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INTRODUCTION:

Nginx is a high-performance web server and reverse proxy widely used for serving static content, load balancing, and handling high traffic efficiently. It is known for its lightweight architecture, asynchronous event-driven handling, and ability to process multiple requests concurrently. Nginx is commonly used to distribute incoming traffic across multiple servers, ensuring optimal load distribution and high availability.

For effective server management, understanding essential Nginx commands is crucial. Commands like nginx -v check the installed version, while nginx -t validates configuration files. Managing Nginx services involves commands such as systemctl start nginx, systemctl restart nginx, and systemctl status nginx, which control and monitor server operations. Additionally, nginx -s reload is used for configuration updates without downtime.

Troubleshooting in Nginx requires checking logs (/var/log/nginx/access.log and /var/log/nginx/error.log), monitoring active connections, and debugging configuration issues. Mastering these commands enhances server efficiency, security, and performance.

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Command Explanation:

The sudo visudo command is an essential tool in Unix-like operating systems for securely modifying the sudoers file. This file dictates user permissions for executing commands with superuser privileges, ensuring proper system access control while preventing syntax errors.

The touch index.html command is widely used in Unix-based systems to create a new file or update the timestamp of an existing file. This is particularly useful for managing file modifications and ensuring proper version control.

The nano index.html command launches the Nano text editor to open and edit the index.html file. Nano is a simple, intuitive command-line editor, ideal for users who need an easy-to-use text editor for quick modifications.

The pwd command, which stands for "print working directory," is a basic yet crucial command that displays the absolute path of the directory where the user is currently working. It helps users navigate and confirm their location in the file system.

```
jenkins@nivii:~$ sudo visudo
jenkins@nivii:~$ touch index.html
jenkins@nivii:~$ nano index.html
jenkins@nivii:~$ pwd
/var/lib/jenkins
```

```bash
#!/bin/bash

# Update & Upgrade the system
sudo apt update -y && sudo apt upgrade -y

# Install Nginx if not installed
sudo apt install -y nginx

# Start & Enable Nginx service
sudo systemctl start nginx
sudo systemctl enable nginx

# Restore the default Nginx page
sudo cp /var/lib/jenkins/index.html /var/www/html/index.nginx-debian.html

# Restart Nginx to apply changes
sudo systemctl restart nginx
```

1. #!/bin/bash

This is a **shebang** (#!), which specifies that the script should be executed using the **Bash shell** (/bin/bash).

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2. Update & Upgrade the System

bash

sudo apt update -y && sudo apt upgrade -y

- sudo apt update -y: Updates the package list to fetch the latest available versions.
- sudo apt upgrade -y: Upgrades all installed packages to their latest versions.
- -y: Automatically confirms the upgrade without prompting the user.

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3. Install Nginx if Not Installed

sudo apt install -y nginx

- Installs **Nginx**, a powerful web server.
- -y ensures the installation proceeds without asking for confirmation.

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4. Start & Enable Nginx Service

sudo systemctl start nginx

sudo systemctl enable nginx

- sudo systemctl start nginx: Starts the Nginx service.
- sudo systemctl enable nginx: Ensures Nginx starts automatically on system boot.

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5. Restore the Default Nginx Page

sudo cp /usr/share/nginx/html/index.html /var/www/html/index.nginx-debian.html

- Copies the default **Nginx welcome page** (index.html) from /usr/share/nginx/html/ to /var/www/html/, renaming it as index.nginx-debian.html.
- This might be useful to restore the default welcome page if it was modified or deleted.

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6. Restart Nginx to Apply Changes

sudo systemctl restart nginx

- Restarts the Nginx service to apply any changes.

Default page output:

Index.html

```
<!DOCTYPE html>
<html lang="en">
<head>
    <meta charset="UTF-8">
    <meta name="viewport" content="width=device-width, initial-scale=1.0">
    <title>NGINX</title>
    <style>
        body {
            font-family: Arial, sans-serif;
            text-align: center;
            margin: 50px;
        }
        h1 {
            color: #009639;
        }
    </style>
</head>
```

```
<body>
    <h1>NGINX</h1>
    <p>Welcome to the NGINX server. This is a simple HTML page.</p>
</body>
</html>
```

Output