Intelligent Last Mile Delivery Orchestration System

# Phase 3: Data Modeling & Relationships

## Standard & Custom Objects

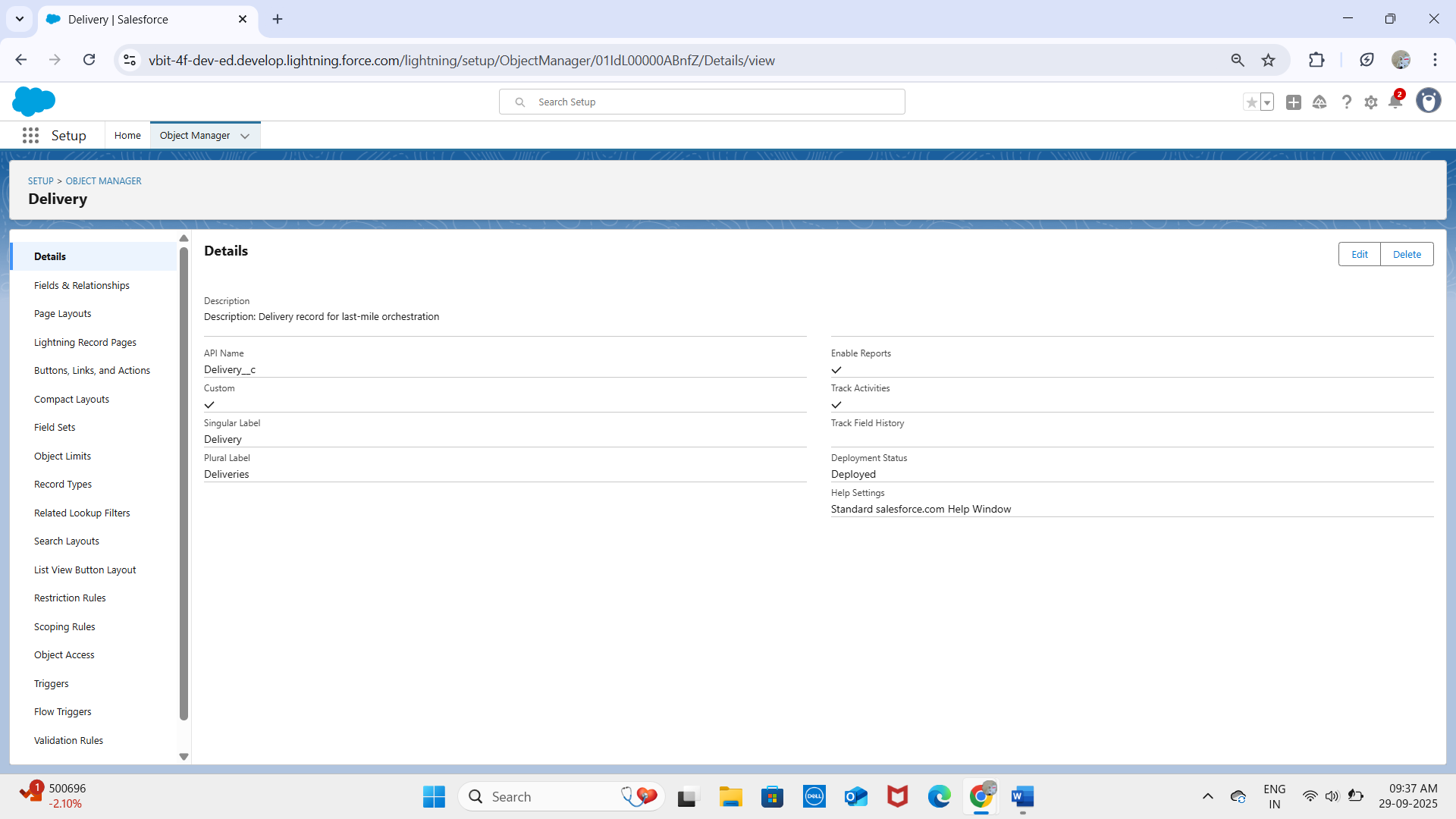
The data model for the Intelligent Last Mile Delivery Orchestration System combines standard Salesforce objects with newly created custom objects to support delivery operations, routing, and customer communication.

**Standard Objects:**

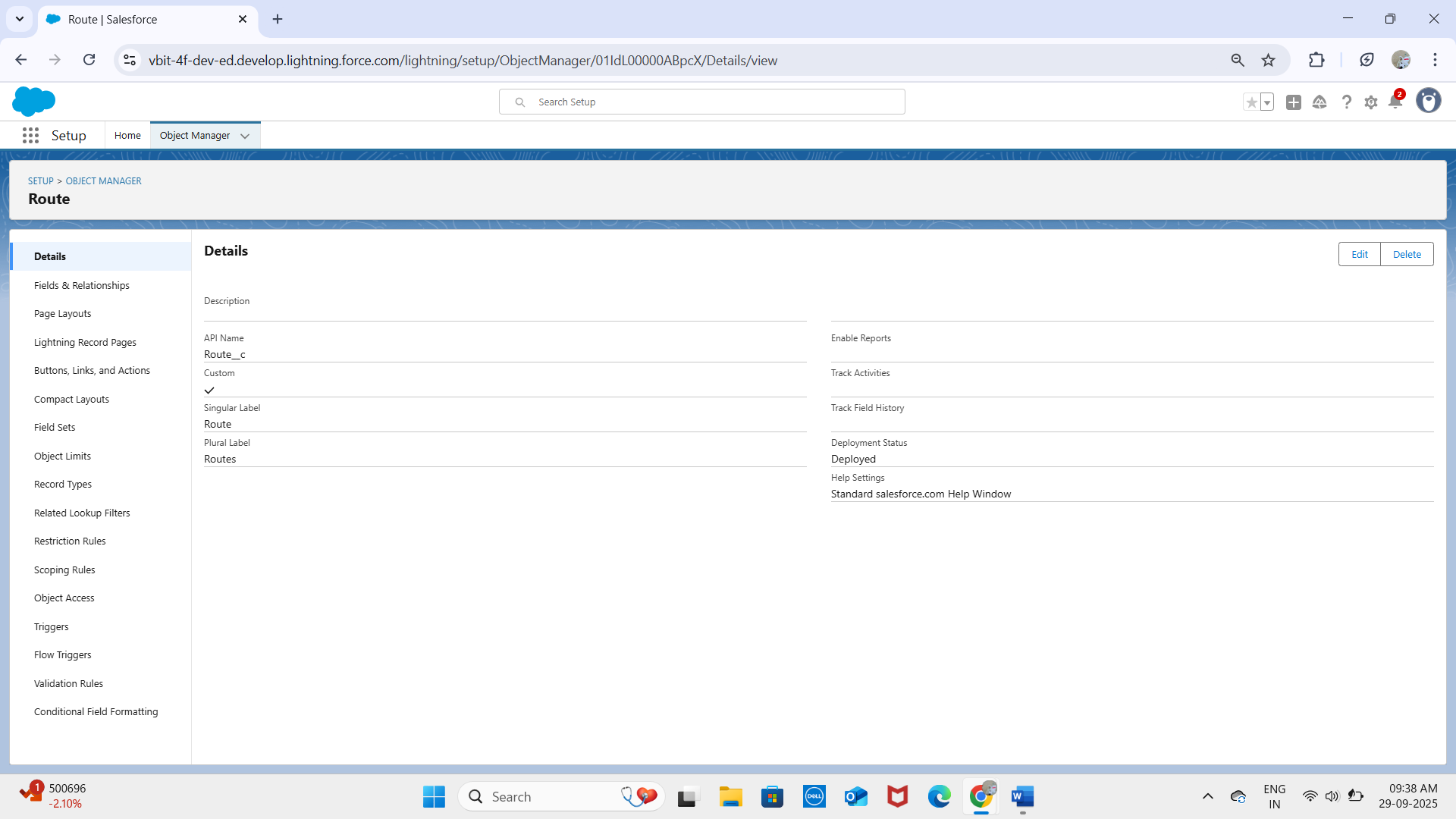
- Account: Represents the business customers or clients associated with deliveries.  
- Contact: Represents individual customers receiving deliveries.  
- User: Represents delivery agents, managers, and customer service staff.

