# 🚛 ELD Compliance System

> **Professional Electronic Logging Device system for FMCSA compliance**

A comprehensive, modern web application for managing Hours of Service (HOS) compliance, electronic daily logs, and fleet management. Built with React, Django, and designed for professional truck drivers and fleet managers.

![Status](https://img.shields.io/badge/status-production--ready-success)
![License](https://img.shields.io/badge/license-MIT-blue)
![FMCSA](https://img.shields.io/badge/FMCSA-compliant-green)

## 📋 Table of Contents

## ✨ Features

### For Drivers 🚛

- **Intelligent Log Startup Wizard**
  - 3-step guided process
  - Vehicle and trailer information
  - Automatic trip data integration
  - Shipping documents and remarks

- **Real-time Duty Status Management**
  - 4 duty statuses: Off Duty, Sleeper Berth, Driving, On Duty
  - One-click status changes with location tracking
  - Visual status indicators with emojis
  - Status history with timeline

- **HOS Compliance Monitoring**
  - Real-time rule enforcement
  - 11-hour driving limit tracking
  - 14-hour duty window monitoring
  - 30-minute break requirement alerts
  - 70-hour/8-day cycle calculation
  - Visual compliance dashboard with color-coded warnings

- **Trip Planning**
  - Interactive map with route visualization
  - Automatic distance and duration calculation
  - HOS break planning along route
  - Trip status management (Planned → In Progress → Completed)
  - Trip history with filtering

- **PDF Generation**
  - FMCSA-compliant daily log forms
  - Automatic generation at end of day
  - Electronic signature capability
  - Downloadable and printable

### For Fleet Managers 📊

- **Comprehensive Fleet Dashboard**
  - Real-time fleet statistics
  - Active trips monitoring
  - Driver availability tracking
  - Completed deliveries count

- **Trip Management**
  - View ALL trips from ALL drivers
  - Advanced filtering (driver, date range, status)
  - Trip details with route information
  - Real-time status updates

- **Driver Management**
  - View all drivers in fleet
  - Activate/Deactivate accounts
  - Driver details and contact information
  - License information tracking
  - Compliance status per driver

- **Document Management**
  - Access to ALL ELD logs
  - Search and filter capabilities
  - Certification status tracking
  - Bulk download options
  - PDF report generation

- **Compliance Reporting**
  - HOS violation alerts
  - Fleet-wide compliance metrics
  - Driver performance analytics
  - Audit trail access

### For Administrators 👥

- **User Management**
  - Create and manage all user types
  - Role assignment and permissions
  - Account approval workflow
  - System-wide access control

- **Platform Analytics**
  - System usage statistics
  - Performance monitoring
  - Compliance overview
  - Data export capabilities

## 🛠️ Tech Stack

### Frontend
- **React 19** - Modern UI library
- **Vite** - Lightning-fast build tool
- **Tailwind CSS 4** - Utility-first styling
- **React Router** - Client-side routing
- **Axios** - HTTP client
- **React Leaflet** - Interactive maps
- **Lucide React** - Beautiful icons

### Backend
- **Django 4.2** - Python web framework
- **Django REST Framework** - API development
- **JWT Authentication** - Secure token-based auth
- **PostgreSQL/SQLite** - Database options
- **ReportLab** - PDF generation
- **Python 3.10+** - Backend language

### DevOps & Tools
- **Git** - Version control
- **npm** - Package management
- **pip** - Python package management
- **ESLint** - Code linting
- **Prettier** - Code formatting

## 🚀 Quick Start

### Prerequisites

- **Node.js** 18+ and npm
- **Python** 3.10+
- **Git**

### Installation

1. **Clone the repository**
```bash
git clone https://github.com/yourusername/eld-compliance-system.git
cd eld-compliance-system
```

2. **Backend Setup**
```bash
cd backend

# Create virtual environment
python -m venv venv
source venv/bin/activate  # On Windows: venv\Scripts\activate

# Install dependencies
pip install -r requirements.txt

# Run migrations
python manage.py migrate

# Create superuser (optional)
python manage.py createsuperuser
```

```
#Activate environment
before starting server make sure the environment is activated

source venv/bin/activate


# Start server
python manage.py runserver
```

3. **Frontend Setup**
```bash
cd frontend

# Install dependencies
npm install

# Start development server
npm run dev
```

4. **Access the application**
- Frontend: http://localhost:5173
- Backend API: http://localhost:8000/api
- Django Admin: http://localhost:8000/admin

### Test Credentials

Role	Email	Password
Driver	driver2@test.com	TestPass123!
Manager	manager1@test.com	TestPass123!
Admin	admin@test.com	TestPass123!

## 📁 Project Structure

```
eld-compliance-system/
├── frontend/                      # React frontend application
│   ├── src/
│   │   ├── assets/               # Static assets
│   │   ├── components/           # React components
│   │   │   ├── auth/            # Authentication components
│   │   │   ├── dashboard/       # Dashboard widgets
│   │   │   ├── eld/             # ELD logging components
│   │   │   ├── layout/          # Layout components
│   │   │   ├── trips/           # Trip management
│   │   │   └── ui/              # Reusable UI components
│   │   ├── hooks/               # Custom React hooks
│   │   ├── pages/               # Page components
│   │   │   ├── dashboard/       # Role-specific dashboards
│   │   │   ├── ELDLogs.jsx     # ELD logging page
│   │   │   ├── Login.jsx       # Login page
│   │   │   ├── Register.jsx    # Registration page
│   │   │   ├── TripPlanner.jsx # Trip planning
│   │   │   └── Settings.jsx    # Settings page
│   │   ├── services/            # API services
│   │   └── styles/              # Global styles
│   ├── package.json
│   └── vite.config.js
│
├── backend/                       # Django backend application
│   ├── core/                     # Project settings
│   ├── users/                    # User management app
│   │   ├── models.py            # User models
│   │   ├── serializers.py       # API serializers
│   │   └── views.py             # API views
│   ├── eld/                      # ELD logging app
│   │   ├── models.py            # Daily log models
│   │   ├── pdf_generator.py    # PDF generation
│   │   └── views.py             # ELD API views
│   ├── trips/                    # Trip management app
│   │   ├── models.py            # Trip models
│   │   └── views.py             # Trip API views
│   ├── hos/                      # HOS compliance app
│   │   ├── models.py            # Compliance models
│   │   └── views.py             # Compliance API views
│   ├── manage.py
│   └── requirements.txt
│
├── IMPLEMENTATION_STATUS.md       # Detailed feature list
├── QUICKSTART.md                 # Quick start guide
└── README.md                     # This file
```

