FREAK UPLOAD

Private File Hosting Platform with Modern Web Stack and VPN Security

Project Overview

This project involved setting up a secure, self-hosted file manager accessible across personal devices, including a laptop and smartphone. The application was deployed on a low-end Ubuntu Linux server with a custom-configured LEMP stack. It demonstrates both backend and frontend proficiency in a full-stack environment, with a focus on accessibility, security, and responsiveness. Designed primarily for personal file storage and management, the platform serves as a lightweight, scalable alternative to commercial file hosting solutions.

Technology Stack

Operating System: Ubuntu Linux (Server Edition)

Web Server: Nginx

Database: MySQL

Backend Framework: Laravel 12 (PHP)

Frontend: ReactJS, InertiaJS

Language Support: PHP, TypeScript

Styling: Tailwind CSS

Version Control & IDE: Visual Studio Code, Git

Networking & Security: Tailscale VPN (for secure device connectivity)

System Architecture

The system follows a client-server architecture with the following components:

Server Layer: Hosted on an Ubuntu Linux machine running a LEMP stack. Nginx handles web server duties, while PHP (Laravel 12) serves as the application layer.

Application Layer: Laravel 12 serves as the backend API, interfacing with MySQL for data persistence. The file system is managed directly on the server and exposed through secured endpoints.

Frontend Layer: ReactJS is integrated using InertiaJS to provide a single-page application experience without requiring a separate frontend project.

VPN Network: Tailscale creates a secure mesh network between the server and client devices, enabling encrypted access without public IP exposure.

Key Features

Cross-Device Accessibility: Access the file manager from laptop and smartphone using a unified interface.

Secure Networking: All traffic between devices is encrypted using Tailscale VPN, ensuring private access.

Minimal Footprint Deployment: Operates efficiently on low-spec hardware, using lightweight Linux services.

Modern Frontend Design: UI leverages Tailwind CSS and Laravel/React boilerplates for a clean and responsive user interface. Also utilizes reactbits library for pre-built UI components

Efficient File Management: Upload, download, and organize files directly through a web interface with persistent backend storage.

SPA Experience: InertiaJS enables fast, dynamic interactions without full page reloads.

Personal Highlights

- Successfully configured and deployed a full LEMP stack on a constrained hardware environment.

- Integrated Laravel 12 with ReactJS and InertiaJS, bridging modern frontend with robust backend architecture.

- Designed a VPN-enabled secure access system without relying on third-party hosting providers.

- Streamlined development and deployment using Visual Studio Code and Git version control.

- Built a responsive and accessible UI that performs smoothly on both desktop and mobile platforms.

Further Enhancements

Authentication Module: Plan to implement OAuth-based authentication for user-level access controls.