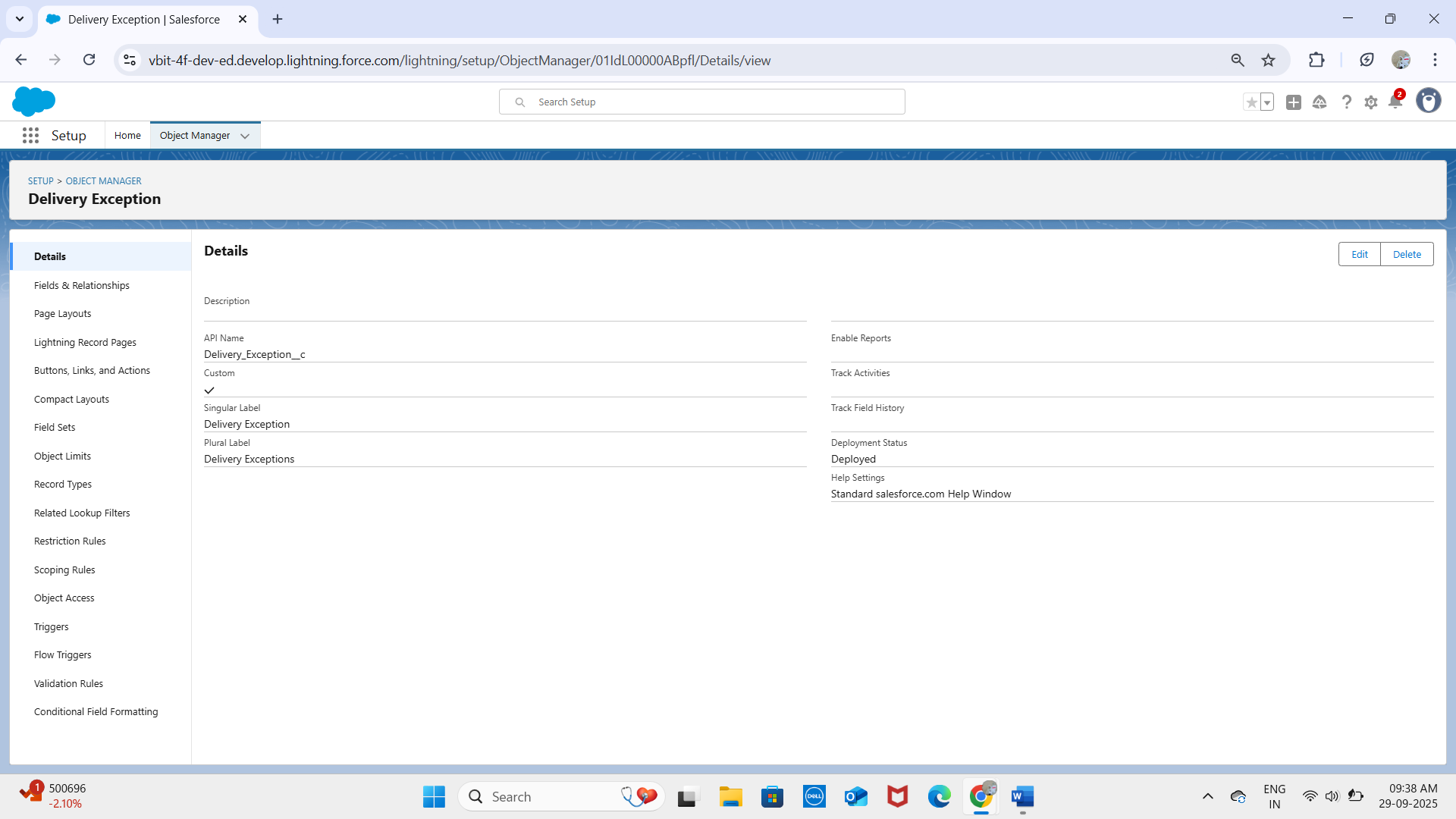
**Custom Objects:**

**- Delivery\_\_c:** Tracks each delivery record with status, scheduling, and completion details.

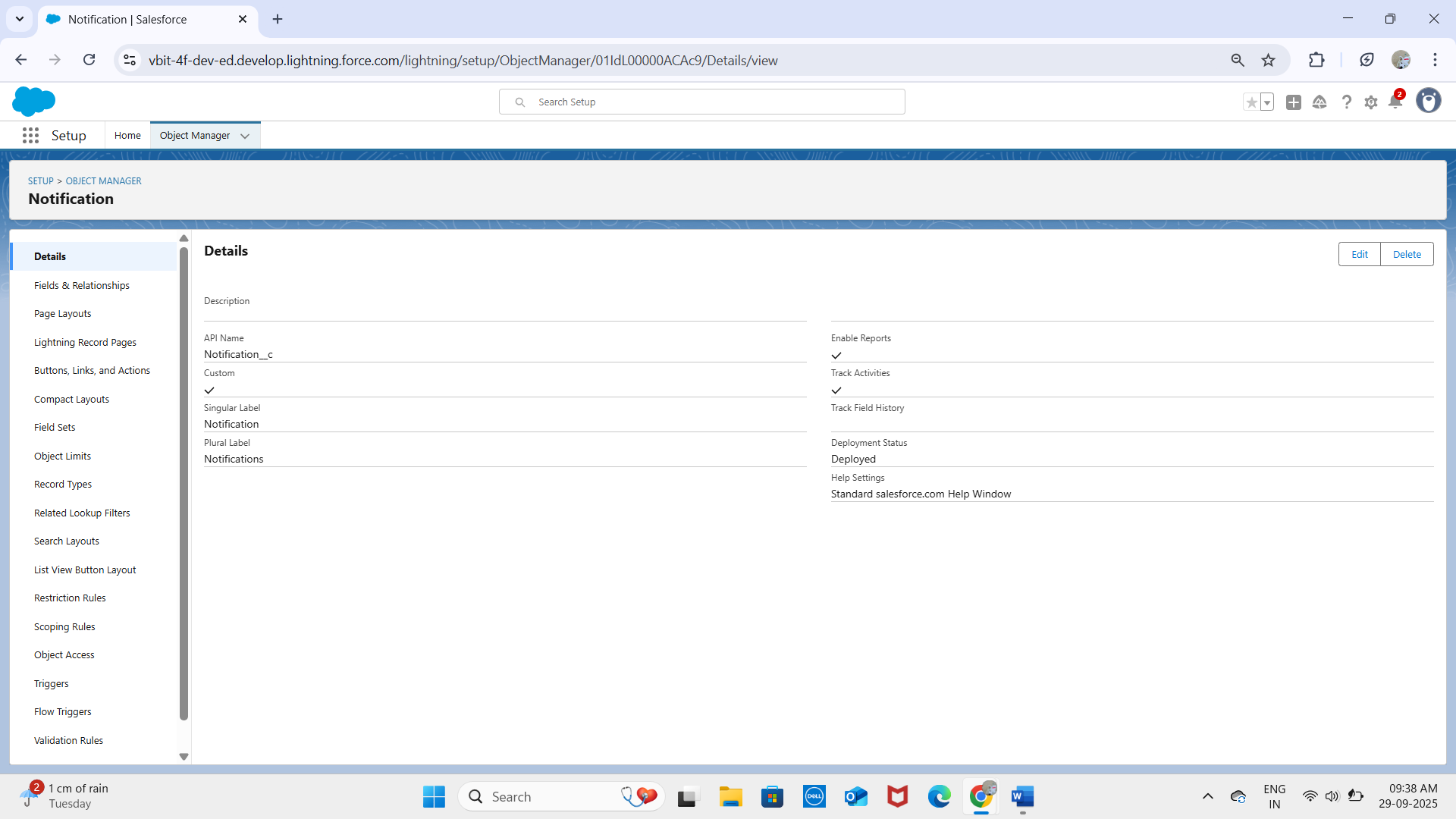


- **Route\_\_c:** Holds optimized route details for delivery assignments.

  
- **Delivery\_Exception\_\_c**: Captures failed or delayed deliveries and rescheduling information.



- **Notifications\_\_c:** Stores automated communication alerts sent to customers.

