

LPG Tamale API Documentation

Overview

RESTful API for managing LPG gas stations in Tamale. The API provides endpoints for authentication, station management, geolocation services, and analytics.

Status: Production Ready 

Last Updated: December 20, 2025

Base URL

http://localhost:8001/api

Authentication

All protected endpoints require Bearer token authentication via Laravel Sanctum.

Token Format

{user_id}|{random_base64_string}
Example: 019b39d5-ff0e-7288-9503-208e353dfda3|gM5xK2pL9qR8wE1tY3uI4oP5sA6dF7gH8jK9lM0nB1cV2xZ3y

Headers

Authorization: Bearer {token}
Content-Type: application/json


User Roles & Permissions

| Role | Description | Permissions |
|-----------------|-----------------|-----------------------------------------------------|
| user | Regular user | View public data, find nearby stations |
| admin | Administrator | Manage all stations, users, managers, analytics |
| station_manager | Station manager | Manage only assigned station (availability, status) |

Endpoints

Authentication

1. Register User

- **POST** `/auth/register`
- **Access:** Public 
- **Request Body:**


```
{
  "name": "John Doe",
  "email": "john@example.com",
  "password": "password123",
  "password_confirmation": "password123"
}
```

- **Response** (200):

```
{
  "message": "User registered successfully",
  "data": {
    "id": "019b39d5-ff0e-7288-9503-208e353dfda3",
    "name": "John Doe",
    "email": "john@example.com",
    "role": "user",
    "is_active": true,
    "created_at": "2025-12-20T10:00:00.000000Z",
    "updated_at": "2025-12-20T10:00:00.000000Z"
  },
  "token": "019b39d5-ff0e-7288-9503-208e353dfda3|gM5xK2pL9qR8wE1tY3uI4oP5sA6dF7gH8jK9lM0nB1cV2xZ3y",
  "token_type": "Bearer"
}
```

- **Validation Rules:**
 - **name:** required, string, max 255
 - **email:** required, email, unique
 - **password:** required, min 8, confirmed

2. Login User

- **POST** `/auth/login`
- **Access:** Public 
- **Request Body:**

```
{
  "email": "john@example.com",
  "password": "password123"
}
```


- **Response** (200):

```
{
  "message": "Login successful",
  "data": {
    "id": "019b39d5-ff0e-7288-9503-208e353dfda3",
    "name": "John Doe",
    "email": "john@example.com",
    "role": "user",
    "is_active": true,
    "created_at": "2025-12-20T10:00:00.000000Z",
    "updated_at": "2025-12-20T10:00:00.000000Z"
  },
  "token": "019b39d5-ff0e-7288-9503-208e353dfda3|gM5xK2pL9qR8wE1tY3uI4oP5sA6dF7gH8jK9lM0nB1cV2xZ3y",
  "token_type": "Bearer"
}
```

- **Error Response** (401):

```
{
  "message": "Invalid credentials"
}
```


3. Get Current User

- **GET** /auth/me
- **Access:** Protected  (any authenticated user)
- **Response** (200):

```
{
  "data": {
    "id": "019b39d5-ff0e-7288-9503-208e353dfda3",
    "name": "John Doe",
    "email": "john@example.com",
    "role": "user",
    "is_active": true,
    "created_at": "2025-12-20T10:00:00.000000Z",
    "updated_at": "2025-12-20T10:00:00.000000Z"
  }
}
```


```
}  
}
```

4. Logout User

- **POST** /auth/logout
- **Access:** Protected  (any authenticated user)
- **Response** (200):

```
{  
  "message": "Logged out successfully"  
}
```

5. Refresh Token


- **POST** /auth/refresh
- **Access:** Protected  (any authenticated user)
- **Response** (200):

```
{  
  "message": "Token refreshed successfully",  
  "token": "019b39d5-ff0e-7288-9503-  
208e353dfda3|nE7qW2pL9qR8wE1tY3uI4oP5sA6dF7gH8jK9lM0nB1cV2xZ3y",  
  "token_type": "Bearer"  
}
```

Stations

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1. List All Stations

- **GET** /stations
- **Access:** Public 
- **Query Parameters:**
 - **per_page** (int, default: 15): Items per page (1-100)
 - **available** (boolean): Filter by availability status
 - **assigned** (boolean): Filter by assignment status (manager only)
 - **latitude** (float): User latitude for distance calculation
 - **longitude** (float): User longitude for distance calculation
 - **radius** (int): Search radius in kilometers
 - **sort_by** (string): Sort by 'name', 'price_per_kg', 'distance'

