

# System Documentation

Powering Businesses. Simplifying Growth.

VYNTRA OS System IP Package  
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Legal-safe evidence packet. Secrets, API keys, provider credentials, passwords, tokens, and environment values are intentionally excluded.

## DOCUMENTATION.md

### Vyntra OS System Documentation

#### Executive Summary

Vyntra OS System is a Flask and SQLite business operating platform for shops that need inventory control, cashier operations, payment processing, receipts, finance tracking, analytics, branch management, cloud backup, and AI-assisted operational guidance. The application is organized around Flask blueprints in ``modules/``, server-rendered templates in ``templates/``, and static frontend assets in ``static/``.

This document is generated by the in-app AI documentation agent. The agent inspects the current codebase, detects routes, templates, static assets, database tables, and module ownership, then rewrites this file when the application changes.

#### Documentation Automation

- The documentation agent lives in ``modules/ai/documentation_agent.py``.
- Startup calls ``update_documentation_if_needed()`` from ``app.py``.
- A lightweight file watcher regenerates documentation shortly after watched program files change.
- Admin, server-admin, and documentation requests call a throttled auto-refresh check as a second safety net.
- The background scheduler can enqueue ``refresh_documentation`` when ``AUTO_DOCUMENTATION_INTERVAL_MINUTES`` is enabled.
- The agent computes a hash of application code, config, migrations, deployment files, templates, static assets, requirements, and Render/runtime files.
- The latest hash is stored in the ``app_meta`` table under ``documentation_hash``.
- When the hash changes, ``DOCUMENTATION.md`` is regenerated with a route reference, module catalog, database catalog, workflows, and operations notes.
- The admin documentation page at ``/documentation`` renders this markdown for server admins.

#### Architecture

- Backend: Flask application with modular blueprints.
- Database: PostgreSQL in production via ``DATABASE_URL``, with SQLite retained only as a development fallback.
- UI: Server-rendered HTML templates with CSS and JavaScript assets.
- Authentication: Session-based login with remember-me support, role, shop, and branch context.
- Roles: server owner, shop admin, and cashier.
- Multi-tenancy: Most business data is scoped by ``shop_id``; branch-aware workflows also use ``branch_id``.
- AI layer: Local code-aware documentation, AI help guidance, CSV inventory analysis, and business insight helpers.

#### Feature Matrix

|                                                                                                                                                  |
|--------------------------------------------------------------------------------------------------------------------------------------------------|
| Area   Business responsibility   Routes                                                                                                          |
| ---   ---   ---                                                                                                                                  |
| admin   Server-owner and administrator tooling for plugins, tutorial publishing, calendar cleanup, shop controls, and operational settings.   24 |
| ai   AI-assisted business insight, documentation, CSV inventory analysis, and in-app help guidance.   6                                          |
| alerts   Fraud and operational alert display, unread alert counts, and alert service helpers.   2                                                |
| analytics   Sales, profit, product performance, branch analytics, and AI-assisted analytical views.   11                                         |
| auth   Shop registration, login, verification, password reset, server entry, and admin account management.   14                                  |
| backup   Local backup creation, restore, and download flows.   5                                                                                 |
| barcode   Hardware scanner, camera scanner, phone scanner pairing, and scanner API hand-off flows.   34                                          |
| branches   Branch creation, branch switching, default branch setup, and branch-level data separation.   1                                        |
| cashiers   Cashier management, cashier profile updates, certifications, language settings, and tutorial access.   6                              |
| cloud   Cloud-sync folder operations, export/download flows, update packaging, and update application.   11                                      |
| customers   Customer records, loyalty points, credit balances, and customer creation.   4                                                        |
| dashboard   Role-aware dashboard routing and administrator overview pages.   2                                                                   |
| finance   Expenses, loans, fund allocation, fund balances, and cash-flow reporting.   7                                                          |
| inventory   Product and service catalog, barcode-aware add/restock flows, bulk import, stock changes, and inventory search.   12                 |
| payments   Payment method configuration, checkout method selection, provider processing, M-Pesa callbacks, and payment APIs.   8                 |

| receipts | Receipt pages, receipt delivery, payment verification, and payment-status APIs. | 9 |

| release\_notes | Release notes, update summaries, user-facing app notes, and automatic update-note generation. | 2 |

| reports | Business reports and server-owner user report triage. | 22 |

| restock | Low-stock detection, supplier/wholesaler management, restock approval, purchase documents, and supplier response tracking. | 7 |

| sales | Point-of-sale cart APIs, checkout, sale recording, receipt handoff, transactions, returns, and voice/cart helpers. | 16 |

| server | Server-owner registered-shop view and server-side shop management entry points. | 8 |

## Core Workflows

### Shop Onboarding And Access

- A shop owner registers a shop, confirms details, and logs in as an administrator.
- Server-owner controls can verify, suspend, activate, or inspect shops through the shop registry.
- Administrators can create additional admin users and cashier accounts for the same shop.
- The session stores the active user, role, shop, language, currency, and branch context used by route guards.

### Inventory To Sale

- Admins add products or services manually, by barcode, or through bulk import.
- Cashiers search inventory, scan barcodes, or receive phone-scanner input on the sales page.
- Cart APIs add, remove, re-price, update, and clear items before checkout.
- Checkout creates a sale, saves line items, updates receipt data, and sends the user to receipt or payment status.

### Payments And Verification

- Cash is always available and completes immediately when a valid cart is submitted.
- Electronic providers are loaded from enabled shop payment-method settings.
- Payment submissions include idempotency keys to block accidental duplicate payments.
- Provider results update payment status and route users to verification or receipt screens.

### Returns, Receipts, And Audit Trail

- Transaction history and receipt detail pages let staff inspect completed sales.
- Return flows record returned quantities and can raise fraud alerts for unusual refund behavior.
- Receipt delivery can use customer phone or email information captured at checkout.
- Payment status APIs support polling for pending electronic transactions.

### Operations, Analytics, And AI

- Dashboards summarize sales, stock pressure, customers, profit, and recent activity.
- Analytics APIs power charts, comparisons, product-performance views, and branch overviews.
- AI help and AI CSV tools provide guidance and inventory analysis from local app data.
- The documentation agent updates this file when code, templates, or static assets change.

### Access And Security Model

- Unauthenticated users are redirected to login or welcome flows.
- Admin-only features check `session['role'] == 'admin'` or server-owner state.
- Cashier pages focus on sales, scanning, profile, and customer-facing workflows.
- Passwords are hashed through Werkzeug helpers before storage.
- Shop suspension and verification state are enforced globally where applicable.
- Payment submissions use idempotency keys to reduce duplicate transaction risk.
- Server-owner-only tools include shop registry, plugin manager, documentation view, and update controls.

## Module Catalog And Route Reference

### Admin Module

Server-owner and administrator tooling for plugins, tutorial publishing, calendar cleanup, shop controls, and operational settings.

| Route | Methods | Endpoint | Template | Purpose |

| --- | --- | --- | --- | --- |

| `/admin/add-cashier` | POST | `'admin_add_cashier'` | - | Handles the related application workflow. |

| `/admin/announce-cashiers` | POST | `'announce_cashiers'` | - | Handles the related application workflow. |

| `/admin/app-billing` | GET | `'app_billing'` | `'admin_app_billing.html'` | Renders `admin_app_billing.html`. |

| `/admin/app-billing/exemptions` | POST | `'app_billing_exemptions_save'` | - | Handles the related application workflow. |

| `/admin/app-billing/methods` | POST | `'app_billing_methods_save'` | - | Handles the related application workflow. |

| `/admin/app-billing/pay` | GET | `'app_billing_pay'` | `'app_billing_pay.html'` | Renders `app_billing_pay.html`. |

| `/admin/app-billing/pay` | POST | `'app_billing_pay_submit'` | - | Handles the related application workflow. |

| `/admin/app-billing/payments/<int:payment_id>/status` | POST | `'app_billing_payment_status'` | - | Handles the related application workflow. |