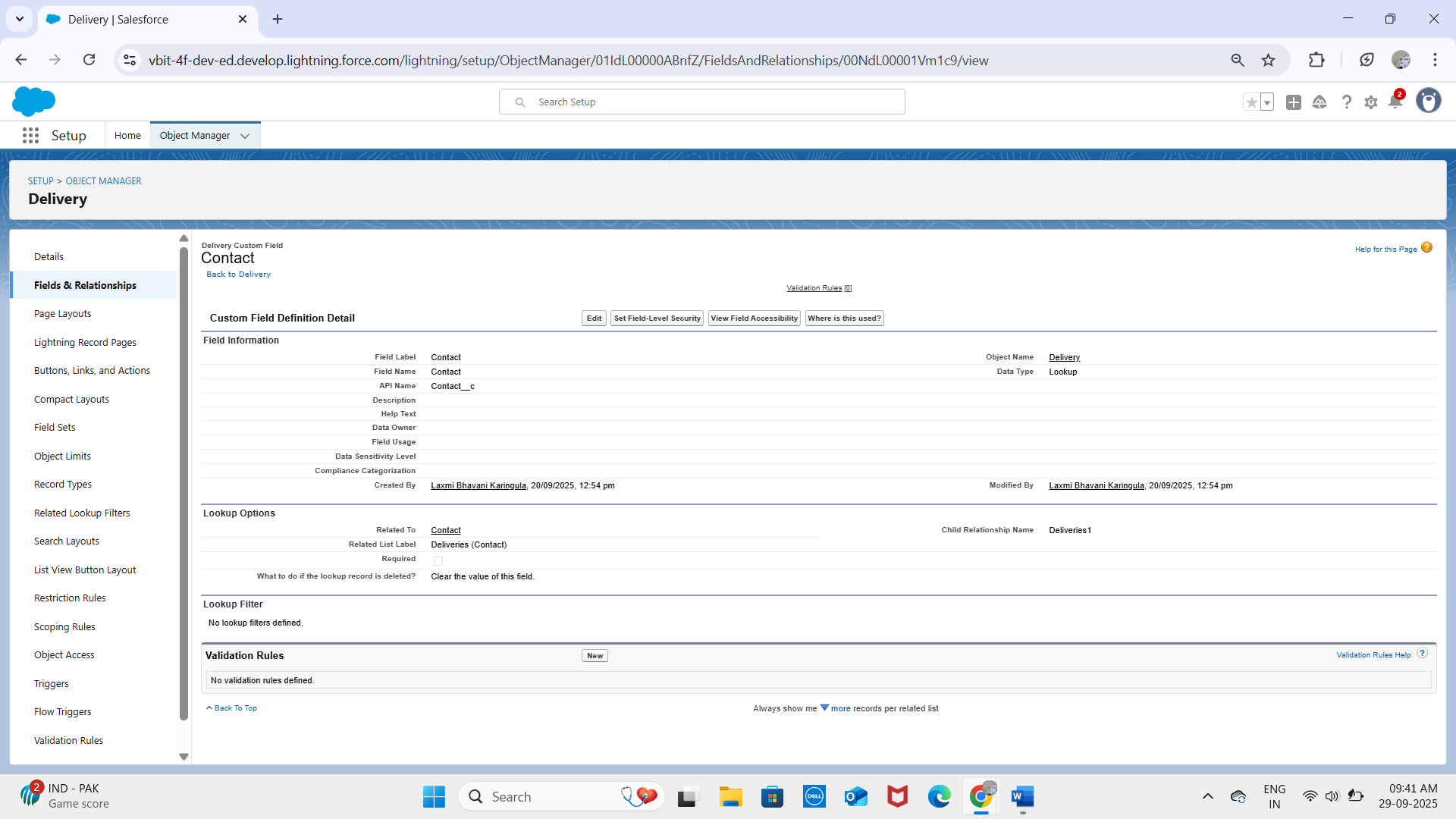


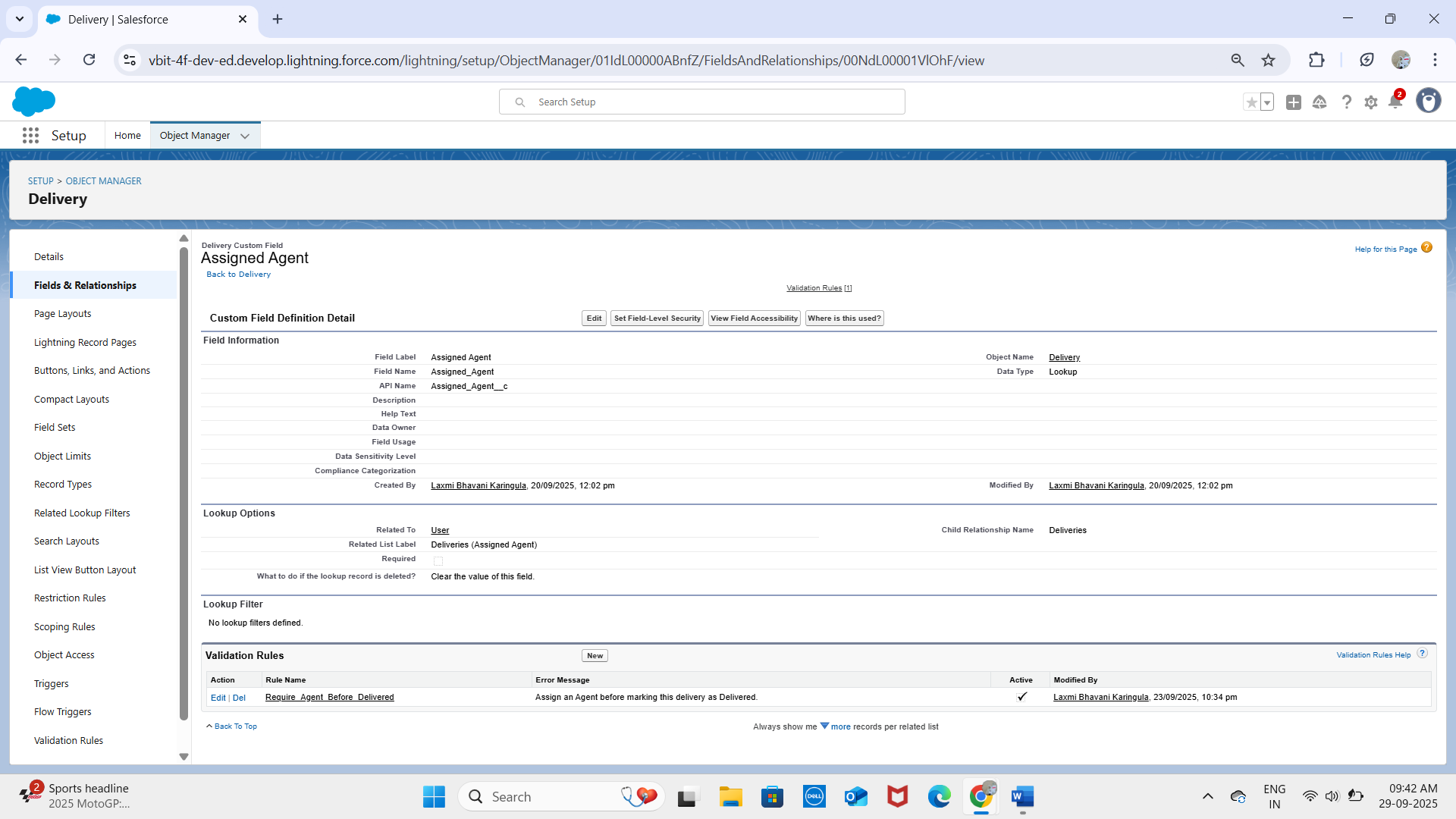
## Fields & Relationships

Custom fields capture the logistics data required to manage deliveries, while relationships link the objects together.

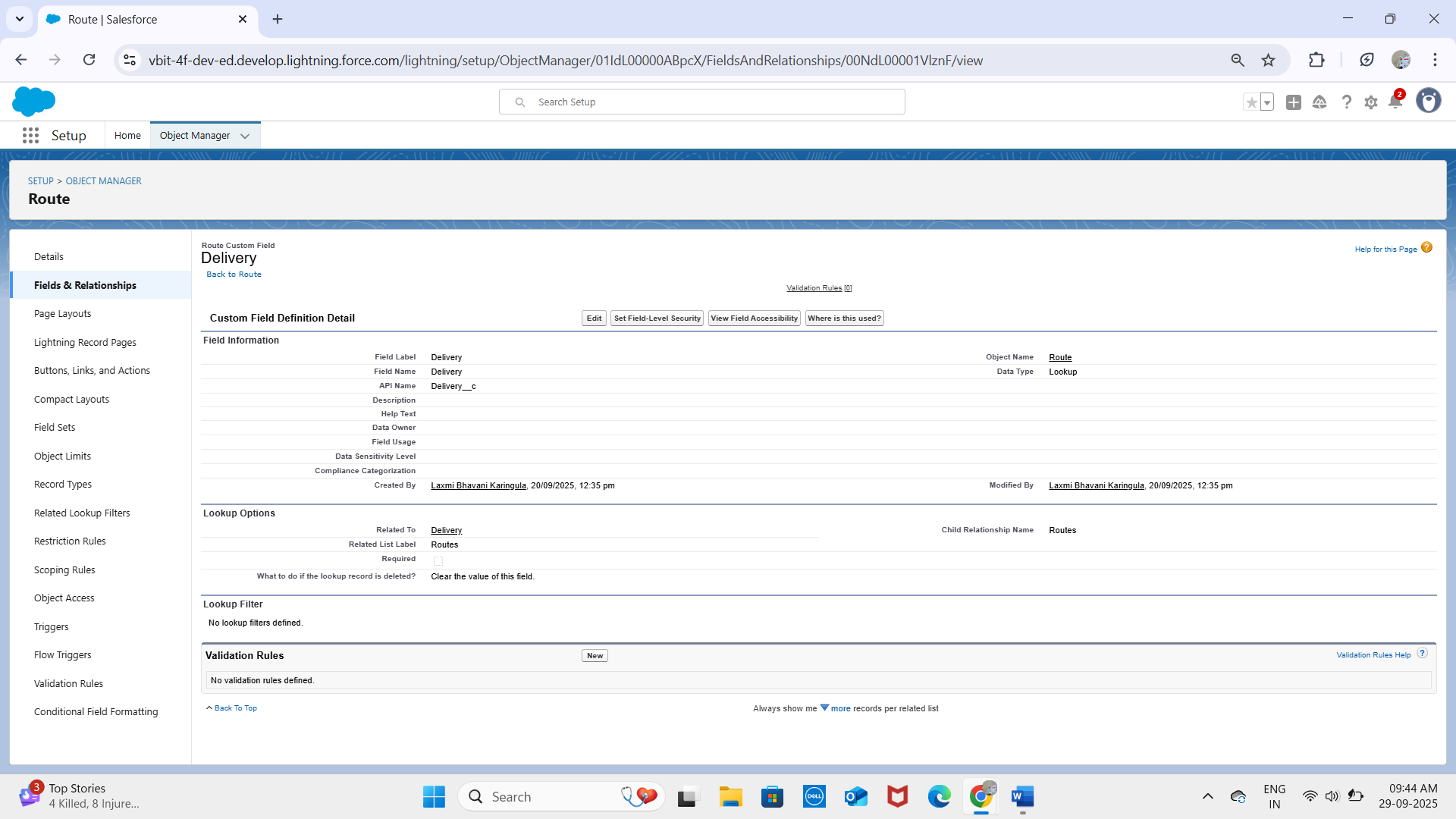
**Relationships:**

- Delivery\_\_c → Lookup to Contact (Customer placing the delivery).

