

Project: Disaster Relief Resource Management CRM (ReliefConnect)

PHASE 3: Data Modeling & Relationships

Introduction

In this phase, I built the architectural core of the ReliefConnect application. I defined and implemented the digital skeleton with the objects, fields, and relationships that will hold all critical information. I designed the data model to be scalable, efficient, and intuitive to support the disaster management system.

Standard & Custom Objects

To build the database structure, I used a combination of standard Salesforce objects and custom objects that I built specifically for the project's needs.

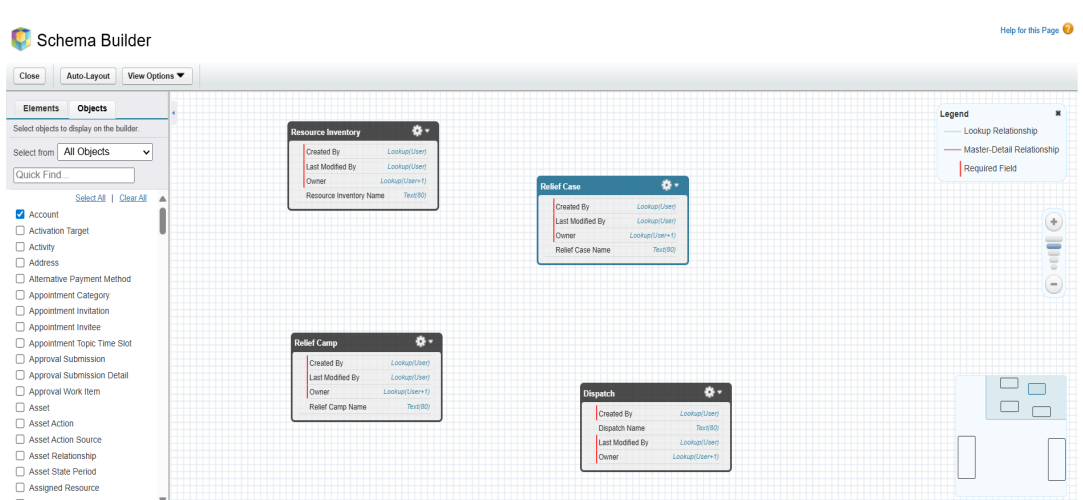
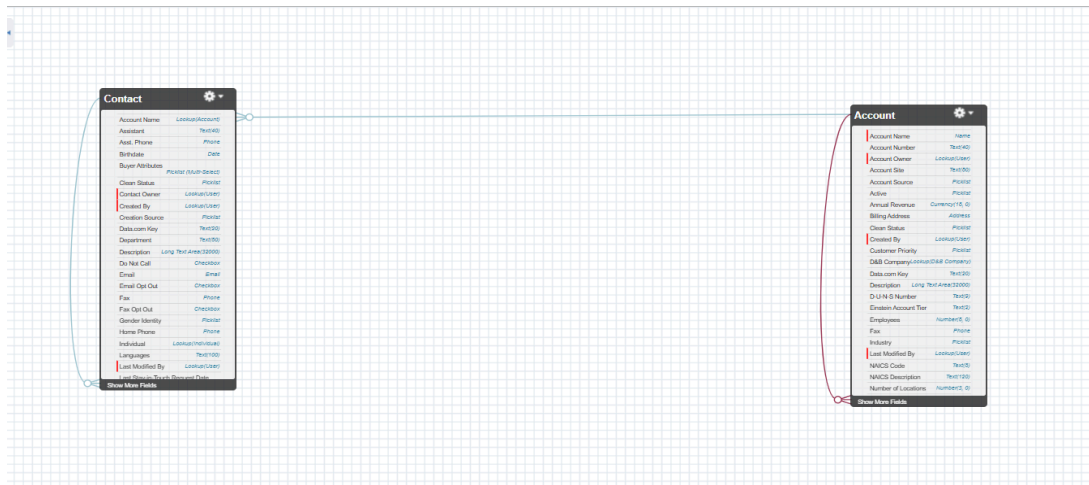
Standard Objects I Used:

- **Account:** I used this to store and manage organizations like NGOs, Government Agencies, and Corporate Donors.
- **Contact:** I configured this object to store details of individuals associated with Accounts, such as volunteers and agency officials.
- **Campaign:** I utilized Campaigns to track and manage specific, large-scale relief efforts (e.g., "Gujarat Flood Response 2025").
- **User:** I used this object to manage the internal Salesforce users for the system.