| Route                                         | Methods   | Endpoint                             | Template                   | Purpose                                                        |
|-----------------------------------------------|-----------|--------------------------------------|----------------------------|----------------------------------------------------------------|
| /admin/app-billing/payments/status            | POST      | app_billing_payment_status_from_form |                            | Handles the related application workflow.                      |
| /admin/app-billing/settings                   | POST      | app_billing_settings                 |                            | Handles the related application workflow.                      |
| /admin/app-billing/tiers                      | POST      | app_billing_tier_add                 |                            | Handles the related application workflow.                      |
| /admin/app-billing/tiers/<int:tier_id>/delete | POST      | app_billing_tier_delete              |                            | Performs a controlled administrative delete or cleanup action. |
| /admin/app-billing/tiers/delete               | POST      | app_billing_tier_delete_from_form    |                            | Performs a controlled administrative delete or cleanup action. |
| /admin/brand                                  | POST      | admin_brand_update                   |                            | Handles the related application workflow.                      |
| /admin/calendar                               | GET, POST | calendar_view                        | calendar.html              | Renders calendar.html.                                         |
| /admin/calendar/delete                        | POST      | calendar_delete                      |                            | Performs a controlled administrative delete or cleanup action. |
| /admin/plugins                                | GET       | plugins                              | admin_plugins.html         | Renders admin_plugins.html.                                    |
| /admin/plugins/register                       | POST      | register_plugin                      |                            | Handles the related application workflow.                      |
| /admin/plugins/toggle                         | POST      | toggle_plugin                        |                            | Handles the related application workflow.                      |
| /admin/sales/cleanup                          | POST      | cleanup_sales                        |                            | Performs a controlled administrative delete or cleanup action. |
| /admin/system-operations                      | GET       | system_operations                    | system_operations.html     | Renders system_operations.html.                                |
| /admin/tutorial-videos                        | GET       | tutorial_videos_admin                | admin_tutorial_videos.html | Renders admin_tutorial_videos.html.                            |
| /admin/tutorial-videos/post                   | POST      | tutorial_videos_post                 |                            | Handles the related application workflow.                      |
| /admin/verification-routes/toggle             | POST      | toggle_verification_route            |                            | Handles the related application workflow.                      |

## Agents Module

Application module discovered in the codebase.

| Route                                             | Methods   | Endpoint                 | Template                          | Purpose                                    |
|---------------------------------------------------|-----------|--------------------------|-----------------------------------|--------------------------------------------|
| /admin/agents/<agent_name>/queue                  | POST      | queue_agent              |                                   | Handles the related application workflow.  |
| /admin/agents/adr                                 | GET       | adr_explorer             | agents/document_view.html         | Renders agents/document_view.html.         |
| /admin/agents/api                                 | GET       | api_explorer             | agents/document_view.html         | Renders agents/document_view.html.         |
| /admin/agents/architecture                        | GET       | architecture_explorer    | agents/document_view.html         | Renders agents/document_view.html.         |
| /admin/agents/deployment                          | GET       | deployment_audits        | agents/deployment_audits.html     | Renders agents/deployment_audits.html.     |
| /admin/agents/emergency-disable                   | POST      | emergency_disable        |                                   | Handles the related application workflow.  |
| /admin/agents/emergency-enable                    | POST      | emergency_enable         |                                   | Handles the related application workflow.  |
| /admin/agents/governance                          | GET       | governance_explorer      | agents/governance.html            | Renders agents/governance.html.            |
| /admin/agents/ip-package                          | GET       | ip_package               | agents/ip_package.html            | Renders agents/ip_package.html.            |
| /admin/agents/ip-package/download-zip             | GET       | download_ip_package_zip  |                                   | Downloads a generated or stored file.      |
| /admin/agents/ip-package/download/<path.filename> | GET       | download_ip_package_file |                                   | Downloads a generated or stored file.      |
| /admin/agents/ip-package/rebuild                  | GET, POST | rebuild_ip_package       |                                   | Handles the related application workflow.  |
| /admin/agents/observability                       | GET       | observability_explorer   | agents/observability.html         | Renders agents/observability.html.         |
| /admin/agents/platform-intelligence               | GET       | platform_intelligence    | agents/platform_intelligence.html | Renders agents/platform_intelligence.html. |
| /admin/agents/quality                             | GET       | quality_explorer         | agents/document_view.html         | Renders agents/document_view.html.         |
| /admin/agents/queue                               | POST      | queue_orchestrator       |                                   | Handles the related application workflow.  |
| /admin/agents/releases                            | GET       | release_explorer         | agents/release_explorer.html      | Renders agents/release_explorer.html.      |
| /admin/agents/run-now                             | POST      | run_now                  |                                   | Handles the related application workflow.  |
| /admin/agents/security                            | GET       | security_explorer        | agents/document_view.html         | Renders agents/document_view.html.         |

## Ai Module

AI-assisted business insight, documentation, CSV inventory analysis, and in-app help guidance.

| Route                     | Methods   | Endpoint             | Template                | Purpose                                                   |
|---------------------------|-----------|----------------------|-------------------------|-----------------------------------------------------------|
| /ai                       | GET       | ai_dashboard         | ai_dashboard.html       | Renders ai_dashboard.html.                                |
| /ai-csv-agent             | GET, POST | ai_csv_agent         | ai_csv_agent.html       | Renders ai_csv_agent.html.                                |
| /ai-csv-agent/download    | GET       | ai_csv_download      |                         | Downloads a generated or stored file.                     |
| /ai-help                  | GET       | ai_help              | admin_ai_chat.html      | Renders admin_ai_chat.html.                               |
| /api/ai-help/update-guide | POST      | ai_help_update_guide |                         | Provides JSON data or accepts API input for the frontend. |
| /cashier/busy-hours       | GET       | cashier_busy_hours   | cashier_busy_hours.html | Renders cashier_busy_hours.html.                          |

## Alerts Module

Fraud and operational alert display, unread alert counts, and alert service helpers.

| Route                          | Methods | Endpoint           | Template    | Purpose                                                   |
|--------------------------------|---------|--------------------|-------------|-----------------------------------------------------------|
| /alerts                        | GET     | alerts             | alerts.html | Renders alerts.html.                                      |
| /api/alerts/fraud-unread-count | GET     | fraud_unread_count |             | Provides JSON data or accepts API input for the frontend. |

## Analytics Module

Sales, profit, product performance, branch analytics, and AI-assisted analytical views.

| Route                             | Methods | Endpoint                 | Template | Purpose                                                         |
|-----------------------------------|---------|--------------------------|----------|-----------------------------------------------------------------|
| /analytics                        | GET     | /analytics.html          |          | Comprehensive analytics dashboard with graphs and analysis.     |
| /analytics/ai-insights            | GET     | /ai_insights.html        |          | AI-powered business insights and recommendations.               |
| /analytics/branches               | GET     | /branches_analytics.html |          | Renders branches_analytics.html.                                |
| /analytics/funds                  | GET     | /fund_analysis.html      |          | Analyze profitability by fund source.                           |
| /analytics/profit-loss            | GET     | /profit_loss.html        |          | Detailed profit and loss analysis.                              |
| /api/analytics/ai-agent           | POST    | /analytics_ai_agent      |          | AI analytics agent with local data + optional external sources. |
| /api/analytics/branches/ai        | POST    | /branches_ai_api         |          | Provides JSON data or accepts API input for the frontend.       |
| /api/analytics/branches/overview  | GET     | /branches_overview_api   |          | Provides JSON data or accepts API input for the frontend.       |
| /api/analytics/compare            | POST    | /compare_analytics       |          | Compare specific days/weeks/months/years selected by user.      |
| /api/product-performance/<period> | GET     | /product_performance_api |          | API endpoint for product performance data.                      |
| /api/sales-chart/<period>         | GET     | /sales_chart_api         |          | API endpoint for sales chart data.                              |

## Api Module

Application module discovered in the codebase.

\_No public Flask routes were discovered for this module. It may provide services, utilities, or background helpers.\_

## Auth Module

Shop registration, login, verification, password reset, server entry, and admin account management.

| Route                   | Methods   | Endpoint                        | Template | Purpose                                   |
|-------------------------|-----------|---------------------------------|----------|-------------------------------------------|
| /                       | GET       | /welcome.html                   |          | Renders welcome.html.                     |
| /admin/edit             | GET, POST | /edit_admin.html                |          | Renders edit_admin.html.                  |
| /change-password        | GET, POST | /change_password_main.html      |          | Renders change_password.html.             |
| /forgot-password        | GET, POST | /forgot_password.html           |          | Renders forgot_password.html.             |
| /free_server_entry      | POST      | /free_server_entry_deprecated_1 |          | Handles the related application workflow. |
| /login                  | GET, POST | /login.html                     |          | Renders login.html.                       |
| /logout                 | GET       | /logout_route                   |          | Handles the related application workflow. |
| /privacy                | GET       | /privacy/document_view.html     |          | Renders document_view.html.               |
| /register               | GET, POST | /register                       |          | Handles the related application workflow. |
| /register-admin         | GET, POST | /register_admin.html            |          | Renders register_admin.html.              |
| /register/verify        | GET, POST | /register_verify.html           |          | Renders register_verify.html.             |
| /register/verify/resend | POST      | /register_resend                |          | Handles the related application workflow. |
| /terms                  | GET       | /terms/document_view.html       |          | Renders document_view.html.               |
| /welcome                | GET       | /welcome_details.html           |          | Renders welcome_details.html.             |

## Automation Module

Application module discovered in the codebase.

