# Experiment No. 4

# Title: Hosting a website on Linux Virtual Machine Instance using AWS (IaaS)

**Batch: A4** **Roll No.: 1914078** **Experiment No.:4**

**Aim:** Creating Linux Virtual Machine Instance and Hosting a website using AWS (IaaS)

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**Resources needed:** AWS account

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**Pre Requisite:** Knowledge of Client Server communication

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**Theory:**

**Amazon Linux 2** is a Linux operating system from Amazon Web Services (AWS). It provides a security-focused, stable, and high-performance execution environment to develop and run cloud applications. AWS provides ongoing security and maintenance updates for Amazon Linux 2.

**Amazon Elastic Compute Cloud (EC2)** is one of the most popular AWS services. EC2 allows you to launch different types of cloud instances and pay for them with a pay-per-use model. EC2 allows you to have operating system level control of your computing resources while running in Amazon's computing environment.

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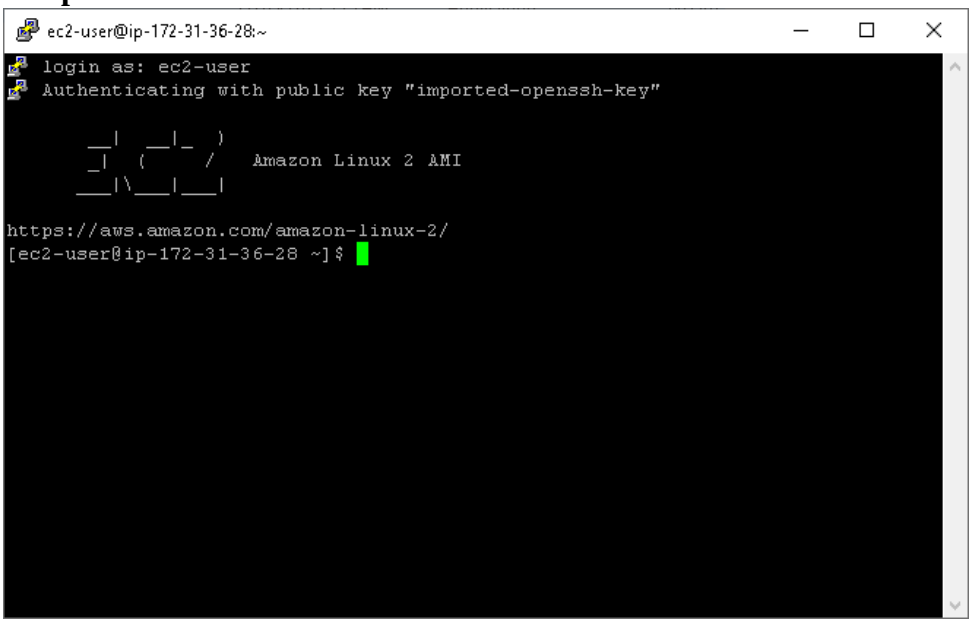
**Procedure:**

1. Download PuTTY client putty.org [Select 32 bit or 64 bit installer]
2. It will install two files, PuTTY and PuTTYgen
3. Create EC2 Linux instance.
4. Use PuTTYgen to convert key .pem file to .ppk file.[because .ppk file is used with PuTTY]
5. Use PuTTY for connecting to Linux instance using Username : ec2-user [copy Public IP of Linux instance in PuTTY Host Name. Select SSH and Auth and browse key .ppk file]
6. Switch to the root user [sudo su]
7. Download any Webserver.
8. Launch a sample website on the Webserver of virtual Linux machine.
9. Check the website on any browser.
10. **Delete/stop** the Linux instance.

