



# Install Apache Web Server in EC2 Instance

# Steps

1. Login to AWS Management Console & launch EC2 instance Enable static website hosting
2. Configure the EC2 User Data Script to updates all packages, install Apache web server
3. Verify that the instance has the Apache web server downloaded and installed through the public IP
4. Clean up

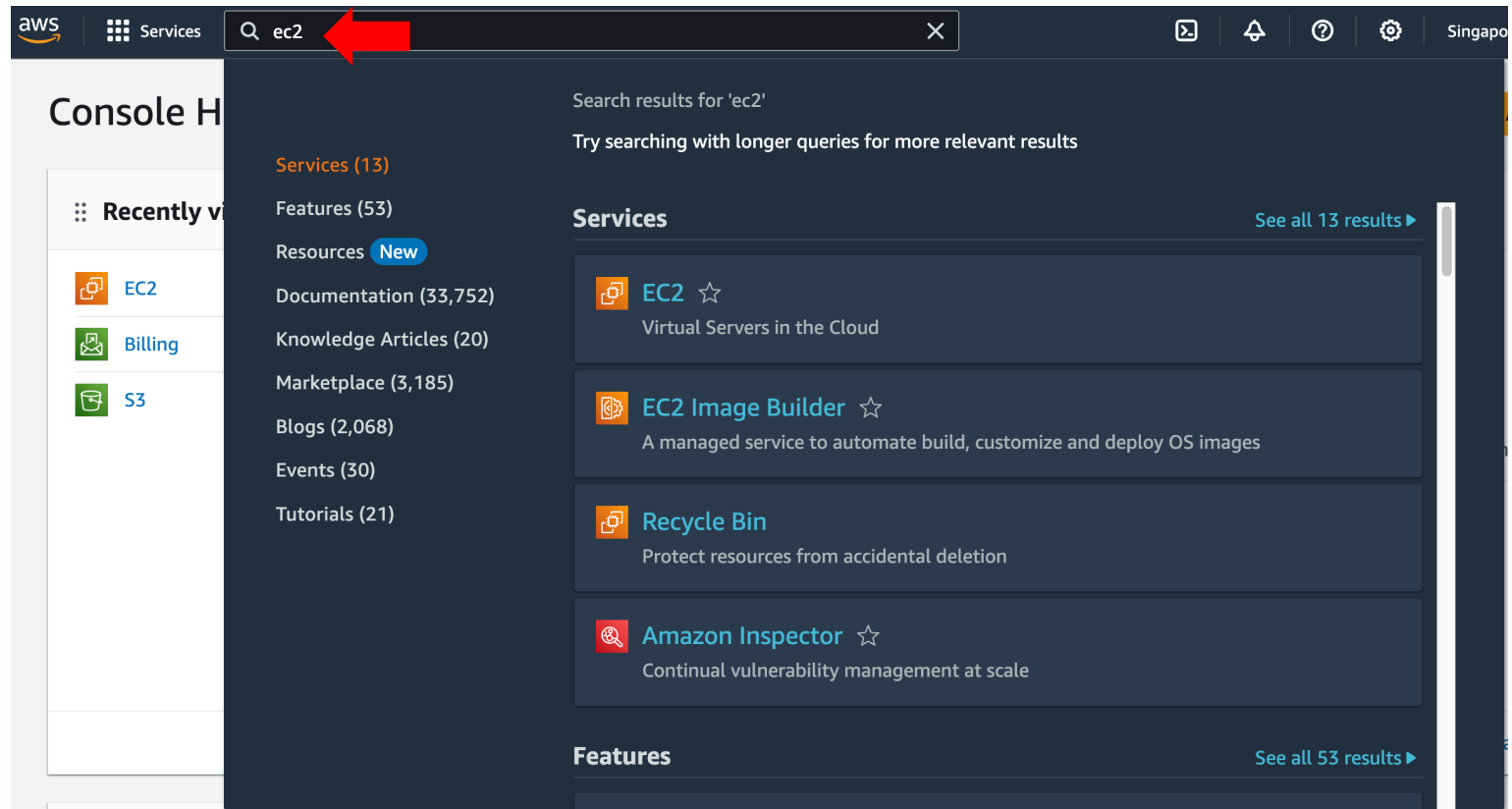
You can download the instruction PDF file from



# Step 1 - Login to AWS Management Console & launch EC2 instance

---

login to your AWS account via the AWS Management Console and in the research bar type EC2 service, select the EC2 service



This will lead you to the EC2 dashboard page as shown below

The screenshot displays the AWS Management Console's EC2 Dashboard. The top navigation bar includes the AWS logo, a 'Services' menu, a search bar, and a '[Option+S]' shortcut. The right side of the top bar shows the current region as 'Singapore' and the account type as 'free tier account'.