  
- **Delivery\_\_c** → Lookup to User (Assigned Delivery Agent).

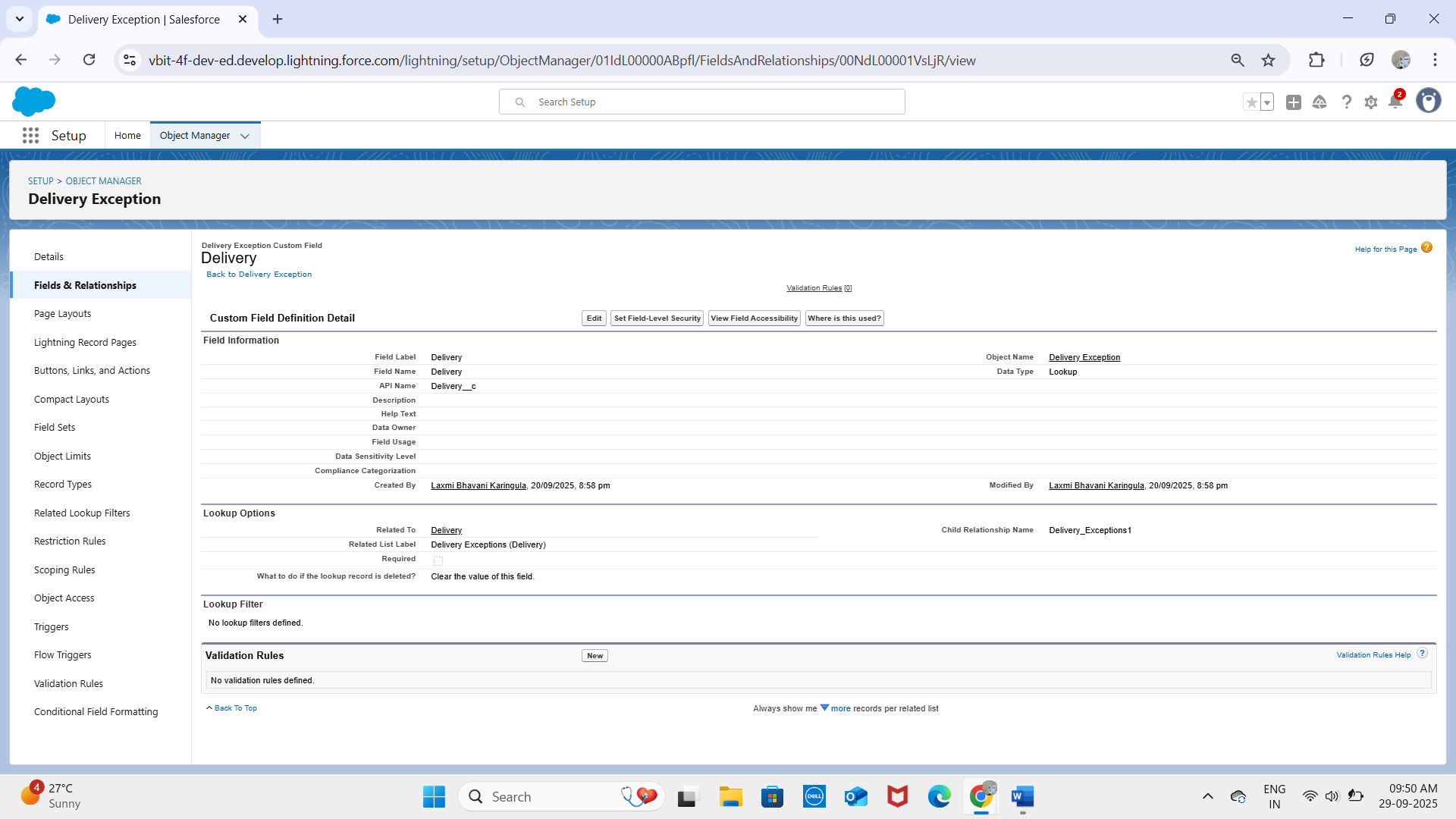


- **Route\_\_c** → Lookup with Delivery\_\_c

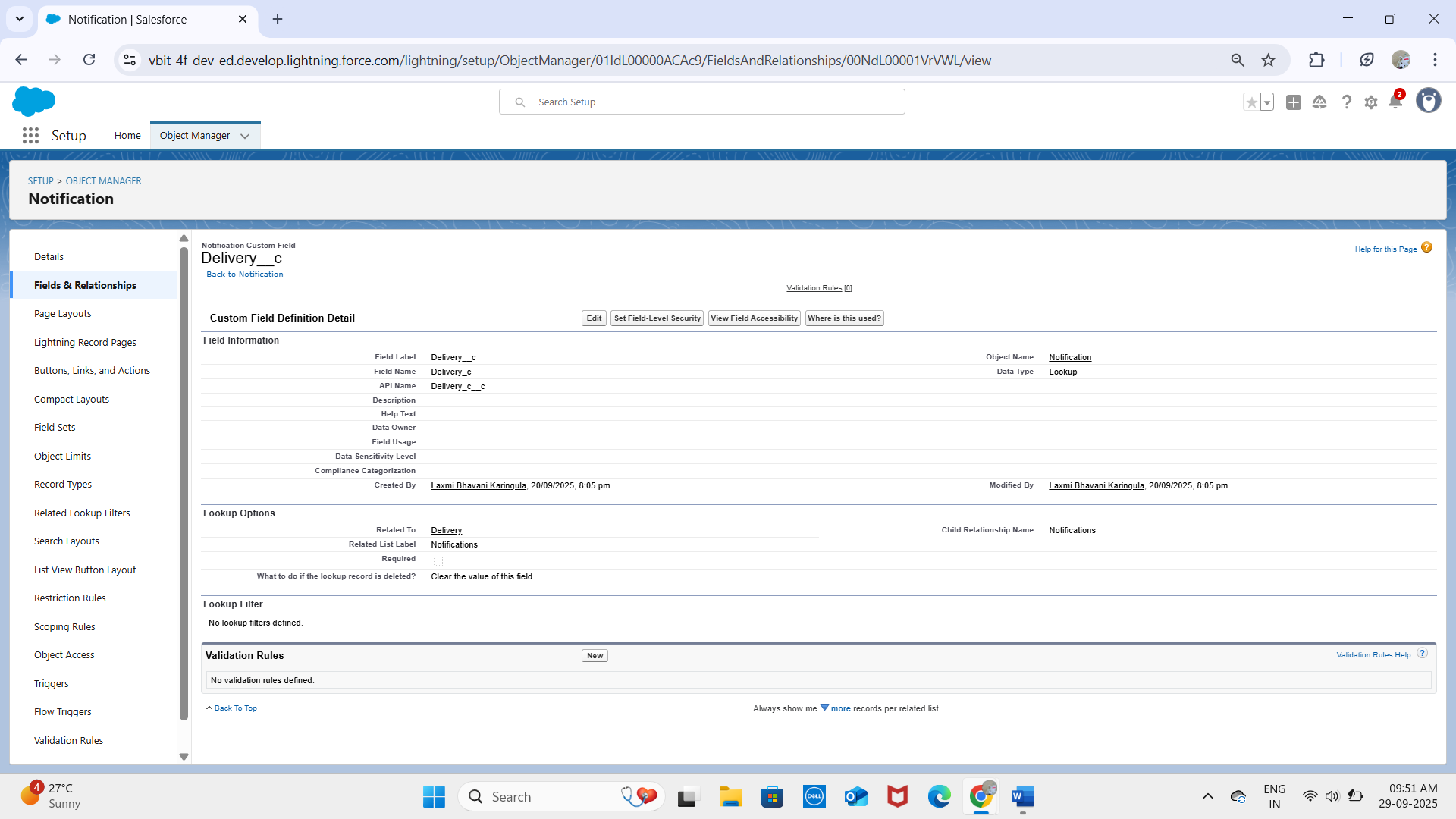


(one route may cover multiple deliveries).

