

# Install Apache Server on EC2 instance

## 1-Create Security Group

The screenshot shows two tables for managing security group rules. The top table, titled 'Inbound rules (3)', lists three rules: one for ICMP (All ICMP - IPv4), one for HTTP (TCP port 80), and one for SSH (TCP port 22). The bottom table, titled 'Outbound rules (1)', lists one rule allowing all traffic (IPv4) from the instance.

Inbound rules (3)						
	Name	Security group rule...	IP version	Type	Protocol	Port range
<input type="checkbox"/>	-	sgr-0d36c7facfb14de19	IPv4	All ICMP - IPv4	ICMP	All
<input type="checkbox"/>	-	sgr-0a1c0a510b795f4e7	IPv4	HTTP	TCP	80
<input type="checkbox"/>	-	sgr-0353764da22bc54...	IPv4	SSH	TCP	22

Outbound rules (1)						
	Name	Security group rule...	IP version	Type		
<input type="checkbox"/>	-	sgr-0e027533e65f636b6	IPv4	All traffic		

## 2>Create and Launch Instance

-Create instance by default settings then select already created security group then install instance pair keys to access server

### 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 ID	Name	Description	Actions
<input type="checkbox"/> sg-c7adad8d	default	default VPC security group	<a href="#">Copy to new</a>
<input type="checkbox"/> sg-073fdfc11268ccac	launch-wizard-1	launch-wizard-1 created 2021-09-09T14:20:02.201+02:00	<a href="#">Copy to new</a>
<input checked="" type="checkbox"/> sg-0c5359cf7c97c1d27	test-webserver	lgggg	<a href="#">Copy to new</a>

#### ⚠ Warning

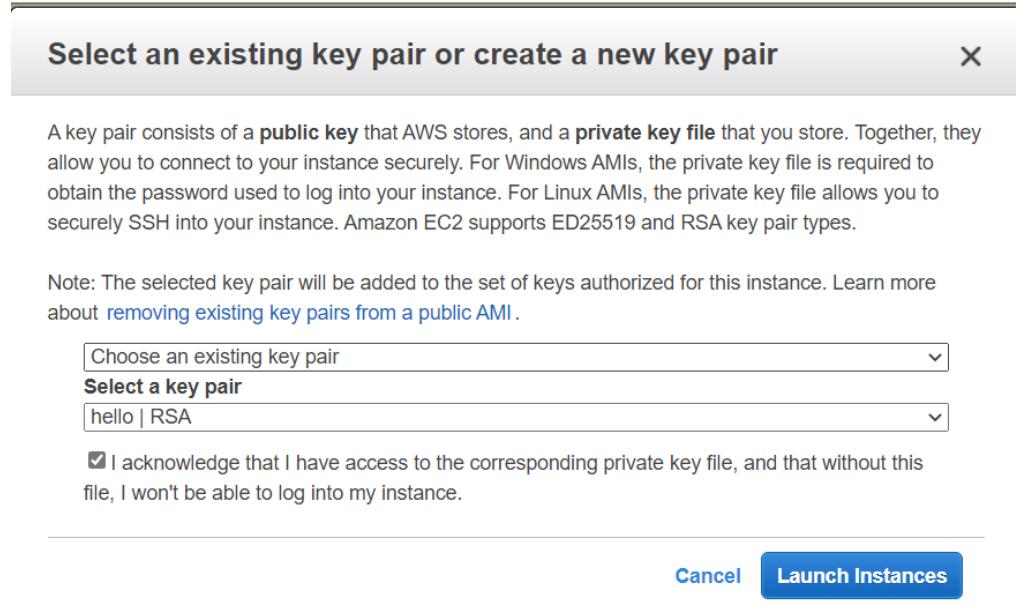
Rules with source of 0.0.0.0/0 allow all IP addresses to access your instance. We recommend setting security group rules to allow access from known IP addresses only.

