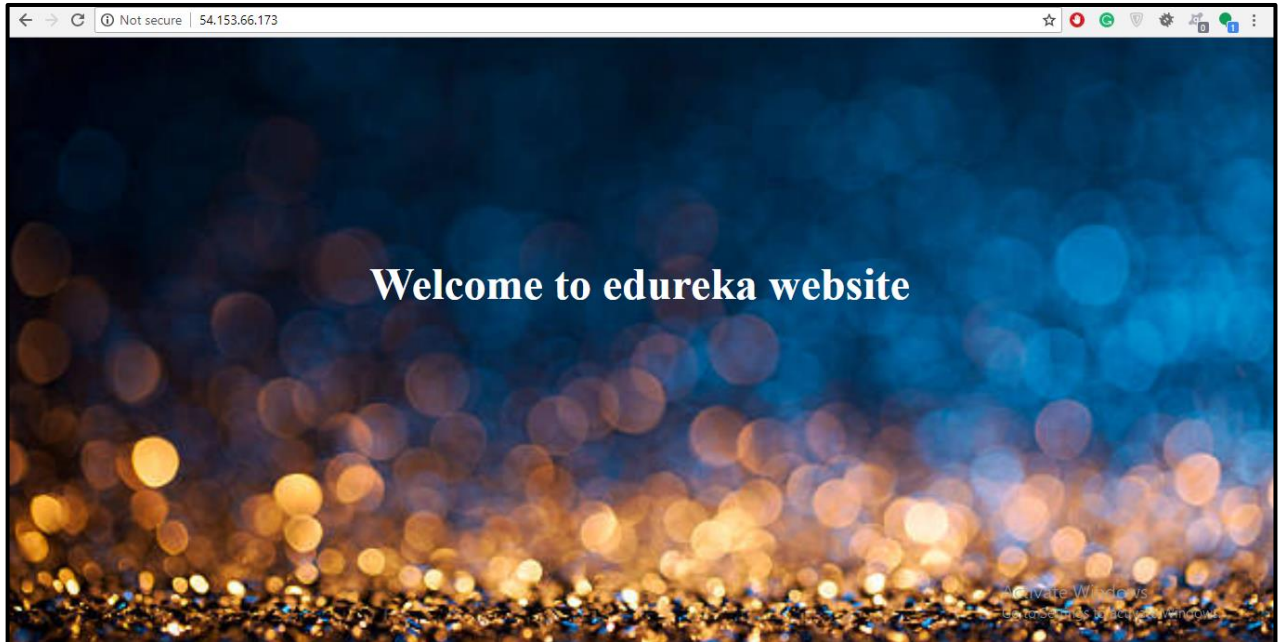
- Type the below code

```
sudo nano /etc/hosts
```

```
Public_IP_address edureka123456.tk
```

```
GNU nano 2.9.3
127.0.0.1 localhost
54.153.66.173 edureka123456.tk
# The following lines are desirable for IPv6 capable hosts
::1 ip6-localhost ip6-loopback
fe00::0 ip6-localnet
ff00::0 ip6-mcastprefix
ff02::1 ip6-allnodes
ff02::2 ip6-allrouters
ff02::3 ip6-allhosts
```

- Now when you enter your Public IP address in your web browser, you will be able to see your hosted website



## Conclusion

You have successfully configured an EC2 instance and hosted a website via AWS EC2 instance.