Business Service

Publishing APIs:

- `POST /business/pickup-requests` - Publishes to `pickup-requests` topic when a new pickup request is created
- `PUT /business/pickup-requests/{id}/cancel` - Publishes to `pickup-requests` topic when a request is canceled

Consuming APIs:

- `GET /business/tracking/{request_id}` - Consumes from `business-driver-locations` subscription to show real-time driver location
- `GET /business/tracking/{request_id}/location` - Consumes current driver location data
- `GET /business/tracking/{request_id}/eta` - Calculates and provides real-time ETA
- `GET /business/pickup-requests/{id}` - Consumes from `business-trip-updates` subscription to show current trip status
- `GET /business/dashboard` - Displays real-time status of all business pickup requests

Waste Collector Service

Publishing APIs:

- `PUT /collector/pickup-requests/{id}/assign` - Publishes to `pickup-assignments` topic when assigning a driver
- `PUT /collector/availability` - Publishes to `collector-availability` topic when updating service availability
- `PUT /collector/vehicles/{id}/status` - Publishes real-time vehicle availability status
- `PUT /collector/service-areas/load` - Publishes current capacity in service areas

Consuming APIs:

- `GET /collector/pickup-requests` - Consumes from `collector-pickup-requests` subscription to get new pickup requests

- `GET /collector/drivers/{id}/status` - Consumes from `collector-driver-updates` subscription
- `GET /collector/map/drivers` - Displays all driver locations on a map in real-time
- `GET /collector/drivers/nearby` - Finds drivers near a location for assignment
- `GET /collector/dashboard` - Shows real-time fleet activity

Driver Service

Publishing APIs:

- `POST /driver/location` - Publishes to `driver-locations` topic every 10-15 seconds with current GPS coordinates
- `PUT /driver/trips/{id}/start` - Publishes to `trip-status-updates` topic when starting a trip
- `PUT /driver/trips/{id}/pickup-complete` - Publishes when pickup is completed
- `PUT /driver/trips/{id}/at-disposal` - Publishes when arriving at disposal site
- `PUT /driver/trips/{id}/complete` - Publishes when trip is completed
- `PUT /driver/trips/{id}/issue` - Publishes when there's an issue
- `PUT /driver/status` - Publishes when driver changes availability

Consuming APIs:

- `GET /driver/trips` - Consumes from `driver-trip-assignments` subscription to get assigned trips
- `GET /driver/trips/{id}/route` - Consumes from `driver-routing-updates` subscription for optimized routes
- `GET /driver/upcoming` - Displays upcoming assigned pickups

Payment Service

Publishing APIs:

- `PUT /payments/{id}/process` - Publishes to `payment-status` topic when payment processing completes
- `POST /invoices/generate` - Publishes to `invoice-generation` topic when creating new invoices

Consuming APIs:

- `GET /payments/pending` - Consumes from `payment-requests` subscription to process payment requests

Notification Service

Consuming (Background Processes):

- Must consume from all status update topics to trigger:
    - Push notifications to mobile devices
    - SMS for critical updates
    - Email notifications
    - In-app notification center updates

Pub/Sub Topic Structure

1. **Real-time Tracking Topics:**
    - `driver-locations` - High-frequency driver location updates
    - `trip-status-updates` - Trip status change events
    - `collector-availability` - Service provider availability updates
2. **Business Process Topics:**
    - `pickup-requests` - New and canceled pickup requests
    - `pickup-assignments` - Driver assignments to pickups
    - `payment-status` - Payment processing events
    - `invoice-generation` - Invoice creation events

Message Guidelines

Required Attributes:

- `event_type` - Specific type of event
- `timestamp` - When the event occurred
- `entity_ids` - IDs of relevant entities (request_id, driver_id, etc.)
- `service` - Originating service name