Project 3 – Linux Web Portal Documentation

# Project Overview

This project establishes a secure Linux-based web portal to host webpage files, maintain server activity logs, and implement a robust backup system. The sys- tem is designed to ensure secure content delivery, restricted access to sensitive data, and reliable disaster recovery.

## Purpose

* + - Serve project web content via a web server.
    - Maintain detailed server activity logs.
    - Enforce strict security and access control for content and logs.
    - Implement an automated backup strategy for data preservation.

# Directory Structure

The project is organized in a clear and logical directory structure to separate content, logs, and backups.

/home/kali/Desktop/project/company\_data/web\_portal/

├── content/ # Stores HTML, CSS, JS, and images

├── logs/ # Stores server activity logs

└── backup/ # Stores backup copies of content and logs

**Tree Structure (Placeholder):** Insert tree structure image or tree command output here: *tree\_structure.png*

# Permissions Setup

Permissions are configured to ensure secure access control for each directory:

* **Content:** Readable and executable by the web server user/group only.
* **Logs:** Restricted to admin-only access.
* **Backup:** Accessible to the backup group for read/write operations.

**Permissions Screenshot / Output (Placeholder):** Insert ls -l output or screen- shot here: *permissions\_screenshot.png*

* 1. **Commands Used**

# Set permissions for content directory

sudo chown -R kali:www-data /home/kali/Desktop/project/company\_data/ web\_portal/content

sudo chmod -R 750 /home/kali/Desktop/project/company\_data/web\_portal

/content

# Set permissions for logs directory

sudo chown root:root /home/kali/Desktop/project/company\_data/ web\_portal/logs

sudo chmod 700 /home/kali/Desktop/project/company\_data/web\_portal/ logs

# Set permissions for backup directory

sudo chown root:backupgrp /home/kali/Desktop/project/company\_data/ web\_portal/backup

sudo chmod 770 /home/kali/Desktop/project/company\_data/web\_portal/ backup

# Web Server Configuration

The web server is configured to serve content securely and log activity effec- tively.

* **Server Type:** Nginx (or Apache, as applicable)
* **Document Root:** /home/kali/Desktop/project/company*data/webportal/content***Inde**
* **Log Files:** Stored in /home/kali/Desktop/project/company*data/webportal/logs/*

**Nginx Server Block (Placeholder):** Insert screenshot of nano /etc/nginx/sites-availa

here: *nginx\_config\_screenshot.png*

* 1. **Configuration Details**

server {

listen 80; server\_name localhost;

root /home/kali/Desktop/project/company\_data/web\_portal/content; index index.html;

access\_log /home/kali/Desktop/project/company\_data/web\_portal/ logs/access.log;

error\_log /home/kali/Desktop/project/company\_data/web\_portal/ logs/error.log;

location / {

try\_files $uri $uri/ =404;

}

}

# Web Portal Homepage (index.html)

The index.html file serves as the entry point for the web portal, providing a simple and functional webpage.

<!DOCTYPE html>

<html lang=”en”>

<head>

<meta charset=”UTF-8”>

<meta name=”viewport” content=”width=device-width,␣initial-scale

=1.0”>

<title>Project 3 Web Portal</title>

</head>

<body>

<h1>Welcome to Project 3 Web Portal</h1>

<p>This is a sample webpage for demonstration purposes.</p>

</body>

</html>

# Testing & Verification

The following steps were performed to verify the setup:

1. Started the web server: sudo systemctl start nginx
2. Accessed <http://localhost/>in a browser to confirm the homepage loads correctly.
3. Verified log generation in /home/kali/Desktop/project/company*data/webportal/logs*

44.. Confirmed backups are correctly stored in /home/kali/Desktop/project/company*data/we*

**Website Screenshot (Placeholder):** Insert screenshot of live website here: *web- site\_screenshot.png*

# Backup Setup

An automated backup system is implemented using cron and rsync to ensure data redundancy.

## Backup Commands

# Daily backup of content at 2 AM

0 2 \* \* \* rsync -av /home/kali/Desktop/project/company\_data/ web\_portal/content /home/kali/Desktop/project/company\_data/ web\_portal/backup/

# Daily backup of logs at 2 AM

0 2 \* \* \* rsync -av /home/kali/Desktop/project/company\_data/ web\_portal/logs /home/kali/Desktop/project/company\_data/ web\_portal/backup/

**Backup Script / Cron Screenshot (Placeholder):** Insert screenshot of cron con- figuration here: *cron\_screenshot.png*

# Challenges & Solutions

The following table summarizes challenges encountered and their resolutions:

**Issue Solution**

403 Permission De- nied

404 Page Not Found Log Accessibility

Corrected parent directory permissions and web server user/group ownership. Ensured correct root in Nginx configura- tion and verified index.html exists.

Applied strict permissions (700) to pre-

vent unauthorized access.

Table 1: Challenges and Solutions

# Conclusion

Project 3 successfully demonstrates essential Linux administration skills, includ- ing:

* Organized directory and file structure management.
* Secure permissions and ownership configuration.
* Web server setup and configuration (Nginx/Apache).
* Effective logging and monitoring of server activity.
* Automated backup strategies for data reliability.

The project ensures secure content delivery, restricted access to sensitive logs, and robust data backup for maintainability and disaster recovery.

## Next Steps

* + - Replace placeholder links with actual screenshot files or URLs.
    - Add additional styling to index.html if needed.
    - Test backup restoration process to ensure recoverability.