Inbound rules for sg-0c5359cf7c97c1d27 (Selected security groups: sg-0c5359cf7c97c1d27)

Type	Protocol	Port Range	Source	Description
HTTP	TCP	80	0.0.0.0/0	
SSH	TCP	22	0.0.0.0/0	
All ICMP - IPv4	All	N/A	0.0.0.0/0	

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

-I already created key pairs so I will use them in this instance



### 3-Acess Instance and install and Launch Apache Server on it

-Access Instance through pair key using ssh command

```
C:\Programming\Embedded course>ssh -i hello.pem ec2-user@3.21.166.126
The authenticity of host '3.21.166.126 (3.21.166.126)' can't be established.
ECDSA key fingerprint is SHA256:vhSFAG+/aGUWdh8B1UJ/BQnhv5eh/E10o8NQvefB+lc.
Are you sure you want to continue connecting (yes/no/[fingerprint])? yes
Warning: Permanently added '3.21.166.126' (ECDSA) to the list of known hosts.

[ec2-user@ip-172-31-38-36 ~]$ sudo su

https://aws.amazon.com/amazon-linux-2/
[ec2-user@ip-172-31-38-36 ~]$ sudo su
```

-then give root access then by applying the following commands:

```
yum update -y
yum install -y httpd
systemctl start httpd
systemctl enable httpd
echo "<h1>Hello World from $(hostname -f)</h1>" > /var/www/html/index.html
```

## The Result



# Create and Configure VPC

## 1-Create VPC

**VPC settings**

Name tag - *optional*  
Creates a tag with a key of 'Name' and a value that you specify.

Demo-VPC

IPv4 CIDR block [Info](#)  
10.0.0.0/16

IPv6 CIDR block [Info](#)  
 No IPv6 CIDR block  
 Amazon-provided IPv6 CIDR block  
 IPv6 CIDR owned by me

Tenancy [Info](#)  
Default

## 2-Create Public Subnet

**vpc-0ff8989215b1f2145**  
Create subnets in this VPC.  
vpc-0ff8989215b1f2145 (Demo-VPC)

**Associated VPC CIDs**  
IPv4 CIDRs  
10.0.0.0/16

**Subnet settings**  
Specify the CIDR blocks and Availability Zone for the subnet.

**Subnet 1 of 1**

**Subnet name**  
Create a tag with a key of 'Name' and a value that you specify.  
Demo-Public-Subnet  
The name can be up to 256 characters long.

**Availability Zone** [Info](#)  
Choose the zone in which your subnet will reside, or let Amazon choose one for you.  
US East (Ohio) / us-east-2a

**IPv4 CIDR block** [Info](#)  
10.0.0.0/24

**Tags - optional**

### 3-Create Private Subnet

Create subnets in this VPC.

vpc-Off8989215b1f2145 (Demo-VPC) ▾

**Associated VPC CIDRs**

IPv4 CIDRs  
10.0.0.0/16

**Subnet settings**  
Specify the CIDR blocks and Availability Zone for the subnet.

**Subnet 1 of 1**

**Subnet name**  
Create a tag with a key of 'Name' and a value that you specify.  
Demo-Private-SubnetB

The name can be up to 256 characters long.

**Availability Zone** [Info](#)  
Choose the zone in which your subnet will reside, or let Amazon choose one for you.  
US East (Ohio) / us-east-2b ▾

**IPv4 CIDR block** [Info](#)  
Q 10.0.1.0/24 X  
10.0.1.0/24

Key Value - *optional*

### 4-Create NAT

**NAT gateway settings**

**Name - optional**  
Create a tag with a key of 'Name' and a value that you specify.  
Demo-Nat-Gateway-PublicA

The name can be up to 256 characters long.

**Subnet**  
Select a subnet in which to create the NAT gateway.  
subnet-0e7a9b472718f4d0d (Demo-Public-SubnetA) ▾

**Connectivity type**  
Select a connectivity type for the NAT gateway.  
 Public  
 Private

**Elastic IP allocation ID** [Info](#)  
Assign an Elastic IP address to the NAT gateway.  
Select an Elastic IP ▾ Allocate Elastic IP

## 5-Create Internet Gateway

**Internet gateway settings**

Name tag  
Creates a tag with a key of 'Name' and a value that you specify.

## 6-Create Router

**Route table settings**

Name - *optional*  
Create a tag with a key of 'Name' and a value that you specify.

VPC  
The VPC to use for this route table.

**Edit routes**

Destination	Target	Status
10.0.0.0/16	<input type="text" value="local"/> <input type="button" value="X"/>	<input checked="" type="checkbox"/> Active

Propagated  
No

**Edit routes**

Destination	Target	Status
<input type="text" value="0.0.0.0/0"/> <input type="button" value="X"/>	<input type="text" value="nat-0a4c5954745d1cce0"/> <input type="button" value="X"/>	-

Propagated  
No

## 6-Create EC2 on Public Subnet

Network i  C Create new VPC

Subnet i  C Create new subnet  
250 IP Addresses available

Assign Public IP i

## 7-Create EC2 on Private Subnet

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Network i  C Create new VPC

Subnet i  C Create new subnet  
251 IP Addresses available

Auto-assign Public IP i

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