The left sidebar contains the following navigation links:

- EC2 Dashboard (selected)
- EC2 Global View
- Events
- Instances
  - Instances
  - Instance Types
  - Launch Templates
  - Spot Requests
  - Savings Plans
  - Reserved Instances
  - Dedicated Hosts
  - Capacity Reservations
- Images
  - AMIs
  - AMI Catalog
- Elastic Block Store
  - Volumes
  - Snapshots

The main content area is divided into several sections:

- Resources:** A section titled 'You are using the following Amazon EC2 resources in the Asia Pacific (Singapore) Region:' containing a grid of resource counts:

Instances (running)	0	Auto Scaling Groups	0	Dedicated Hosts	0
Elastic IPs	0	Instances	0	Key pairs	0
Load balancers	0	Placement groups	0	Security groups	1
Snapshots	0	Volumes	0		
- Launch instance:** A section with the text 'To get started, launch an Amazon EC2 instance, which is a virtual server in the cloud.' It features a prominent orange 'Launch instance' button and a 'Migrate a server' link. A red arrow points to the 'Launch instance' button with the text 'click on the "Launch instance"'.
- Service health:** A section titled 'AWS Health Dashboard' showing the current region as 'Asia Pacific (Singapore)' and a table for 'Zones' with columns 'Zone name' and 'Zone ID'.
- Account attributes:** A section showing 'Default VPC' (vpc-0ce30aae7f23771d4) and 'Settings' (Data protection and security, Zones, EC2 Serial Console, Default credit specification, Console experiments).
- Explore AWS:** A section titled '10 Things You Can Do Today to Reduce AWS Costs' with a link to 'Learn more'.

aws Services Search [Option+S]

EC2 > Instances > Launch an Instance

## 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](#)

### ▼ 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

Search our full catalog including 1000s of application and OS images

**Quick Start**

Amazon Linux  
aws

macOS  
Mac

Ubuntu  
ubuntu

Windows  
Microsoft

Red Hat  
Red Hat

SUSE Linux  
SUSE

[Browse more AMIs](#)  
Including AMIs from AWS, Marketplace and the Community

Amazon Machine Image (AMI)

Amazon Linux 2023 AMI  
ami-05caa5aa0186b660f (64-bit (x86)) / ami-0f80211f2590b9c3d (64-bit (Arm))  
Virtualization: hvm ENA enabled: true Root device type: ebs

Free tier eligible

Description

Amazon Linux 2023 AMI 2023.2.20231030.1 x86\_64 HVM kernel-6.1

Architecture 64-bit (x86) AMI ID ami-05caa5aa0186b660f [Verified provider](#)

Click on the “Launch instance” orange button which will redirect you to the launch an instance page as shown below.

- fill the *Name* with “mywebserver”
- in the *Quick start* select “Amazon Linux AWS”
- in the *Amazon Machine Image* select “Amazon Linux 2023 AMI”
- in the *Instance type* select “t2.micro Free tier eligible”

### ▼ Instance type [Info](#)

**Instance type**

t2.micro

Family: t2 1 vCPU 1 GiB Memory Current generation: true  
On-Demand Linux base pricing: 0.0146 USD per Hour  
On-Demand Windows base pricing: 0.0192 USD per Hour  
On-Demand RHEL base pricing: 0.0746 USD per Hour  
On-Demand SUSE base pricing: 0.0146 USD per Hour

Free tier eligible

☐ All generations [Compare instance types](#)

[Additional costs apply for AMIs with pre-installed software](#)


Then we should create a key pair, then click to “Create new key pair” as shown below :

▼ 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](#)

### Create key pair

Key pair name

Key pairs allow you to connect to your instance securely.

my-key-pair

The name can include upto 255 ASCII characters. It can't include leading or trailing spaces.

Key pair type

☒ RSA

RSA encrypted private and public key pair

☐ ED25519

ED25519 encrypted private and public key pair



Private key file format

☒ .pem

For use with OpenSSH

☐ .ppk

For use with PuTTY

 When prompted, store the private key in a secure and accessible location on your computer. **You will need it later to connect to your instance.** [Learn more](#) 

Cancel

Create key pair

Enter the following setting as shown below, then click on the orange button “Create key pair”, then .pem file will be downloaded into your computer. A key pair consists of a private key and a public key, together it let you connect to your instance without any password.



- Afterward in the “Network settings” we will configured the setting as shown below:
- select “create security group”
- check the box “Allow SSH traffic from”
- check the box “Allow HTTP traffic from the internet”
- It will allow the SSH traffic and HTTP traffic in order to be able to connect to our instance.