\_No public Flask routes were discovered for this module. It may provide services, utilities, or background helpers.\_

## Background\_Tasks Module

Application module discovered in the codebase.

\_No public Flask routes were discovered for this module. It may provide services, utilities, or background helpers.\_

## Backup Module

Local backup creation, restore, and download flows.

| Route                       | Methods | Endpoint     | Template | Purpose                                   |
|-----------------------------|---------|--------------|----------|-------------------------------------------|
| /backup                     | GET     | /backup.html |          | Renders backup.html.                      |
| /backup/create              | POST    | /create      |          | Handles the related application workflow. |
| /backup/download/<filename> | GET     | /download    |          | Downloads a generated or stored file.     |
| /backup/restore/<filename>  | POST    | /restore     |          | Handles the related application workflow. |
| /backup/validate/<filename> | POST    | /validate    |          | Handles the related application workflow. |

## Barcode Module

Hardware scanner, camera scanner, phone scanner pairing, and scanner API hand-off flows.

| Route                              | Methods | Endpoint                           | Template | Purpose                                                   |
|------------------------------------|---------|------------------------------------|----------|-----------------------------------------------------------|
| /api/barcode/anomaly-report        | GET     | /api_barcode_anomaly_report        |          | Provides JSON data or accepts API input for the frontend. |
| /api/barcode/anomaly/score         | POST    | /api_barcode_anomaly_score         |          | Provides JSON data or accepts API input for the frontend. |
| /api/barcode/assign                | POST    | /api_barcode_assign                |          | Provides JSON data or accepts API input for the frontend. |
| /api/barcode/business-intelligence | GET     | /api_barcode_business_intelligence |          | Provides JSON data or accepts API input for the frontend. |

| ``/api/barcode/cache`` | GET | ``api_barcode_cache`` | - | Provides JSON data or accepts API input for the frontend. |  
 | ``/api/barcode/generate`` | POST | ``api_barcode_generate`` | - | Provides JSON data or accepts API input for the frontend. |  
 | ``/api/barcode/integrity-report`` | GET | ``api_barcode_integrity_report`` | - | Provides JSON data or accepts API input for the frontend. |  
 |  
 | ``/api/barcode/lookup/<path:barcode>`` | GET | ``api_barcode_lookup`` | - | Provides JSON data or accepts API input for the frontend. |  
 | ``/api/barcode/parse`` | POST | ``api_barcode_parse`` | - | Provides JSON data or accepts API input for the frontend. |  
 | ``/api/barcode/print/jobs`` | POST | ``api_barcode_print_job`` | - | Provides JSON data or accepts API input for the frontend. |  
 | ``/api/barcode/product-relationships`` | GET | ``api_barcode_product_relationships`` | - | Provides JSON data or accepts API input for the frontend. |  
 | ``/api/barcode/qr.png`` | GET | ``api_barcode_qr_png`` | - | Provides JSON data or accepts API input for the frontend. |  
 | ``/api/barcode/recommendations`` | GET | ``api_barcode_recommendations`` | - | Provides JSON data or accepts API input for the frontend. |  
 | ``/api/barcode/recovery-suggestions`` | GET | ``api_barcode_recovery_suggestions`` | - | Provides JSON data or accepts API input for the frontend. |  
 | ``/api/barcode/reliability-report`` | GET | ``api_barcode_reliability_report`` | - | Provides JSON data or accepts API input for the frontend. |  
 | ``/api/barcode/scan`` | POST | ``api_barcode_scan`` | - | Provides JSON data or accepts API input for the frontend. |  
 | ``/api/barcode/scan/burst`` | POST | ``api_barcode_scan_burst`` | - | Provides JSON data or accepts API input for the frontend. |  
 | ``/api/barcode/stress-test`` | POST | ``api_barcode_stress_test`` | - | Provides JSON data or accepts API input for the frontend. |  
 | ``/api/barcode/universal-scan`` | POST | ``api_barcode_universal_scan`` | - | Provides JSON data or accepts API input for the frontend. |  
 | ``/api/barcode/validate`` | POST | ``api_barcode_validate`` | - | Provides JSON data or accepts API input for the frontend. |  
 | ``/api/barcode/workflows/<int:workflow_session_id>/complete`` | POST | ``api_barcode_workflow_complete`` | - | Provides JSON data or accepts API input for the frontend. |  
 | ``/api/barcode/workflows/<int:workflow_session_id>/scan`` | POST | ``api_barcode_workflow_scan`` | - | Provides JSON data or accepts API input for the frontend. |  
 | ``/api/barcode/workflows/start`` | POST | ``api_barcode_workflow_start`` | - | Provides JSON data or accepts API input for the frontend. |  
 | ``/api/phone-scanner/<token>/next`` | GET | ``next_phone_scan`` | - | Provides JSON data or accepts API input for the frontend. |  
 | ``/api/phone-scanner/<token>/scan`` | POST | ``receive_phone_scan`` | - | Provides JSON data or accepts API input for the frontend. |  
 | ``/barcode`` | GET | ``barcode_dashboard`` | ``barcode/dashboard.html`` | Renders `barcode/dashboard.html`. |  
 | ``/barcode/intelligence`` | GET | ``barcode_intelligence`` | ``barcode/intelligence.html`` | Renders `barcode/intelligence.html`. |  
 | ``/barcode/print`` | GET | ``barcode_print`` | - | Handles the related application workflow. |  
 | ``/barcode/training`` | GET | ``barcode_training`` | ``barcode/training.html`` | Renders `barcode/training.html`. |  
 | ``/connect-phone-scanner`` | GET | ``connect_phone_scanner`` | ``connect_phone_scanner.html`` | Renders `connect_phone_scanner.html`. |  
 | ``/mobile-scan`` | GET | ``mobile_scan`` | ``mobile_scan.html`` | Renders `mobile_scan.html`. |  
 | ``/phone-scanner/<token>`` | GET | ``phone_scanner`` | ``phone_scanner.html``, ``phone_scanner_error.html`` | Renders `phone_scanner.html`, `phone_scanner_error.html`. |  
 | ``/scan`` | GET, POST | ``scan`` | ``scan.html`` | Renders `scan.html`. |  
 | ``/scanner-center`` | GET | ``scanner_center`` | ``scanner_center.html`` | Renders `scanner_center.html`. |

## Billing Module

Application module discovered in the codebase.

\_No public Flask routes were discovered for this module. It may provide services, utilities, or background helpers.\_

## Branches Module

Branch creation, branch switching, default branch setup, and branch-level data separation.

| Route | Methods | Endpoint | Template | Purpose |

| --- | --- | --- | --- | --- |

| ``/admin/branches`` | GET, POST | ``manage_branches`` | ``branches.html`` | Renders `branches.html`. |

## Brand\_Experience Module

Application module discovered in the codebase.

\_No public Flask routes were discovered for this module. It may provide services, utilities, or background helpers.\_

## Bulk\_Operations Module

Application module discovered in the codebase.

\_No public Flask routes were discovered for this module. It may provide services, utilities, or background helpers.\_

## Business\_Activity Module

Application module discovered in the codebase.

\_No public Flask routes were discovered for this module. It may provide services, utilities, or background helpers.\_

## Business\_Reliability Module

Application module discovered in the codebase.

\_No public Flask routes were discovered for this module. It may provide services, utilities, or background helpers.\_

## Business\_Retention Module

Application module discovered in the codebase.

\_No public Flask routes were discovered for this module. It may provide services, utilities, or background helpers.\_

## Business\_Transformation Module

Application module discovered in the codebase.

