

9. Create and Configure web server on Amazon Linux instance with Elastic IP.

Step 1. Launch EC2

a. Open AWS Console and Launch the EC2 instance with the configurations indicated below

Name: <INSTANCE_NAME>

Name

MyEC2Server [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 macOS Ubuntu Windows Red Hat S

Amazon Machine Image (AMI)

Amazon Linux 2 AMI (HVM) - Kernel 5.10, SSD Volume Type
ami-0bef6cc322bfff646 (64-bit (x86)) / ami-09212035c6444f37a (64-bit (Arm))
Virtualization: hvm ENA enabled: true Root device type: ebs

Free tier eligible

Description

Amazon Linux 2 Kernel 5.10 AMI 2.0.20230515.0 x86_64 HVM gp2

Architecture AMI ID

64-bit (x86) ami-0bef6cc322bfff646 [Verified provider](#)

▼ **Instance type** [Info](#)

Instance type

t2.micro **Free tier eligible**

Family: t2 1 vCPU 1 GiB Memory Current generation: true
On-Demand Windows base pricing: 0.018 USD per Hour
On-Demand SUSE base pricing: 0.0134 USD per Hour
On-Demand Linux base pricing: 0.0134 USD per Hour
On-Demand RHEL base pricing: 0.0734 USD per Hour

☐ All generations

[Compare instance types](#)

Additional costs apply for AMIs with pre-installed software

Next, we will make sure to create a new security group for our instance.

▼ **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](#)

Creating a new security group for your new EC2 instance is a fundamental security best practice in AWS. It allows you to define and enforce customized network access controls, adhere to the **least privilege principle**, and maintain better isolation and security for your EC2 instances.

Create key pair



Key pair name

Key pairs allow you to connect to your instance securely.

The name can include up to 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

Finally, click on the “Create key pair” option in order to generate the SSH key and this will prompt the download in your browser. Also, there is a warning from AWS that we should store our private keys in a secure and accessible location on our computers.

c. Create a Security Group and add inbound rules to allow SSH and HTTP traffic from anywhere.

▼ Network settings Info

Network | Info
vpc-02f73530d0f8b5993

Subnet | Info
No preference (Default subnet in any availability zone)

Auto-assign public IP | Info
Enable
Additional charges apply when outside of free tier allowance

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-6' 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. X

▼ Network settings Info

VPC - required Info
vpc-0a34b0547d49b5d7d (default) 172.31.0.0/16

Subnet Info
No preference Create new subnet

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

Security group name - required
My-SG
This security group will be added to all network interfaces. The name can't be edited after the security group is created. Max length is 255 characters. Valid characters: a-z, A-Z, 0-9, spaces, and _-:/()#,@[]+=&;!\$*

Description - required Info
My-SG

Inbound Security Group Rules
▼ Security group rule 1 (TCP, 22, 0.0.0.0/0) Remove

Type Info ssh	Protocol Info TCP	Port range Info 22
Source type Info Anywhere	Source Info Add CIDR, prefix list or security 0.0.0.0/0 X	Description - optional Info e.g. SSH for admin desktop

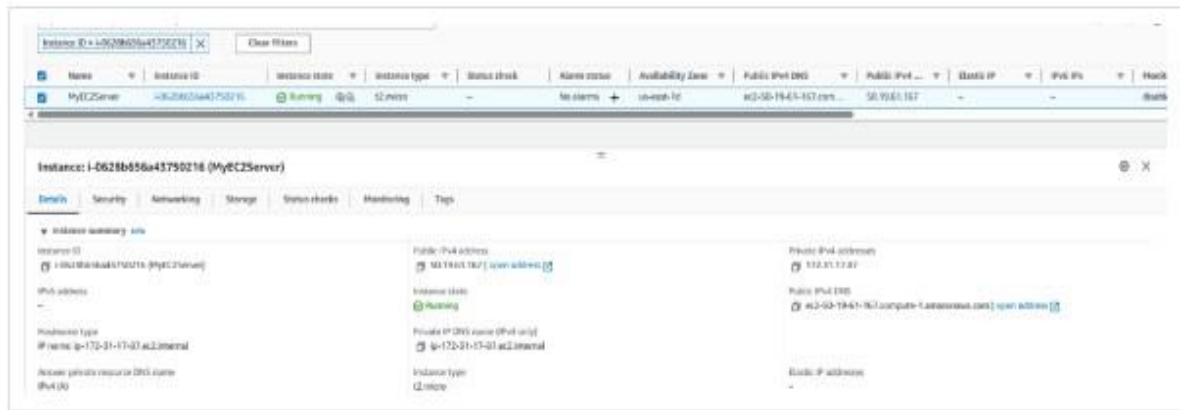
▼ Security group rule 2 (TCP, 80, 0.0.0.0/0) Remove

Type Info HTTP	Protocol Info TCP	Port range Info 80
Source type Info Anywhere	Source Info Add CIDR, prefix list or security 0.0.0.0/0 X	Description - optional Info e.g. SSH for admin desktop

⚠ 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. X

Add security group rule

d. Review and Launch Instance.