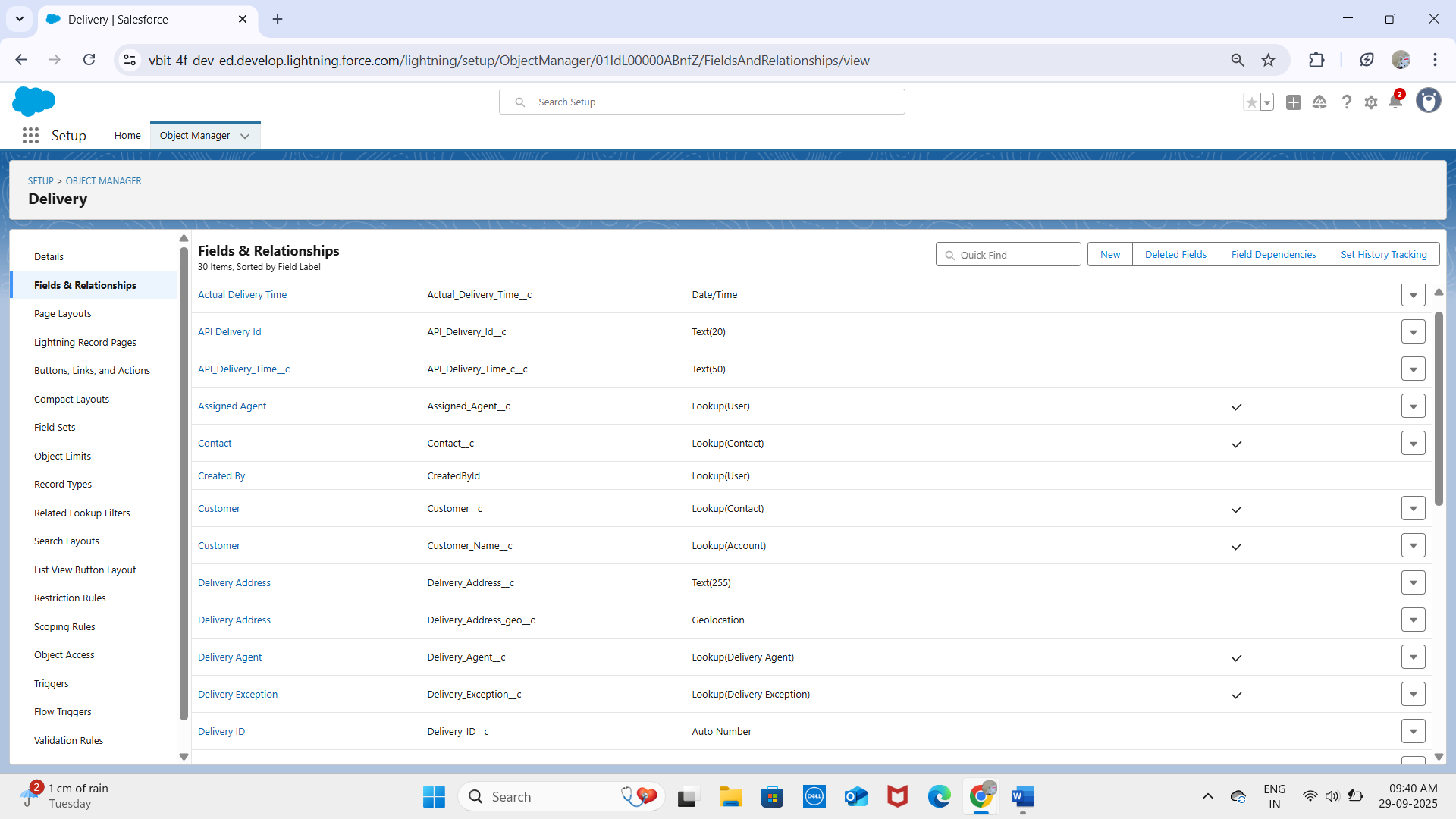
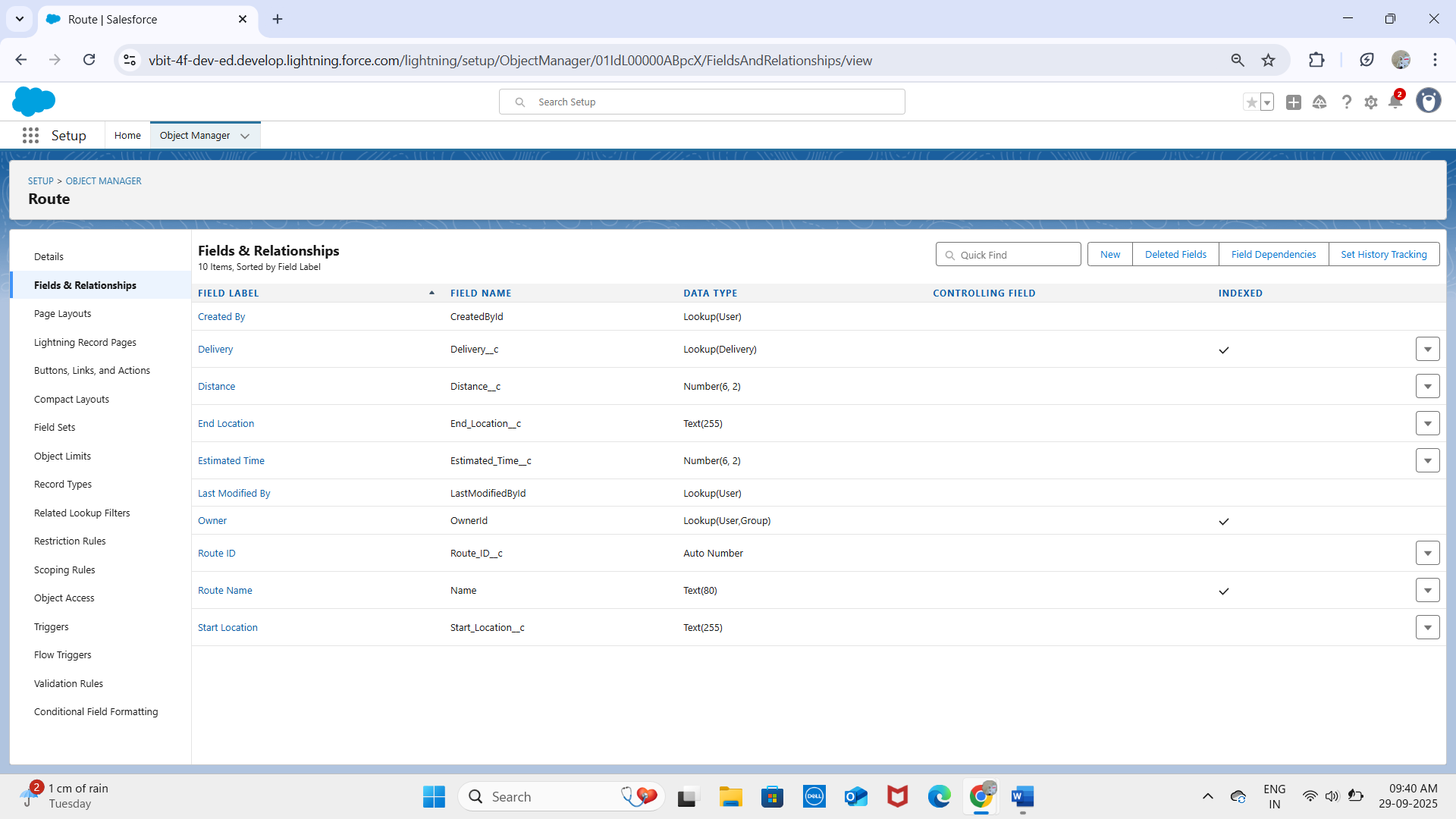
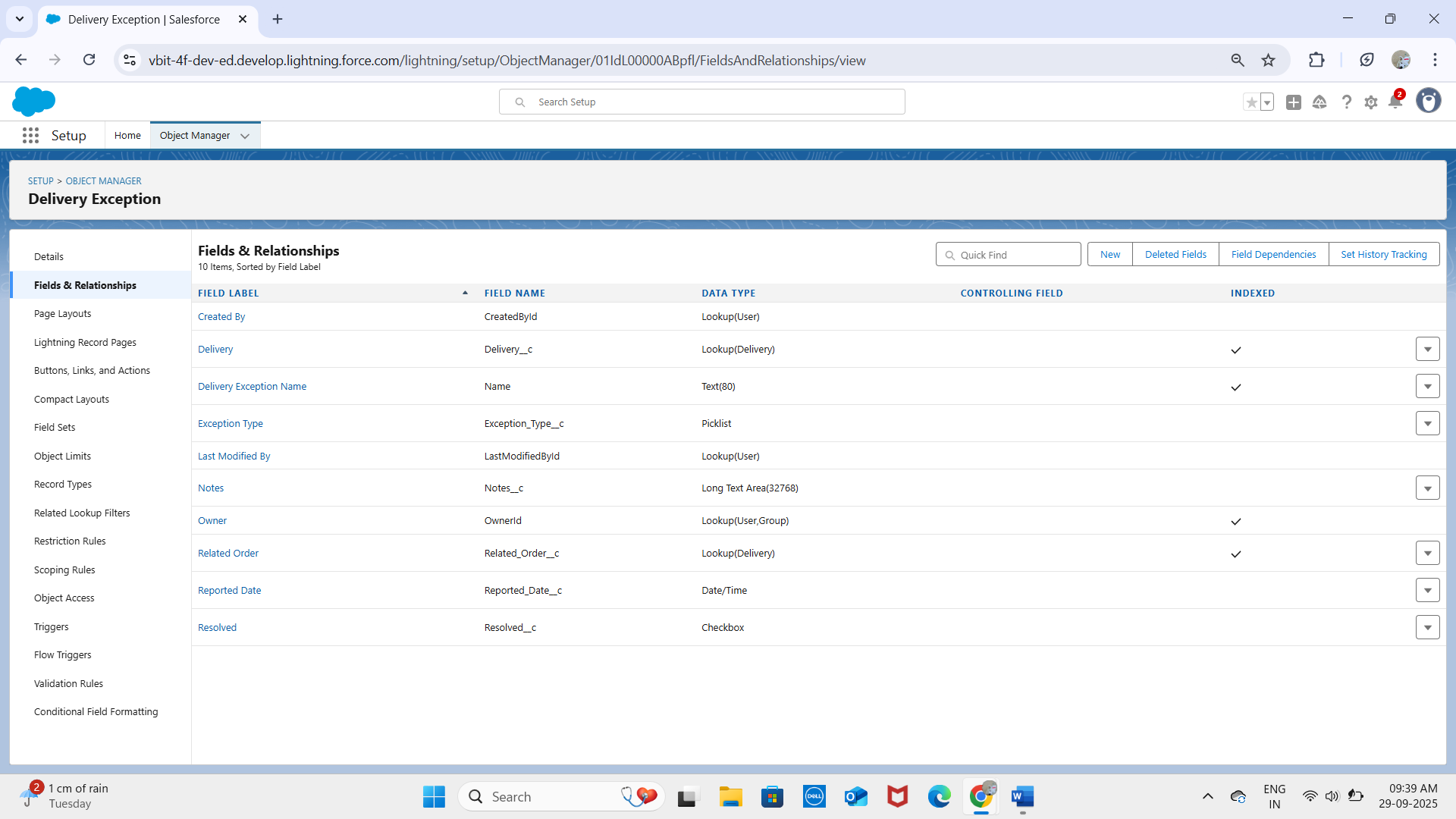
- **Delivery\_Exception\_\_c** → Lookup to Delivery\_\_c (each exception tied to a specific delivery).