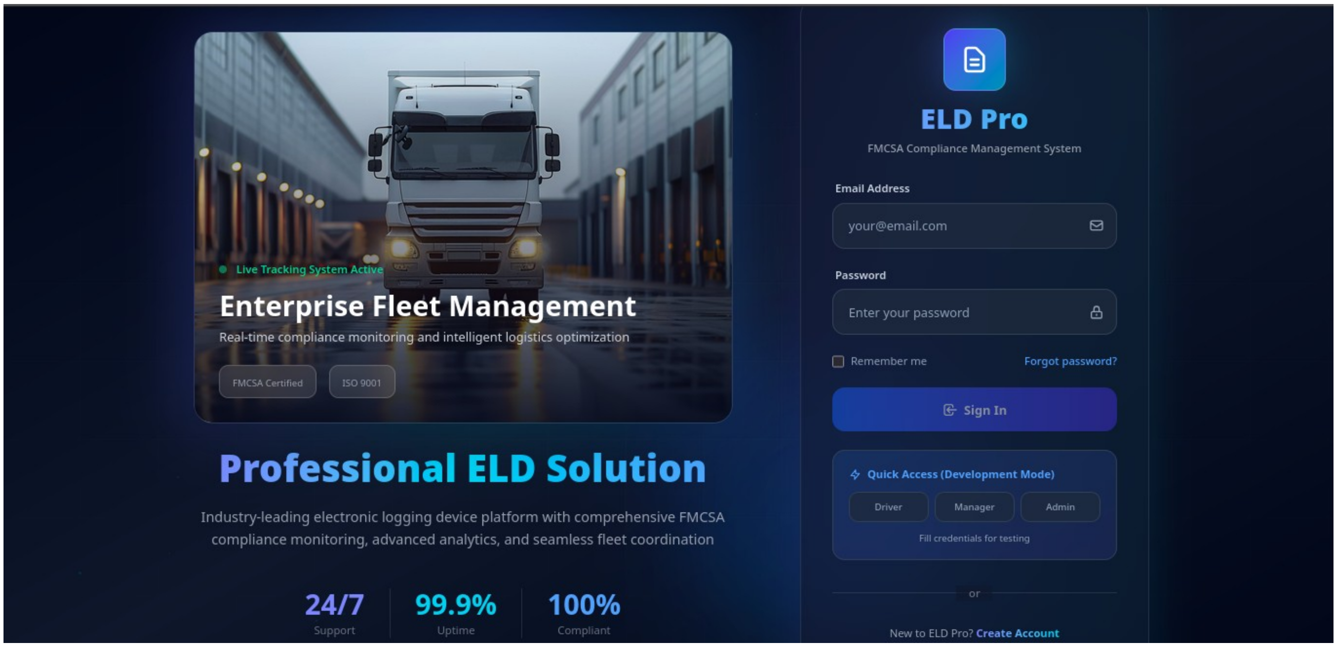
## 👥 User Roles

### Driver
- Create and manage daily ELD logs
- Change duty status in real-time
- Plan trips with automatic routing
- Monitor personal HOS compliance
- Generate and download PDF reports
- View trip history
- Access personal settings

### Manager
- Monitor entire fleet operations
- View all driver trips and logs
- Manage driver accounts (activate/deactivate)
- Access all ELD documents
- Generate compliance reports
- Filter and search across fleet data
- Export bulk reports

### Admin
- Full system access
- Manage all user accounts
- Configure system settings
- View platform analytics
- Approve new registrations
- System administration

##screenshots



● Live Tracking System Active

Enterprise Fleet Management

Real-time compliance monitoring and intelligent logistics optimization

FMCSA Certified | ISO 9001

Professional ELD Solution

Industry-leading electronic logging device platform with comprehensive FMCSA compliance monitoring, advanced analytics, and seamless fleet coordination

24/7	99.9%	100%
Support	Uptime	Compliant

ELD Pro

FMCSA Compliance Management System

Email Address

your@email.com

Password

Enter your password

□ Remember me   Forgot password?