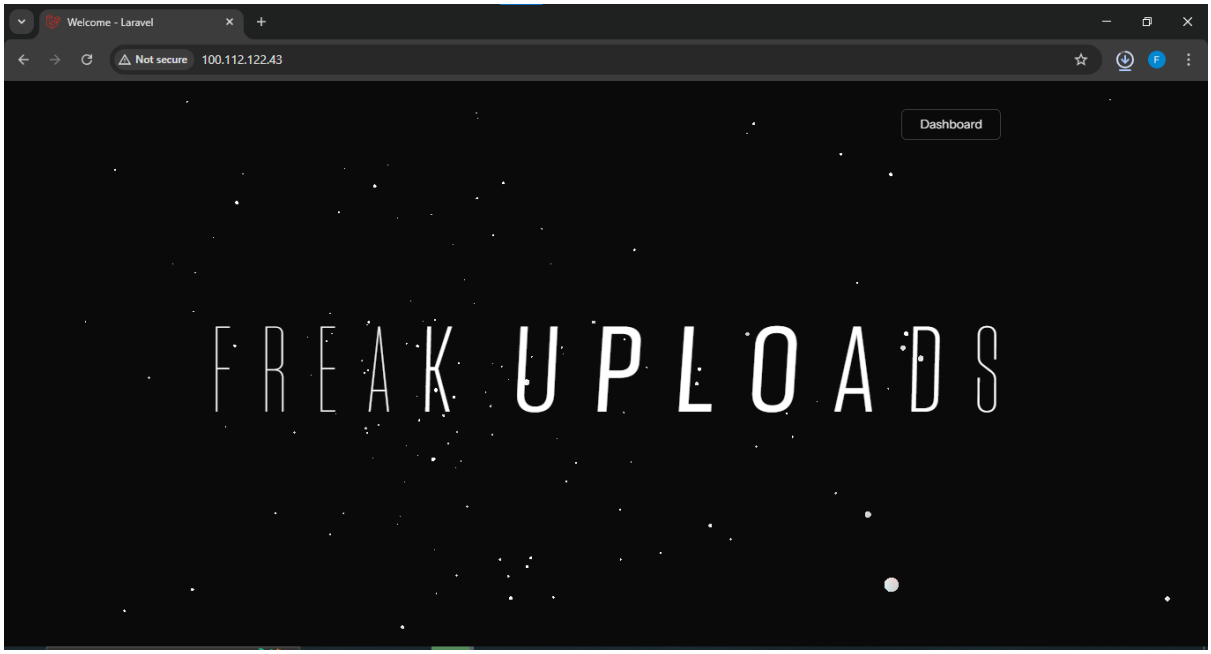
File Versioning: Introduce file history and recovery options.

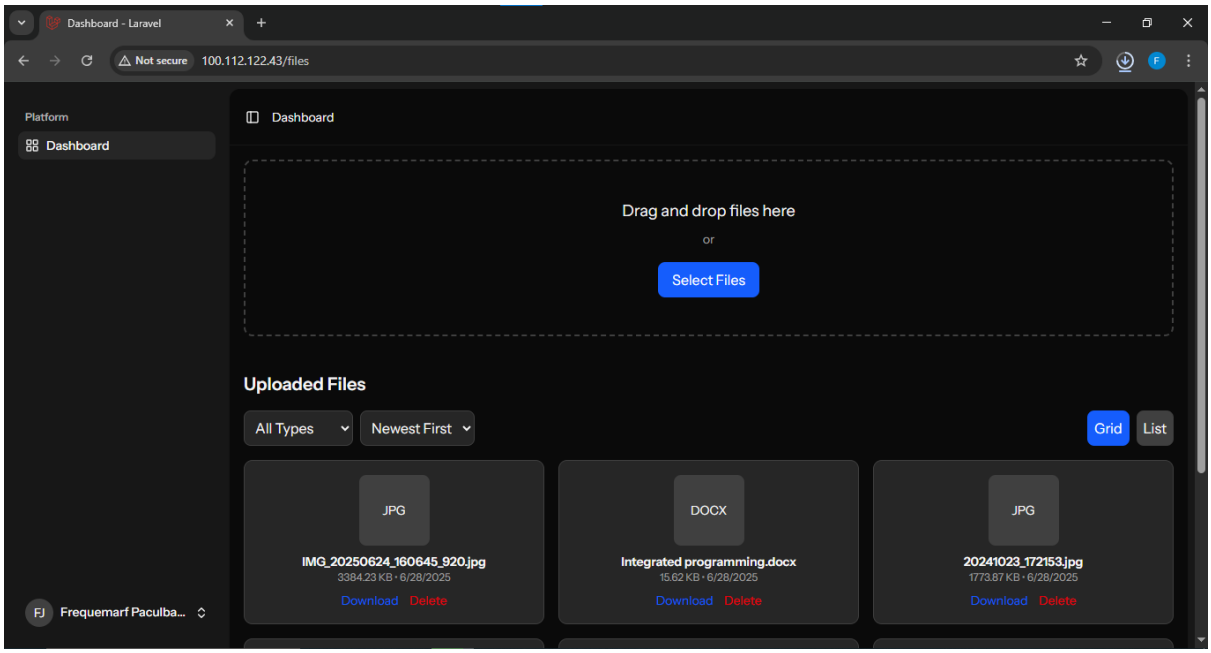
Media Previews: Enable in-browser previews for documents and media files.