\_No public Flask routes were discovered for this module. It may provide services, utilities, or background helpers.\_

## Cashiers Module

Cashier management, cashier profile updates, certifications, language settings, and tutorial access.

| Route | Methods | Endpoint | Template | Purpose |

| --- | --- | --- | --- | --- |

| '/cashier\_tutorial\_videos' | GET | 'cashier\_tutorial\_videos' | 'cashier\_tutorial\_videos.html' | Renders cashier\_tutorial\_videos.html.

|

| '/cashiers' | GET, POST | 'cashiers' | 'cashiers.html' | Renders cashiers.html. |

| '/cashiers/<int:cashier\_id>/edit' | GET, POST | 'edit\_cashier' | 'edit\_cashier.html' | Renders edit\_cashier.html. |

| '/profile' | GET, POST | 'profile' | 'profile.html' | Renders profile.html. |

| '/set-language' | POST | 'set\_language' | - | Handles the related application workflow. |

| '/uploads/certifications/<filename>' | GET | 'serve\_certification' | - | Handles upload, import, or sync workflow input. |

## Cloud Module

Cloud-sync folder operations, export/download flows, update packaging, and update application.

| Route | Methods | Endpoint | Template | Purpose |

| --- | --- | --- | --- | --- |

| '/cloud' | GET | 'cloud' | 'cloud.html' | Renders cloud.html. |

| '/cloud/apply-update' | POST | 'apply\_update\_from\_form' | - | Handles the related application workflow. |

| '/cloud/apply-update/<filename>' | POST | 'apply\_update' | - | Handles the related application workflow. |

| '/cloud/create-update' | POST | 'create\_update' | - | Handles the related application workflow. |

| '/cloud/download-backup/<filename>' | GET | 'download\_cloud\_backup' | - | Downloads a generated or stored file. |

| '/cloud/download-export/<filename>' | GET | 'download\_user\_export' | - | Downloads a generated or stored file. |

| '/cloud/export-all-user-data' | POST | 'export\_all\_user\_data' | - | Handles the related application workflow. |

| '/cloud/export-user-data' | POST | 'export\_user\_data' | - | Handles the related application workflow. |

| '/cloud/restore/<filename>' | POST | 'restore' | - | Handles the related application workflow. |

| '/cloud/updates' | GET | 'list\_updates' | 'admin\_updates.html' | Renders admin\_updates.html. |

| '/cloud/upload' | POST | 'upload' | - | Handles upload, import, or sync workflow input. |

## Communication Module

Application module discovered in the codebase.

\_No public Flask routes were discovered for this module. It may provide services, utilities, or background helpers.\_

## Company\_Metrics Module

Application module discovered in the codebase.

\_No public Flask routes were discovered for this module. It may provide services, utilities, or background helpers.\_

## Company\_Operations Module

Application module discovered in the codebase.

\_No public Flask routes were discovered for this module. It may provide services, utilities, or background helpers.\_

## Cost\_Management Module

Application module discovered in the codebase.

\_No public Flask routes were discovered for this module. It may provide services, utilities, or background helpers.\_

## Customer\_Intelligence Module

Application module discovered in the codebase.

\_No public Flask routes were discovered for this module. It may provide services, utilities, or background helpers.\_

## Customer\_Success Module

Application module discovered in the codebase.

\_No public Flask routes were discovered for this module. It may provide services, utilities, or background helpers.\_

## Customers Module

Customer records, loyalty points, credit balances, and customer creation.

| Route | Methods | Endpoint | Template | Purpose |

| --- | --- | --- | --- | --- |

| '/add-credit/<int:id>' | POST | 'add\_credit' | - | Handles the related application workflow. |

| '/add-customer' | GET, POST | 'add\_customer' | 'add\_customer.html' | Renders add\_customer.html. |

| '/add-points/<int:id>/<int:points>' | POST | 'add\_points' | - | Handles the related application workflow. |

| '/customers' | GET | 'customers' | 'customers.html' | Renders customers.html. |

## Dashboard Module

Role-aware dashboard routing and administrator overview pages.

| Route | Methods | Endpoint | Template | Purpose |

| --- | --- | --- | --- | --- |

| '/admin' | GET | 'admin' | 'admin.html' | Renders admin.html. |

| '/dashboard' | GET | 'dashboard' | - | Handles the related application workflow. |

## Data\_Governance Module

Application module discovered in the codebase.

\_No public Flask routes were discovered for this module. It may provide services, utilities, or background helpers.\_

## Decolators Module

Application module discovered in the codebase.

\_No public Flask routes were discovered for this module. It may provide services, utilities, or background helpers.\_

## Demo Module

Application module discovered in the codebase.

\_No public Flask routes were discovered for this module. It may provide services, utilities, or background helpers.\_

## Demo\_Ai Module

Application module discovered in the codebase.

\_No public Flask routes were discovered for this module. It may provide services, utilities, or background helpers.\_

## Demo\_System Module

Application module discovered in the codebase.

\_No public Flask routes were discovered for this module. It may provide services, utilities, or background helpers.\_

## Deployment\_Discipline Module

Application module discovered in the codebase.

\_No public Flask routes were discovered for this module. It may provide services, utilities, or background helpers.\_

## Devops\_Assistant Module

Application module discovered in the codebase.

\_No public Flask routes were discovered for this module. It may provide services, utilities, or background helpers.\_

## Distribution Module

Application module discovered in the codebase.

\_No public Flask routes were discovered for this module. It may provide services, utilities, or background helpers.\_

## Enterprise\_Branches Module

Application module discovered in the codebase.

\_No public Flask routes were discovered for this module. It may provide services, utilities, or background helpers.\_

## Enterprise\_Experience Module

Application module discovered in the codebase.

\_No public Flask routes were discovered for this module. It may provide services, utilities, or background helpers.\_

## Feature\_Flags Module

Application module discovered in the codebase.

\_No public Flask routes were discovered for this module. It may provide services, utilities, or background helpers.\_

## Finance Module

Expenses, loans, fund allocation, fund balances, and cash-flow reporting.

| Route                             | Methods   | Endpoint       | Template              | Purpose                                                        |
|-----------------------------------|-----------|----------------|-----------------------|----------------------------------------------------------------|
| ---                               | ---       | ---            | ---                   | ---                                                            |
| /add-expense                      | GET, POST | add_expense    | -                     | Handles the related application workflow.                      |
| /add-loan                         | POST      | add_loan       | -                     | Handles the related application workflow.                      |
| /allocate-fund                    | POST      | allocate_fund  | -                     | API endpoint for allocating funds during product purchase.     |
| /expenses                         | GET       | expenses       | expenses.html         | Expenses page for adding and viewing expenses.                 |
| /expenses/<int:expense_id>/delete | POST      | delete_expense | -                     | Performs a controlled administrative delete or cleanup action. |
| /finance                          | GET       | finance        | finance.html          | Main finance dashboard with fund tracking.                     |
| /finance/cashflow/<fund_source>   | GET       | view_cashflow  | finance_cashflow.html | Renders finance_cashflow.html.                                 |

## Focus\_Engine Module

Application module discovered in the codebase.

\_No public Flask routes were discovered for this module. It may provide services, utilities, or background helpers.\_

## Growth Module

Application module discovered in the codebase.

\_No public Flask routes were discovered for this module. It may provide services, utilities, or background helpers.\_

## Growth\_Engine Module

Application module discovered in the codebase.

\_No public Flask routes were discovered for this module. It may provide services, utilities, or background helpers.\_

## Integrations Module

Application module discovered in the codebase.

\_No public Flask routes were discovered for this module. It may provide services, utilities, or background helpers.\_

## Internal\_Operations Module

Application module discovered in the codebase.

