### 1. Get All Trips

GET /api/trips

### **Response Format:**

```
[
    "id": "T12345",
    "driverId": "D789",
    "customerId": "C456",
    "status": "assigned",
    "pickupLocation": {
      "lat": 44.643,
      "lng": -63.5793,
      "address": "123 Main St, Halifax, NS"
    "dropoffLocation": {
      "lat": 44.6418,
      "lng": -63.5784,
      "address": "456 Elm St, Halifax, NS"
    "currentLocation": {
     "lat": 44.6425,
      "lng": -63.5790,
      "address": "Near Main St, Halifax, NS"
    "packageDetails": "Small package, handle with care",
    "createdAt": "2023-04-15T14:30:00.000Z",
    "updatedAt": "2023-04-15T14:45:00.000Z"
]
```

### 2. Get Trip by ID

GET /api/trips/:id

#### **Parameters:**

• id: Trip ID

#### **Response Format:**

```
{
  "id": "T12345",
  "driverId": "D789",
  "customerId": "C456",
  "status": "pickup",
  "pickupLocation": {
      "lat": 44.643,
      "lng": -63.5793,
      "address": "123 Main St, Halifax, NS"
},
```

```
"dropoffLocation": {
    "lat": 44.6418,
    "lng": -63.5784,
    "address": "456 Elm St, Halifax, NS"
},
    "currentLocation": {
        "lat": 44.6425,
        "lng": -63.5790,
        "address": "Near Main St, Halifax, NS"
},
    "packageDetails": "Small package, handle with care",
    "createdAt": "2023-04-15T14:30:00.000Z",
    "updatedAt": "2023-04-15T14:45:00.000Z"
}

3. Create New Trip

POST /api/trips
```

# **Request Body:**

```
{
  "driverId": "D789",
  "customerId": "C456",
  "pickupLocation": {
      "lat": 44.643,
      "lng": -63.5793,
      "address": "123 Main St, Halifax, NS"
},
  "dropoffLocation": {
      "lat": 44.6418,
      "lng": -63.5784,
      "address": "456 Elm St, Halifax, NS"
},
  "packageDetails": "Small package, handle with care"
}
```

# **Response Format:**

```
"id": "T12345",
  "driverId": "D789",
  "customerId": "C456",
  "status": "assigned",
  "pickupLocation": {
      "lat": 44.643,
      "lng": -63.5793,
      "address": "123 Main St, Halifax, NS"
},
  "dropoffLocation": {
      "lat": 44.6418,
      "lng": -63.5784,
      "address": "456 Elm St, Halifax, NS"
},
  "packageDetails": "Small package, handle with care",
```

```
"createdAt": "2023-04-15T14:30:00.000Z", "updatedAt": "2023-04-15T14:30:00.000Z"}
```

### 4. Update Trip Status

PATCH /api/trips/:id

#### **Parameters:**

• id: Trip ID

### **Request Body:**

```
{
  "status": "delivering",
  "currentLocation": {
    "lat": 44.6425,
    "lng": -63.5790,
    "address": "Near Main St, Halifax, NS"
  }
}
```

### **Response Format:**

```
"id": "T12345",
"driverId": "D789",
"customerId": "C456",
"status": "delivering",
"pickupLocation": {
  "lat": 44.643,
  "lng": -63.5793,
  "address": "123 Main St, Halifax, NS"
"dropoffLocation": {
  "lat": 44.6418,
  "lng": -63.5784,
  "address": "456 Elm St, Halifax, NS"
"currentLocation": {
 "lat": 44.6425,
 "lng": -63.5790,
 "address": "Near Main St, Halifax, NS"
},
"packageDetails": "Small package, handle with care",
"createdAt": "2023-04-15T14:30:00.000Z",
"updatedAt": "2023-04-15T15:00:00.000Z"
```

# **Location Management**

#### 1. Get Location History for Trip

#### **Parameters:**

- tripId: Trip ID
- limit (query parameter, optional): Maximum number of records to return (default: 100)

### **Response Format:**

```
[
    " id": "60a1e2c3d4e5f6a7b8c9d0e1",
    "tripId": "T12345",
    "location": {
     "lat": 44.6425,
      "lng": -63.5790
    "timestamp": "2023-04-15T15:00:00.000Z"
  },
    " id": "60a1e2c3d4e5f6a7b8c9d0e2",
    "tripId": "T12345",
    "location": {
     "lat": 44.6422,
      "lng": -63.5788
    "timestamp": "2023-04-15T14:55:00.000Z"
  }
1
```

#### 2. Get Latest Location for Trip

GET /api/locations/trip/:tripId/latest

#### **Parameters:**

• tripId: Trip ID

### **Response Format:**

```
{
   "_id": "60ale2c3d4e5f6a7b8c9d0e1",
   "tripId": "T12345",
   "location": {
      "lat": 44.6425,
      "lng": -63.5790
   },
   "timestamp": "2023-04-15T15:00:00.000Z"
}
```

#### 3. Store New Location Update

## **Request Body:**

```
{
  "tripId": "T12345",
  "location": {
     "lat": 44.6425,
     "lng": -63.5790
  }
}
```

## **Response Format:**

```
{
   "_id": "60ale2c3d4e5f6a7b8c9d0e1",
   "tripId": "T12345",
   "location": {
      "lat": 44.6425,
      "lng": -63.5790
   },
   "timestamp": "2023-04-15T15:00:00.000Z"
}
```

# **WebSocket Events**

The system uses Socket.IO for real-time communication between clients and the server.

