

# Implementing Warehousing

Warehousing introduces the concept of physical storage locations for assets and items, allowing better tracking of where **inventory is stored, moved, and managed**. This enhances accuracy, supports multi-location operations, and integrates with your approval workflows for actions like stock transfers or adjustments.

## 1. Key Concepts in Warehousing

- **Warehouse:** A top-level storage facility (e.g., "Main Warehouse" or "Branch Warehouse").
- **Location/Bin:** Sub-divisions within a warehouse (e.g., shelves, aisles, or bins like "Aisle 1, Shelf 2").
- **Stock Movement:** Tracking item quantities in specific locations, including transfers between locations.
- **Integration Points warehouse-specific inventory :track quantities per location**
  - Asset items will now have location associations.
  - Inventory **MoveOrder** will specify locations and trigger approvals if needed.
  - Approval flows can be extended for warehouse-specific actions (e.g., approving a stock transfer).

## 2. Database Schema Updates

Extend your existing database to support warehousing. Add new tables and relationships.

### New Tables

- **Warehouses:**
  - ID (Primary Key, Auto-increment)
  - Name (e.g., "Central Warehouse")
  - Address (Text)
  - Status (Active/Inactive)
- **Locations** (Bins or Zones within a Warehouse):
  - ID (Primary Key, Auto-increment)
  - WarehouseID (Foreign Key to Warehouses.ID)
  - Name (e.g., "Bin A-01")
  - Type (e.g., "Shelf", "Pallet", "Bulk")

- Capacity (Optional: Max quantity it can hold)
- **ItemLocations** (Tracks quantity of items in specific locations):
  - ID (Primary Key, Auto-increment)
  - AssetItemID (Foreign Key to your existing AssetItems table)
  - LocationID (Foreign Key to Locations.ID)
  - Quantity (Integer: Current stock level)

## Updates to Existing Tables

- Add to **AssetItems**:
  - DefaultLocationID (Foreign Key to Locations.ID, optional—for primary storage)
- Add to **MoveOrder** :
  - FromLocationID (Foreign Key to Locations.ID)
  - ToLocationID (Foreign Key to Locations.ID, for transfers)
  - WarehouseID (Foreign Key to Warehouses.ID)

This allows queries like: "Show all items in Warehouse X" or "Adjust stock from Bin A to Bin B."

## 4. Business Logic and Workflow Updates

- **Inventory MoveOrder**: Modify existing adjustment logic to require location selection. If an adjustment involves movement, use the Stock Transfer form and approval flow.
- **Asset Item Creation/Update**: When adding a new asset item, prompt for initial location (default to a main warehouse).
- **Approval Flows**: Extend for warehousing:
  - New approval types: "Warehouse Creation", "Stock Transfer".
  - Rules: E.g., transfers over 100 units require manager approval.
  - Notifications: Email/SMS when stock in a location falls below a threshold.
- **Validation Rules**:
  - Prevent negative quantities in locations.
  - Check location capacity before adding stock.
  - Audit logs: Track all movements with user ID and timestamp.
- **Reporting**: Add warehouse-specific reports, e.g., "Stock by Location" or "Movement History".

## Stock Transfer Workflow

