**Project Documentation: Nginx Web Server Setup**

**Introduction**

This document provides a step-by-step guide to setting up an Nginx web server on a Linux-based system. It includes installation commands, basic configurations, and essential troubleshooting steps.

**Step-by-Step Guide**

**1. Update System Packages**

Before installing Nginx, update the system package list to ensure you get the latest version:

sudo apt update && sudo apt upgrade -y

**2. Install Nginx**

To install the Nginx web server, use the following command:

sudo apt install nginx -y

**3. Start and Enable Nginx**

Once installed, start the Nginx service and enable it to run on boot:

sudo systemctl start nginx

sudo systemctl enable nginx

**4. Configure Firewall (Optional)**

If UFW (Uncomplicated Firewall) is enabled, allow HTTP and HTTPS traffic:

sudo ufw allow 'Nginx Full'

sudo ufw reload

**5. Verify Nginx Installation**

Check if Nginx is running:

sudo systemctl status nginx

You can also test by opening a web browser and entering your server's IP address:

http://your\_server\_ip

**6. Configure Nginx Server Blocks (Virtual Hosts)**

To host multiple websites, create a configuration file inside /etc/nginx/sites-available/:

sudo nano /etc/nginx/sites-available/example.com

Add the following content:

server {

listen 80;

server\_name example.com www.example.com;

root /var/www/example.com/html;

index index.html;

location / {

try\_files $uri $uri/ =404;

}

}

Save and exit (CTRL+X, Y, then Enter).

**7. Enable the Server Block**

Create a symbolic link to enable the configuration:

sudo ln -s /etc/nginx/sites-available/example.com /etc/nginx/sites-enabled/

Test the Nginx configuration for errors:

sudo nginx -t

If no errors appear, restart Nginx:

sudo systemctl restart nginx

**8. Optional: Secure Nginx with SSL (Let's Encrypt)**

To secure your website with HTTPS, install Certbot and obtain an SSL certificate:

sudo apt install certbot python3-certbot-nginx -y

sudo certbot --nginx -d example.com -d www.example.com

Follow the on-screen instructions to configure SSL.

**9. Troubleshooting**

If you encounter any issues:

* Check the Nginx error log:
* sudo journalctl -u nginx --no-pager | tail -n 50
* Restart Nginx after making changes:
* sudo systemctl restart nginx
* Ensure the correct firewall rules are applied.

**Conclusion**

This documentation covers the essential steps for setting up and configuring an Nginx web server. Further configurations can be added depending on project requirements.

**Example Commented Script:**

#!/bin/bash

# Update package list and upgrade system

sudo apt update && sudo apt upgrade -y

# Install Nginx

sudo apt install nginx -y

# Enable and start Nginx

sudo systemctl enable nginx

sudo systemctl start nginx

# Allow firewall rules for HTTP and HTTPS

sudo ufw allow 'Nginx Full'

sudo ufw reload

# Restart Nginx to apply changes

sudo systemctl restart nginx

**End of Documentation**