### **Server to Client Events**

### 1. Server Configuration

```
serverConfig
```

# Payload:

```
{
  "kafkaEnabled": true
}
```

### 2. Driver Location Update

driverLocationUpdate

#### Payload:

```
{
  "tripId": "T12345",
  "location": {
     "lat": 44.6425,
```

```
"lng": -63.5790
},
"source": "kafka",
"timestamp": "2023-04-15T15:00:00.000Z"
}
```

#### 3. Trip Status Update

tripStatusUpdate

#### Payload:

```
{
  "tripId": "T12345",
  "status": "delivering",
  "source": "kafka",
  "timestamp": "2023-04-15T15:00:00.000Z"
}
```

# 4. Trip Details

tripDetails

### Payload:

```
"id": "T12345",
 "driverId": "D789",
 "customerId": "C456",
 "status": "pickup",
 "pickupLocation": {
    "lat": 44.643,
    "lng": -63.5793,
    "address": "123 Main St, Halifax, NS"
 },
 "dropoffLocation": {
    "lat": 44.6418,
    "lng": -63.5784,
    "address": "456 Elm St, Halifax, NS"
 },
 "currentLocation": {
    "lat": 44.6425,
    "lng": -63.5790,
    "address": "Near Main St, Halifax, NS"
 "packageDetails": "Small package, handle with care",
 "createdAt": "2023-04-15T14:30:00.000Z",
 "updatedAt": "2023-04-15T14:45:00.000Z"
}
```

#### 5. Trip Assigned

tripAssigned

### Payload:

```
"id": "T12345",
"driverId": "D789",
"customerId": "C456",
"status": "pickup",
"pickupLocation": {
  "lat": 44.643,
  "lng": -63.5793,
  "address": "123 Main St, Halifax, NS"
"dropoffLocation": {
  "lat": 44.6418,
  "lng": -63.5784,
  "address": "456 Elm St, Halifax, NS"
},
"packageDetails": "Order #0789",
"price": 15.99,
"estimatedTime": "15 min",
"createdAt": "2023-04-15T14:30:00.000Z",
"updatedAt": "2023-04-15T14:30:00.000Z"
```

#### 6. Trip Rejected

tripRejected

### Payload:

```
{
  "tripId": "T12345",
  "driverId": "D789"
}
```

#### 7. Driver Notification

driverNotification

### Payload:

```
"type": "delivery_request",
"data": {
    "orderId": "0789",
    "userId": "C456",
    "from_address": "123 Main St, Halifax, NS",
    "to_address": "456 Elm St, Halifax, NS",
    "amount": 15.99,
    "distance": "2.5",
    "status": "PAYMENT_RECEIVED",
    "timestamp": "2023-04-15T14:30:00.000Z",
    "pickupLocation": {
```

```
"lat": 44.643,
   "lng": -63.5793,
   "address": "123 Main St, Halifax, NS"
},
   "dropoffLocation": {
      "lat": 44.6418,
      "lng": -63.5784,
      "address": "456 Elm St, Halifax, NS"
    }
},
   "timestamp": "2023-04-15T14:30:00.0002"
}
```

# 8. Order Acceptance Confirmed

orderAcceptanceConfirmed

### Payload:

```
{
  "success": true,
  "tripId": "T12345",
  "message": "Order accepted successfully"
```

#### **Client to Server Events**

#### 1. Driver Connected

driverConnected

### Payload:

```
{
    "driverId": "D789",
    "tripId": "T12345"
}
```

### 2. Customer Connected

customerConnected

#### Payload:

```
{
  "customerId": "C456",
  "tripId": "T12345"
}
```

### 3. Request Driver Location

## Payload:

```
{
    "tripId": "T12345"
}
```

# 4. Get Trip Details

getTripDetails

# Payload:

```
{
  "tripId": "T12345"
}
```

# 5. Driver Location Update

 ${\tt driverLocationUpdate}$ 

## Payload:

```
{
  "tripId": "T12345",
  "location": {
     "lat": 44.6425,
     "lng": -63.5790
  }
}
```

## 6. Trip Status Update

tripStatusUpdate

# Payload:

```
{
  "tripId": "T12345",
  "status": "delivering"
}
```

# 7. Trip Accepted

tripAccepted

### Payload:

{

```
"tripId": "T12345",
"driverId": "D789"
```

### 8. Accept Order From Notification

acceptOrderFromNotification

### Payload:

```
{
  "orderId": "0789",
  "userId": "C456",
  "from_address": "123 Main St, Halifax, NS",
  "to_address": "456 Elm St, Halifax, NS",
  "amount": 15.99,
  "driverId": "D789",
  "pickupLocation": {
      "lat": 44.643,
      "lng": -63.5793
  },
  "dropoffLocation": {
      "lat": 44.6418,
      "lng": -63.5784
  }
}
```

# 9. Trip Rejected

tripRejected

### Payload:

```
{
  "tripId": "T12345",
  "driverId": "D789"
}
```

### 10. Get Server Config

getServerConfig

Payload: Empty

# **Kafka Topics**

The system uses Kafka for event-driven communication between microservices.