Upload Progress Indicator: Add real-time feedback for large file uploads.

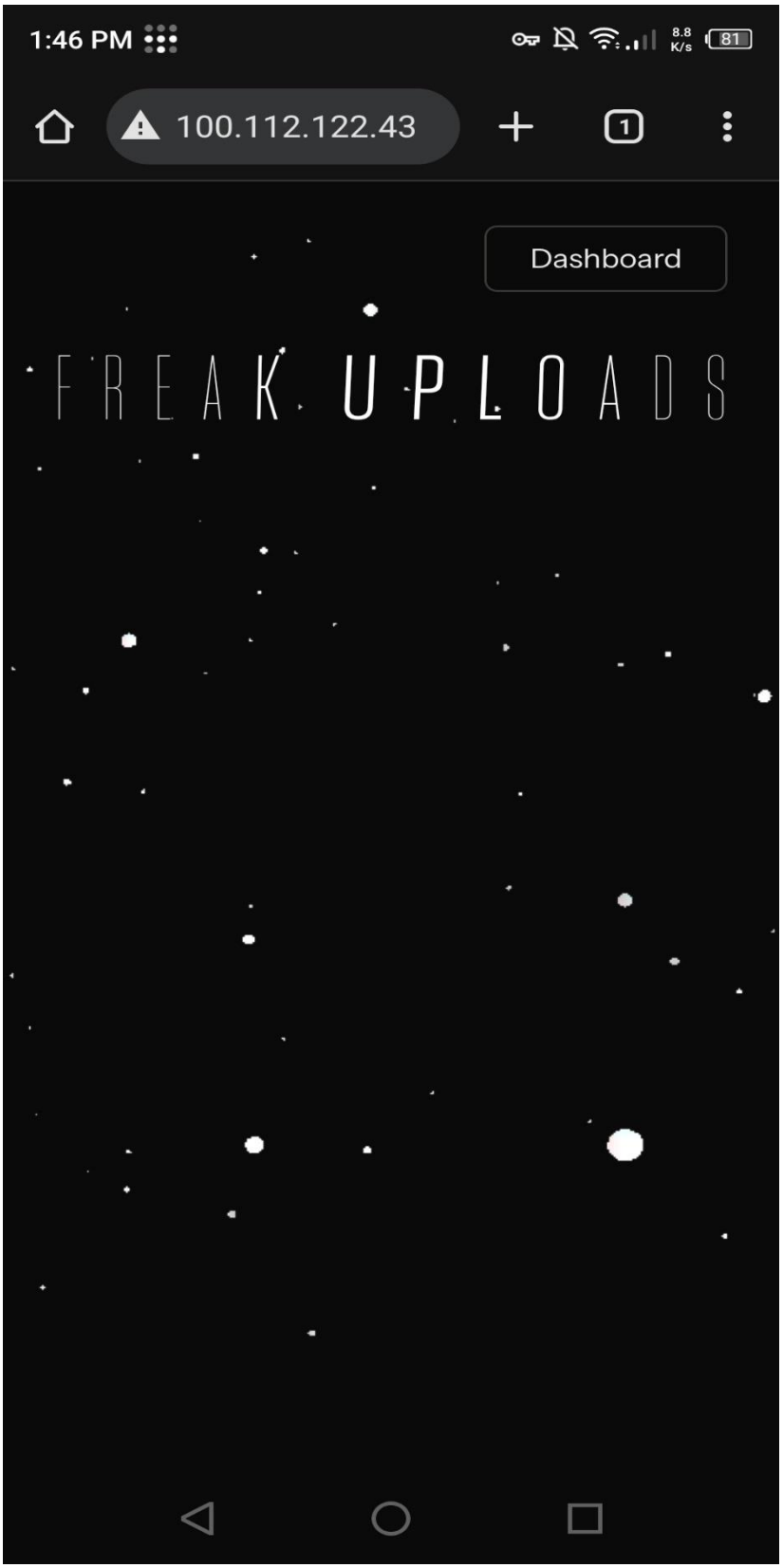
Dockerization: Containerize the entire application for portability and easier deployment across different servers.