Connect the Linux instance with **SSH client** connection or EC2 **Instance Connect**.

If connecting with **SSH Client**, open command prompt in local system and change path for folder where your Linux instance key pair available in local system.

Then paste the instance path.

EC2 > Instances > i-0a567ad3fdafd3827 > Connect to instance

Connect to instance [Info](#)

Connect to your instance i-0a567ad3fdafd3827 (serverinstance) using any of these options

EC2 Instance Connect | Session Manager | **SSH client** | EC2 serial console

Instance ID

[i-0a567ad3fdafd3827](#) (serverinstance)

1. Open an SSH client.
2. Locate your private key file. The key used to launch this instance is serverkey.pem
3. Run this command, if necessary, to ensure your key is not publicly viewable.
`chmod 400 "serverkey.pem"`
4. Connect to your instance using its Public DNS:
`ec2-3-83-217-134.compute-1.amazonaws.com`

Example:

`ssh -i "serverkey.pem" ec2-user@ec2-3-83-217-134.compute-1.amazonaws.com`

Note: In most cases, the guessed username is correct. However, read your AMI usage instructions to check if the AMI owner has changed the default AMI username.

To connect to superuser - type `sudo su`


```
root@ip-172-31-93-141:/home X + v
----> Package mailcap.noarch 0:2.1.41-2.amzn2 will be installed
----> Package mod_http2.x86_64 0:1.15.19-1.amzn2.0.2 will be installed
--> Running transaction check
----> Package apr-util-bdb.x86_64 0:1.6.3-1.amzn2.0.1 will be installed
--> Finished Dependency Resolution

Dependencies Resolved

=====
Package                        Arch      Version              Repository            Size
=====
Installing:
httpd                          x86_64    2.4.62-1.amzn2.0.2   amzn2-core            1.4 M
Installing for dependencies:
apr                            x86_64    1.7.2-1.amzn2.0.1    amzn2-core            130 k
apr-util                       x86_64    1.6.3-1.amzn2.0.1    amzn2-core            101 k
apr-util-bdb                   x86_64    1.6.3-1.amzn2.0.1    amzn2-core            22 k
generic-logos-httpd           noarch    18.0.0-4.amzn2       amzn2-core            19 k
httpd-filesystem               noarch    2.4.62-1.amzn2.0.2   amzn2-core            25 k
httpd-tools                    x86_64    2.4.62-1.amzn2.0.2   amzn2-core            89 k
mailcap                        noarch    2.1.41-2.amzn2       amzn2-core            31 k
mod_http2                      x86_64    1.15.19-1.amzn2.0.2   amzn2-core            149 k
=====

Transaction Summary
=====
Install 1 Package (+8 Dependent packages)

Total download size: 1.9 M
Installed size: 5.3 M
Is this ok [y/d/N]: y
```