Custom Objects I Built:

- **Relief Case (**Relief_Case__c**):** I built this as the central object of the application. Each record represents a specific, actionable need logged from the field.
- **Resource Inventory (**Resource_Inventory__c**):** I created this object to track the tangible relief supplies available from various NGOs or warehouses.
- **Dispatch (**Dispatch__c**):** I designed this as a junction object to connect a **Relief_Case__c** to **Resource_Inventory__c** items, acting as a fulfillment record.


- **Relief Camp (Camp__c):** I built this object to represent a physical relief camp, holding details like location coordinates and capacity.









Fields & Data Types

I created the following critical fields for the core **Relief_Case__c** object.

Field Label	API Name	Data Type	Purpose & Description I Defined
Case ID	Case_ID__c	Auto-Number	A unique, system-generated identifier for each relief case.
Status	Status__c	Picklist	Tracks the case lifecycle: New, Assigned, In Progress, Fulfilled, Closed.
Urgency Level	Urgency_Level__c	Picklist (Formula)	Automatically calculated. Values: Critical, High, Medium, Low.
Category	Category__c	Picklist	The type of aid required: Medical, Food/Water, Shelter, Infrastructure.
Location	Location__c	Geolocation	GPS coordinates of where the need is, crucial for mapping and routing.
# People Affected	People_Affected__c	Number	The number of individuals who require this aid.
Reported By	Reported_By__c	Lookup(User)	The field volunteer who logged the case.
Related Camp	Related_Camp__c	Lookup(Camp__c)	The relief camp this case is associated with.
Victim Information	Victim_Info__c	Text Area (Encrypted)	A secure field for sensitive personal information.



Search Setup



SetupHomeObject Manager

SETUP > OBJECT MANAGER

Relief Case

Details

Fields & Relationships

11 Items, Sorted by Field Label

Q Quick Find

NewDeleted FieldsField DependenciesSet History Tracking

# People Affected	People_Affected__c	Number(18, 0)	
Case ID	Case_ID__c	Auto Number	
Category	Category__c	Picklist	
Created By	CreatedById	Lookup(User)	
Last Modified By	LastModifiedById	Lookup(User)	
Location	Location__c	Geolocation	
Owner	OwnerId	Lookup(User,Group)	✓
Relief Case Name	Name	Text(80)	✓
Status	Status__c	Picklist	
Urgency Level	Urgency_Level__c	Picklist	
Victim Information	Victim_Information__c	Long Text Area(131072)	

Record Types & Page Layouts

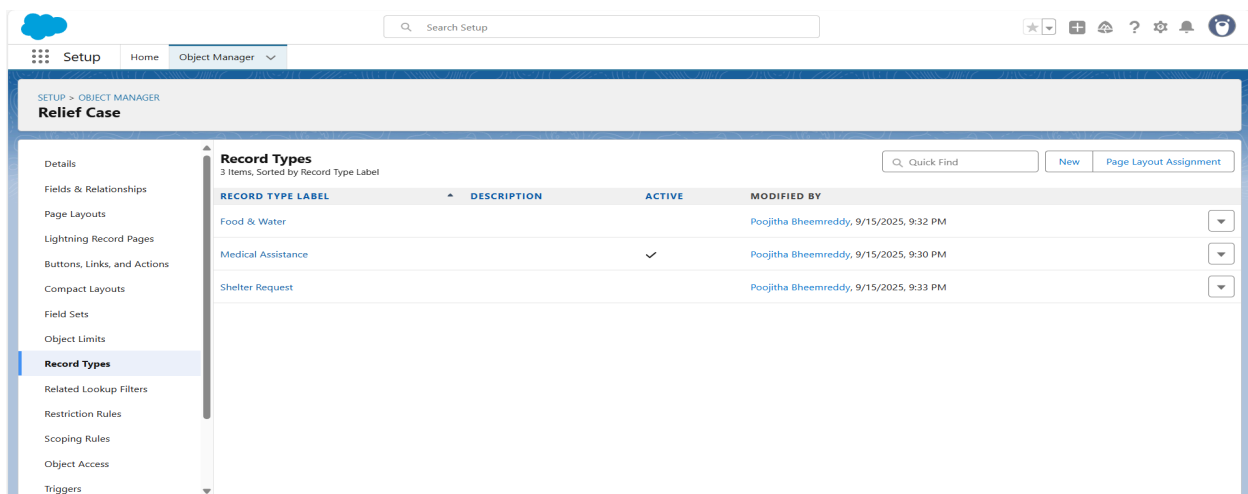
Recognizing that not all relief cases are the same, I created Record Types and Page Layouts to build customized user experiences for different scenarios.