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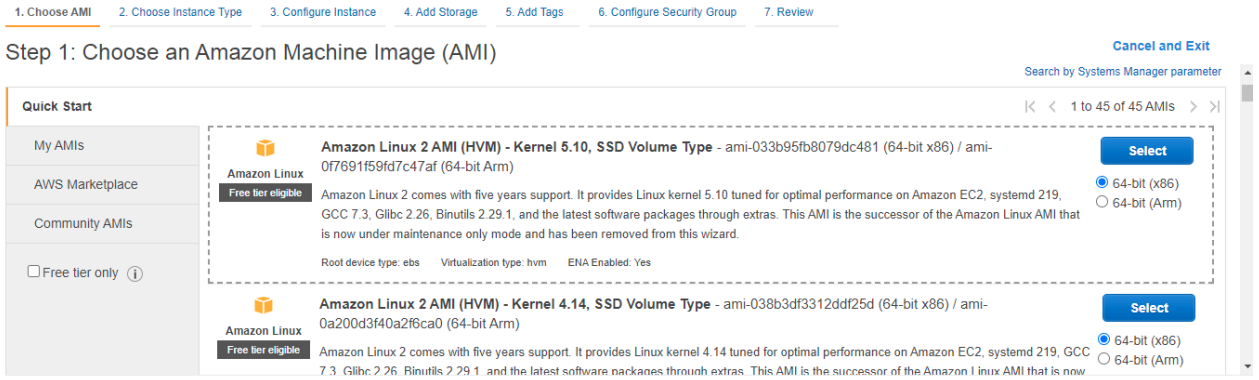
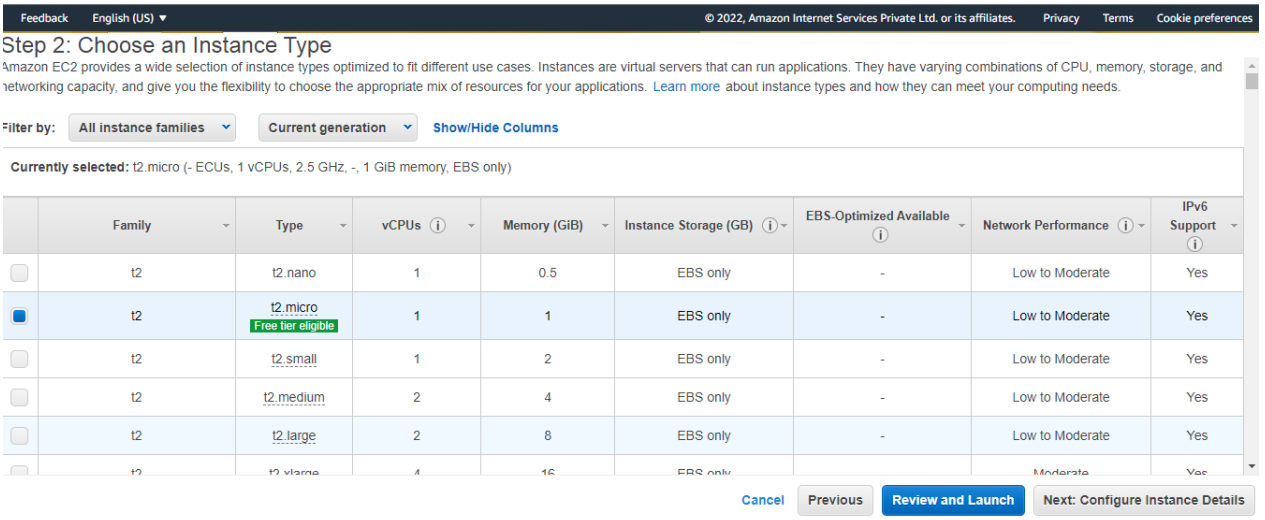
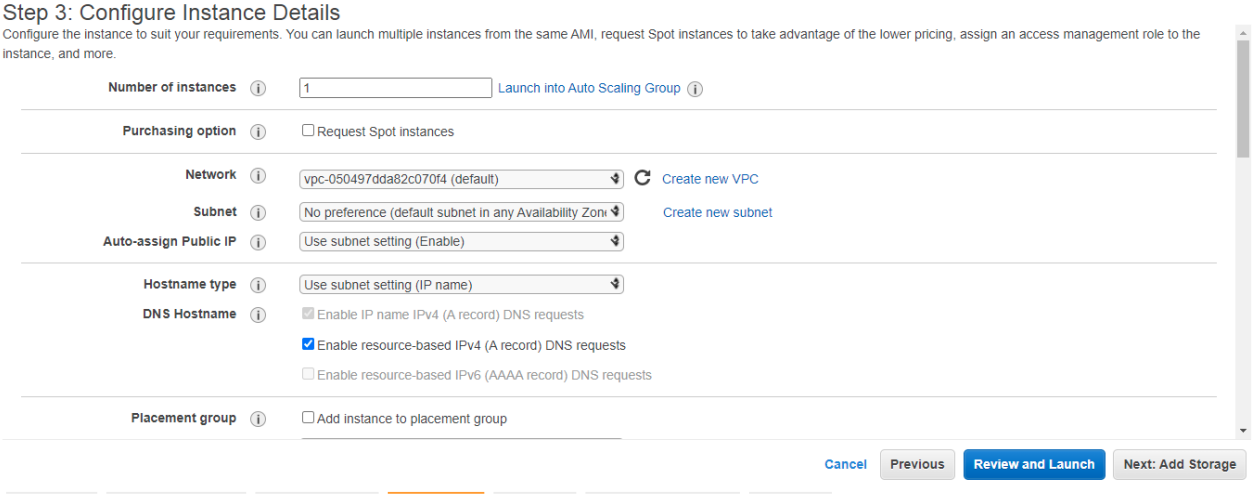