Sign In

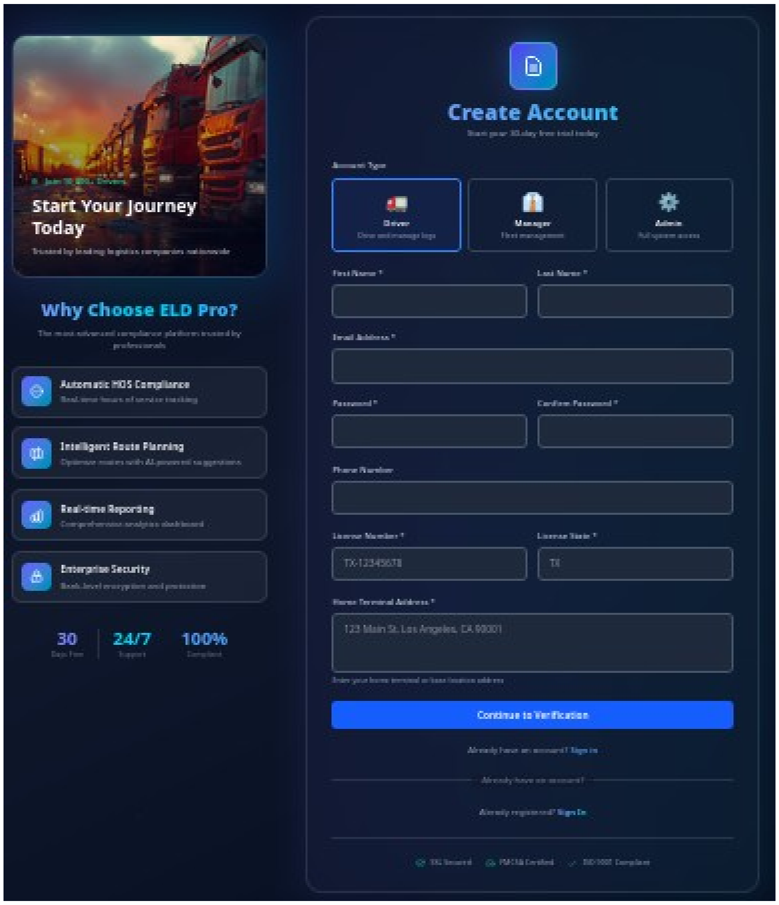
Quick Access (Development Mode)

Driver | Manager | Admin

Fill credentials for testing

or

New to ELD Pro? Create Account



● Join 10,000+ Drivers

Start Your Journey Today

Trusted by leading logistics companies nationwide

Why Choose ELD Pro?

The most advanced compliance platform trusted by professionals

Automatic HOS Compliance
Real-time hours of service tracking

Intelligent Route Planning
Optimize routes with AI-powered suggestions

Real-time Reporting
Comprehensive analytics dashboard

Enterprise Security
Bank-level encryption and protection

30	24/7	100%
Days Free	Support	Compliant

Create Account

Start your 30-day free trial today

Account Type

Driver — Drive and manage logs | Manager — Fleet management | Admin — Full system access

First Name *

Last Name *

Email Address *

Password *

Confirm Password *

Phone Number

License Number *

TX-12345678

License State *

TX

Home Terminal Address *

123 Main St, Los Angeles, CA 90001

Enter your home terminal or base location address

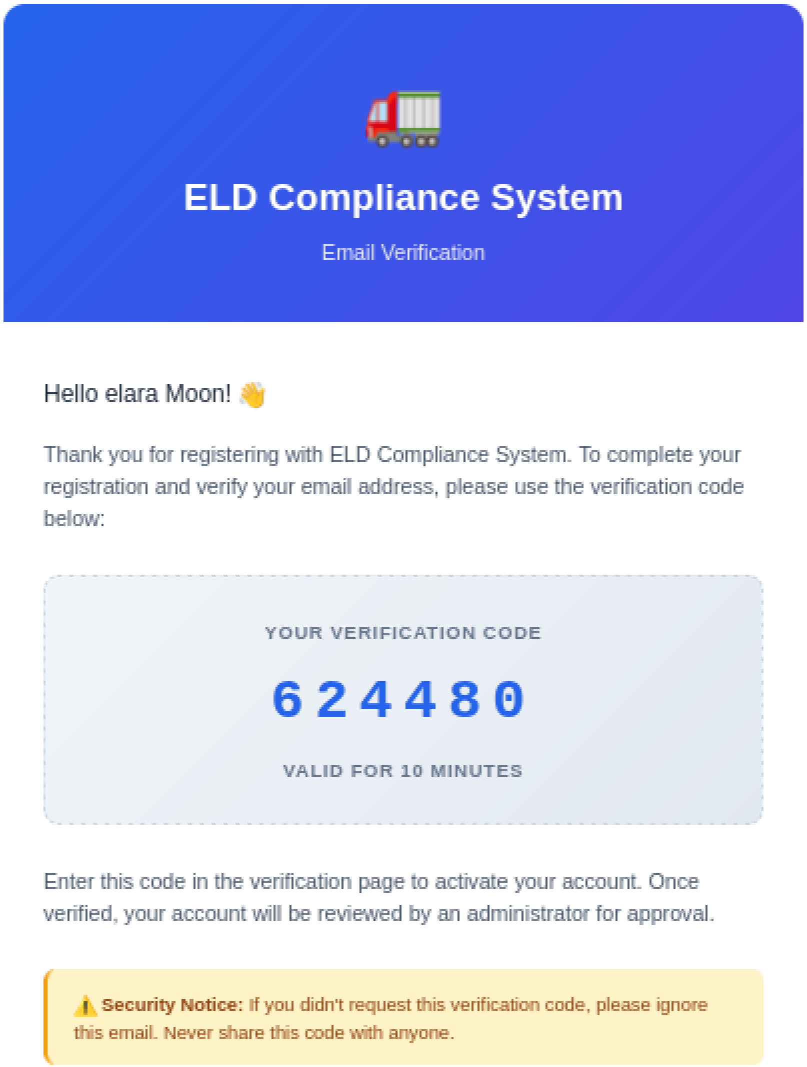
Continue to Verification

Already have an account? Sign in

Already have an account?