Record Types for Relief Case: To ensure the right data is collected from the start, I created the following Record Types for the **Relief_Case__c** object:

- Medical Assistance
- Food & Water
- Shelter Request
- Infrastructure Support

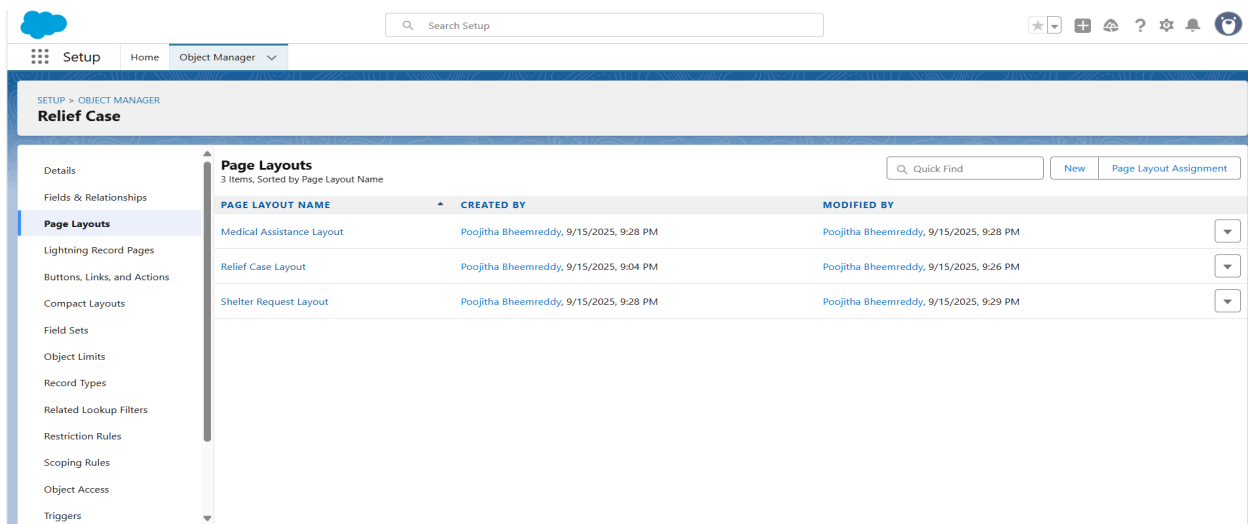
Custom Page Layouts: I assigned a unique Page Layout to each Record Type, showing only the most relevant fields. For example:

- I designed the **Medical Assistance Layout** to feature a prominent section for "Patient Details" and required fields like "Type of Medicine Needed."
- I designed the **Shelter Request Layout** to have a section for "Housing Requirements" with fields like "Number of Tents Required."



This screenshot shows the Salesforce Setup interface for the 'Relief Case' object. The left sidebar contains a navigation menu with options like Details, Fields & Relationships, Page Layouts, Lightning Record Pages, Buttons, Links, and Actions, Compact Layouts, Field Sets, Object Limits, Record Types (selected), Related Lookup Filters, Restriction Rules, Scoping Rules, Object Access, and Triggers. The main content area is titled 'Record Types' and shows a table with 3 items, sorted by Record Type Label. The table has columns for Record Type Label, Description, Active, and Modified By. The items listed are Food & Water, Medical Assistance, and Shelter Request. The Medical Assistance record is marked as active with a checkmark.

