OktankFlow API Documentation

Route Optimization API v2.0

Overview

The Route Optimization API enables programmatic access to OktankFlow's AI-powered route optimization engine. This endpoint allows you to calculate optimal delivery routes while considering multiple factors including traffic patterns, vehicle capabilities, delivery windows, and environmental impact.

Base URL

```
https://api.oktankflow.com/v2/route-optimization
```

Authentication

All API requests require an API key passed in the header:

```
Authorization: Bearer {your_api_key}
```

Endpoint: Create Optimization Request

```
POST /optimize
Content-Type: application/json
```

Request Body Parameters

```
{
  "fleet": {
    "vehicles": [
      {
        "id": "string",
        "type": "string",
        "capacity": {
          "weight": number,
          "volume": number
        },
        "capabilities": ["refrigerated", "hazmat", "oversized"],
        "startLocation": {
          "lat": number,
```

```
          "lng": number
        }
      }
    ]
  },
  "deliveries": [
    {
      "id": "string",
      "location": {
        "lat": number,
        "lng": number
      },
      "timeWindow": {
        "start": "ISO8601 datetime",
        "end": "ISO8601 datetime"
      },
      "priority": number,
      "package": {
        "weight": number,
        "volume": number,
        "requirements": ["refrigerated", "hazmat", "oversized"]
      }
    }
  ],
  "optimizationPreferences": {
    "prioritize": "time|cost|emissions",
    "maxRouteTime": number,
    "avoidTolls": boolean,
    "considerTraffic": boolean,
    "sustainabilityMode": boolean
  }
}
```

Response

```
{
  "optimizationId": "string",
  "status": "processing|completed|failed",
  "routes": [
    {
      "vehicleId": "string",
      "sequence": [
        {
          "deliveryId": "string",
          "estimatedArrival": "ISO8601 datetime",
          "distance": number,
          "duration": number
        }
      ],
      "metrics": {
        "totalDistance": number,
```

```
        "totalDuration": number,
        "fuelConsumption": number,
        "co2Emissions": number
      }
    }
  ],
  "summary": {
    "totalDeliveries": number,
    "completedDeliveries": number,
    "unassignedDeliveries": [
      {
        "deliveryId": "string",
        "reason": "string"
      }
    ],
    "totalCost": number,
    "totalEmissions": number
  }
}
```

Rate Limits

- Free tier: 100 requests/hour
- Professional tier: 1,000 requests/hour
- Enterprise tier: Custom limits

Error Codes

- 400: Bad Request
- 401: Unauthorized
- 403: Forbidden
- 429: Too Many Requests
- 500: Internal Server Error

Example Request

```
curl -X POST \
  https://api.oktankflow.com/v2/route-optimization/optimize \
  -H 'Authorization: Bearer your_api_key' \
  -H 'Content-Type: application/json' \
  -d '{
    "fleet": {
      "vehicles": [{
        "id": "truck_01",
        "type": "electric_van",
        "capacity": {
          "weight": 2000,
```

```
          "volume": 20
        },
        "startLocation": {
          "lat": 30.2672,
          "lng": -97.7431
        }
      }]
    },
    "deliveries": [{
      "id": "del_123",
      "location": {
        "lat": 30.2849,
        "lng": -97.7341
      },
      "timeWindow": {
        "start": "2024-01-20T09:00:00Z",
        "end": "2024-01-20T17:00:00Z"
      }
    }],
    "optimizationPreferences": {
      "prioritize": "emissions",
      "considerTraffic": true,
      "sustainabilityMode": true
    }
  }'
```

Best Practices

1. Cache optimization results when possible
2. Use batch optimization for multiple routes
3. Include realistic time windows
4. Consider vehicle capabilities when assigning deliveries
5. Enable sustainabilityMode for reduced environmental impact

SDK Support

- Python: oktankflow-python
- JavaScript: oktankflow-node
- Java: oktankflow-java
- Go: oktankflow-go

For additional support or questions, contact api-support@oktank.com