

ERP SQLite Database Documentation (v2)

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This document explains every table and column in **erp_v2.db** and how/why you should use them inside your agentic ERP (Router, Sales, Finance, Inventory, Analytics). It also highlights which columns typical tools/agents will read or write.

1. Design Notes

- **SQLite** with `PRAGMA foreign_keys = ON`.
- **IDs**: `INTEGER PRIMARY KEY AUTOINCREMENT` when present.
- **Dates/Timestamps**: stored as ISO strings (`YYYY-MM-DD` or `YYYY-MM-DD HH:MM:SS`).
- **Statuses**: plain text enums (e.g., `pending`, `paid`).
- **Double-entry accounting** via `ledger_entries` + `ledger_lines`.
- **Orchestration support**: approvals, conversations, tool call logs.
- **RAG/ML support**: `documents`, `glossary`, `model_registry`, `ml_features_cache`.

Legend for columns below:

- **PK** = Primary Key
 - **FK** = Foreign Key
 - **R/W** = Typical Read/Write usage by agents/tools
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2. Router / Orchestrator Support

2.1 `approvals`

Purpose: Track human approvals for risky operations (finance postings, large POs, etc.).

- `id` (PK)
- `module` (TEXT) – which agent/module requested approval. **Use**: Router reads to see pending approvals.
- `payload_json` (TEXT) – serialized action data needing approval. **Use**: Router/Agent writes.

- `status` (TEXT) – `pending/approved/rejected`. **Use:** Updated after decision.
- `requested_by`, `decided_by` (TEXT) – user/agent identifiers.
- `created_at`, `decided_at` – timestamps.

2.2 `tool_calls`

Purpose: Audit log of every tool invocation for debugging/analytics.

- `agent`, `tool_name` – who called what.
- `input_json`, `output_json` – serialized payloads/results.
- `created_at` – when call happened.

2.3 `conversations` / `messages`

Persistent chat history beyond LangChain memory.

- `conversations`: `id` (PK), `user_id` (FK users), `started_at`.
- `messages`: `id` (PK), `conversation_id` (FK), `sender` (user/router/sales/etc.), `content`, `created_at`. **Use:** Router or UI can save/reload context; Analytics can mine chat data.

3. Sales & CRM Tables

3.1 `customers`

Basic customer master.

- `id` (PK)
- `name`, `email`, `phone`
- `created_at` **Use:** Sales tools read/write; Finance links invoices; Analytics aggregates revenue by customer.

3.2 `customer_kv`

Key–Value store for per-customer memory (preferences, `last_order_date`, sentiment, etc.).

- `customer_id` (FK customers)
- `key`, `value` (TEXT) **Use:** Sales agent R/W; Router can store global memories.

3.3 `leads`

Track inbound leads and lead scoring.

- `id` (PK)
- `customer_name`, `contact_email`, `message`
- `score` (REAL) – set by `lead_score_tool` or NN.
- `status` – `new/qualified/lost`
- `created_at` **Use:** Sales agent creates/updates; ML tool writes `score`.

3.4 products

Product catalog referenced everywhere.

- `id` (PK)
- `sku` (UNIQUE)
- `name`, `price`, `description` **Use:** Inventory/Orders/POs tools read; Inventory agent updates `price` rarely.

3.5 orders

Sales orders header.

- `id` (PK)
- `customer_id` (FK)
- `total` (REAL) – redundant convenience field; maintained by order tool.
- `status` – `pending/paid/shipped/cancelled`
- `created_at` **Use:** Sales agent creates; Analytics reads; Finance links via `invoice_orders`.

3.6 order_items

Order detail lines.

- `order_id` (FK orders)
- `product_id` (FK products)
- `quantity`, `price` **Use:** Sales tool writes during order creation; Analytics reads for product mix.

3.7 tickets

Support/helpdesk tickets.

- `customer_id` (FK customers)
 - `subject`, `body`, `status`, `created_at` **Use:** Sales or Support agent reads/writes; Analytics counts open tickets.
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4. Finance Tables

4.1 invoices

Billing documents.

- `id` (PK)
- `customer_id` (FK)
- `invoice_number`, `issue_date`, `due_date`
- `total_amount`, `status` (unpaid/paid/cancelled)
- `created_at` **Use:** Finance tool writes from parsed invoice/order; Analytics reads aging.

4.2 invoice_lines

Invoice line details.

- `invoice_id` (FK invoices)
- `description`, `quantity`, `unit_price` **Use:** Finance tool writes; Analytics reads revenue breakdown.

4.3 invoice_orders

Link table between invoices and orders.

- `invoice_id` (FK invoices)
- `order_id` (FK orders) **Use:** Deterministic relation instead of parsing `invoice_number`.

4.4 payments

Customer payments.

- `id` (PK)
- `customer_id` (FK)
- `amount`, `method` (cash/card/bank_transfer), `received_at` **Use:** Finance agent records payments; Reconciliation.

4.5 payment_allocations

Apply a payment to one or more invoices (partial allocation supported).