RECORD TYPE LABEL	DESCRIPTION	ACTIVE	MODIFIED BY
Food & Water			Poojitha Bheemreddy, 9/15/2025, 9:32 PM
Medical Assistance		✓	Poojitha Bheemreddy, 9/15/2025, 9:30 PM
Shelter Request			Poojitha Bheemreddy, 9/15/2025, 9:33 PM



This screenshot shows the Salesforce Setup interface for the 'Relief Case' object, specifically the 'Page Layouts' section. The left sidebar is the same as the previous screenshot, but 'Page Layouts' is selected in the navigation menu. The main content area is titled 'Page Layouts' and shows a table with 3 items, sorted by Page Layout Name. The table has columns for Page Layout Name, Created By, and Modified By. The items listed are Medical Assistance Layout, Relief Case Layout, and Shelter Request Layout. All records were created by Poojitha Bheemreddy.

PAGE LAYOUT NAME	CREATED BY	MODIFIED BY
Medical Assistance Layout	Poojitha Bheemreddy, 9/15/2025, 9:28 PM	Poojitha Bheemreddy, 9/15/2025, 9:28 PM
Relief Case Layout	Poojitha Bheemreddy, 9/15/2025, 9:04 PM	Poojitha Bheemreddy, 9/15/2025, 9:26 PM
Shelter Request Layout	Poojitha Bheemreddy, 9/15/2025, 9:28 PM	Poojitha Bheemreddy, 9/15/2025, 9:29 PM

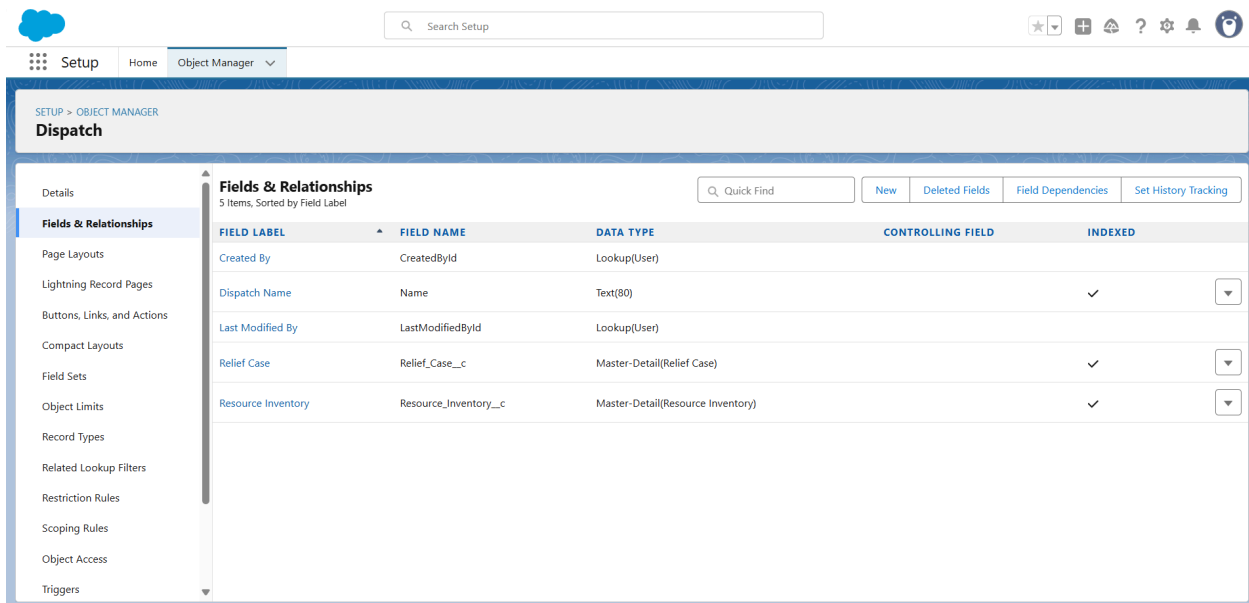
The Schema Builder

I used the Schema Builder to create a visual representation of the entire data model I built, showing all objects and their relationships in one place. This served as the blueprint of the application.

Relationships Explained

I chose the right relationship types to ensure data integrity and security.

- **Lookup (Loosely Coupled):** I used this basic relationship to link two objects while keeping them independent.
 - **Example:** I created a lookup from **Relief_Case__c** to **Camp__c**. The case is related to the camp, but the case record can still exist on its own if the camp is deleted.
- **Master-Detail (Tightly Coupled):** I created this strong parent-child relationship where the child record cannot exist without the parent.
 - **Example:** I set up a master-detail relationship from the **Dispatch__c** object to **Relief_Case__c**. A dispatch record is meaningless without the case it is fulfilling.
- **Junction Object (Many-to-Many):** I used a junction object for many-to-many relationships.
 - **Example:** The **Dispatch__c** object I built acts as a bridge, creating a many-to-many relationship between **Relief_Case__c** and **Resource_Inventory__c**.



