

Developer Onboarding Pack – Dental Backend

1. Project Overview

This backend powers a complete dental clinic management platform: patients, treatments, plans, invoices, appointments, follow-ups, prescriptions, consents, reports, analytics, USD→PKR pricing, Drive backup, cron jobs, notifications, and more.

2. Folder Structure

See consolidated folder map. Each module lives in `src/`. All routes registered via `src/routes/index.master.ts`. Workflows orchestrate cross-module logic.

3. Environment Setup

Requirements: Node 18+, Docker, Postgres, npm.

Steps:

- `npm install`
- Create `.env` (PORT, NODE_ENV, DATABASE_URL, ADMIN_PIN, USD_PKR_API_URL)
- `docker-compose up --build` or run your own Postgres

4. Database & Prisma

- `prisma/schema.prisma` defines all models.
- Run migrations: `npx prisma migrate dev --name init`
- Generate client: `npx prisma generate`

5. Running the Backend

Dev: `npm run dev`

Prod: `npm run build && npm start`

Docker: `docker-compose up --build`

6. Key Modules

- Patients: CRUD and profile workflows.
- Treatments & Plans: USD-pegged pricing, surfaces, multi-visit.
- Invoices: pre-PDF builder, discounts, outstanding logic.
- Prescriptions: condition → protocol engine.
- Follow-ups: automated rules + manual scheduling.
- Appointments: strict slot system, no-show logic.
- Reports & Analytics: yearly/monthly summaries.
- Sync: Dexie → server → Drive snapshot.

7. Workflows Core

Use `workflows.service.ts` for:

- `finalizeVisitFromPlan`
- auto follow-ups
- invoice + outstanding updates
- gamification events

8. Cron Jobs

Required:

- Hourly USD→PKR
- Daily Drive backup
- Daily reminders
- 11PM no-show

9. API Usage Examples

GET /api/patients

POST /api/appointments

POST /api/invoices

POST /api/prescriptions

GET /api/reports/yearly

10. Testing

Use supertest or Postman. Validate OpenAPI in openapi-core.yaml.

11. Deployment

Use Dockerfile + docker-compose. Behind Nginx/Cloudflare with HTTPS. Health endpoints:

- /health
- /api/health/deep

12. Replacing Providers

Swap dummy providers for real:

- SMS
- Email
- Drive
- PDF (pdfkit/puppeteer)