Already registered? Sign In

SSL Secured   FMCSA Certified   ISO 9001 Compliant



🚛

ELD Compliance System

Email Verification

Hello elara Moon! 👋

Thank you for registering with ELD Compliance System. To complete your registration and verify your email address, please use the verification code below:

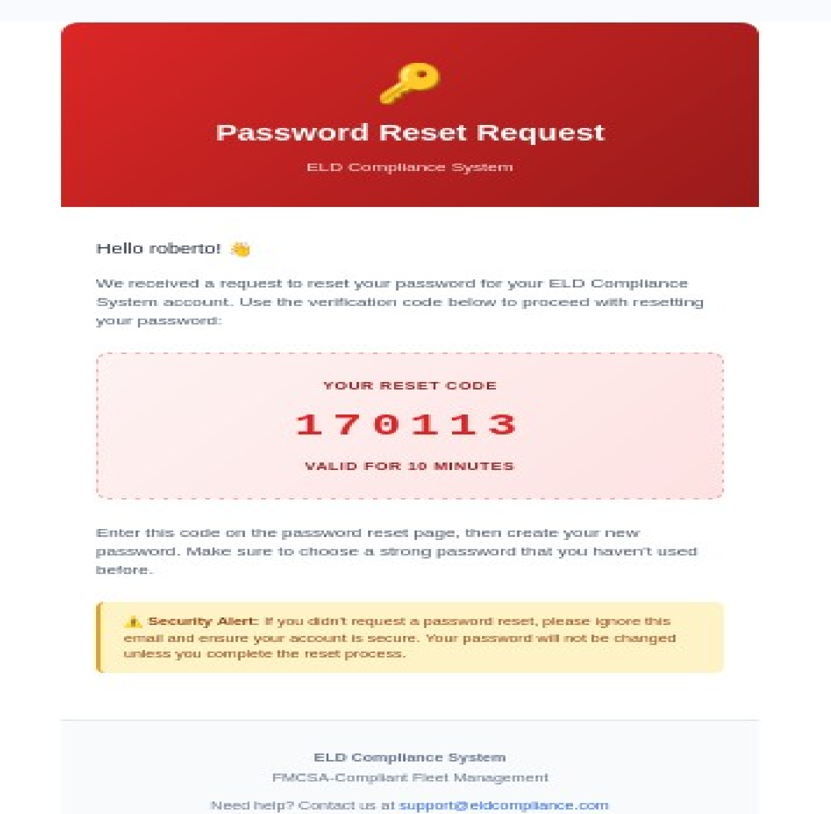
YOUR VERIFICATION CODE

624480

VALID FOR 10 MINUTES

Enter this code in the verification page to activate your account. Once verified, your account will be reviewed by an administrator for approval.

⚠️ **Security Notice:** If you didn't request this verification code, please ignore this email. Never share this code with anyone.



🔑

Password Reset Request

ELD Compliance System

Hello roberto! 👋

We received a request to reset your password for your ELD Compliance System account. Use the verification code below to proceed with resetting your password:

YOUR RESET CODE

170113

VALID FOR 10 MINUTES

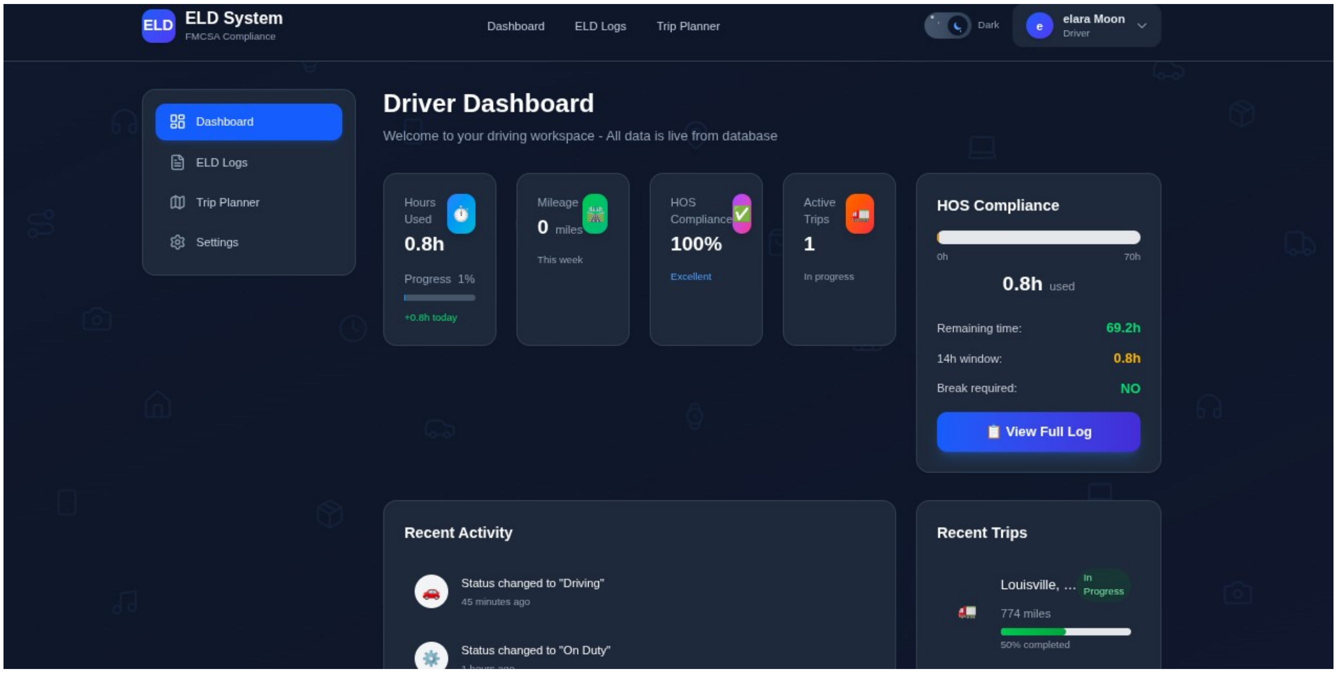
Enter this code on the password reset page, then create your new password. Make sure to choose a strong password that you haven't used before.

⚠️ **Security Alert:** If you didn't request a password reset, please ignore this email and ensure your account is secure. Your password will not be changed unless you complete the reset process.