The screenshot displays the Salesforce Schema Builder interface. The top navigation bar includes a search bar labeled 'Search Setup' and various utility icons. The left sidebar shows a menu with options like 'Setup', 'Home', and 'Object Manager'. The main content area is titled 'SETUP > OBJECT MANAGER Dispatch' and features a 'Fields & Relationships' section. This section contains a table with 5 items, sorted by Field Label. The table has columns for FIELD LABEL, FIELD NAME, DATA TYPE, CONTROLLING FIELD, and INDEXED. The items listed are: 'Created By' (CreatedBy, Lookup(User)), 'Dispatch Name' (Name, Text(80)), 'Last Modified By' (LastModifiedBy, Lookup(User)), 'Relief Case' (Relief_Case__c, Master-Detail(Relief Case)), and 'Resource Inventory' (Resource_Inventory__c, Master-Detail(Resource Inventory)).

FIELD LABEL	FIELD NAME	DATA TYPE	CONTROLLING FIELD	INDEXED
Created By	CreatedBy	Lookup(User)		
Dispatch Name	Name	Text(80)		✓
Last Modified By	LastModifiedBy	Lookup(User)		
Relief Case	Relief_Case__c	Master-Detail(Relief Case)		✓
Resource Inventory	Resource_Inventory__c	Master-Detail(Resource Inventory)		✓

The screenshot shows the 'Relief Case' object configuration in Salesforce Setup. The 'Fields & Relationships' tab is active, displaying 13 items sorted by field label. The left sidebar shows the navigation menu with 'Fields & Relationships' selected. The main table lists the following fields:

Field Label	Field Name	Field Type	Required	Field Format
Created By	CreatedById	Lookup(User)		
Last Modified By	LastModifiedById	Lookup(User)		
Location	Location__c	Geolocation		
Owner	OwnerId	Lookup(User,Group)	✓	
Relief Camp	Relief_Camp__c	Lookup(Relief Camp)	✓	
Relief Case Name	Name	Text(80)	✓	
Reported By	Reported_By__c	Lookup(User)	✓	
Status	Status__c	Picklist		
Urgency Level	Urgency_Level__c	Picklist		
Victim Information	Victim_Information__c	Long Text Area(131072)		

✚ Advanced & External Data

- **Compact Layouts:** I customized the compact layouts for key objects to show information at a glance in the mobile app. For **Relief_Case__c**, I set it to show the Status, Urgency Level, and Location.
- **Hierarchical Relationships:** I identified that this special relationship could be used in a future phase to model escalation paths for high-urgency cases.
- **External Objects:** I identified a potential use case for External Objects to connect to a live feed from the India Meteorological Department (IMD), allowing for real-time weather warnings within the application.

The screenshot shows the 'New Relief Case: Medical Assistance' form in Salesforce. The form is titled 'New Relief Case: Medical Assistance' and includes a 'Required Information' section. The form fields are as follows:

- Relief Case Name:** A text field with a red border and a red 'X' icon, indicating it is required and currently empty. Below it, the text 'Complete this field.' is displayed.
- Owner:** A dropdown menu showing 'Poojitha Bheemreddy'.
- Case ID:** A text field.
- Status:** A dropdown menu with '--None--' selected.
- Urgency Level:** A dropdown menu with '--None--' selected.
- Category:** A dropdown menu with '--None--' selected.
- Location:** Two text fields for 'Latitude' and 'Longitude'.

At the bottom of the form, there is a 'People Affected' section and three buttons: 'Cancel', 'Save & New', and 'Save'.

Sales

Home

Opportunities

Relief Cases

Recently Viewed

0 items • Updated a few seconds ago

Search...

Relief Cases

More

Import

Change Owner

Assign Label

--None--

Urgency Level

--None--

Category

--None--

Location

Latitude

Longitude

People Affected

Victim Information

Reported By

Search People...

Relief Camp

Search Relief Camps...

Cancel

Save & New

Save

To Do List