

Web Engineering Lab Report

Lab 1 – Apache Web Server Installation & Maintenance

Objective

To install, configure, and test the Apache Web Server with multiple virtual hosts and dynamic site deployment.

Task 1 – Install Apache and Verify Installation

1. Update package list:

```
sudo apt update
```

2. Install Apache:

```
sudo apt install -y apache2
```

3. Enable Apache to start on boot:

```
sudo systemctl enable apache2
```

4. Verify service status:

```
sudo systemctl status apache2
```

5. Visit <http://localhost> or <http://127.0.0.1> in a web browser.

Checkpoint: Apache default page should load successfully.

Task 2 – Configure Virtual Hosts

1. Create directories for sites:

```
sudo mkdir -p /var/www/example.com/html
```

```
sudo mkdir -p /var/www/webserverlab.com/html
```

```
sudo mkdir -p /var/www/anothervhost.com/html
```

5. Change ownership and permissions:

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

```
sudo chmod -R 755 /var/www
```

6. Create virtual host config files inside /etc/apache2/sites-available/:

- example.com.conf
 - webserverlab.com.conf
 - anothervhost.com.conf
7. Enable the sites and restart Apache:
8. sudo a2ensite example.com.conf
9. sudo a2ensite webserverlab.com.conf
10. sudo a2ensite anothervhost.com.conf
11. sudo systemctl restart apache2
12. Update the local hosts file:
13. 127.0.0.1 example.com webserverlab.com anothervhost.com

Checkpoint: Each domain name should open its respective website.

Task 3 – Host Dynamic Sites

1. Create two dynamic HTML + JavaScript websites under each site's html folder.
2. Example page for example.com:
3. <!DOCTYPE html>
4. <html>
5. <head>
6. <title>Example.com</title>
7. </head>
8. <body>
9. <h1>Welcome to example.com!</h1>
10. <p>This is a dynamic web page hosted on Apache.</p>
11. <script>
12. alert("Dynamic site loaded successfully!");
13. </script>

14. </body>

15. </html>

16. Access the page in a browser:

<http://example.com> or <http://webserverlab.com>

Checkpoint: Two dynamic websites must be accessible and running correctly.

Checkpoints Summary

1. Apache default page loads successfully.
 2. Virtual hosts (example.com, webserverlab.com, anothervhost.com) configured properly.
 3. Dynamic websites function as expected.
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Conclusion

Apache Web Server was successfully installed and configured.

Multiple virtual hosts were created, and two dynamic websites were deployed using HTML and JavaScript, demonstrating understanding of basic web hosting and configuration.