Installation Completed

```
root@ip-172-31-93-141:/home X + v
Installing : apr-1.7.2-1.amzn2.0.1.x86_64 1/9
Installing : apr-util-bdb-1.6.3-1.amzn2.0.1.x86_64 2/9
Installing : apr-util-1.6.3-1.amzn2.0.1.x86_64 3/9
Installing : httpd-tools-2.4.62-1.amzn2.0.2.x86_64 4/9
Installing : httpd-filesystem-2.4.62-1.amzn2.0.2.noarch 5/9
Installing : generic-logos-httpd-18.0.0-4.amzn2.noarch 6/9
Installing : mailcap-2.1.41-2.amzn2.noarch 7/9
Installing : mod_http2-1.15.19-1.amzn2.0.2.x86_64 8/9
Installing : httpd-2.4.62-1.amzn2.0.2.x86_64 9/9
Verifying : apr-1.7.2-1.amzn2.0.1.x86_64 1/9
Verifying : apr-util-bdb-1.6.3-1.amzn2.0.1.x86_64 2/9
Verifying : httpd-2.4.62-1.amzn2.0.2.x86_64 3/9
Verifying : mod_http2-1.15.19-1.amzn2.0.2.x86_64 4/9
Verifying : apr-util-1.6.3-1.amzn2.0.1.x86_64 5/9
Verifying : mailcap-2.1.41-2.amzn2.noarch 6/9
Verifying : generic-logos-httpd-18.0.0-4.amzn2.noarch 7/9
Verifying : httpd-tools-2.4.62-1.amzn2.0.2.x86_64 8/9
Verifying : httpd-filesystem-2.4.62-1.amzn2.0.2.noarch 9/9

Installed:
httpd.x86_64 0:2.4.62-1.amzn2.0.2

Dependency Installed:
apr.x86_64 0:1.7.2-1.amzn2.0.1
apr-util.x86_64 0:1.6.3-1.amzn2.0.1
apr-util-bdb.x86_64 0:1.6.3-1.amzn2.0.1
httpd-filesystem.noarch 0:2.4.62-1.amzn2.0.2
mailcap.noarch 0:2.1.41-2.amzn2
generic-logos-httpd.noarch 0:18.0.0-4.amzn2
httpd-tools.x86_64 0:2.4.62-1.amzn2.0.2
mod_http2.x86_64 0:1.15.19-1.amzn2.0.2

Complete!
[root@ip-172-31-93-141 ec2-user]#
```

To enable httpd service - type chkconfig httpd on

```
root@ip-172-31-93-141:/home  X  +  v  -  □  X

Installing : httpd-tools-2.4.62-1.amzn2.0.2.x86_64 4/9
Installing : httpd-filesystem-2.4.62-1.amzn2.0.2.noarch 5/9
Installing : generic-logos-httpd-18.0.0-4.amzn2.noarch 6/9
Installing : mailcap-2.1.41-2.amzn2.noarch 7/9
Installing : mod_http2-1.15.19-1.amzn2.0.2.x86_64 8/9
Installing : httpd-2.4.62-1.amzn2.0.2.x86_64 9/9
Verifying : apr-1.7.2-1.amzn2.0.1.x86_64 1/9
Verifying : apr-util-bdb-1.6.3-1.amzn2.0.1.x86_64 2/9
Verifying : httpd-2.4.62-1.amzn2.0.2.x86_64 3/9
Verifying : mod_http2-1.15.19-1.amzn2.0.2.x86_64 4/9
Verifying : apr-util-1.6.3-1.amzn2.0.1.x86_64 5/9
Verifying : mailcap-2.1.41-2.amzn2.noarch 6/9
Verifying : generic-logos-httpd-18.0.0-4.amzn2.noarch 7/9
Verifying : httpd-tools-2.4.62-1.amzn2.0.2.x86_64 8/9
Verifying : httpd-filesystem-2.4.62-1.amzn2.0.2.noarch 9/9

Installed:
  httpd.x86_64 0:2.4.62-1.amzn2.0.2

Dependency Installed:
  apr.x86_64 0:1.7.2-1.amzn2.0.1          apr-util.x86_64 0:1.6.3-1.amzn2.0.1
  apr-util-bdb.x86_64 0:1.6.3-1.amzn2.0.1 generic-logos-httpd.noarch 0:18.0.0-4.amzn2
  httpd-filesystem.noarch 0:2.4.62-1.amzn2.0.2 httpd-tools.x86_64 0:2.4.62-1.amzn2.0.2
  mailcap.noarch 0:2.1.41-2.amzn2          mod_http2.x86_64 0:1.15.19-1.amzn2.0.2

Complete!
[root@ip-172-31-93-141 ec2-user]# chkconfig httpd on
Note: Forwarding request to 'systemctl enable httpd.service'.
Created symlink from /etc/systemd/system/multi-user.target.wants/httpd.service to /usr/lib/systemd/system/httpd.service.
[root@ip-172-31-93-141 ec2-user]#
```