\_No public Flask routes were discovered for this module. It may provide services, utilities, or background helpers.\_

## Inventory Module

Product and service catalog, barcode-aware add/restock flows, bulk import, stock changes, and inventory search.

| Route                                           | Methods   | Endpoint                    | Template                  | Purpose                                                        |
|-------------------------------------------------|-----------|-----------------------------|---------------------------|----------------------------------------------------------------|
| ---                                             | ---       | ---                         | ---                       | ---                                                            |
| /add-product                                    | GET, POST | add_product                 | add_products.html         | Renders add_products.html.                                     |
| /add-product-scan                               | GET       | add_product_scan            | add_product_scan.html     | Renders add_product_scan.html.                                 |
| /add-service                                    | GET, POST | add_service                 | add_service.html          | Renders add_service.html.                                      |
| /bulk-import-products                           | GET, POST | bulk_import_products        | bulk_import_products.html | Renders bulk_import_products.html.                             |
| /bulk-import-products/jobs/<int:job_id>         | GET       | bulk_import_job_status      | bulk_import_status.html   | Renders bulk_import_status.html.                               |
| /bulk-import-products/jobs/<int:job_id>/process | POST      | bulk_import_job_process     | -                         | Handles upload, import, or sync workflow input.                |
| /bulk-import-products/jobs/<int:job_id>/status  | GET       | bulk_import_job_status_json | -                         | Handles upload, import, or sync workflow input.                |
| /delete/<int:id>                                | POST      | delete_product              | -                         | Performs a controlled administrative delete or cleanup action. |
| /inventory                                      | GET       | inventory                   | inventory.html            | View all products with fund breakdown.                         |
| /search-inventory                               | GET       | search_inventory            | -                         | Handles the related application workflow.                      |
| /update-stock/<int:id>                          | POST      | update_stock                | -                         | Handles the related application workflow.                      |
| /voice-search-product                           | POST      | voice_search_product        | -                         | Handles the related application workflow.                      |

## Inventory\_Intelligence Module

Application module discovered in the codebase.

\_No public Flask routes were discovered for this module. It may provide services, utilities, or background helpers.\_

## Local\_First Module

Application module discovered in the codebase.

\_No public Flask routes were discovered for this module. It may provide services, utilities, or background helpers.\_

## Maintainability Module

Application module discovered in the codebase.

\_No public Flask routes were discovered for this module. It may provide services, utilities, or background helpers.\_

## Market\_Validation Module

Application module discovered in the codebase.

\_No public Flask routes were discovered for this module. It may provide services, utilities, or background helpers.\_

## Marketplace Module

Application module discovered in the codebase.

\_No public Flask routes were discovered for this module. It may provide services, utilities, or background helpers.\_

## Notifications Module

Application module discovered in the codebase.

\_No public Flask routes were discovered for this module. It may provide services, utilities, or background helpers.\_

## Observability Module

Application module discovered in the codebase.

\_No public Flask routes were discovered for this module. It may provide services, utilities, or background helpers.\_

## Offline Module

Application module discovered in the codebase.

\_No public Flask routes were discovered for this module. It may provide services, utilities, or background helpers.\_

## Onboarding Module

Application module discovered in the codebase.

\_No public Flask routes were discovered for this module. It may provide services, utilities, or background helpers.\_

## Operational\_Intelligence Module

Application module discovered in the codebase.

\_No public Flask routes were discovered for this module. It may provide services, utilities, or background helpers.\_

## Operational\_Memory Module

Application module discovered in the codebase.

\_No public Flask routes were discovered for this module. It may provide services, utilities, or background helpers.\_

## Operations\_Center Module

Application module discovered in the codebase.

\_No public Flask routes were discovered for this module. It may provide services, utilities, or background helpers.\_

## Operations\_Docs Module

Application module discovered in the codebase.

\_No public Flask routes were discovered for this module. It may provide services, utilities, or background helpers.\_

## Operations\_Mode Module

Application module discovered in the codebase.

\_No public Flask routes were discovered for this module. It may provide services, utilities, or background helpers.\_

## Organizational\_Governance Module

Application module discovered in the codebase.

\_No public Flask routes were discovered for this module. It may provide services, utilities, or background helpers.\_

## Payments Module

Payment method configuration, checkout method selection, provider processing, M-Pesa callbacks, and payment APIs.

| Route | Methods | Endpoint | Template | Purpose |

| --- | --- | --- | --- | --- |

| `/api/payment-methods` | GET | ``api_payment_methods`` | - | Provides JSON data or accepts API input for the frontend. |

| `/checkout-methods` | GET | ``checkout_methods`` | ``payment.html`` | Renders payment.html. |

| `/mpesa/b2c/result` | POST | ``mpesa_b2c_result`` | - | Receive Safaricom Daraja B2C Send Money result callback. |

| `/mpesa/b2c/timeout` | POST | ``mpesa_b2c_timeout`` | - | Receive Safaricom Daraja B2C timeout callback. |

| `/mpesa/callback` | POST | ``mpesa_stk_callback`` | - | Receive Safaricom Daraja STK callback for Paybill/Till prompts. |

| `/payment-methods` | GET | ``payment_methods`` | ``payment_methods.html`` | Renders payment\_methods.html. |

| `/payment-methods/save` | POST | ``save_payment_method`` | - | Handles the related application workflow. |

| `/process-payment/<provider_code>` | POST | ``process_payment`` | - | Handles the related application workflow. |

## Pilot\_Program Module

Application module discovered in the codebase.

\_No public Flask routes were discovered for this module. It may provide services, utilities, or background helpers.\_

## Platform\_Trust Module

Application module discovered in the codebase.

\_No public Flask routes were discovered for this module. It may provide services, utilities, or background helpers.\_

## Playbooks Module

Application module discovered in the codebase.

\_No public Flask routes were discovered for this module. It may provide services, utilities, or background helpers.\_

## Pos\_Acceleration Module

Application module discovered in the codebase.

\_No public Flask routes were discovered for this module. It may provide services, utilities, or background helpers.\_

## Procurement Module

Application module discovered in the codebase.

\_No public Flask routes were discovered for this module. It may provide services, utilities, or background helpers.\_

## Product\_Analytics Module

Application module discovered in the codebase.

\_No public Flask routes were discovered for this module. It may provide services, utilities, or background helpers.\_

## Product\_Feedback Module

Application module discovered in the codebase.

\_No public Flask routes were discovered for this module. It may provide services, utilities, or background helpers.\_

## Product\_Intelligence Module

Application module discovered in the codebase.

\_No public Flask routes were discovered for this module. It may provide services, utilities, or background helpers.\_

## Realtime Module

Application module discovered in the codebase.

\_No public Flask routes were discovered for this module. It may provide services, utilities, or background helpers.\_

## Receipts Module

Receipt pages, receipt delivery, payment verification, and payment-status APIs.

| Route | Methods | Endpoint | Template | Purpose |

| -- | -- | -- | -- | -- |

| '/admin/receipt-delivery' | GET, POST | 'receipt\_delivery\_settings' | 'receipt\_delivery\_settings.html' | Renders receipt\_delivery\_settings.html. |

| '/api/payment-status/<int:sale\_id>' | GET | 'api\_payment\_status' | - | AJAX endpoint to check if payment has been verified. |

| '/payment-status/<int:sale\_id>' | GET | 'payment\_status\_page' | 'payment\_status.html' | Show payment verification status to cashier before printing receipt. |

| '/payment-status/<int:sale\_id>/confirm' | POST | 'verify\_payment' | - | Manually verify that payment has been received. |

| '/payment-status/<int:sale\_id>/refresh' | POST | 'refresh\_payment\_status' | - | Handles the related application workflow. |

| '/payment-verify/<int:sale\_id>' | POST | 'verify\_payment' | - | Manually verify that payment has been received. |

| '/receipt/<int:sale\_id>/send' | POST | 'send\_receipt' | - | Send receipt to customer via SMS, Email, or WhatsApp. |

| '/receipts' | GET | 'receipts' | 'receipts.html' | Renders receipts.html. |

| '/receipts/<int:sale\_id>' | GET | 'receipt\_detail' | 'receipt\_detail.html' | Renders receipt\_detail.html. |

## Recommendations Module

Application module discovered in the codebase.

| Route | Methods | Endpoint | Template | Purpose |

| -- | -- | -- | -- | -- |

| '/api/recommendations' | GET | 'recommendations\_api' | - | Provides JSON data or accepts API input for the frontend. |

| '/api/recommendations/refresh' | POST | 'refresh\_recommendations\_api' | - | Provides JSON data or accepts API input for the frontend. |

|

| '/recommendations' | GET | 'recommendations\_page' | 'recommendations.html' | Renders recommendations.html. |

## Release\_Notes Module

Release notes, update summaries, user-facing app notes, and automatic update-note generation.

| Route                       | Methods   | Endpoint            | Template           | Purpose                     |
|-----------------------------|-----------|---------------------|--------------------|-----------------------------|
| ---   ---   ---   ---   --- |           |                     |                    |                             |
| /admin/release-notes        | GET, POST | admin_release_notes | release_notes.html | Renders release_notes.html. |
| /release-notes              | GET       | release_notes       | release_notes.html | Renders release_notes.html. |

## Reliability Module

Application module discovered in the codebase.