- **Example Request:**

```
GET /stations?per_page=20&available=true&sort_by=price_per_kg
```

- **Response (200):**

```
{
  "data": [
    {
      "id": "019b396b-dd20-7120-bedb-858432d894c3",
      "name": "Tamale Central Gas Station",
      "address": "123 Main Road, Tamale Central",
      "phone": "+233 24 123 4567",
      "email": "central@tamalelpg.com",
      "is_available": true,
      "is_active": true,
      "price_per_kg": "12.50",
      "operating_hours": "6:00 AM - 8:00 PM",
      "image": "https://...",
      "latitude": 9.4034,
      "longitude": -0.8424,
      "distance_km": null,
      "created_at": "2025-12-20T01:42:08.000000Z",
      "updated_at": "2025-12-20T10:41:46.000000Z"
    }
  ],
  "links": { ... },
  "meta": { ... }
}
```

2. Get Single Station

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- **GET** /stations/{id}
- **Access:** Public ☒
- **Response (200):** Single station object
- **Error (404):** Station not found

3. Find Nearby Stations ★ (Main Feature)

- **POST** /stations/nearby
- **Access:** Public ☒
- **Description:** Find active stations near user's location with smart sorting
- **Request Body:**

```
{
  "latitude": 9.4034,
```

```
"longitude": -0.8424,
"radius": 10,
"available_only": false
}
```

- **Response (200):**

```
{
  "message": "Nearby stations retrieved successfully",
  "data": [
    {
      "id": "019b396b-dd20-7120-bedb-858432d894c3",
      "name": "Tamale Central Gas Station",
      "is_available": true,
      "is_active": true,
      "distance_km": 0,
      ...
    },
    {
      "id": "019b396b-dd4d-70cc-be56-d2a4445b4ea5",
      "name": "Vittin Gas Point",
      "is_available": false,
      "is_active": true,
      "distance_km": 1.89,
      ...
    }
  ],
  "available_count": 1,
  "unavailable_count": 1,
  "radius_km": 10
}
```

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- **Note:** Only active stations (is_active=true) are returned. Available stations are listed first, then unavailable (both sorted by distance).

4. Create Station

- **POST** /stations
- **Access:** Protected  (Admin only)
- **Request Body:**

```
{
  "name": "New Gas Station",
  "address": "456 Gas Avenue, Tamale",
  "phone": "+233 24 999 8888",
  "email": "newstation@tamalelpg.com",
  "latitude": 9.4100,
  "longitude": -0.8500,
```

```
"operating_hours": "6:00 AM - 9:00 PM",
"price_per_kg": "12.75",
"image": "https://...",
"is_available": true,
"is_active": true
}
```

- **Response** (201): Created station object
- **Validation Rules:**
 - **name**: required, string, max 255
 - **email**: required, email, unique
 - **latitude**: required, numeric
 - **longitude**: required, numeric

5. Update Station

- **PUT** /stations/{id}
- **Access**: Protected 🔒 (Admin only)
- **Request Body**: Same as create (all fields optional except ID)
- **Response** (200): Updated station object

6. Delete Station

- **DELETE** /stations/{id}
- **Access**: Protected 🔒 (Admin only)
- **Response** (204): No content

7. Update Station Availability

- **PATCH** /stations/{id}/availability
- **Access**: Protected 🔒 (Admin + Station Manager)
- **Description**: Toggle if station has stock
- **Request Body**:

```
{
  "is_available": false
}
```


- **Response** (200):

```
{
  "id": "019b396b-dd20-7120-bedb-858432d894c3",
  "name": "Tamale Central Gas Station",
  "is_available": false,
  "is_active": true,
}
```

```
...  
}
```

- **Authorization:**
 - ☒ Admin can toggle any station
 - ☒ Manager can toggle only their assigned station
 - × Other managers get 403 Forbidden

8. Toggle Station Active Status

- **PATCH** `/stations/{id}/status`
- **Access:** Protected  (Admin + Station Manager)
- **Description:** Toggle if station is operating (permanent closure/reopening)
- **Request Body:**

```
{  
  "is_active": false  
}
```

