

Web Lab-01: Apache Web Server Installation & Maintenance

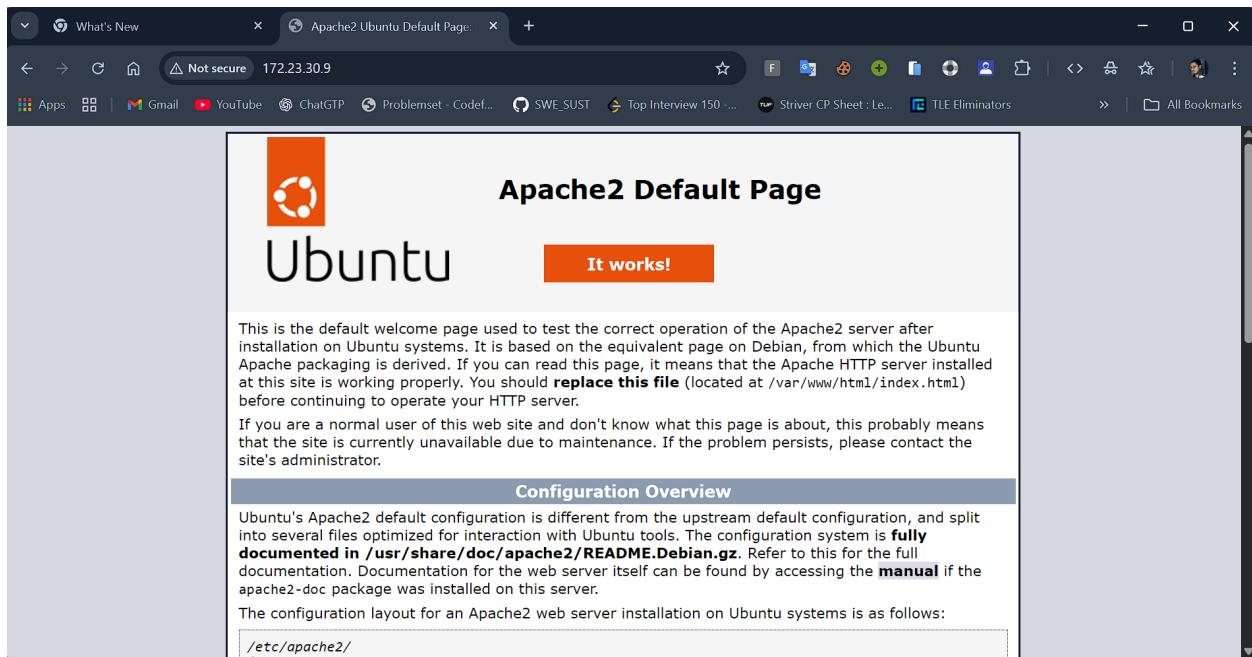
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Checkpoint 1: Installed Apache Successfully

Commands:

```
sudo apt update
sudo apt install apache2 -y
sudo service apache2 start      # Start Apache
sudo service apache2 status     # Check Apache status
```



To access it from Windows browser, visit:

<http://172.23.30.9>

Checkpoint 2: Configured Virtual Hosts for Multiple Domains

Step 1: Create directories for each domain

```
sudo mkdir -p /var/www/example.com/public_html  
sudo mkdir -p /var/www/webserverlab.com/public_html
```

Step 2: Set permissions

```
sudo chown -R $USER:$USER /var/www/example.com/public_html  
sudo chown -R $USER:$USER /var/www/webserverlab.com/public_html
```

Step 3: Create index.html files

```
echo "<h1>Welcome to Example.com</h1>" >  
/var/www/example.com/public_html/index.html  
echo "<h1>Welcome to WebserverLab.com</h1>" >  
/var/www/webserverlab.com/public_html/index.html
```

Step 4: Create virtual host files

```
sudo nano /etc/apache2/sites-available/example.com.conf
```

Add:

```
<VirtualHost *:80>  
    ServerAdmin admin@example.com  
    ServerName example.com  
    ServerAlias www.example.com  
    DocumentRoot /var/www/example.com/public_html  
    ErrorLog ${APACHE_LOG_DIR}/error.log  
    CustomLog ${APACHE_LOG_DIR}/access.log combined  
</VirtualHost>
```

Similarly, for webserverlab.com:

```
sudo nano /etc/apache2/sites-available/webserverlab.com.conf
```

Add:

```
<VirtualHost *:80>
```

```
ServerAdmin admin@webserverlab.com
ServerName webserverlab.com
ServerAlias www.webserverlab.com
DocumentRoot /var/www/webserverlab.com/public_html
ErrorLog ${APACHE_LOG_DIR}/error.log
CustomLog ${APACHE_LOG_DIR}/access.log combined
</VirtualHost>
```

Step 5: Enable virtual hosts

```
sudo a2ensite example.com.conf
sudo a2ensite webserverlab.com.conf
sudo a2dissite 000-default.conf # disable default site if desired
sudo service apache2 reload
```

Step 6: Update Windows hosts file to test domains

- Open `C:\Windows\System32\drivers\etc\hosts` as administrator.
- Add:

```
127.0.0.1 example.com
127.0.0.1 webserverlab.com
```

- Now you can access the domains from Windows browser:

```
http://example.com
http://webserverlab.com
```

Checkpoint 3: Observed Behavior with Enabled/Disabled Sites

- **Observation:** After enabling only `example.com` and disabling default site, both `http://webserverlab.com` and `http://127.0.0.1` showed `example.com` content.

- **Reason:** Apache uses the first enabled virtual host as a fallback for unmatched requests.
-

Checkpoint 4: Setting Up Multiple Virtual Hosts

- Configured multiple virtual hosts (`example.com`, `webserverlab.com`).
- Verified configuration:

```
apache2ctl configtest  
sudo service apache2 restart
```

- Browsers show the correct content per domain.
-

Checkpoint 5: Created Two Dynamic Websites

Example Form (testsite.com)

The screenshot shows a web browser window titled "TestSite Dynamic Form". The address bar indicates the site is "testsite.com" and is "Not secure". The page content is titled "TestSite Feedback Form". It contains two input fields: "Username" with the value "robiul43" and "Feedback" with the value "abc". Below these fields is a "Submit" button. A message at the bottom of the form says, "Thank you robiul43! Your feedback: "abc" has been received." The browser's toolbar and various tabs are visible at the top.

Example Form (webserverlab.com)

The screenshot shows a Microsoft Edge browser window with the title "WebServerLab Dynamic Site". The address bar says "Not secure webserverlab.com". The page content is titled "WebServerLab Form". It contains two input fields: "Name: Robin" and "Email: robiul43@student.sust.edu". Below the fields is a "Submit" button. A message at the bottom says "Hello Robin! Your email is robiul43@student.sust.edu.".

Manage Apache Service

In WSL, use:

```
sudo service apache2 stop  
sudo service apache2 start  
sudo service apache2 restart
```

For persistent start on boot (optional):

```
sudo systemctl enable apache2
```

Add local domain to Windows hosts file

In **Windows**, open:

```
C:\Windows\System32\drivers\etc\hosts
```

