

# # Creating and Deploying a Static Website with Apache2:

## Preparation (5 minutes)

- Ensure you have access to a Linux environment (e.g., virtual machines, EC2 instances, or local installations) with `sudo` privileges.

## # Activity Breakdown:

## # Part 1: Installing Apache2 (5 minutes):

### 1. Update Package Lists:

- Open the terminal and run:

```
sudo apt update
```

```
einfochips@AHMLPT2509:~$  
einfochips@AHMLPT2509:~$ sudo apt update  
[sudo] password for einfochips:  
Hit:1 https://download.docker.com/linux/ubuntu focal InRelease  
Hit:2 https://deb.nodesource.com/node_14.x focal InRelease  
Get:3 https://packages.microsoft.com/ubuntu/20.04/prod focal InRelease [3,632 B]  
Hit:4 https://packages.microsoft.com/repos/vscode stable InRelease  
Hit:5 https://packages.microsoft.com/repos/code stable InRelease  
Hit:6 https://apt.releases.hashicorp.com focal InRelease  
Hit:7 http://dell.archive.canonical.com focal InRelease  
Hit:8 http://archive.ubuntu.com/ubuntu focal InRelease  
Hit:9 http://ppa.launchpad.net/ansible/ansible/ubuntu focal InRelease  
Get:10 https://packages.microsoft.com/ubuntu/20.04/prod focal/main armhf Packages [21.7 kB]  
Get:11 http://archive.ubuntu.com/ubuntu focal-updates InRelease [128 kB]  
Get:12 https://packages.microsoft.com/ubuntu/20.04/prod focal/main arm64 Packages [62.2 kB]  
Get:13 https://packages.microsoft.com/ubuntu/20.04/prod focal/main amd64 Packages [301 kB]  
Hit:14 http://ppa.launchpad.net/deadsnakes/ppa/ubuntu focal InRelease  
Hit:15 http://archive.ubuntu.com/ubuntu focal-backports InRelease  
Get:16 http://archive.ubuntu.com/ubuntu focal-security InRelease [128 kB]  
Get:17 http://archive.ubuntu.com/ubuntu focal-updates/universe amd64 Packages [1,211 kB]  
Get:18 http://archive.ubuntu.com/ubuntu focal-updates/universe i386 Packages [798 kB]  
Hit:19 https://prod-cdn.packages.k8s.io/repositories/iscv/kubernetes:/core:/stable:/v1.30/deb InRelease  
Fetched 2,653 kB in 9s (308 kB/s)  
Reading package lists... Done  
Building dependency tree  
Reading state information... Done  
41 packages can be upgraded. Run 'apt list --upgradable' to see them.  
einfochips@AHMLPT2509:~$ sudo apt install apache2
```