- `payment_id` (FK payments)
- `invoice_id` (FK invoices)
- `amount` **Use:** Finance tool writes after payment posted.

4.6 chart_of_accounts

Static list of allowed accounts.

- **account** (PK TEXT), **description** **Use:** Validation for ledger entries; Finance tools read.

4.7 ledger_entries / ledger_lines

Double-entry accounting.

- **ledger_entries**: **id** (PK), **entry_date**, **created_at**
 - **ledger_lines**: **entry_id** (FK), **account** (FK chart_of_accounts), **debit**, **credit** **Use:** Finance tool writes journal entries (**ledger_write_tool**); Analytics builds trial balance.
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5. Inventory & Supply Chain Tables

5.1 stock

Current on-hand qty per product.

- **product_id** (FK)
- **qty_on_hand**, **reorder_point** **Use:** Inventory tools read/write; Forecast tool reads.

5.2 stock_movements

Audit of quantity changes.

- **product_id** (FK)
- **change_qty** (+purchase, -sale), **reason** (**sale**, **purchase**, **adjustment**), **ref_id** (order/po id)
- **created_at** **Use:** Inventory tools write; Analytics reads for demand history.

5.3 suppliers

Supplier master.

- **id** (PK), **name**, **email**, **phone** **Use:** Inventory/PO tools read/write.

5.4 supplier_products

Supplier-specific product data.

- `supplier_id` (FK), `product_id` (FK)
- `lead_time_days`, `default_cost` **Use:** PO tool picks best supplier; forecast may use lead time.

5.5 `purchase_orders`

PO header.

- `id` (PK), `supplier_id` (FK)
- `status` (`draft/sent/received/cancelled`)
- `created_at` **Use:** Inventory `create_po_tool` writes.

5.6 `po_items`

PO lines.

- `po_id` (FK `purchase_orders`)
- `product_id` (FK `products`)
- `quantity`, `unit_cost` **Use:** PO creation; cost analysis.

5.7 `po_receipts`

What actually arrived (for partial receipts).

- `po_id`, `product_id`
 - `received_qty`, `received_at` **Use:** Inventory updates stock & movements.
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6. Analytics / RAG Tables

6.1 `saved_reports`

Store reusable SQL queries for dashboards.

- `title`, `sql`, `created_at` **Use:** Analytics agent reads to run canned reports.

6.2 `glossary`

Formal definitions of metrics/terms (for "why" explanations).

- `term` (PK), `definition`, `module` **Use:** Analytics/Finance RAG tool reads.

6.3 documents

Metadata for RAG source files.

- **module** – owner module (sales/finance/etc.)
 - **path** – file path on disk
 - **tags** – comma-separated labels (policy, contract, glossary)
 - **created_at** **Use:** Ingestion script reads to embed; RAG tools can filter by tags/module.
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7. ML / Model Ops Tables

7.1 model_registry

Track local ML models.

- **name, version** (PK)
- **path** – model file path
- **created_at** **Use:** Tools load correct model by name/version.

7.2 ml_features_cache

Optional cache of computed feature vectors.

- **entity_type** (lead/invoice/sku)
 - **entity_id**
 - **feature_json** **Use:** Speed up inference / keep reproducibility.
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8. Users Table

users

Simple user list for linking conversations/approvals.

- **id, name, email, role, created_at** **Use:** UI auth (basic), ownership of conversations/approvals.
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9. Indexes

Already present for most FK lookups and common queries:

- `idx_orders_customer, idx_invoice_customer`
 - `idx_stock_product, idx_movements_product`
 - `idx_po_supplier`
 - `idx_messages_conv, idx_tool_calls_agent` Add more if you notice slow queries (e.g., on dates/status).
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10. Typical Agent/Tool ↔ Table Mapping

Agent	Key Tables (R/W)	Typical Columns Used
Router	approvals (R/W), tool_calls (W), conversations/messages (R/W)	approvals.status, payload_json; messages.content
Sales & CRM	customers, leads, orders, order_items, tickets, customer_kv (R/W)	leads.score/status; orders.total/status; customer_kv.value
Finance	invoices, invoice_lines, payments, payment_allocations, ledger_* (R/W)	invoices.total_amount/status; payments.amount; ledger_lines.debit/credit
Inventory	stock, stock_movements, suppliers, supplier_products, purchase_orders, po_items, po_receipts (R/W)	stock.qty_on_hand/reorder_point; stock_movements.change_qty; supplier_products.lead_time_days
Analytics	saved_reports, glossary, documents (+ read all others)	saved_reports.sql; glossary.definition; any numeric/date columns for charts
ML Tools	model_registry, ml_features_cache (+ source tables for features)	model_registry.path; ml_features_cache.feature_json

11. Recreate / Maintain

- **Rebuild:** `sqlite3 erp_v2.db < db/schema_v2.sql` & run `seed_v2.py`.
- **Migrations:** write ALTER scripts; keep schema versions in git.
- **Vacuum/Analyze:** run occasionally for performance.