\_No public Flask routes were discovered for this module. It may provide services, utilities, or background helpers.\_

## Reports Module

Business reports and server-owner user report triage.

| Route                                            | Methods   | Endpoint                                 | Template                 | Purpose                                                   |
|--------------------------------------------------|-----------|------------------------------------------|--------------------------|-----------------------------------------------------------|
| ---   ---   ---   ---   ---                      |           |                                          |                          |                                                           |
| /admin/user-reports                              | GET, POST | admin_user_reports                       | admin_user_reports.html  | Renders admin_user_reports.html.                          |
| /admin/user-reports/<int:report_id>/mark-read    | POST      | update_report                            | -                        | Handles the related application workflow.                 |
| /admin/user-reports/<int:report_id>/reply        | POST      | update_report                            | -                        | Handles the related application workflow.                 |
| /api/reports/enterprise-dashboard                | GET       | enterprise_dashboard_api                 | -                        | Provides JSON data or accepts API input for the frontend. |
| /api/reports/enterprise-docs/regenerate          | POST      | regenerate_enterprise_reporting_docs_api | -                        | Provides JSON data or accepts API input for the frontend. |
| /api/reports/exports/<int:job_id>                | GET       | export_status_api                        | -                        | Provides JSON data or accepts API input for the frontend. |
| /api/reports/exports/<int:job_id>/versions       | GET       | export_versions_api                      | -                        | Provides JSON data or accepts API input for the frontend. |
| /api/reports/exports/offline                     | GET       | offline_export_manifest                  | -                        | Provides JSON data or accepts API input for the frontend. |
| /api/reports/exports/verify/<verification_id>    | GET       | verify_export_api                        | -                        | Provides JSON data or accepts API input for the frontend. |
| /api/reports/preview                             | GET       | report_preview_api                       | -                        | Provides JSON data or accepts API input for the frontend. |
| /reports                                         | GET       | reports                                  | reports.html             | Renders reports.html.                                     |
| /reports/enterprise                              | GET       | enterprise_reporting_center              | -                        | Handles the related application workflow.                 |
| /reports/exports                                 | POST      | create_export                            | -                        | Handles the related application workflow.                 |
| /reports/exports                                 | GET       | export_center                            | reports_exports.html     | Renders reports_exports.html.                             |
| /reports/exports/<int:job_id>/archive            | POST      | archive_export                           | -                        | Handles the related application workflow.                 |
| /reports/exports/<int:job_id>/download           | GET       | download_export                          | -                        | Downloads a generated or stored file.                     |
| /reports/exports/<int:job_id>/run                | POST      | run_export                               | -                        | Handles the related application workflow.                 |
| /reports/exports/apply-retention                 | POST      | apply_export_retention                   | -                        | Handles the related application workflow.                 |
| /reports/exports/retry-failed                    | POST      | retry_failed_exports_route               | -                        | Handles the related application workflow.                 |
| /reports/exports/schedules                       | POST      | create_schedule                          | -                        | Handles the related application workflow.                 |
| /reports/exports/schedules/<int:schedule_id>/run | POST      | run_export_schedule                      | -                        | Handles the related application workflow.                 |
| /reports/exports/verify/<verification_id>        | GET       | verify_export                            | report_verification.html | Renders report_verification.html.                         |

## Restock Module

Low-stock detection, supplier/wholesaler management, restock approval, purchase documents, and supplier response tracking.

| Route                                           | Methods   | Endpoint                 | Template                     | Purpose                                   |
|-------------------------------------------------|-----------|--------------------------|------------------------------|-------------------------------------------|
| ---   ---   ---   ---   ---                     |           |                          |                              |                                           |
| /restock                                        | GET       | restock_dashboard        | restock_dashboard.html       | Renders restock_dashboard.html.           |
| /restock/generate                               | POST      | generate_restock_request | -                            | Handles the related application workflow. |
| /restock/request/<int:request_id>               | GET, POST | restock_request_detail   | restock_request.html         | Renders restock_request.html.             |
| /restock/request/<int:request_id>/download      | GET       | download_restock_request | -                            | Downloads a generated or stored file.     |
| /restock/request/<int:request_id>/notify-admins | POST      | notify_admins            | -                            | Handles the related application workflow. |
| /restock/supplier/<token>                       | GET, POST | supplier_review          | supplier_restock_review.html | Renders supplier_restock_review.html.     |
| /restock/suppliers                              | GET, POST | restock_suppliers        | restock_suppliers.html       | Renders restock_suppliers.html.           |

## Retention\_Engine Module

Application module discovered in the codebase.

\_No public Flask routes were discovered for this module. It may provide services, utilities, or background helpers.\_

## Sales Module

Point-of-sale cart APIs, checkout, sale recording, receipt handoff, transactions, returns, and voice/cart helpers.

| Route                       | Methods | Endpoint       | Template | Purpose                                                        |
|-----------------------------|---------|----------------|----------|----------------------------------------------------------------|
| ---   ---   ---   ---   --- |         |                |          |                                                                |
| /api/cart                   | GET     | api_cart_get   | -        | Return current cart state as JSON.                             |
| /api/cart/add               | POST    | api_cart_add   | -        | Add product to cart via AJAX.                                  |
| /api/cart/clear             | POST    | api_cart_clear | -        | Clear all items from cart.                                     |
| /api/cart/price             | POST    | api_cart_price | -        | Allow cashiers to set a bargain selling price for a cart item. |

| `/api/cart/remove/<int:product_id>` | POST | `'api_cart_remove'` | - | Remove a product from the cart. |  
 | `/api/cart/update` | POST | `'api_cart_update'` | - | Update quantity of a cart item. |  
 | `/api/customers/search` | GET | `'api_customers_search'` | - | Search customers by phone or name for quick checkout fill. |  
 | `/checkout` | GET | `'checkout'` | `'payment.html'` | Renders `payment.html`. |  
 | `/process-payment/cash` | GET | `'cash_payment'` | - | Handles the related application workflow. |  
 | `/receipt/<int:sale_id>` | GET | `'receipt'` | `'receipt_detail.html'` | Renders `receipt_detail.html`. |  
 | `/return-goods` | GET, POST | `'return_goods'` | `'return_goods.html'` | Renders `return_goods.html`. |  
 | `/sales` | GET, POST | `'sales'` | `'sales.html'` | Renders `sales.html`. |  
 | `/search-product` | GET | `'search_product'` | - | Handles the related application workflow. |  
 | `/set-currency` | POST | `'set_currency'` | - | Set the current cashier/admin display currency for this session. |  
 | `/transactions` | GET | `'transactions'` | `'transactions.html'` | Renders `transactions.html`. |  
 | `/voice-add-to-cart` | POST | `'voice_add_to_cart'` | - | Add the best matching spoken product to the current cart. |

## Scaling Module

Application module discovered in the codebase.

\_No public Flask routes were discovered for this module. It may provide services, utilities, or background helpers.\_

## Security Module

Application module discovered in the codebase.

\_No public Flask routes were discovered for this module. It may provide services, utilities, or background helpers.\_

## Security\_Maturity Module

Application module discovered in the codebase.

\_No public Flask routes were discovered for this module. It may provide services, utilities, or background helpers.\_

## Self\_Healing Module

Application module discovered in the codebase.

\_No public Flask routes were discovered for this module. It may provide services, utilities, or background helpers.\_

## Server Module

Server-owner registered-shop view and server-side shop management entry points.

| Route | Methods | Endpoint | Template | Purpose |

| --- | --- | --- | --- | --- |

| `/server/api/verification-controls` | GET | `'verification_controls_api'` | - | Handles the related application workflow. |  
 | `/server/dashboard` | GET | `'server_dashboard'` | `'server_dashboard.html'` | Renders `server_dashboard.html`. |  
 | `/server/shops` | GET | `'server_shops'` | `'server_shops.html'` | Renders `server_shops.html`. |  
 | `/server/verification-controls` | GET | `'verification_controls_page'` | `'server_verification_controls.html'` | Renders `server_verification_controls.html`. |  
 | `/server/verification-controls/api` | GET | `'verification_controls_api'` | - | Handles the related application workflow. |  
 | `/server/verification-controls/delivery-settings` | POST | `'verification_controls_delivery_settings'` | - | Handles the related application workflow. |  
 | `/server/verification-controls/test-delivery` | POST | `'verification_controls_test_delivery'` | - | Handles the related application workflow. |  
 | `/server/verification-controls/toggle` | POST | `'verification_controls_toggle'` | - | Handles the related application workflow. |

## Stability\_Governance Module

Application module discovered in the codebase.