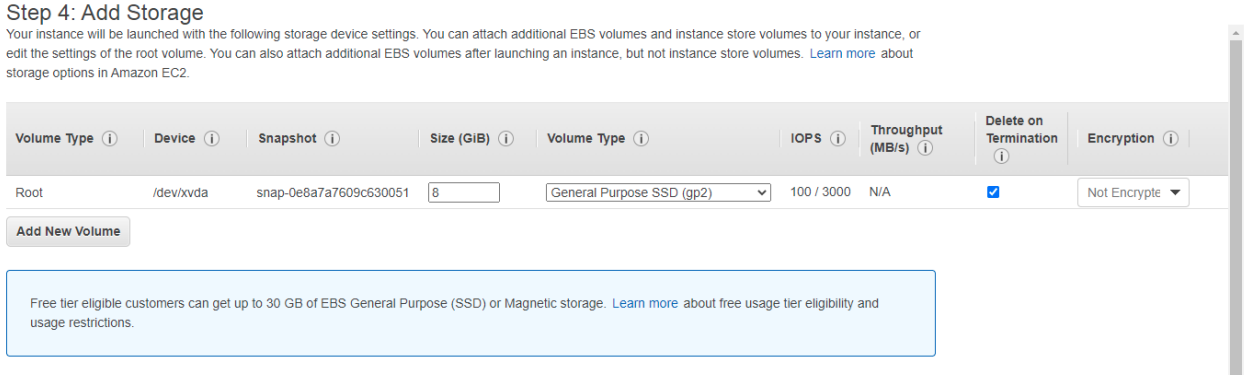
**Results: (Program / Steps with screenshots) for all steps of download, connection and hosting a website.**