Restart the service – type service httpd restart

```
root@ip-172-31-93-141:/home  X  +  v  -  □  X

Installing : generic-logos-httpd-18.0.0-4.amzn2.noarch 6/9
Installing : mailcap-2.1.41-2.amzn2.noarch 7/9
Installing : mod_http2-1.15.19-1.amzn2.0.2.x86_64 8/9
Installing : httpd-2.4.62-1.amzn2.0.2.x86_64 9/9
Verifying : apr-1.7.2-1.amzn2.0.1.x86_64 1/9
Verifying : apr-util-bdb-1.6.3-1.amzn2.0.1.x86_64 2/9
Verifying : httpd-2.4.62-1.amzn2.0.2.x86_64 3/9
Verifying : mod_http2-1.15.19-1.amzn2.0.2.x86_64 4/9
Verifying : apr-util-1.6.3-1.amzn2.0.1.x86_64 5/9
Verifying : mailcap-2.1.41-2.amzn2.noarch 6/9
Verifying : generic-logos-httpd-18.0.0-4.amzn2.noarch 7/9
Verifying : httpd-tools-2.4.62-1.amzn2.0.2.x86_64 8/9
Verifying : httpd-filesystem-2.4.62-1.amzn2.0.2.noarch 9/9

Installed:
  httpd.x86_64 0:2.4.62-1.amzn2.0.2

Dependency Installed:
  apr.x86_64 0:1.7.2-1.amzn2.0.1          apr-util.x86_64 0:1.6.3-1.amzn2.0.1
  apr-util-bdb.x86_64 0:1.6.3-1.amzn2.0.1 generic-logos-httpd.noarch 0:18.0.0-4.amzn2
  httpd-filesystem.noarch 0:2.4.62-1.amzn2.0.2 httpd-tools.x86_64 0:2.4.62-1.amzn2.0.2
  mailcap.noarch 0:2.1.41-2.amzn2          mod_http2.x86_64 0:1.15.19-1.amzn2.0.2

Complete!
[root@ip-172-31-93-141 ec2-user]# chkconfig httpd on
Note: Forwarding request to 'systemctl enable httpd.service'.
Created symlink from /etc/systemd/system/multi-user.target.wants/httpd.service to /usr/lib/systemd/system/httpd.service.
[root@ip-172-31-93-141 ec2-user]# service httpd restart
Redirecting to /bin/systemctl restart httpd.service
[root@ip-172-31-93-141 ec2-user]#
```


We are going to create a html file using vi editor

For that first we have to go to aws default location

cd /var/www/html

```
root@ip-172-31-47-27:/var/www/html

Installed:
  apr-1.7.2-2.amzn2023.0.2.x86_64
  apr-util-1.6.3-1.amzn2023.0.1.x86_64
  apr-util-openssl-1.6.3-1.amzn2023.0.1.x86_64
  generic-logos-httpd-18.0.0-12.amzn2023.0.3.noarch
  httpd-2.4.56-1.amzn2023.x86_64
  httpd-core-2.4.56-1.amzn2023.x86_64
  httpd-filesystem-2.4.56-1.amzn2023.noarch
  httpd-tools-2.4.56-1.amzn2023.x86_64
  libbrotli-1.0.9-4.amzn2023.0.2.x86_64
  mailcap-2.1.49-3.amzn2023.0.3.noarch
  mod_http2-2.0.11-2.amzn2023.x86_64
  mod_lua-2.4.56-1.amzn2023.x86_64

Complete!
[root@ip-172-31-47-27 ec2-user]# chkconfig httpd on
Note: Forwarding request to 'systemctl enable httpd.service'.
Created symlink /etc/systemd/system/multi-user.target.wants/httpd.service → /usr/lib/systemd/system/httpd.service.
[root@ip-172-31-47-27 ec2-user]# service httpd restart
Redirecting to /bin/systemctl restart httpd.service
[root@ip-172-31-47-27 ec2-user]# cd /var/www/html
[root@ip-172-31-47-27 html]#
```

Create html file using vi editor

Type vi index.html(file name)