\_No public Flask routes were discovered for this module. It may provide services, utilities, or background helpers.\_

## Storage Module

Application module discovered in the codebase.

\_No public Flask routes were discovered for this module. It may provide services, utilities, or background helpers.\_

## Support Module

Application module discovered in the codebase.

\_No public Flask routes were discovered for this module. It may provide services, utilities, or background helpers.\_

## Trust Module

Application module discovered in the codebase.

\_No public Flask routes were discovered for this module. It may provide services, utilities, or background helpers.\_

## Trust\_Engine Module

Application module discovered in the codebase.

\_No public Flask routes were discovered for this module. It may provide services, utilities, or background helpers.\_

## Validation Module

Application module discovered in the codebase.

\_No public Flask routes were discovered for this module. It may provide services, utilities, or background helpers.\_

## Verification\_Controls Module

Application module discovered in the codebase.

\_No public Flask routes were discovered for this module. It may provide services, utilities, or background helpers.\_

## Vyntra\_Doc Module

Application module discovered in the codebase.

| Route | Methods | Endpoint | Template | Purpose |

| --- | --- | --- | --- | --- |

| '/vyntra-doc/api/search' | GET | 'search\_api' | - | Handles the related application workflow. |

| '/vyntra-doc/report/<report\_name>' | GET | 'report' | 'vyntra\_doc/report.html' | Renders vyntra\_doc/report.html. |

| '/vyntra-doc/update' | POST | 'update' | - | Handles the related application workflow. |

## Workflows Module

Application module discovered in the codebase.

\_No public Flask routes were discovered for this module. It may provide services, utilities, or background helpers.\_

## Application-Level Routes

| Route | Methods | Endpoint | Template | Purpose |

| --- | --- | --- | --- | --- |

| '/admin/shops' | GET | 'admin\_shops' | 'shops.html' | Renders shops.html. |

| '/admin/shops/<int:shop\_id>' | GET, POST | 'admin\_shop\_detail' | 'shop\_verify.html' | Renders shop\_verify.html. |

| '/admin/shops/<int:shop\_id>/delete' | POST | 'delete\_admin\_shop' | - | Performs a controlled administrative delete or cleanup action. |

|

| '/app-entry-qr.png' | GET | 'app\_entry\_qr\_png' | - | Handles the related application workflow. |

| '/app-entry-qr.svg' | GET | 'app\_entry\_qr' | - | Handles the related application workflow. |

| '/app\_guide' | GET | 'app\_guide' | 'app\_guide.html' | Renders app\_guide.html. |

| '/documentation' | GET | 'view\_documentation' | 'documentation.html' | Display the system documentation for authorized admins. |

| '/documentation/update' | POST | 'refresh\_documentation' | - | Force-refresh generated documentation from the documentation agent. |

| '/favicon.ico' | GET | 'favicon' | - | Handles the related application workflow. |

| '/healthz' | GET | 'healthz' | 'deployment\_probe.html' | Renders deployment\_probe.html. |

| '/help-center' | GET, POST | 'help\_center' | 'help\_center.html' | Renders help\_center.html. |

| '/readiness' | GET | 'readiness' | 'deployment\_probe.html' | Renders deployment\_probe.html. |

| '/server/documents/<doc\_name>' | GET | 'server\_document\_view' | 'document\_view.html' | Renders document\_view.html. |

| '/server/documents/legal/update' | POST | 'refresh\_legal\_documents' | - | Handles the related application workflow. |

| '/server/documents/readme/update' | POST | 'refresh\_readme\_document' | - | Handles the related application workflow. |

| '/service-worker.js' | GET | 'service\_worker' | - | Handles the related application workflow. |

## Database Catalog

| Table | Responsibility | Defined or maintained in |

| --- | --- | --- |

| 'admin\_audit\_logs' | Database table discovered from migrations or module setup code. | 'init\_db.py', 'modules/security/audit.py' |

| 'admin\_logins' | Database table discovered from migrations or module setup code. | 'migrate\_admin\_logins.py' |

| 'adr\_records' | Database table discovered from migrations or module setup code. | 'modules/agents/state/store.py' |

| 'agent\_approval\_requests' | Database table discovered from migrations or module setup code. | 'modules/agents/state/store.py' |

| 'agent\_dead\_letters' | Database table discovered from migrations or module setup code. | 'modules/agents/state/store.py' |

| 'agent\_events' | Database table discovered from migrations or module setup code. | 'modules/agents/state/store.py' |

| 'agent\_failures' | Database table discovered from migrations or module setup code. | 'modules/agents/state/store.py' |

| 'agent\_identities' | Database table discovered from migrations or module setup code. | 'modules/agents/state/store.py' |

| 'agent\_memory\_snapshots' | Database table discovered from migrations or module setup code. | 'modules/agents/state/store.py' |

| 'agent\_observability\_traces' | Database table discovered from migrations or module setup code. | 'modules/agents/state/store.py' |

| 'agent\_policy\_audits' | Database table discovered from migrations or module setup code. | 'modules/agents/state/store.py' |

| 'agent\_runs' | Database table discovered from migrations or module setup code. | 'modules/agents/state/store.py' |

| 'agent\_state' | Database table discovered from migrations or module setup code. | 'modules/agents/state/store.py' |

| 'agent\_task\_dedupe' | Database table discovered from migrations or module setup code. | 'modules/agents/state/store.py' |

| 'ai\_admin\_reports' | Database table discovered from migrations or module setup code. | 'modules/ai/product\_memory\_agent.py' |

| 'ai\_boundary\_audits' | Database table discovered from migrations or module setup code. | 'modules/agents/state/store.py' |

| 'ai\_decision\_records' | Database table discovered from migrations or module setup code. | 'modules/agents/state/store.py' |

| `ai\_operation\_events` | Database table discovered from migrations or module setup code. | `modules/ai/product\_memory\_agent.py` |

| `ai\_operational\_insights` | Database table discovered from migrations or module setup code. | `modules/ai/operations\_engine/engine.py` |

|

| `ai\_product\_memory` | Database table discovered from migrations or module setup code. | `modules/ai/product\_memory\_agent.py` |

| `ai\_product\_memory\_snapshots` | Database table discovered from migrations or module setup code. | `modules/ai/product\_memory\_agent.py` |

|

| `ai\_recommendations` | Database table discovered from migrations or module setup code. | `modules/recommendations/engine.py` |

| `analytics\_snapshots` | Database table discovered from migrations or module setup code. | `modules/analytics/warehouse.py` |

| `api\_keys` | Database table discovered from migrations or module setup code. | `modules/integrations/service.py` |

| `api\_snapshots` | Database table discovered from migrations or module setup code. | `modules/agents/state/store.py` |

| `app\_billing\_exemptions` | Database table discovered from migrations or module setup code. | `modules/admin/routes.py` |

| `app\_billing\_methods` | Database table discovered from migrations or module setup code. | `modules/admin/routes.py` |

| `app\_billing\_settings` | Database table discovered from migrations or module setup code. | `modules/admin/routes.py` |

| `app\_billing\_subscriptions` | Database table discovered from migrations or module setup code. | `modules/admin/routes.py` |

| `app\_meta` | Internal key-value state for AI help and documentation update signatures. | `modules/ai/documentation\_agent.py`,  
`modules/ai/routes.py`, `modules/release\_notes/agent.py` |

| `app\_pricing\_tiers` | Database table discovered from migrations or module setup code. | `modules/admin/routes.py` |

| `app\_usage\_guides` | Database table discovered from migrations or module setup code. | `modules/ai/routes.py` |

| `app\_usage\_payments` | Database table discovered from migrations or module setup code. | `modules/admin/routes.py` |

| `architecture\_snapshots` | Database table discovered from migrations or module setup code. | `modules/agents/state/store.py` |

| `architecture\_validations` | Database table discovered from migrations or module setup code. | `modules/maintainability/service.py` |

| `audit\_logs` | Database table discovered from migrations or module setup code. | `modules/security/audit.py` |