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

## Step 5: Add Tags

A tag consists of a case-sensitive key-value pair. For example, you could define a tag with key = Name and value = Webserver.
A copy of a tag can be applied to volumes, instances or both.
Tags will be applied to all instances and volumes. Learn more about tagging your Amazon EC2 resources.

| Key (128 characters maximum) | Value (256 characters maximum) | Instances | Volumes | Network Interfaces |
|---|---|---|---|---|
| NAME | aayushLinux | ☑ | ☑ | ☑ |

Add another tag (Up to 50 tags maximum)

## 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

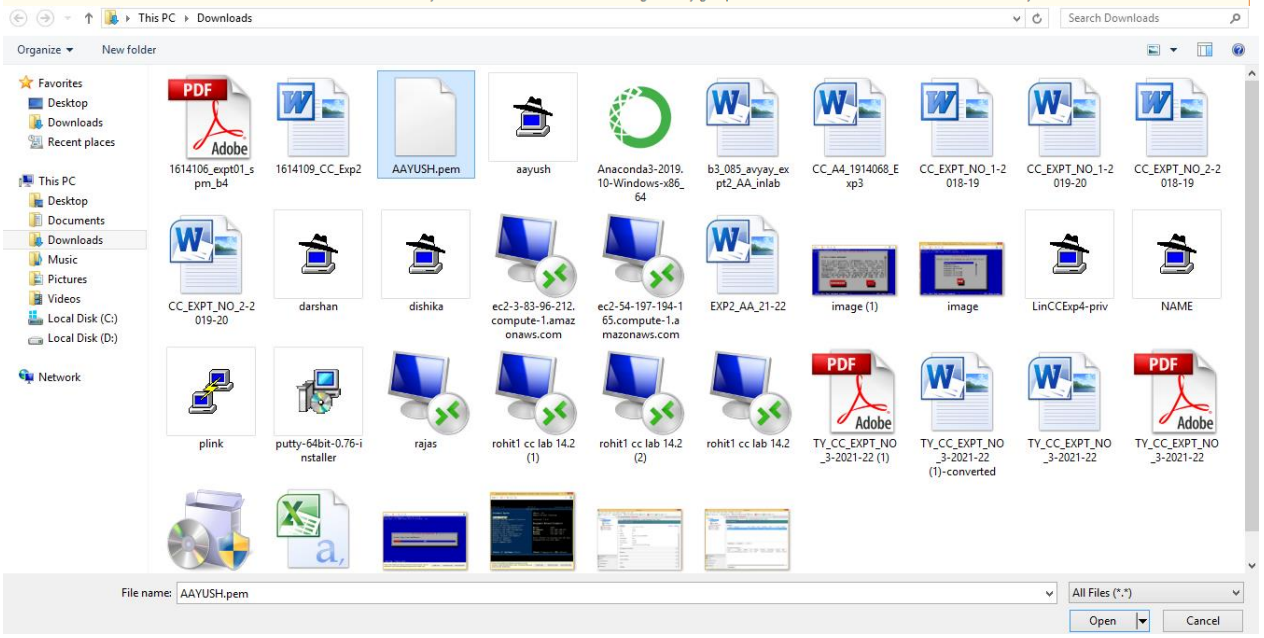
**Security group name:** launch-wizard-6

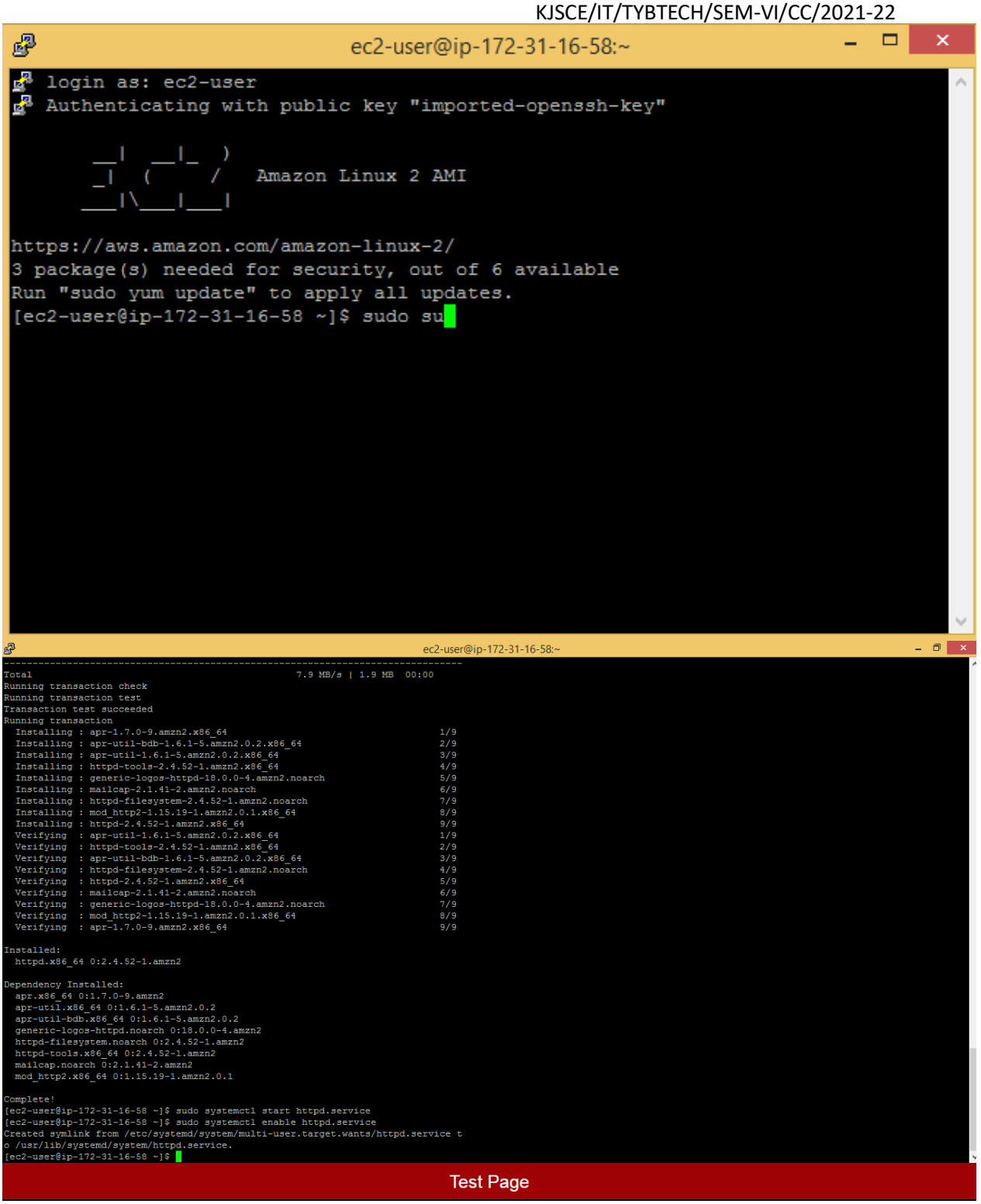
**Description:** launch-wizard-6 created 2022-02-18T11:05:00.327+05:30