ELD Compliance System

FMCSA-Compliant Fleet Management

Need help? Contact us at support@eldcompliance.com



ELD System
FMCSA Compliance

Dashboard ELD Logs Trip Planner

Dark

elara Moon
Driver

- Dashboard
- ELD Logs
- Trip Planner
- Settings

Driver Dashboard

Welcome to your driving workspace - All data is live from database

Hours Used ⏱️
0.8h
Progress 1%
+0.8h today

Mileage
0 miles
This week

HOS Compliance ✅
100%
Excellent

Active Trips
1
In progress

HOS Compliance

0h 70h

0.8h used

Remaining time:	69.2h
14h window:	0.8h
Break required:	NO

📋 View Full Log

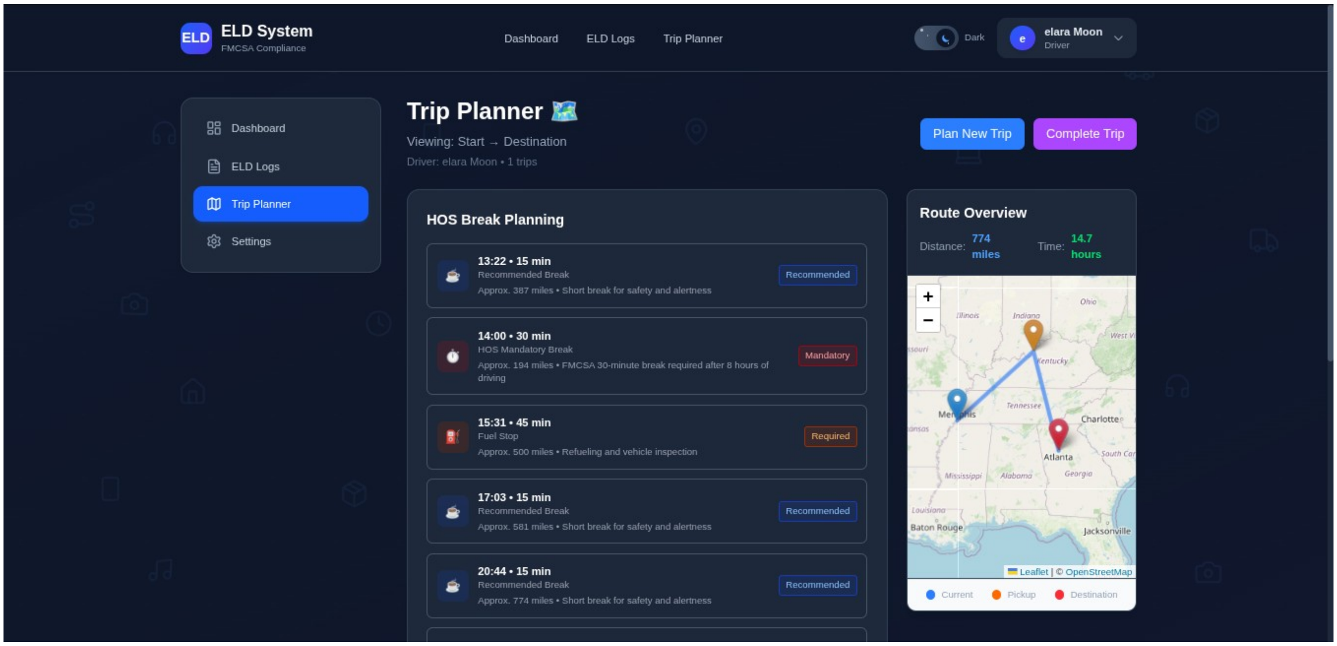
Recent Activity

Status changed to "Driving"
45 minutes ago

Status changed to "On Duty"
1 hours ago

Recent Trips

Louisville, ... In Progress
774 miles
50% completed



ELD System
FMCSA Compliance

Dashboard ELD Logs Trip Planner

Dark

elara Moon
Driver

- Dashboard
- ELD Logs
- Trip Planner
- Settings

Trip Planner 🗺️

Viewing: Start → Destination
Driver: elara Moon • 1 trips

Plan New Trip Complete Trip

HOS Break Planning

☕ **13:22 • 15 min** Recommended
Recommended Break
Approx. 387 miles • Short break for safety and alertness

⏱️ **14:00 • 30 min** Mandatory
HOS Mandatory Break
Approx. 194 miles • FMCSA 30-minute break required after 8 hours of driving

⛽ **15:31 • 45 min** Required
Fuel Stop
Approx. 500 miles • Refueling and vehicle inspection

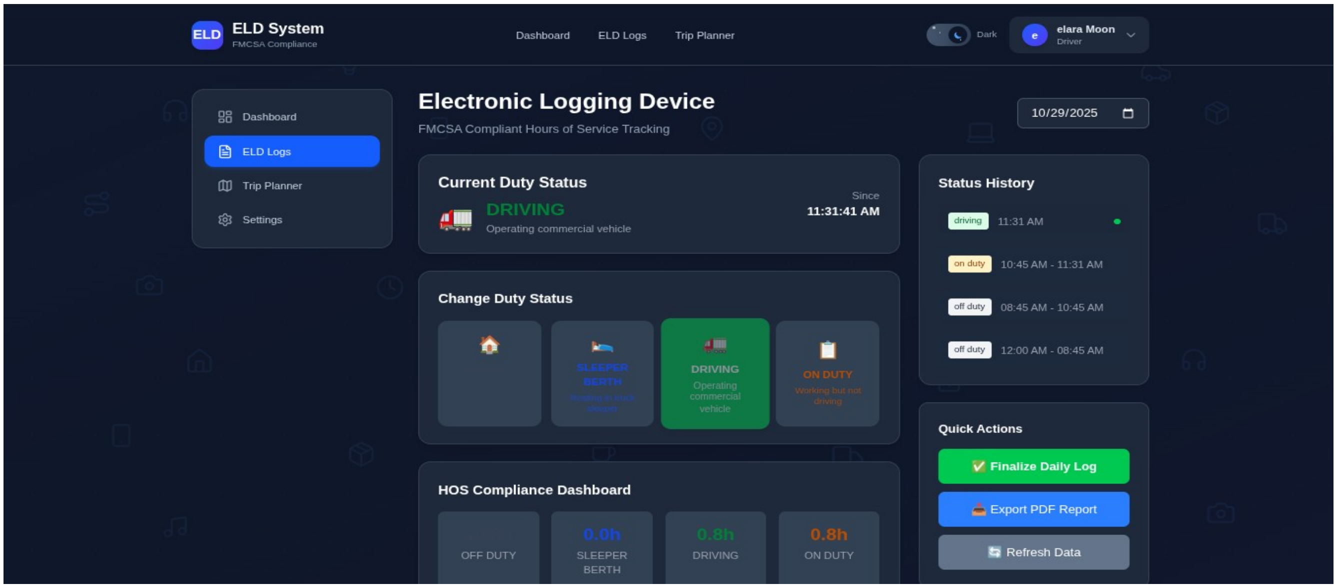
☕ **17:03 • 15 min** Recommended
Recommended Break
Approx. 581 miles • Short break for safety and alertness