### 2. Install Apache2:

- Install Apache2 by running:

```
sudo apt install apache2
```

```
einfochips@AHMLPT2509:~$ sudo apt install apache2
Reading package lists... Done
Building dependency tree
Reading state information... Done
The following additional packages will be installed:
  apache2-bin apache2-data apache2-utils
Suggested packages:
  apache2-doc apache2-suexec-pristine | apache2-suexec-custom
The following packages will be upgraded:
  apache2 apache2-bin apache2-data apache2-utils
4 upgraded, 0 newly installed, 0 to remove and 37 not upgraded.
Need to get 1,527 kB of archives.
After this operation, 0 B of additional disk space will be used.
Do you want to continue? [Y/n] y
Get:1 http://archive.ubuntu.com/ubuntu focal-updates/main amd64 apache2 amd64 2.4.41-4ubuntu3.21 [95.6 kB]
Get:2 http://archive.ubuntu.com/ubuntu focal-updates/main amd64 apache2-bin amd64 2.4.41-4ubuntu3.21 [1,189 kB]
Get:3 http://archive.ubuntu.com/ubuntu focal-updates/main amd64 apache2-data all 2.4.41-4ubuntu3.21 [159 kB]
Get:4 http://archive.ubuntu.com/ubuntu focal-updates/main amd64 apache2-utils amd64 2.4.41-4ubuntu3.21 [84.7 kB]
Fetched 1,527 kB in 5s (282 kB/s)
(Reading database ... 258755 files and directories currently installed.)
Preparing to unpack .../apache2_2.4.41-4ubuntu3.21_amd64.deb ...
Unpacking apache2 (2.4.41-4ubuntu3.21) over (2.4.41-4ubuntu3.20) ...
Preparing to unpack .../apache2-bin_2.4.41-4ubuntu3.21_amd64.deb ...
Unpacking apache2-bin (2.4.41-4ubuntu3.21) over (2.4.41-4ubuntu3.20) ...
Preparing to unpack .../apache2-data_2.4.41-4ubuntu3.21_all.deb ...
Unpacking apache2-data (2.4.41-4ubuntu3.21) over (2.4.41-4ubuntu3.20) ...
Preparing to unpack .../apache2-utils_2.4.41-4ubuntu3.21_amd64.deb ...
Unpacking apache2-utils (2.4.41-4ubuntu3.21) over (2.4.41-4ubuntu3.20) ...
Setting up apache2-bin (2.4.41-4ubuntu3.21) ...
Setting up apache2-data (2.4.41-4ubuntu3.21) ...
```

### 3. Start and Enable Apache2:

- Start the Apache2 service:

```
sudo systemctl start apache2
```

```
Processing triggers for dmcc (0.90-0ubuntu1.1) ...
einfochips@AHMLPT2509:~$ sudo systemctl start apache2
einfochips@AHMLPT2509:~$ sudo systemctl enable apache2
```

### 4. Enable Apache2 to start on boot:

```
sudo systemctl enable apache2
```

```
einfochips@AHMLPT2509:~$ sudo systemctl start apache2
einfochips@AHMLPT2509:~$ sudo systemctl enable apache2
Synchronizing state of apache2.service with SysV service script with /lib/systemd/systemd-sysv-install.
Executing: /lib/systemd/systemd-sysv-install enable apache2
Created symlink /etc/systemd/system/multi-user.target.wants/apache2.service → /lib/systemd/system/apache2.service.
einfochips@AHMLPT2509:~$
```

### 5. Verify Installation

- Open a web browser and navigate to [http://your\\_server\\_ip](http://your_server_ip). You should see the Apache2 default page.

## # Part 2: Creating the Website (10 minutes):

### 1. Navigate to the Web Directory:

- Change to the web root directory:

```
cd /var/www/html
```

```
nginx          latest      fffffc90d343 4 weeks ago 188MB
nginx          alpine     099a2d701db1 4 weeks ago 43.2MB
postgres       latest     f23dc7cd74bd 2 months ago 432MB
gcr.io/k8s-minikube/kicbase v0.0.44 5a6e59a9bdc0 2 months ago 1.26GB
einfochips@AHMLPT2509:~$ cd /var/www/html
einfochips@AHMLPT2509:/var/www/html$ ls
mystaticwebsite
einfochips@AHMLPT2509:/var/www/html$
```

### 2. Create a New Directory for the Website:

Create a directory named `mystaticwebsite`:

```
sudo mkdir mystaticwebsite
```

```
einfochips@AHMLPT2509:~$ cd /var/www/html
einfochips@AHMLPT2509:/var/www/html$ ls
mystaticwebsite
einfochips@AHMLPT2509:/var/www/html$ sudo mkdir mystaticwebsite
[sudo] password for einfochips:
mkdir: cannot create directory 'mystaticwebsite': File exists
einfochips@AHMLPT2509:/var/www/html$ ls
mystaticwebsite
einfochips@AHMLPT2509:/var/www/html$
```