| Type | Protocol | Port Range | Source | Description |
|---|---|---|---|---|
| SSH | TCP | 22 | Custom 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.




ec2-user@ip-172-31-16-58:~
login as: ec2-user
Authenticating with public key "imported-openssh-key"
Amazon Linux 2 AMI
https://aws.amazon.com/amazon-linux-2/
3 package(s) needed for security, out of 6 available
Run "sudo yum update" to apply all updates.
[ec2-user@ip-172-31-16-58 ~]$ sudo su
ec2-user@ip-172-31-16-58:~
Total 7.9 MB/s | 1.9 MB 00:00
Running transaction check
Running transaction test
Transaction test succeeded
Running transaction
Installing : apr-1.7.0-9.amzn2.x86_64 1/9
Installing : apr-util-bdb-1.6.1-5.amzn2.0.2.x86_64 2/9
Installing : apr-util-1.6.1-5.amzn2.0.2.x86_64 3/9
Installing : httpd-tools-2.4.52-1.amzn2.x86_64 4/9
Installing : generic-logos-httpd-18.0.0-4.amzn2.noarch 5/9
Installing : mailcap-2.1.41-2.amzn2.noarch 6/9
Installing : httpd-filesystem-2.4.52-1.amzn2.noarch 7/9
Installing : mod_http2-1.15.19-1.amzn2.0.1.x86_64 8/9
Installing : httpd-2.4.52-1.amzn2.x86_64 9/9
Verifying : apr-util-1.6.1-5.amzn2.0.2.x86_64 1/9
Verifying : httpd-tools-2.4.52-1.amzn2.x86_64 2/9
Verifying : apr-util-bdb-1.6.1-5.amzn2.0.2.x86_64 3/9
Verifying : httpd-filesystem-2.4.52-1.amzn2.noarch 4/9
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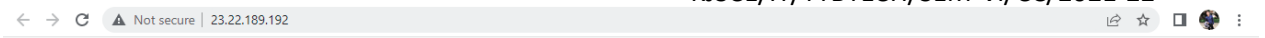
Verifying : mailcap-2.1.41-2.amzn2.noarch 6/9
Verifying : generic-logos-httpd-18.0.0-4.amzn2.noarch 7/9
Verifying : mod_http2-1.15.19-1.amzn2.0.1.x86_64 8/9
Verifying : apr-1.7.0-9.amzn2.x86_64 9/9
Installed:
httpd.x86_64 0:2.4.52-1.amzn2
Dependency Installed:
apr.x86_64 0:1.7.0-9.amzn2
apr-util.x86_64 0:1.6.1-5.amzn2.0.2
apr-util-bdb.x86_64 0:1.6.1-5.amzn2.0.2
generic-logos-httpd.noarch 0:18.0.0-4.amzn2
httpd-filesystem.noarch 0:2.4.52-1.amzn2
httpd-tools.x86_64 0:2.4.52-1.amzn2
mailcap.noarch 0:2.1.41-2.amzn2
mod_http2.x86_64 0:1.15.19-1.amzn2.0.1
Complete!
[ec2-user@ip-172-31-16-58 ~]$ sudo systemctl start httpd.service
[ec2-user@ip-172-31-16-58 ~]$ sudo systemctl enable httpd.service
Created symlink from /etc/systemd/system/multi-user.target.wants/httpd.service t
o /usr/lib/systemd/system/httpd.service.
[ec2-user@ip-172-31-16-58 ~]$
Test 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:
Powered by APACHE 2.4