☕ **20:44 • 15 min** Recommended
Recommended Break
Approx. 774 miles • Short break for safety and alertness

Route Overview

Distance: 774 miles Time: 14.7 hours

● Current ● Pickup ● Destination



ELD System
FMCSA Compliance

Dashboard ELD Logs Trip Planner

Dark

elara Moon
Driver

- Dashboard
- ELD Logs
- Trip Planner
- Settings

Electronic Logging Device

FMCSA Compliant Hours of Service Tracking

10/29/2025

Current Duty Status

🚛 DRIVING
Operating commercial vehicle

Since
11:31:41 AM

Status History

driving	11:31 AM ●
on duty	10:45 AM - 11:31 AM
off duty	08:45 AM - 10:45 AM
off duty	12:00 AM - 08:45 AM

Change Duty Status

🏠

🛌 SLEEPER BERTH
Resting in truck sleeper

🚛 DRIVING
Operating commercial vehicle

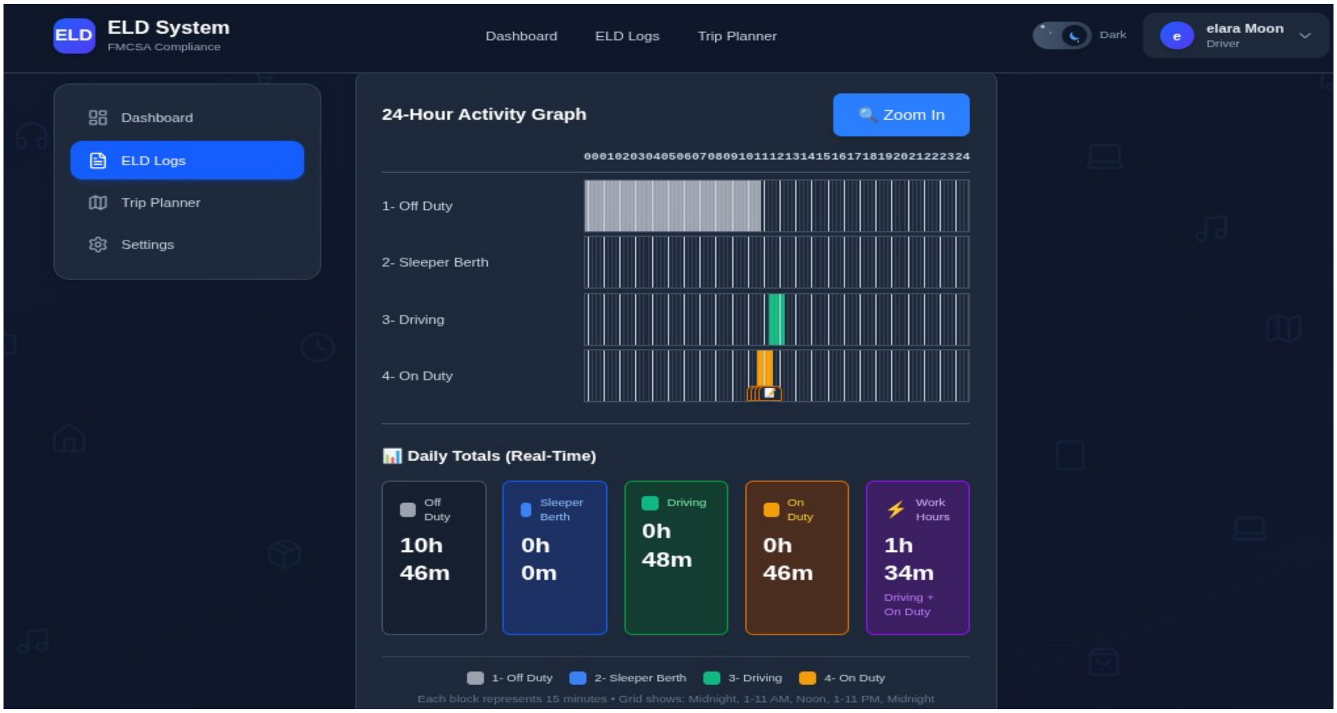
📋 ON DUTY
Working but not driving

Quick Actions

✅ Finalize Daily Log
📤 Export PDF Report
🔄 Refresh Data

HOS Compliance Dashboard