### 3. Change ownership of the directory:

```
sudo chown -R $USER:$USER /var/www/html/mystaticwebsite
```

```
mystaticwebsite
einfochips@AHMLPT2509:/var/www/html$ sudo mkdir mystaticwebsite
[sudo] password for einfochips:
mkdir: cannot create directory 'mystaticwebsite': File exists
einfochips@AHMLPT2509:/var/www/html$ ls
mystaticwebsite
einfochips@AHMLPT2509:/var/www/html$ sudo chown -R $USER:$USER /var/www/html/mystaticwebsite
einfochips@AHMLPT2509:/var/www/html$
```

#### 4. Create HTML File:

Create and edit the `index.html` file:

```
nano /var/www/html/mystaticwebsite/index.html
```

#### 5. Add the following content:

```
<!DOCTYPE html>

<html>

<head>

    <title>My Static Website</title>

    <link rel="stylesheet" type="text/css" href="styles.css">

</head>

<body>

    <h1>Welcome to My Static Website</h1>

    <p>This is a simple static website using Apache2.</p>

    <script src="script.js"></script>

</body>

</html>
```

- Save and exit (Ctrl+O, Enter, Ctrl+X).

```

einfochips@AHMLPT2509:/var/www/html/mystaticwebsite$ ls
index.html  logo.png  script.js  styles.css
einfochips@AHMLPT2509:/var/www/html/mystaticwebsite$ cat index.html
<!DOCTYPE html>
<html>
<head>
  <title>My Static Website</title>
  <link rel="stylesheet" type="text/css" href="styles.css">
</head>
<body>
  <h1>Welcome to My Static Website</h1>
  
  <p>This is a simple static website using Apache2.</p>
  <script src="script.js"></script>
</body>
</html>

einfochips@AHMLPT2509:/var/www/html/mystaticwebsite$

```

## 6. Create CSS File:

- Create and edit the `styles.css` file:

```
nano /var/www/html/mystaticwebsite/styles.css
```

```

einfochips@AHMLPT2509:/var/www/html/mystaticwebsite$ nano /var/www/html/mystaticwebsite/styles.css
einfochips@AHMLPT2509:/var/www/html/mystaticwebsite$

```

## 7. Add the following content:

```

body {

  font-family: Arial, sans-serif;

  background-color: #f0f0f0;

  text-align: center;

  margin: 0;

  padding: 20px;

}

h1 {

  color: #333;

```

```
}
```

- save and exit (Ctrl+O, Enter, Ctrl+X).

```
script.js  styles.css
einfochips@AHMLPT2509:/var/www/html/mystaticwebsite$ cat styles.css
body {
  font-family: Arial, sans-serif;
  background-color: #f0f0f0;
  text-align: center;
  margin: 0;
  padding: 20px;
}

h1 {
  color: #333;
}
einfochips@AHMLPT2509:/var/www/html/mystaticwebsite$
```

## 8. Add an Image:

1. Download or copy an image file (e.g., `logo.png`) to the website directory:

```
cp /path/to/your/logo.png /var/www/html/mystaticwebsite/logo.png
```

```
cp /home/einfochips/Desktop/Shital/logo.png
/var/www/html/mystaticwebsite/logo.png
```

```
einfochips@AHMLPT2509:~/Desktop/Shital$ ls
ansible      BOSE-MSP_Doc      Document      inventory      laravel-app-directory  practical_task  task-main.zip  vpn_connection
ansibleForAbsoluteBeginner  bose-nsp-tickets  'git token'  jenkins-docker  LinkedIn        road-maps-dvops  'time sheet fill-up'  website-project
AMS_Credential  code-lab           'internate status code for error'  KT-session     logoi.png       ssh-ec2         Training        'Workday portal'
AMS_inaps      daily-task         'intranet connect'  Laptop_ppt     mail-td         task            Udeny_Account_login
einfochips@AHMLPT2509:~/Desktop/Shital$ cp /home/einfochips/Desktop/Shital/logo1.png /var/www/html/mystaticwebsite/logo1.png
einfochips@AHMLPT2509:~/Desktop/Shital$
```