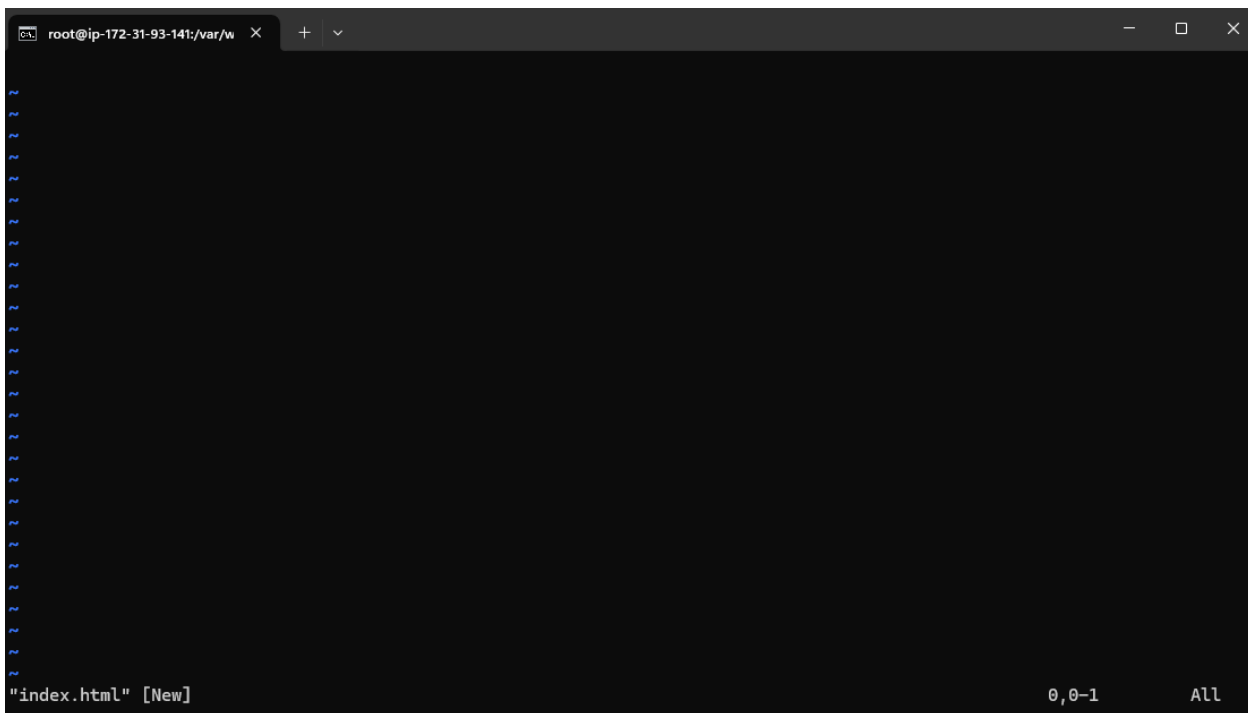
```
root@ip-172-31-93-141:/var/w

Installing : mailcap-2.1.41-2.amzn2.noarch 7/9
Installing : mod_http2-1.15.19-1.amzn2.0.2.x86_64 8/9
Installing : httpd-2.4.62-1.amzn2.0.2.x86_64 9/9
Verifying : apr-1.7.2-1.amzn2.0.1.x86_64 1/9
Verifying : apr-util-bdb-1.6.3-1.amzn2.0.1.x86_64 2/9
Verifying : httpd-2.4.62-1.amzn2.0.2.x86_64 3/9
Verifying : mod_http2-1.15.19-1.amzn2.0.2.x86_64 4/9
Verifying : apr-util-1.6.3-1.amzn2.0.1.x86_64 5/9
Verifying : mailcap-2.1.41-2.amzn2.noarch 6/9
Verifying : generic-logos-httpd-18.0.0-4.amzn2.noarch 7/9
Verifying : httpd-tools-2.4.62-1.amzn2.0.2.x86_64 8/9
Verifying : httpd-filesystem-2.4.62-1.amzn2.0.2.noarch 9/9

Installed:
  httpd.x86_64 0:2.4.62-1.amzn2.0.2

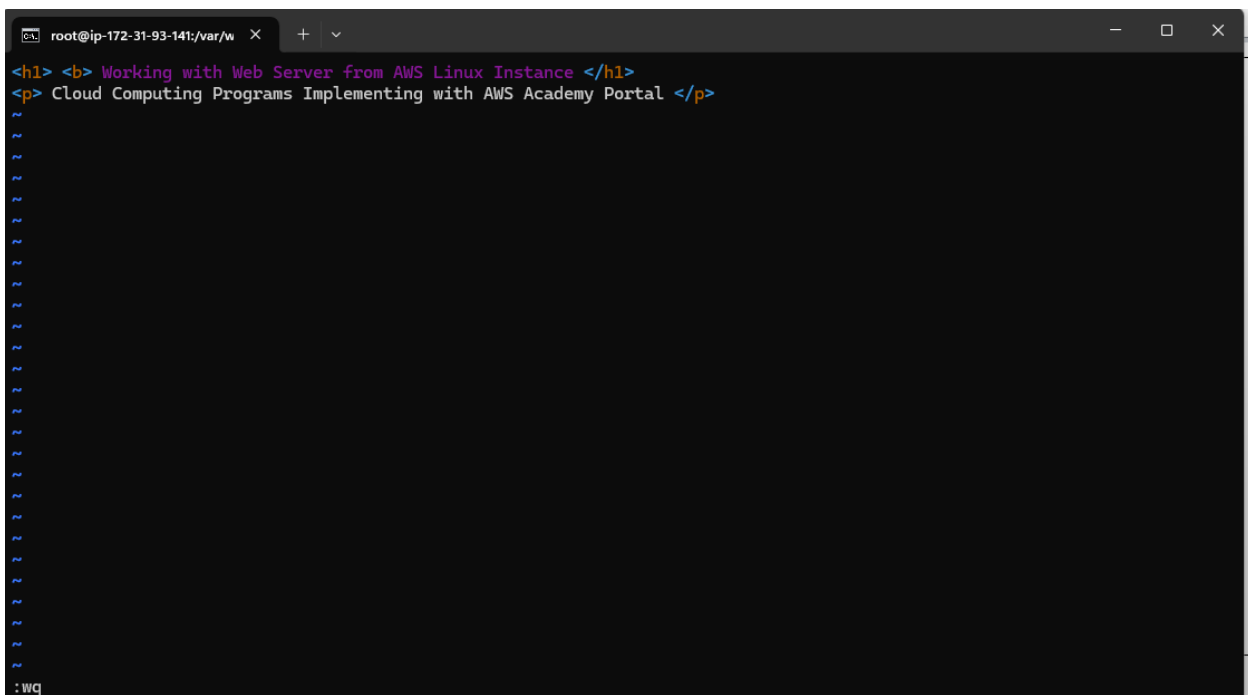
Dependency Installed:
  apr.x86_64 0:1.7.2-1.amzn2.0.1
  apr-util-bdb.x86_64 0:1.6.3-1.amzn2.0.1
  httpd-filesystem.noarch 0:2.4.62-1.amzn2.0.2
  mailcap.noarch 0:2.1.41-2.amzn2
  apr-util.x86_64 0:1.6.3-1.amzn2.0.1
  generic-logos-httpd.noarch 0:18.0.0-4.amzn2
  httpd-tools.x86_64 0:2.4.62-1.amzn2.0.2
  mod_http2.x86_64 0:1.15.19-1.amzn2.0.2

Complete!
[root@ip-172-31-93-141 ec2-user]# chkconfig httpd on
Note: Forwarding request to 'systemctl enable httpd.service'.
Created symlink from /etc/systemd/system/multi-user.target.wants/httpd.service to /usr/lib/systemd/system/httpd.service.
[root@ip-172-31-93-141 ec2-user]# service httpd restart
Redirecting to /bin/systemctl restart httpd.service
[root@ip-172-31-93-141 ec2-user]# cd /var/www/html/
[root@ip-172-31-93-141 html]# vi index.html
```