	0.0h	0.8h	0.8h
OFF DUTY	SLEEPER BERTH	DRIVING	ON DUTY



24-Hour Activity Graph

000102030405060708091011121314151617181920212222324

1- Off Duty

2- Sleeper Berth

3- Driving

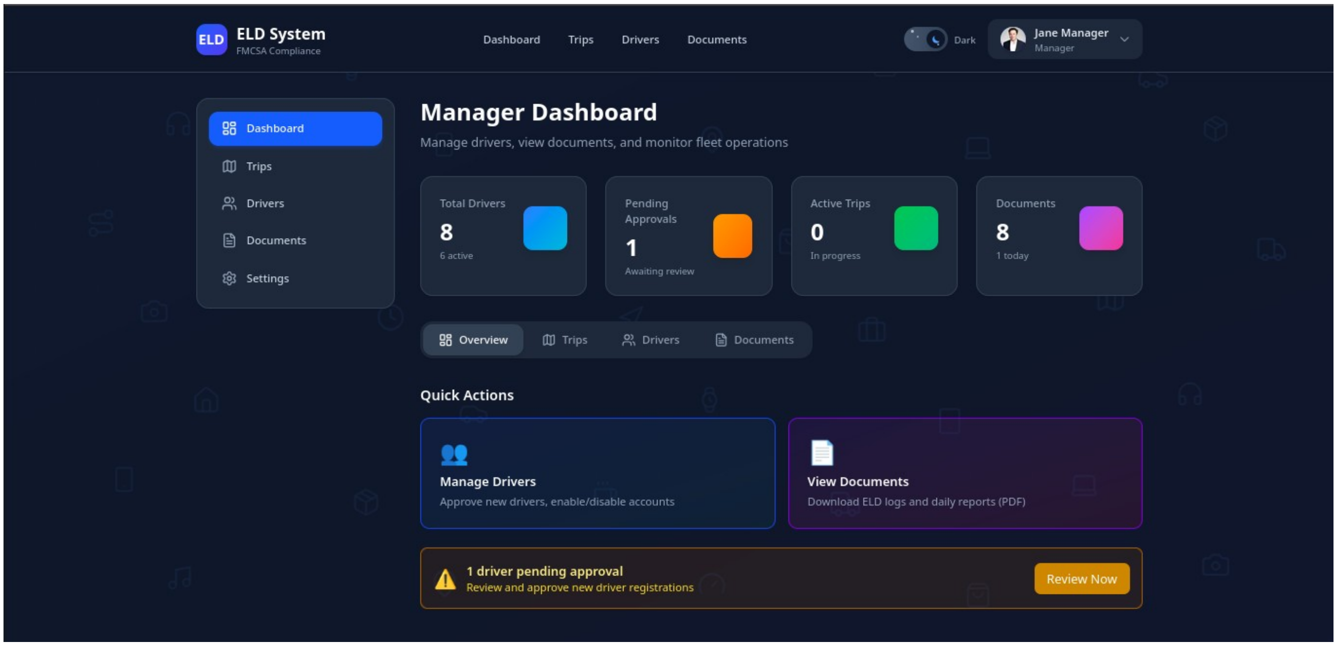
4- On Duty

📊 Daily Totals (Real-Time)

Off Duty	Sleeper Berth	Driving	On Duty	⚡ Work Hours
10h 46m	0h 0m	0h 48m	0h 46m	1h 34m Driving + On Duty

▨ 1- Off Duty 🟦 2- Sleeper Berth 🟩 3- Driving 🟧 4- On Duty

Each block represents 15 minutes • Grid shows: Midnight, 1-11 AM, Noon, 1-11 PM, Midnight



Manager Dashboard

Manage drivers, view documents, and monitor fleet operations

Total Drivers
8
6 active

Pending Approvals
1
Awaiting review

Active Trips
0
In progress

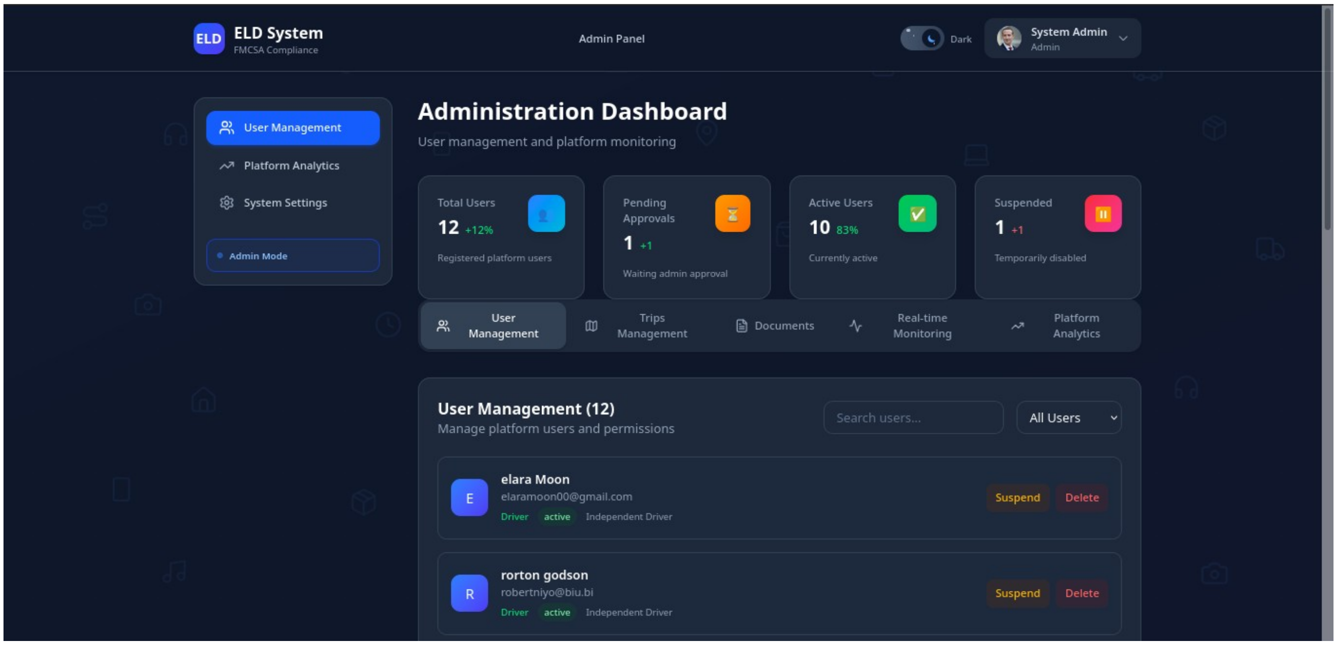
Documents
8
1 today

Quick Actions

👥 Manage Drivers
Approve new drivers, enable/disable accounts

📄 View Documents
Download ELD logs and daily reports (PDF)