**Hello World**

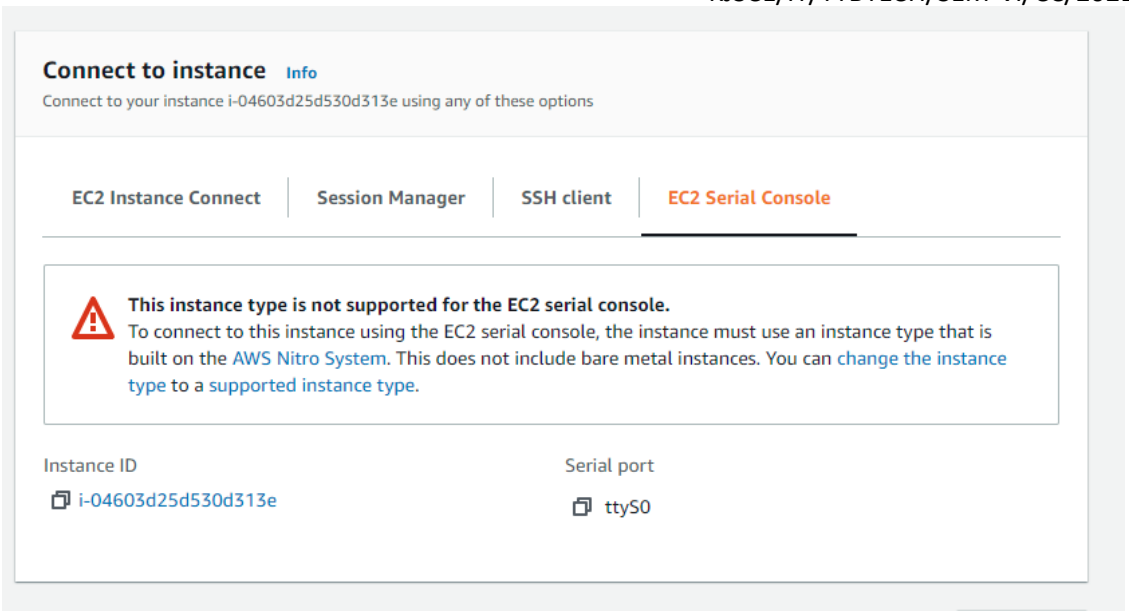
```
Running transaction test
Transaction test succeeded
Running transaction
  Installing : apr-1.7.0-9.amzn2.x86_64                                  1/9
  Installing : apr-util-bdb-1.6.1-5.amzn2.0.2.x86_64                     2/9
  Installing : apr-util-1.6.1-5.amzn2.0.2.x86_64                         3/9
  Installing : httpd-tools-2.4.52-1.amzn2.x86_64                         4/9
  Installing : generic-logos-httpd-18.0.0-4.amzn2.noarch                 5/9
  Installing : mailcap-2.1.41-2.amzn2.noarch                             6/9
  Installing : httpd-filesystem-2.4.52-1.amzn2.noarch                    7/9
  Installing : mod_http2-1.15.19-1.amzn2.0.1.x86_64                      8/9
  Installing : httpd-2.4.52-1.amzn2.x86_64                               9/9
  Verifying  : apr-util-1.6.1-5.amzn2.0.2.x86_64                         1/9
  Verifying  : httpd-tools-2.4.52-1.amzn2.x86_64                         2/9
  Verifying  : apr-util-bdb-1.6.1-5.amzn2.0.2.x86_64                     3/9
  Verifying  : httpd-filesystem-2.4.52-1.amzn2.noarch                    4/9
  Verifying  : httpd-2.4.52-1.amzn2.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  : mod_http2-1.15.19-1.amzn2.0.1.x86_64                      8/9
  Verifying  : apr-1.7.0-9.amzn2.x86_64                                  9/9

Installed:
  httpd.x86_64 0:2.4.52-1.amzn2

Dependency Installed:
  apr.x86_64 0:1.7.0-9.amzn2
  apr-util.x86_64 0:1.6.1-5.amzn2.0.2
  apr-util-bdb.x86_64 0:1.6.1-5.amzn2.0.2
  generic-logos-httpd.noarch 0:18.0.0-4.amzn2
  httpd-filesystem.noarch 0:2.4.52-1.amzn2
  httpd-tools.x86_64 0:2.4.52-1.amzn2
  mailcap.noarch 0:2.1.41-2.amzn2
  mod_http2.x86_64 0:1.15.19-1.amzn2.0.1

Complete!
[ec2-user@ip-172-31-16-58 ~]$ sudo systemctl start httpd.service
[ec2-user@ip-172-31-16-58 ~]$ sudo systemctl enable httpd.service
Created symlink from /etc/systemd/system/multi-user.target.wants/httpd.service t
o /usr/lib/systemd/system/httpd.service.
[ec2-user@ip-172-31-16-58 ~]$ sudo nsno /var/www/html/index.html
sudo: nsno: command not found
[ec2-user@ip-172-31-16-58 ~]$ sudo nano /var/www/html/index.html
[ec2-user@ip-172-31-16-58 ~]$
```