A terminal window with a dark background. The title bar shows 'root@ip-172-31-93-141:/var/w'. The left margin has blue tilde characters. The bottom status bar shows '"index.html" [New]' on the left, '0,0-1' in the center, and 'All' on the right.

To type html tags first press **i** so that we can type html programs



The same terminal window as before, but now with two lines of HTML code typed in. The first line is '<h1> Working with Web Server from AWS Linux Instance </h1>' and the second line is '<p> Cloud Computing Programs Implementing with AWS Academy Portal </p>'. The cursor is at the end of the second line. The bottom status bar now shows ':wq'.

To save and exit from vi editor press esc and type :wq

EC2 > Instances > i-0a567ad3fdafd3827

EC2

- Dashboard
- 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

Instance summary for i-0a567ad3fdafd3827 (serverinstance) Info

Updated 4 minutes ago

Instance ID i-0a567ad3fdafd3827	Public IPv4 address 35.174.174.140 open address
IPv6 address -	Instance state Running
Hostname type IP name: ip-172-31-93-141.ec2.internal	Private IP DNS name (IPv4 only) ip-172-31-93-141.ec2.internal
Answer private resource DNS name IPv4 (A)	Instance type t2.micro
Auto-assigned IP address 35.174.174.140 [Public IP]	VPC ID vpc-02f73530d0f8b5993
IAM Role -	Subnet ID subnet-003ddfee6138b96a
IMDSv2 Required	Instance ARN arn:aws:ec2:us-east-1:794256376414:instance/i-0a567ad3fdafd3827
Operator -	

Paste in the Ipv4 address in browser Url bar

35.174.174.140

Not secure | 35.174.174.140

Working with Web Server from AWS Linux Instance

Cloud Computing Programs Implementing with AWS Academy Portal