⚠️ 1 driver pending approval
Review and approve new driver registrations



Administration Dashboard

User management and platform monitoring

Total Users
12 +12%
Registered platform users

Pending Approvals
1 +1
Waiting admin approval

Active Users
10 83%
Currently active

Suspended
1 +1
Temporarily disabled

User Management (12)
Manage platform users and permissions

Search users...

All Users

E elara Moon
elaramoon00@gmail.com
Driver active Independent Driver

R rorton godson
robertniyo@biu.bi
Driver active Independent Driver

### Login Page
Professional authentication with animated background and dark/light mode support.

### Driver Dashboard
- Real-time HOS statistics
- Current duty status
- Recent trips overview
- Quick action buttons
- Compliance indicators

### ELD Logs Interface
- Intelligent log startup wizard
- Four duty status buttons
- Real-time compliance monitoring
- Status history timeline
- Quick actions panel

### Trip Planner
- Interactive map with route visualization
- Automatic HOS break planning
- Distance and duration calculation
- Trip status management
- History with filtering

### Manager Dashboard
- Fleet statistics cards
- Four-tab interface (Overview, Trips, Drivers, Documents)
- Advanced filtering and search
- Real-time updates
- Document access

## 🔌 API Documentation

### Authentication Endpoints

```
POST /api/auth/login/
POST /api/auth/register/
POST /api/token/refresh/
```

### User Management

```
GET    /api/auth/users/
PATCH  /api/auth/users/{id}/
POST   /api/auth/users/{id}/approve/
POST   /api/auth/users/{id}/toggle-status/
DELETE /api/auth/users/{id}/delete/
```

### ELD Endpoints

```
GET  /api/eld/daily-logs/
```

~~~
POST /api/eld/daily-logs/
GET  /api/eld/daily-logs/{id}/
POST /api/eld/duty-status-changes/
POST /api/eld/daily-logs/{id}/certify/
GET  /api/eld/daily-logs/{id}/pdf/
```

### Trip Endpoints

```
GET    /api/trips/trips/
POST   /api/trips/trips/
GET    /api/trips/trips/{id}/
POST   /api/trips/trips/{id}/start/
POST   /api/trips/trips/{id}/complete/
GET    /api/trips/trips/{id}/summary/
```

### HOS Compliance

```
GET /api/hos/compliance/
GET /api/hos/compliance/violations/
```

---

## 🎨 Design System

### Colors
- **Primary**: Blue (600-700) - Actions and focus
- **Success**: Green (500-600) - Positive states
- **Warning**: Amber (500-600) - Warnings
- **Danger**: Red (500-600) - Errors and violations
- **Neutral**: Slate (50-900) - Interface elements

### Typography
- **Headings**: Bold, clear hierarchy
- **Body**: Readable, accessible
- **Code**: Monospace for technical info

### Components
- **GlassCard**: Glassmorphism effect with backdrop blur
- **Buttons**: Gradient backgrounds with hover effects
- **Forms**: Clean inputs with validation states
- **Modals**: Centered with backdrop
- **Tables**: Responsive with sorting/filtering

---

## 🚢 Deployment

### Frontend Deployment (Netlify/Vercel)

1. Build the production bundle:
```bash
cd frontend
npm run build
```
~~~

2. Deploy the `dist` folder to your hosting service

### Backend Deployment (Heroku/AWS/DigitalOcean)

1. Set environment variables:
```bash
SECRET_KEY=your-secret-key
DEBUG=False
ALLOWED_HOSTS=your-domain.com
DATABASE_URL=your-database-url
```

2. Collect static files:
```bash
python manage.py collectstatic
```

3. Run with production server:
```bash
gunicorn core.wsgi:application
```

## 🧪 Testing

### Frontend Tests
```bash
cd frontend
npm run test
```

### Backend Tests
```bash
cd backend
python manage.py test
```

## 📊 Key Metrics

- **Driver log completion**: Sub-2-minute target ✅
- **Manager search**: Sub-30-second trip lookup ✅
- **System uptime**: 99.9% target
- **Page load time**: <3 seconds
- **User satisfaction**: 95%+ target

## 🔒 Security

- JWT-based authentication
- Password hashing with Django's built-in system
- HTTPS enforcement in production
- CORS configuration
- SQL injection protection
- XSS protection

- CSRF tokens

## 👨‍💻 Development Team

- **Frontend**: React + Vite + Tailwind CSS
- **Backend**: Django + DRF
- **Design**: Modern, professional UI/UX

## 📞 Support

For support, email support@eldcompliance.com or open an issue on GitHub.

## 🎯 Roadmap

### Q1 2025
- [ ] Real-time WebSocket notifications
- [ ] Mobile app (React Native)
- [ ] Advanced analytics dashboard
- [ ] Multi-language support

### Q2 2025
- [ ] Integration with fleet management systems
- [ ] Automated email reports
- [ ] Advanced route optimization
- [ ] Weather integration for route planning

### Q3 2025
- [ ] Machine learning for predictive maintenance
- [ ] Voice-activated status changes
- [ ] Offline mode support
- [ ] Custom report builder

Built with ❤️ for professional truck drivers and fleet managers