## 9. Update `index.html` to include the image:

```
nano index.html
```

```
cat index.html
```

```
<body>
```

```
<h1>Welcome to My Static Website</h1>
```

```


<p>This is a simple static website using Apache2.</p>

<script src="script.js"></script>

</body>
```

**OR**

```
!DOCTYPE html>

<html>

<head>

  <title>My Static Website</title>

  <link rel="stylesheet" type="text/css" href="styles.css">

</head>

<body>

  <h1>Welcome to My Static Website</h1>

  <p>This is a simple static website using Apache2.</p>

  <script src="script.js"></script>

</body>

</html>
```

```

einfochips@AHMLPT2509:/var/www/html/mystaticwebsite$ nano index.html
einfochips@AHMLPT2509:/var/www/html/mystaticwebsite$ cat index.html
<!DOCTYPE html>
<html>
<head>
  <title>My Static Website</title>
  <link rel="stylesheet" type="text/css" href="styles.css">
</head>
<body>
  <h1>Welcome to My Static Website</h1>
  
  <p>This is a simple static website using Apache2.</p>
  <script src="script.js"></script>
</body>
</html>

einfochips@AHMLPT2509:/var/www/html/mystaticwebsite$ █

```

## # Part 3: Configuring Apache2 to Serve the Website (10 minutes):

### 1. Create a Virtual Host File:

Create and edit the virtual host configuration file:

```
sudo nano /etc/apache2/sites-available/mystaticwebsite.conf
```

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

```
sudo nano mystaticwebsite.conf
```

```

einfochips@AHMLPT2509:/var/www/html/mystaticwebsite$ sudo nano /etc/apache2/sites-available/mystaticwebsite.conf
[sudo] password for einfochips:
einfochips@AHMLPT2509:/var/www/html/mystaticwebsite$ cat my
cat: my: No such file or directory
einfochips@AHMLPT2509:/var/www/html/mystaticwebsite$ ls
index.html  logo.png  script.js  styles.css
einfochips@AHMLPT2509:/var/www/html/mystaticwebsite$ cd /etc/ap
einfochips@AHMLPT2509:/var/www/html/mystaticwebsite$ cd /etc/apache2/sites-available/
einfochips@AHMLPT2509:/etc/apache2/sites-available$ ls
000-default.conf  default-ssl.conf  mystaticwebsite.conf
einfochips@AHMLPT2509:/etc/apache2/sites-available$ █

```

Add the following content:



```
<VirtualHost *:80>

    ServerAdmin webmaster@localhost

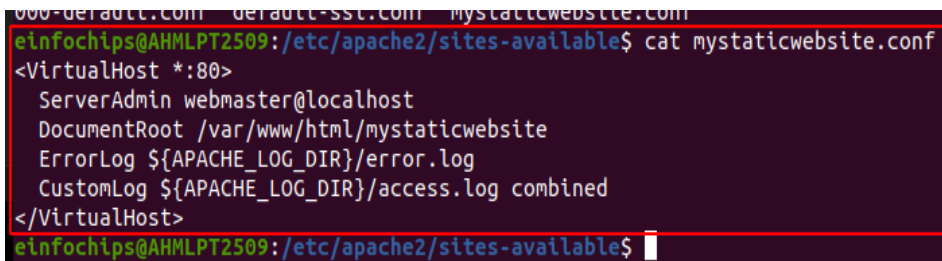
    DocumentRoot /var/www/html/mystaticwebsite

    ErrorLog ${APACHE_LOG_DIR}/error.log

    CustomLog ${APACHE_LOG_DIR}/access.log combined

</VirtualHost>
```

- Save and exit (Ctrl+O, Enter, Ctrl+X).

