Backend API Specification & Updated Prisma Schema

1. Introduction

This document provides the detailed backend API endpoints and the updated Prisma schema required for the Herbal Supply Chain project. It includes authentication, organization, batch management, supply chain events, document management, device registration, analytics, and audit logging modules.

2. Updated Prisma Schema

The following changes have been applied to the original Prisma schema to support additional features such as QR code tracking, audit logging, RBAC, and offline device management.

- User:
    * Added 'refreshToken' for JWT rotation.
    * Added 'rolePermissions' JSON? for role-based access control.

- RawMaterialBatch:
    * Added 'batchQRId' String? for QR code integration.
    * Added 'locationHistory' JSON? for custody transfer logs.

- Document:
    * Added 'uploadedBy' String? for storing uploader userId.

- SpeciesRule:
    * Added 'growthCycleInfo' JSON? for storing additional metadata like fertilizer cycles.

3. Backend API Endpoints

Endpoints are grouped by functional modules. Each endpoint includes method, URL, purpose, and expected request/response payloads.

Authentication & User Management

Method	Endpoint	Purpose
POST	/auth/register	Register a new user
POST	/auth/login	Authenticate user & issue

		JWT
POST	/auth/logout	Logout user & invalidate session
GET	/users/me	Get logged-in user profile
PUT	/users/:userId	Update user details
PATCH	/users/:userId/toggle	Activate/deactivate user
GET	/organization/:orgId/users	List all users in an organization

Organization Management

Method	Endpoint	Purpose
POST	/organizations	Create new organization
GET	/organizations	List all organizations
GET	/organizations/:id	Get organization details
PUT	/organizations/:id	Update organization
PATCH	/organizations/:id/toggle	Activate/deactivate organization

Species Rules

Method	Endpoint	Purpose
POST	/species	Create species rule
GET	/species	List all species rules
GET	/species/:code	Get species details
PUT	/species/:code	Update species rule

Raw Material Batch

Method	Endpoint	Purpose
POST	/batches	Create raw material batch
GET	/batches	List all batches with filters
GET	/batches/:batchId	Get batch details
PUT	/batches/:batchId	Update batch info/status
PATCH	/batches/:batchId/transfer	Transfer batch custody
GET	/batches/:batchId/provenance	Get full provenance tree

Collection Event

Method	Endpoint	Purpose
POST	/collection-events	Record new collection event
GET	/collection-events/:eventId	Get collection event details
GET	/batches/:batchId/collection-event	Get collection event for batch

Supply Chain Events

Method	Endpoint	Purpose
POST	/supply-chain-events	Record processing/testing/custody event

GET	/supply-chain-events/:eventId	Get event details
GET	/batches/:batchId/supply-events	List all events for batch

Finished Goods

Method	Endpoint	Purpose
POST	/finished-goods	Create finished good from raw batches
GET	/finished-goods	List all finished goods
GET	/finished-goods/:id	Get finished good details
GET	/qr/:qrCodeId	Public QR provenance lookup

Document Upload

Method	Endpoint	Purpose
POST	/documents	Upload document & link to batch/event
GET	/documents/:documentId	Get document details
GET	/batches/:batchId/documents	List documents for batch

Device Management

Method	Endpoint	Purpose
POST	/devices	Register new device
GET	/devices	List devices for user
PATCH	/devices/:id/toggle	Activate/deactivate device

Audit Logs

Method	Endpoint	Purpose
GET	/audit-logs	List all audit logs with filters
GET	/audit-logs/:auditId	Get audit log details

Analytics

Method	Endpoint	Purpose
GET	/analytics/batches	Batch count by status/org/species
GET	/analytics/events	Event analytics
GET	/analytics/finished-goods	Finished goods analytics