▼ Network settings [Info](#) Edit

Network [Info](#)  
vpc-0ce30aae7f23771d4

Subnet [Info](#)  
No preference (Default subnet in any availability zone)

Auto-assign public IP [Info](#)  
Enable

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-1' 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

⚠ 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.

×

Step 2 - Configure the EC2  
User Data Script to updates  
all packages, install Apache  
web server

---

► **Advanced details** [Info](#)

User data [Info](#)

```
#!/bin/bash
yum update -y
yum install -y httpd.x86_64
systemctl start httpd.service
systemctl enable httpd.service
echo "Hello Level Up In Tech" from $(hostname -f) > /var/www/html/index.html
```

Then in the “Advanced details” under the *User Data Info* place your bash script to update the all packages and install the Apache web server. It will automatically update the package and installed the apache web server as soon as your instance started. This is what we called bootstrapping your instance.

You can download the bash script file from [https://github.com/pengbin2015/awstraining/blob/main/user\\_data.sh](https://github.com/pengbin2015/awstraining/blob/main/user_data.sh)

Finally we are able to Launch our instance by selecting the orange button “Launch instance” as shown below :

▼ Summary

Number of instances [Info](#)

[Software Image \(AMI\)](#)  
Amazon Linux 2023 AMI 2023.2.2...[read more](#)  
ami-05caa5aa0186b660f

[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, 30 GiB of EBS storage, 2 million I/Os, 1 GB of snapshots, and 100 GB of bandwidth to the internet. ✕

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

A red arrow pointing upwards towards the 'Launch instance' button in the AWS console interface.

the instance has been created successful and then click on the orange button to “View all instances”

The screenshot displays the AWS Management Console interface. At the top, the navigation bar includes the AWS logo, 'Services', a search bar, and a dropdown menu for 'Singapore'. A green banner at the top of the main content area indicates a 'Success' message: 'Successfully initiated launch of Instance (i-00199d635b20c9f83)'. Below this, a 'Launch log' section is visible. The 'Next Steps' section features a search bar with the placeholder text 'What would you like to do next with this instance, for example "create alarm" or "create backup"'. Below the search bar, there are eight cards arranged in a 2x4 grid, each offering a different action to take with the instance. At the bottom right of the console, an orange button labeled 'View all instances' is highlighted with a red arrow.

**Success**  
Successfully initiated launch of Instance (i-00199d635b20c9f83)

► Launch log

**Next Steps**

What would you like to do next with this instance, for example "create alarm" or "create backup"

Create billing and free tier usage alerts  
To manage costs and avoid surprise bills, set up email notifications for billing and free tier usage thresholds.  
[Create billing alerts](#)

Connect to your instance  
Once your instance is running, log into it from your local computer.  
[Connect to instance](#)  
[Learn more](#)

Connect an RDS database  
Configure the connection between an EC2 instance and a database to allow traffic flow between them.  
[Connect an RDS database](#)  
[Create a new RDS database](#) [Learn more](#)

Create EBS snapshot policy  
Create a policy that automates the creation, retention, and deletion of EBS snapshots.  
[Create EBS snapshot policy](#)

Manage detailed monitoring  
Enable or disable detailed monitoring for the instance. If you enable detailed monitoring, the Amazon EC2 console displays monitoring graphs with a 1-minute period.  
[Manage detailed monitoring](#)

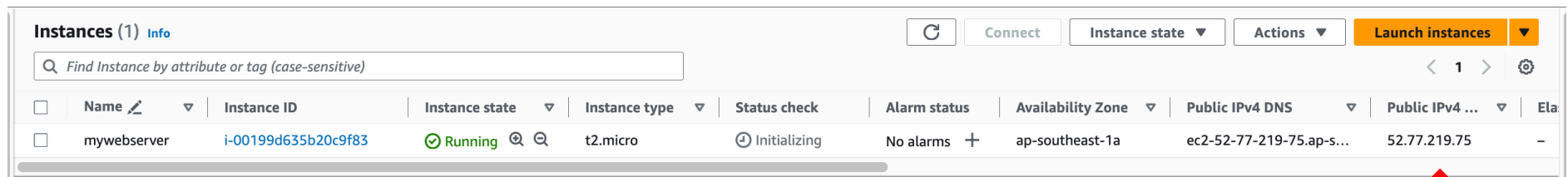
Create Load Balancer  
Create an application, network gateway or classic Elastic Load Balancer.  
[Create Load Balancer](#)

Create AWS budget  
AWS Budgets allows you to create budgets, forecast spend, and take action on your costs and usage from a single location.  
[Create AWS budget](#)

Manage CloudWatch alarms  
Create or update Amazon CloudWatch alarms for the instance.  
[Manage CloudWatch alarms](#)

[View all instances](#)