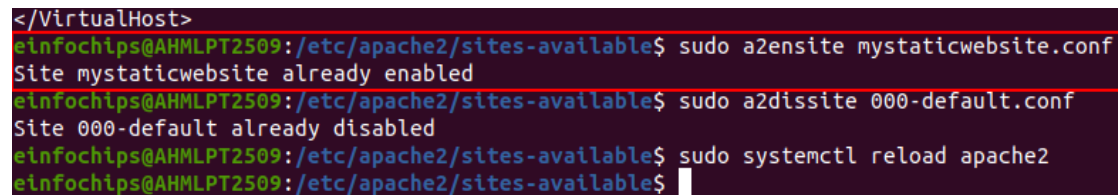
A terminal window with a dark purple background. The prompt is 'einfochips@AHMLPT2509:/etc/apache2/sites-available\$'. The command 'cat mystaticwebsite.conf' has been executed, and the output is the configuration for the VirtualHost \*:80, including ServerAdmin, DocumentRoot, ErrorLog, CustomLog, and the closing tag </VirtualHost>. A red rectangle highlights the output text.

```
000-default.conf  default-ssl.conf  mystaticwebsite.conf
einfochips@AHMLPT2509:/etc/apache2/sites-available$ cat mystaticwebsite.conf
<VirtualHost *:80>
    ServerAdmin webmaster@localhost
    DocumentRoot /var/www/html/mystaticwebsite
    ErrorLog ${APACHE_LOG_DIR}/error.log
    CustomLog ${APACHE_LOG_DIR}/access.log combined
</VirtualHost>
einfochips@AHMLPT2509:/etc/apache2/sites-available$
```

## 2. Enable the New Virtual Host:

Enable the virtual host configuration:

```
sudo a2ensite mystaticwebsite.conf
```

A terminal window with a dark purple background. The prompt is 'einfochips@AHMLPT2509:/etc/apache2/sites-available\$'. The command 'sudo a2ensite mystaticwebsite.conf' has been executed, resulting in the output 'Site mystaticwebsite already enabled'. The next command 'sudo a2dissite 000-default.conf' has been executed, resulting in the output 'Site 000-default already disabled'. The final command 'sudo systemctl reload apache2' has been executed. A red rectangle highlights the first two lines of output.

```
</VirtualHost>
einfochips@AHMLPT2509:/etc/apache2/sites-available$ sudo a2ensite mystaticwebsite.conf
Site mystaticwebsite already enabled
einfochips@AHMLPT2509:/etc/apache2/sites-available$ sudo a2dissite 000-default.conf
Site 000-default already disabled
einfochips@AHMLPT2509:/etc/apache2/sites-available$ sudo systemctl reload apache2
einfochips@AHMLPT2509:/etc/apache2/sites-available$
```

### 3. Disable the Default Site:

Disable the default site configuration:

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

```
einfochips@AHMLPT2509:/etc/apache2/sites-available$ sudo a2ensite mystaticwebsite.conf
Site mystaticwebsite already enabled
einfochips@AHMLPT2509:/etc/apache2/sites-available$ sudo a2dissite 000-default.conf
Site 000-default already disabled
einfochips@AHMLPT2509:/etc/apache2/sites-available$ sudo systemctl reload apache2
einfochips@AHMLPT2509:/etc/apache2/sites-available$
```

### 4. Reload Apache2:

Reload the Apache2 service to apply the changes:

```
sudo systemctl reload apache2
```

```
einfochips@AHMLPT2509:/etc/apache2/sites-available$ sudo a2ensite mystaticwebsite.conf
Site mystaticwebsite already enabled
einfochips@AHMLPT2509:/etc/apache2/sites-available$ sudo a2dissite 000-default.conf
Site 000-default already disabled
einfochips@AHMLPT2509:/etc/apache2/sites-available$ sudo systemctl reload apache2
einfochips@AHMLPT2509:/etc/apache2/sites-available$
```

### 5. Test the Configuration:

- Open a web browser and navigate to [http://your\\_server\\_ip](http://your_server_ip). You should see the static website with the HTML, CSS, JS, and image.
  - <http://127.0.0.0/>
  - <http://localhost/>

# Welcome to My Static Website



This is a simple static website using Apache2.