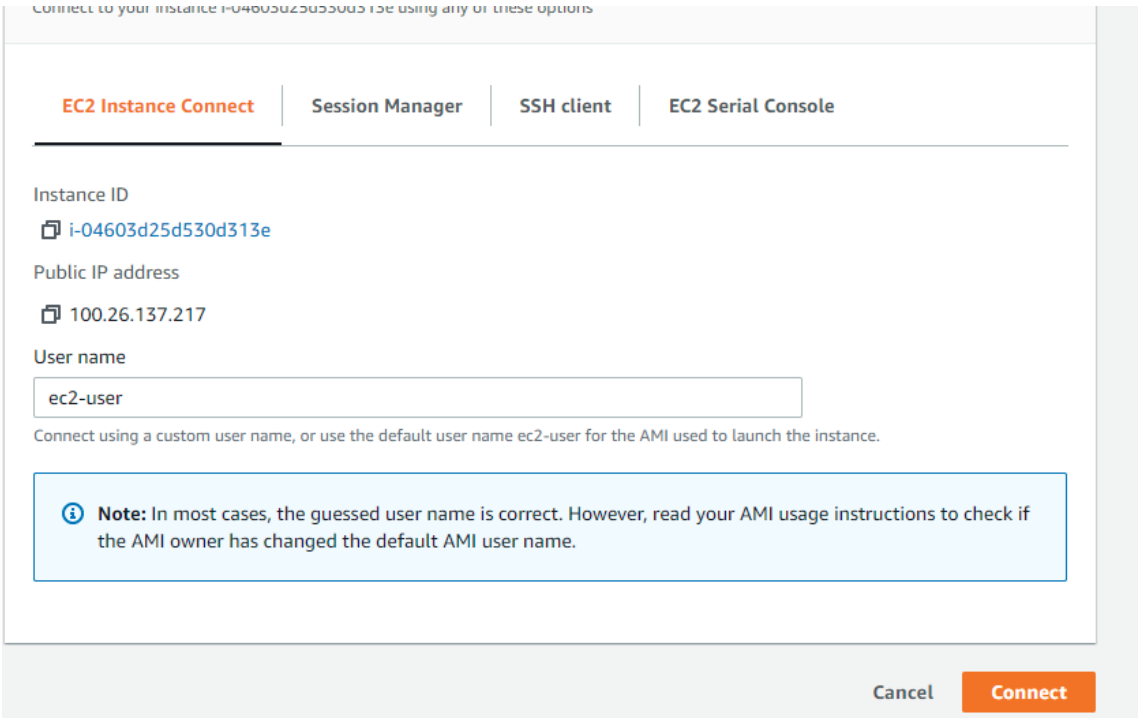
## Questions:

1. Explore other methods of connection to Linux instance?

    1. SSH Client
    2. EC2 Instance Connect
    3. AWS Session Manager
    4. Putty

2. Write steps with screenshots, any one connection to Linux instance.

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**Outcomes: CO2 - Study the Evolution of Cloud Computing and its models**

**Conclusion: Created a Linux instance on AWS and hosted a web page on apache web server.**

**Signature of faculty in-charge with date**

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**References:**

**Websites:**

1. https://docs.aws.amazon.com/AWSEC2/latest/UserGuide/EC2_GetStarted.html