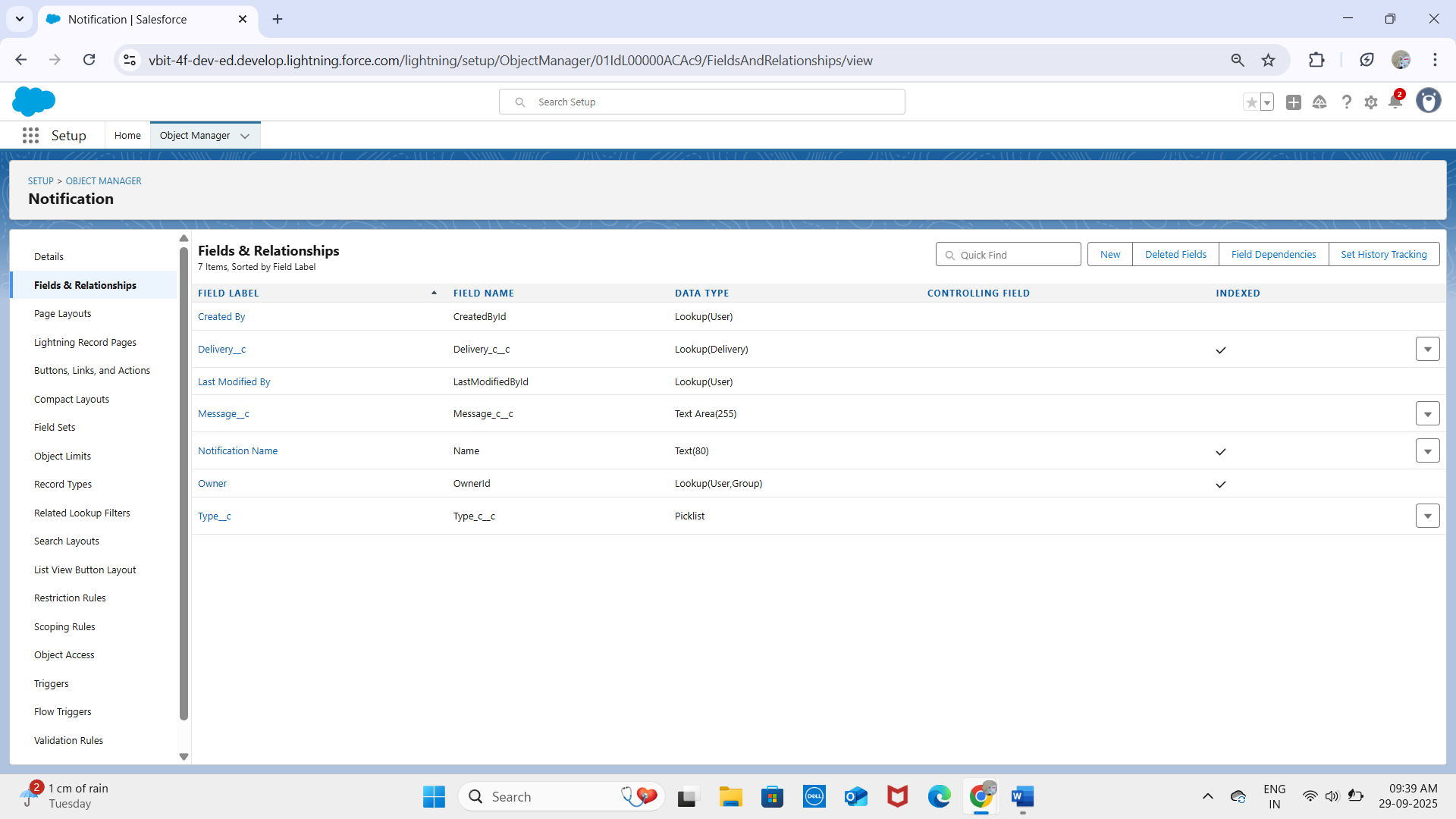


- **Notifications\_\_c** → Lookup to Delivery\_\_c (notifications linked to delivery record).



**Custom Fields:**

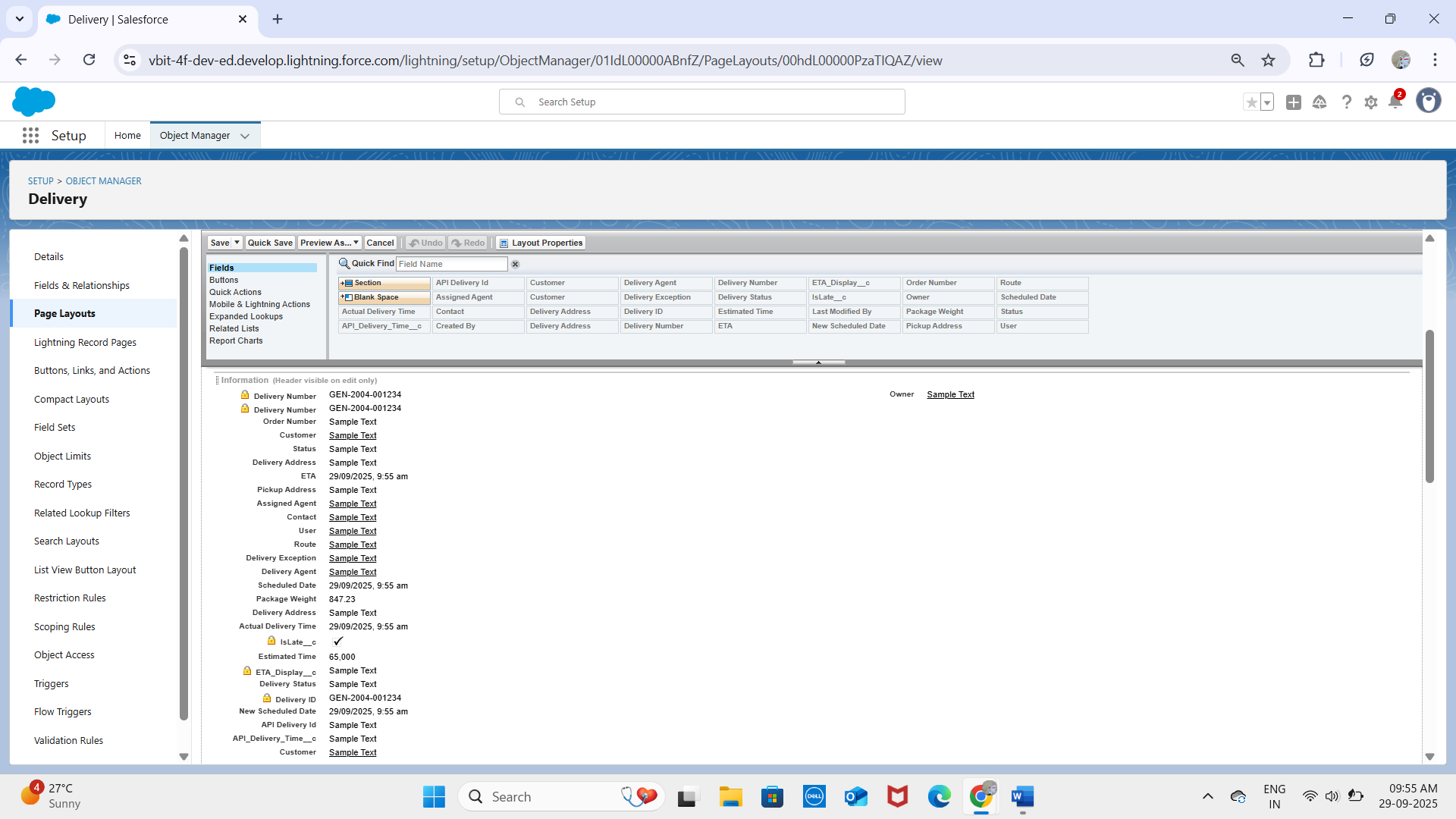
**On Delivery\_\_c:**   
- Delivery\_Number\_\_c (Auto Number)  
- Delivery\_Status\_\_c (Picklist: Scheduled, In Transit, Delivered, Failed)  
- Scheduled\_Time\_\_c (Date/Time)  
- Actual\_Delivery\_Time\_\_c (Date/Time)  
- Customer\_\_c (Lookup to Account)  
- Assigned\_Agent\_\_c (Lookup to User)  
  