# 1. Driver Location Updates

Topic: driver-location-updates

### **Message Format:**

```
{
  "tripId": "T12345",
  "location": {
     "lat": 44.6425,
     "lng": -63.5790
  },
  "timestamp": 1681570800000
}
```

# 2. Trip Status Updates

Topic: trip-status-updates

### **Message Format:**

```
{
  "tripId": "T12345",
  "status": "delivering",
  "timestamp": 1681570800000
```

# 3. Payment Notifications

Topic: payment-notifications

### **Message Format:**

```
"orderId": "0789",
"userId": "C456",
"amount": 15.99,
"status": "PAYMENT_RECEIVED",
"timestamp": 1681570800000
```

# 4. Order Delivery Requests

Topic: OrderDeliveryRequests

## **Message Format:**

```
{
  "orderId": "0789",
  "userId": "C456",
  "from_address": "123 Main St, Halifax, NS",
  "to_address": "456 Elm St, Halifax, NS",
```

```
"amount": 15.99,
"status": "PAYMENT_RECEIVED",
"timestamp": 1681570800000
```

# 5. User-Specific Topics

**Topic:** user-updates-{userId}

### **Message Format:**

```
"type": "trip created",
"tripId": "T12345",
"trip": {
  "id": "T12345",
  "driverId": "D789",
  "customerId": "C456",
  "status": "pickup",
  "pickupLocation": {
    "lat": 44.643,
    "lng": -63.5793,
    "address": "123 Main St, Halifax, NS"
  "dropoffLocation": {
    "lat": 44.6418,
    "lng": -63.5784,
    "address": "456 Elm St, Halifax, NS"
  "packageDetails": "Order #0789",
  "price": 15.99,
  "estimatedTime": "15 min"
},
"timestamp": "2023-04-15T14:30:00.000Z"
```

# **Data Models**

# **Trip Model**

```
"id": "T12345",
"driverId": "D789",
"customerId": "C456",
"status": "assigned|pickup|delivering|completed",
"pickupLocation": {
    "lat": 44.643,
    "lng": -63.5793,
    "address": "123 Main St, Halifax, NS"
},
"dropoffLocation": {
    "lat": 44.6418,
    "lng": -63.5784,
```

```
"address": "456 Elm St, Halifax, NS"
},
"currentLocation": {
    "lat": 44.6425,
    "lng": -63.5790,
    "address": "Near Main St, Halifax, NS"
},
"packageDetails": "Small package, handle with care",
"createdAt": "2023-04-15T14:30:00.000Z",
"updatedAt": "2023-04-15T14:45:00.000Z"
```

# **Location Update Model**

```
{
  "tripId": "T12345",
  "location": {
     "lat": 44.6425,
     "lng": -63.5790
  },
  "timestamp": "2023-04-15T15:00:00.000Z"
}
```

# **Authentication**

CommuneDrop uses JWT (JSON Web Token) based authentication for securing API endpoints. Authentication is managed by the Authentication Service.

# **Authentication Endpoints**

### 1. User Registration

```
POST /api/auth/register
```

# **Request Body:**

```
{
  "email": "user@example.com",
  "password": "securePassword123",
  "name": "John Doe",
  "phone": "+1234567890",
  "userType": "customer"
}
```

## **Response:**

```
"success": true,
  "message": "User registered successfully",
  "userId": "C456",
  "token": "eyJhbGciOiJIUzI1NiIsInR5cCI6IkpXVCJ9..."
```

}

### 2. User Login

```
POST /api/auth/login
```

### **Request Body:**

```
{
   "email": "user@example.com",
   "password": "securePassword123"
```

#### **Response:**

```
"success": true,
"message": "Login successful",
"userId": "C456",
"userType": "customer",
"token": "eyJhbGciOiJIUzI1NiIsInR5cCI6IkpXVCJ9..."
}
```

### **Using Authentication**

For authenticated endpoints, include the JWT token in the Authorization header:

```
Authorization: Bearer eyJhbGciOiJIUzI1NiIsInR5cCI6IkpXVCJ9...
```

# **Error Handling**

All API endpoints follow a consistent error response format:

```
{
  "success": false,
  "error": {
     "code": "RESOURCE_NOT_FOUND",
     "message": "The requested trip was not found",
     "details": {
        "tripId": "T12345"
     }
}
```

# **Common Error Codes**

- INVALID REQUEST: The request is malformed or missing required fields
- UNAUTHORIZED: Authentication failed or is missing
- FORBIDDEN: The authenticated user doesn't have permission
- RESOURCE NOT FOUND: The requested resource was not found

• INTERNAL\_SERVER\_ERROR: An unexpected error occurred on the server