- **Response (200):**

```
{  
  "message": "Station deactivated successfully",  
  "data": {  
    "id": "019b396b-dd20-7120-bedb-858432d894c3",  
    "name": "Tamale Central Gas Station",  
    "is_active": false,  
    ...  
  }  
}
```

- **Authorization:**
 - ☒ Admin can toggle any station
 - ☒ Manager can toggle only their assigned station
 - × Other managers get 403 Forbidden
- **Impact:** Deactivated stations are hidden from all nearby searches

9. Get Station Price History

- **GET** `/stations/{stationId}/price-history`
- **Access:** Public ☒
- **Query Parameters:**
 - `limit` (int): Number of records
 - `offset` (int): Pagination offset

- **Response** (200):

```
[
  {
    "id": "019b396c-dd53-11f0-a85a-727d03ec5208",
    "station_id": "019b396b-dd20-7120-bedb-858432d894c3",
    "price_per_kg": "12.50",
    "effective_from": "2025-12-20T10:00:00.000000Z",
    "updated_by": "Admin User",
    "created_at": "2025-12-20T10:00:00.000000Z"
  }
]
```

Station Manager Assignment

1. Assign Manager to Station

- **POST** `/stations/{stationId}/assign-manager`
- **Access:** Protected  (Admin only)
- **Request Body:**

```
{
  "manager_id": "306e93c1-dd53-11f0-a85a-727d03ec5208"
}
```

- **Response** (200): Assignment details


2. Get Current Manager

- **GET** `/stations/{stationId}/manager`
- **Access:** Protected  (Admin only)
- **Response** (200): Current manager or null

3. Remove Manager from Station

- **DELETE** `/stations/{stationId}/remove-manager`
- **Access:** Protected  (Admin only)
- **Response** (200): Success message

4. Get Manager Assignment History

- **GET** `/stations/{stationId}/manager-history`
 - **Access:** Protected  (Admin only)
 - **Response** (200): Array of past assignments
-

Station Managers (CRUD)


1. List All Managers

- **GET** `/managers`
- **Access:** Protected  (Admin only)
- **Query Parameters:** `per_page`, `page`
- **Response** (200):

```
{
  "message": "Station managers retrieved successfully",
  "data": {
    "current_page": 1,
    "data": [
      {
        "id": "306e93c1-dd53-11f0-a85a-727d03ec5208",
        "name": "Infin LGP Station",
        "email": "infin@lpgtamale.com",
        "is_active": true,
        "created_at": "2025-12-20T02:37:05.000000Z",
        "assignment_status": {
          "is_assigned": true,
          "station_id": "019b396b-dd20-7120-bedb-858432d894c3",
          "station_name": "Tamale Central Gas Station",
          "assigned_at": "2025-12-20T10:31:45.000000Z",
          "assigned_by": "Admin User"
        }
      }
    ],
    "meta": { ... }
  }
}
```

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2. Get Active Managers Only

- **GET** `/managers/active`
- **Access:** Protected  (Admin only)
- **Response** (200): Same as list but only active managers

3. Create Manager

- **POST** `/managers`
- **Access:** Protected  (Admin only)
- **Request Body:**

```
{
  "name": "New Manager",
```

```
"email": "newmanager@example.com",
"password": "password123",
"password_confirmation": "password123"
}
```

4. Get Single Manager

- **GET** /managers/{id}
- **Access:** Protected 🔒 (Admin only)

5. Update Manager

- **PUT** /managers/{id}
- **Access:** Protected 🔒 (Admin only)

6. Delete Manager

- **DELETE** /managers/{id}
- **Access:** Protected 🔒 (Admin only)

Analytics (Admin Only)

1. Analytics Overview

- **GET** /analytics/overview
- **Access:** Protected 🔒 (Admin only)
- **Response** (200):

```
{
  "total_visits": 150,
  "unique_visitors": 42,
  "page_views": 245,
  "average_response_time": 85,
  "device_breakdown": {
    "mobile": 95,
    "tablet": 20,
    "desktop": 35
  },
  "top_page": "/api/stations/nearby",
  "top_page_views": 65
}
```

2. Daily Statistics

- **GET** /analytics/daily
- **Query Parameters:** start_date, end_date (optional)

- **Response** (200):

```
{
  "data": [
    {
      "date": "2025-12-20",
      "visits": 45,
      "unique_visitors": 12
    }
  ]
}
```