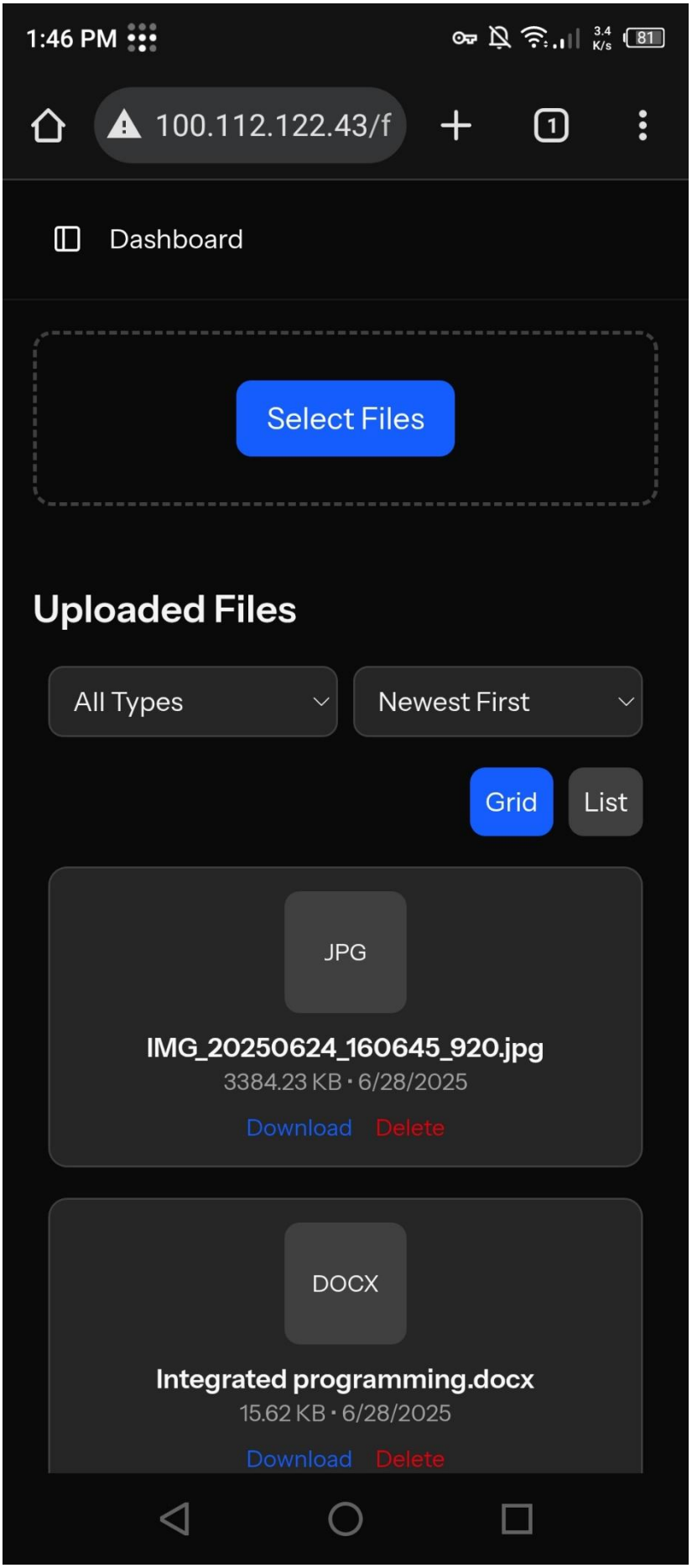
Desktop View





Mobile View

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