In the Instances dashboard we see that the  
instance is up and running



The screenshot shows the AWS Management Console 'Instances' dashboard. At the top, there's a header with 'Instances (1)' and an 'Info' link. To the right are buttons for 'Refresh', 'Connect', 'Instance state', 'Actions', and a highlighted 'Launch instances' button. Below the header is a search bar with the placeholder text 'Find Instance by attribute or tag (case-sensitive)'. The main content is a table with columns: Name, Instance ID, Instance state, Instance type, Status check, Alarm status, Availability Zone, Public IPv4 DNS, Public IPv4 ... (Public IP address), and Elapsed time. A single instance named 'mywebserver' is listed with Instance ID 'i-00199d635b20c9f83', state 'Running' (indicated by a green checkmark), type 't2.micro', status check 'Initializing', no alarms, availability zone 'ap-southeast-1a', public IPv4 DNS 'ec2-52-77-219-75.ap-s...', and public IP address '52.77.219.75'.

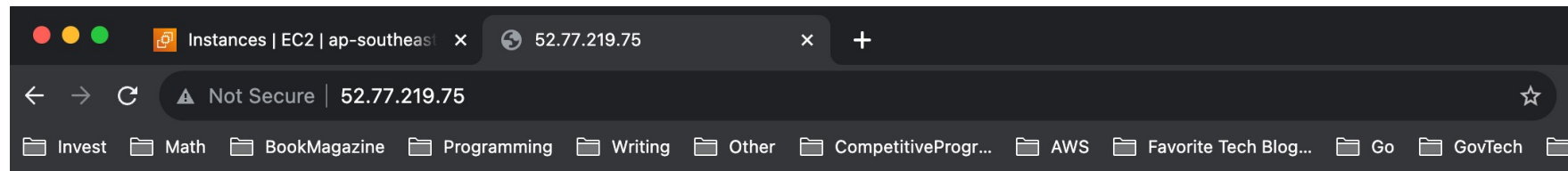
	Name	Instance ID	Instance state	Instance type	Status check	Alarm status	Availability Zone	Public IPv4 DNS	Public IPv4 ...	Elas
<input type="checkbox"/>	mywebserver	i-00199d635b20c9f83	Running	t2.micro	Initializing	No alarms	ap-southeast-1a	ec2-52-77-219-75.ap-s...	52.77.219.75	-

Public IP address

Step 3 - Verify that the instance  
has the Apache web server  
downloaded and installed  
through the public IP

---

Finally, put the IPv4 public IP address from the instance into the URL of our web browser. We should have this web page as shown below



Hello Level Up In Tech from ip-172-31-20-162.ap-southeast-1.compute.internal



## Step 4 - Clean Up

# Delete Key Pair

The screenshot shows the AWS Management Console interface for the 'Key pairs' section. The left sidebar contains a navigation menu with categories like 'Images', 'Elastic Block Store', 'Network & Security', and 'Load Balancing'. The 'Key Pairs' link under 'Network & Security' is highlighted with a red arrow. The main content area displays a table of key pairs. The first row, 'my-key-pair', is selected with a checkbox, indicated by a red arrow. The 'Actions' dropdown menu is open, showing options like 'Import key pair', 'Delete', and 'Manage tags'. The 'Delete' option is highlighted with a red arrow.

<input checked="" type="checkbox"/>	Name	Type	Created	Fingerprint	ID	
<input checked="" type="checkbox"/>	my-key-pair	rsa	2023/11/09 22:08 GMT+8	1b:f6:4f:2e:c2:40:19:e2:ce:d4:dc:d5:0c:0...	key-0c6240c19514c2d61	<div>Actions</div> <div>Import key pair</div> <div>Delete</div> <div>Manage tags</div>

2. Select "my-key-pair"

3. Select "Delete" from "Actions"

1. In EC2 dashboard page, choose "Key Pairs"

# Delete EC2 Instance

The screenshot displays the AWS Management Console interface for the EC2 service. The left-hand navigation pane shows the 'Instances' link selected under the 'EC2 Dashboard' section. The main content area shows a table of EC2 instances. The instance 'mywebserver' with ID 'i-00199d635b20c9f83' is highlighted. The 'Instance state' dropdown menu is open, showing options: 'Stop instance', 'Start instance', 'Reboot instance', 'Hibernate instance', and 'Terminate instance'. The 'Terminate instance' option is highlighted. Below the table, the details for the selected instance 'mywebserver' are shown, including its Instance ID, Public IPv4 address (52.77.219.75), and Private IPv4 addresses (172.31.20.162).

1. In EC2 dashboard page, choose "Instance"

2. Select "mywebserver"

3. Select "Terminate instance" from "Instance state"

Wait for a few minutes, the “instance state” becomes “Terminated”. It means the EC 2 instance has been deleted.