3. Monthly Statistics

- **GET** /analytics/monthly
- **Query Parameters:** start_month, end_month (optional)
- **Response** (200): Visits aggregated by month

4. Top Pages

- **GET** /analytics/top-pages
- **Response** (200): Most visited pages

5. Device Distribution

- **GET** /analytics/devices
- **Response** (200): Breakdown by device type

6. Browser Distribution

- **GET** /analytics/browsers
- **Response** (200): Breakdown by browser

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7. Operating System Distribution

- **GET** /analytics/operating-systems
- **Response** (200): Breakdown by OS

8. Returning vs New Users

- **GET** /analytics/returning-vs-new
- **Response** (200):

```
{
  "total_visits": 150,
  "unique_visitors": 42,
```

```
"return_rate": "28.57%"
}
```

Error Responses

Validation Error (422)

```
{
  "message": "The email has already been taken.",
  "errors": {
    "email": ["The email has already been taken."]
  }
}
```

Unauthorized (401)

```
{
  "message": "Unauthenticated"
}
```

Forbidden (403)

```
{
  "message": "Unauthorized - You can only manage your assigned station"
}
```

Not Found (404)

```
{
  "message": "Not found"
}
```

Server Error (500)

```
{
  "message": "Internal Server Error"
}
```

HTTP Status Codes

| Code | Meaning |
|------|-----------------------------------------|
| 200 | OK - Success |
| 201 | Created - Resource created |
| 204 | No Content - Success, no response body |
| 400 | Bad Request - Invalid input |
| 401 | Unauthorized - Missing or invalid token |
| 403 | Forbidden - No permission |
| 404 | Not Found - Resource doesn't exist |
| 422 | Validation Error - Invalid data |
| 500 | Server Error - Internal error |

Key Features

- ✔ **UUID Primary Keys** - All IDs are UUIDs for better security
- ✔ **Token-Based Auth** - Laravel Sanctum with secure tokens
- ✔ **Smart Station Search** - Haversine formula for accurate distance
- ✔ **Availability Sorting** - Available stations shown first
- ✔ **Role-Based Access** - Admin, Manager, User roles
- ✔ **Analytics** - Track visitors, page views, devices
- ✔ **Manager Assignment** - Assign managers to stations
- ✔ **Price History** - Track station price changes
- ✔ **Visitor Tracking** - IP, device, browser, OS tracking

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Test Credentials

Admin:
Email: admin@example.com
Password: password

Station Manager (Tamale Central):
Email: infin@lpgtamale.com
Password: password

Field Definitions

is_available vs is_active

| Field | Meaning | Impact | Use Case |
|---------------------------|--------------|--------------------|------------------------------|
| <code>is_available</code> | Has stock | Shown in search | Temporarily out of stock |
| <code>is_active</code> | Is operating | Hidden from search | Permanent closure/relocation |

Best Practices

1. **Always include token** in Authorization header for protected endpoints
2. **Use POST for nearby stations** even though it's read-only (to pass coordinates in body)
3. **Handle 401 responses** by redirecting to login
4. **Store tokens securely** in HttpOnly cookies (production)
5. **Implement token refresh** before expiration
6. **Validate on frontend** before sending to API
7. **Use HTTPS** in production
8. **Include proper error handling** for all requests

Pagination

List endpoints return paginated results:

```
{
  "data": [ ... ],
  "links": {
    "first": "...",
    "last": "...",
    "prev": null,
    "next": "..."
  },
  "meta": {
    "current_page": 1,
    "from": 1,
    "last_page": 1,
    "path": "...",
    "per_page": 15,
    "to": 15,
    "total": 42
  }
}
```

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Rate Limiting

No rate limiting currently enforced. In production, consider:

- 5 login attempts per IP per 15 minutes
- 100 API requests per minute per token

CORS Configuration

Currently configured for **localhost:3000** (Next.js default).

Update in **.env** for production:

```
FRONTEND_URL=https://yourdomain.com
```

Database

- **Engine:** MySQL 8.0
- **ORM:** Eloquent (Laravel)
- **Migrations:** All tables auto-migrated on deploy
- **Indexes:** Optimized for location and availability queries

Related Documentation

- [Authentication API](#)
- [Nearest Station API](#)
- [Frontend Integration Guide](#)
- [API Quick Reference](#)

Support

For API issues:

1. Check the error response message
2. Verify request format and parameters
3. Check authentication token is valid
4. Review endpoint documentation above