**On Route\_\_c:**   
- Name (Text)  
-Distance\_\_c (Number)  
- Estimated\_Time\_\_c (Number)  
  
**On Delivery\_Exception\_\_c:**   
- Exception\_Type\_\_c (Picklist: Delay, Customer Not Available, Traffic, Weather)  
- Exception\_Details\_\_c (Text Area)  
- Rescheduled\_Time\_\_c (Date/Time)

**On Notifications\_\_c:**   
- Type\_\_c (Picklist: SMS, Email, In-App)  
- Message\_c\_\_c (Text Area)

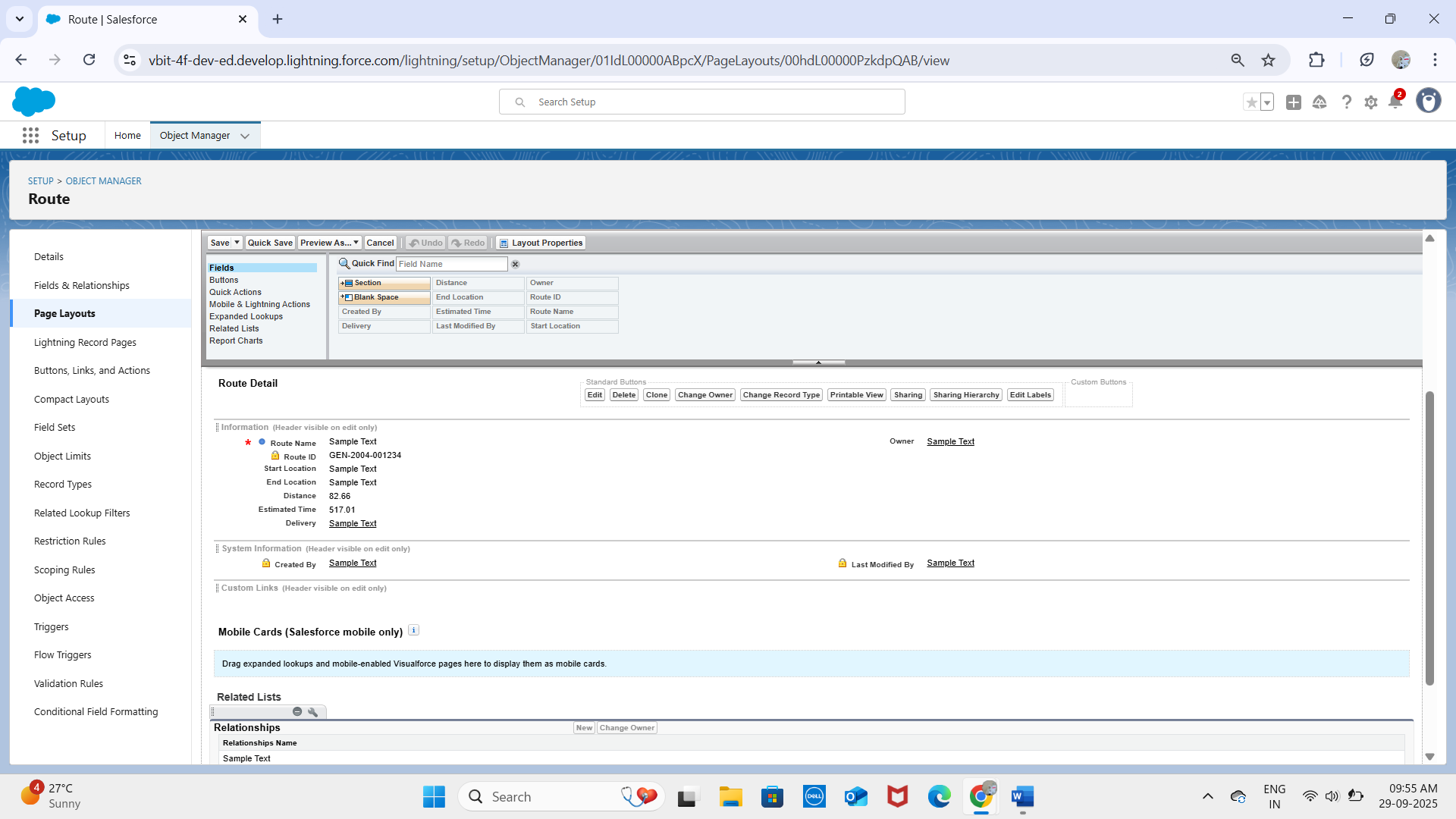
## User Interface & Layouts

Page Layouts: Custom layouts were created for Delivery, Route, Exception, and Notifications to display relevant fields and related lists clearly for different roles (Agents, Managers, Service Staff).

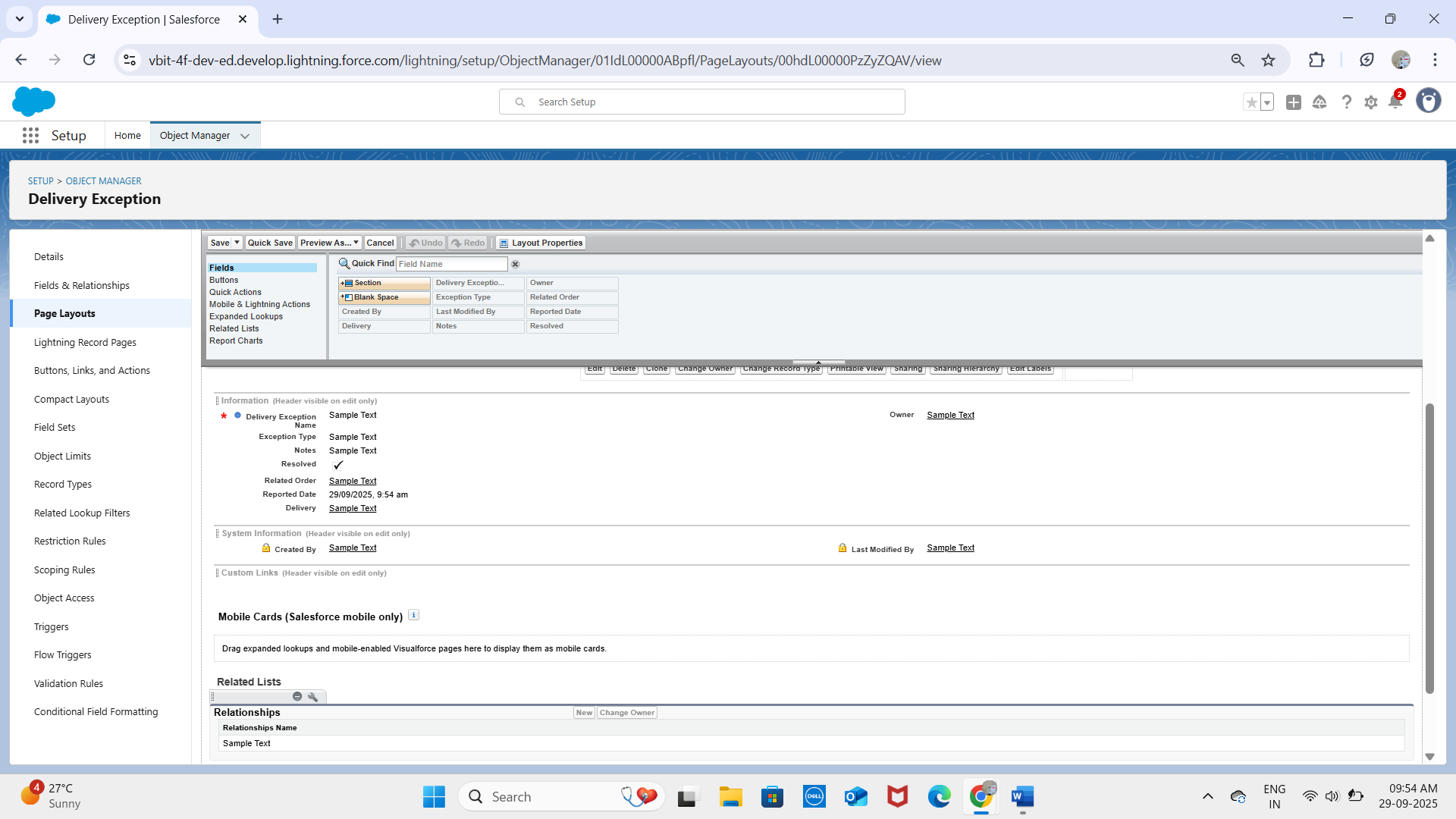
**Delivery Layout:**



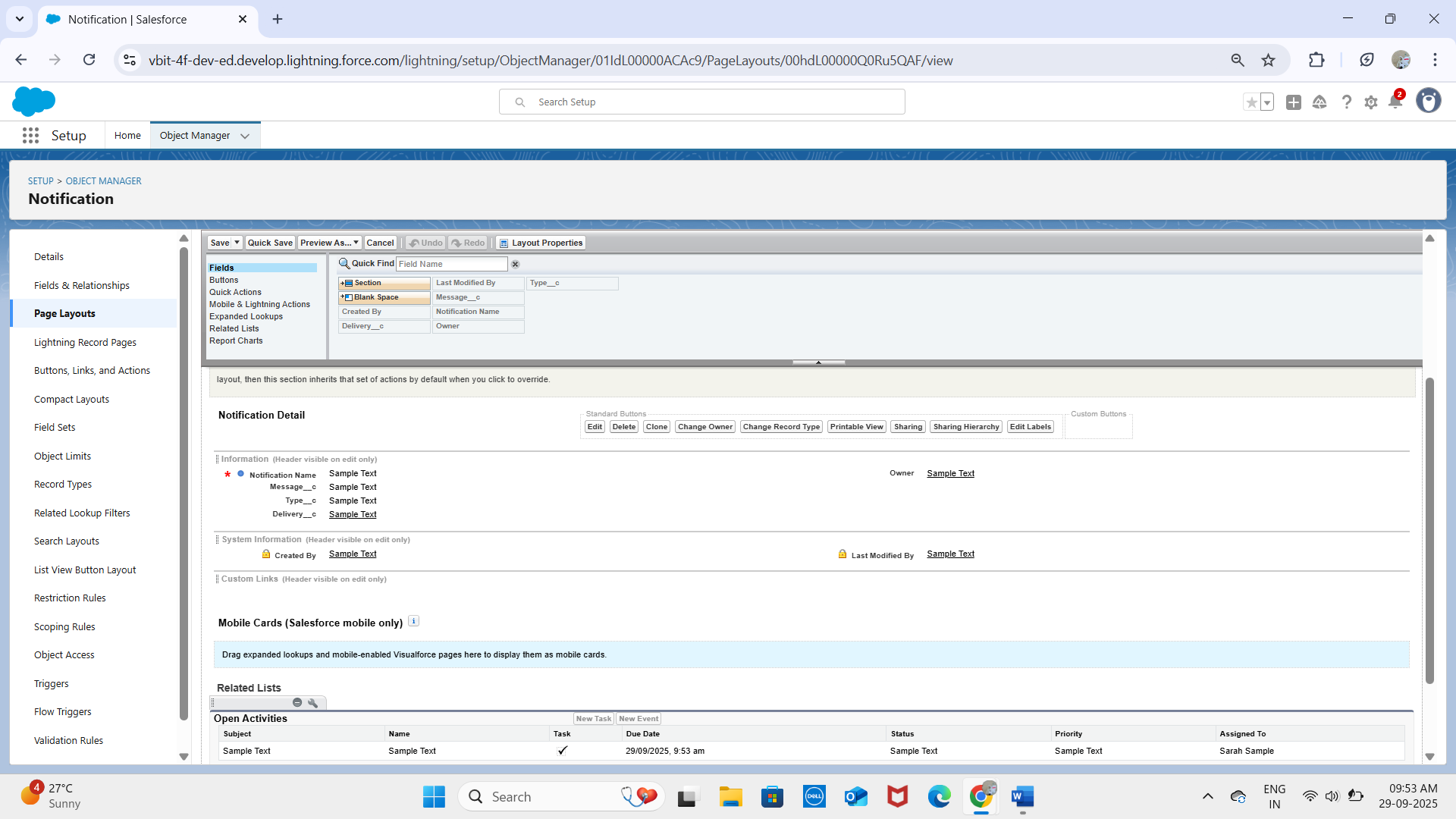
**Route Layout:**

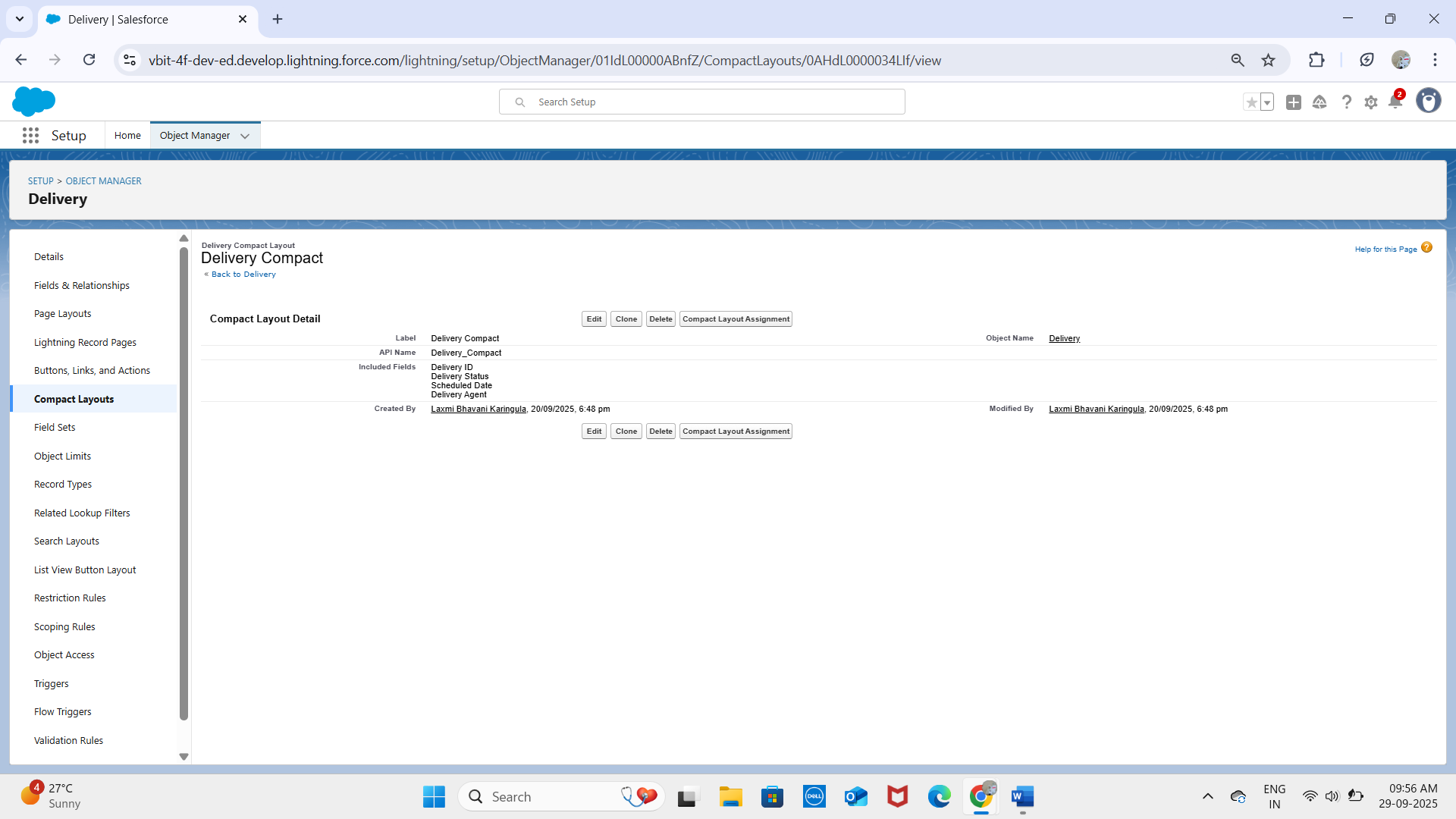


**Delivery Exception Layout:**



**Notification Layout:**

  
**Compact Layouts:** Configured for Delivery\_\_c to show Delivery Number, Status, and Scheduled Time in highlights panel. Other compact layouts created for Route\_\_c and Delivery\_Exception\_\_c.

  
  
Record Types: Not required in the initial phase but can be added later to distinguish different delivery types (e.g., Standard Delivery, Express Delivery).

## Data Architecture

Schema Builder: Used to visualize all objects and their relationships, showing Account and User at the center with custom objects linked for deliveries, routes, and notifications.  
  
Junction Objects: Not required for the current design. However, if a Delivery\_\_c could belong to multiple routes, a junction object such as Delivery\_Route\_Assignment\_\_c would be created with master-detail relationships to both Delivery\_\_c and Route\_\_c.