| `automation\_alerts` | Database table discovered from migrations or module setup code. | `modules/automation/service.py` |

| `automation\_approvals` | Database table discovered from migrations or module setup code. | `modules/automation/service.py` |

| `automation\_audit\_log` | Database table discovered from migrations or module setup code. | `modules/automation/service.py` |

| `automation\_bottlenecks` | Database table discovered from migrations or module setup code. | `modules/automation/service.py` |

| `automation\_coordination\_locks` | Database table discovered from migrations or module setup code. | `modules/automation/service.py` |

| `automation\_dead\_letters` | Database table discovered from migrations or module setup code. | `modules/automation/service.py` |

| `automation\_events` | Database table discovered from migrations or module setup code. | `modules/automation/service.py` |

| `automation\_jobs` | Database table discovered from migrations or module setup code. | `modules/automation/service.py` |

| `automation\_memory` | Database table discovered from migrations or module setup code. | `modules/automation/service.py` |

| `automation\_metrics` | Database table discovered from migrations or module setup code. | `modules/automation/service.py` |

| `automation\_offline\_outbox` | Database table discovered from migrations or module setup code. | `modules/automation/service.py` |

| `automation\_predictions` | Database table discovered from migrations or module setup code. | `modules/automation/service.py` |

| `automation\_recovery\_journal` | Database table discovered from migrations or module setup code. | `modules/automation/service.py` |

| `automation\_reorder\_drafts` | Database table discovered from migrations or module setup code. | `modules/automation/service.py` |

| `automation\_resource\_policies` | Database table discovered from migrations or module setup code. | `modules/automation/service.py` |

| `automation\_rules` | Database table discovered from migrations or module setup code. | `modules/automation/service.py` |

| `automation\_schedules` | Database table discovered from migrations or module setup code. | `modules/automation/service.py` |

| `automation\_timeline` | Database table discovered from migrations or module setup code. | `modules/automation/service.py` |

| `autonomous\_business\_learning\_runs` | Database table discovered from migrations or module setup code. |

| `modules/operational\_memory/service.py` |

| `background\_dead\_letters` | Database table discovered from migrations or module setup code. | `modules/background\_tasks/queue.py` |

| `background\_tasks` | Database table discovered from migrations or module setup code. | `modules/background\_tasks/queue.py` |

| `backup\_logs` | Database table discovered from migrations or module setup code. | `init\_db.py`, `modules/backup/services.py` |

| `backup\_metadata` | Database table discovered from migrations or module setup code. | `init\_db.py`, `modules/backup/services.py` |

| `barcode\_anomaly\_alerts` | Database table discovered from migrations or module setup code. | `modules/barcode/scanning/anomaly.py` |

| `barcode\_assignments` | Database table discovered from migrations or module setup code. | `modules/barcode/inventory/service.py` |

| `barcode\_cache\_stats` | Database table discovered from migrations or module setup code. | `modules/barcode/scanning/intelligence.py` |

| `barcode\_conflicts` | Database table discovered from migrations or module setup code. | `modules/barcode/inventory/service.py` |

| `barcode\_print\_jobs` | Database table discovered from migrations or module setup code. | `modules/barcode/inventory/service.py` |

| `barcode\_scan\_events` | Database table discovered from migrations or module setup code. | `modules/barcode/inventory/service.py` |

| `barcode\_training\_sessions` | Database table discovered from migrations or module setup code. | `modules/barcode/scanning/anomaly.py` |

|

| `barcode\_workflow\_events` | Database table discovered from migrations or module setup code. |

| `modules/barcode/scanning/intelligence.py` |

| `barcode\_workflow\_sessions` | Database table discovered from migrations or module setup code. |

| `modules/barcode/scanning/intelligence.py` |

| `billing\_audit\_logs` | Database table discovered from migrations or module setup code. | `modules/billing/service.py` |

| `billing\_events` | Database table discovered from migrations or module setup code. | `modules/billing/service.py` |

| `branch\_analytics` | Database table discovered from migrations or module setup code. | `init\_db.py` |

| `branch\_operational\_alerts` | Database table discovered from migrations or module setup code. |

| `modules/enterprise\_branches/service.py` |

| `branch\_operational\_scores` | Database table discovered from migrations or module setup code. |

| `modules/enterprise\_branches/service.py` |

| `branch\_operational\_timeline` | Database table discovered from migrations or module setup code. |

| `modules/enterprise\_branches/service.py` |

| `branch\_stock\_transfers` | Database table discovered from migrations or module setup code. | `modules/enterprise\_branches/service.py` |

|

| `branch\_sync\_conflicts` | Database table discovered from migrations or module setup code. | `modules/enterprise\_branches/service.py` |

| `branch\_sync\_events` | Database table discovered from migrations or module setup code. | `modules/enterprise\_branches/service.py` |

| `branches` | Branches linked to shops for location-aware operations. | `init\_db.py`, `modules/branches/service.py` |

| `branding\_assets` | Database table discovered from migrations or module setup code. | `modules/agents/state/store.py` |

| `bulk\_import\_jobs` | Database table discovered from migrations or module setup code. | `modules/inventory/routes.py` |

| `bulk\_index\_jobs` | Database table discovered from migrations or module setup code. | `modules/bulk\_operations/service.py` |

| `bulk\_observability\_events` | Database table discovered from migrations or module setup code. | `modules/bulk\_operations/service.py` |

| `bulk\_offline\_staging` | Database table discovered from migrations or module setup code. | `modules/bulk\_operations/service.py` |

| `bulk\_operation\_approvals` | Database table discovered from migrations or module setup code. | `modules/bulk\_operations/service.py` |

| `bulk\_operation\_audit` | Database table discovered from migrations or module setup code. | `modules/bulk\_operations/service.py` |

| `bulk\_operation\_conflicts` | Database table discovered from migrations or module setup code. | `modules/bulk\_operations/service.py` |

| `bulk\_operation\_memory` | Database table discovered from migrations or module setup code. | `modules/bulk\_operations/service.py` |

| `bulk\_operation\_progress` | Database table discovered from migrations or module setup code. | `modules/bulk\_operations/service.py` |

| `bulk\_operation\_recovery` | Database table discovered from migrations or module setup code. | `modules/bulk\_operations/service.py` |

| `bulk\_operation\_rows` | Database table discovered from migrations or module setup code. | `modules/bulk\_operations/service.py` |

| `bulk\_operation\_versions` | Database table discovered from migrations or module setup code. | `modules/bulk\_operations/service.py` |

| `bulk\_operations` | Database table discovered from migrations or module setup code. | `modules/bulk\_operations/service.py` |

| `bulk\_product\_indexes` | Database table discovered from migrations or module setup code. | `modules/bulk\_operations/service.py` |

| `bulk\_reconciliation\_runs` | Database table discovered from migrations or module setup code. | `modules/bulk\_operations/service.py` |

| `bulk\_visibility\_checks` | Database table discovered from migrations or module setup code. | `modules/bulk\_operations/service.py` |

| `business\_activity\_metrics` | Database table discovered from migrations or module setup code. | `modules/business\_activity/service.py` |

|

| `business\_continuity\_records` | Database table discovered from migrations or module setup code. | `modules/agents/state/store.py` |

| `business\_health\_snapshots` | Database table discovered from migrations or module setup code. | `modules/agents/state/store.py` |

| `business\_insights` | Database table discovered from migrations or module setup code. | `modules/business\_retention/service.py` |

| `business\_pattern\_clusters` | Database table discovered from migrations or module setup code. |

| `modules/operational\_memory/service.py` |

| `business\_report\_runs` | Database table discovered from migrations or module setup code. | `modules/business\_retention/service.py` |

| `cart\_items` | Database table discovered from migrations or module setup code. | `init\_db.py`, `modules/sales/carts.py` |

| `carts` | Database table discovered from migrations or module setup code. | `init\_db.py`, `modules/sales/carts.py` |

| `cashier\_announcements` | Admin messages displayed to cashiers on the sales interface. | `modules/admin/routes.py`,

| `modules/sales/routes.py` |

| `cashier\_simulation\_runs` | Database table discovered from migrations or module setup code. | `modules/operations\_mode/service.py` |

| `cognitive\_load\_snapshots` | Database table discovered from migrations or module setup code. | `modules/agents/state/store.py` |

| `commercial\_strategy\_records` | Database table discovered from migrations or module setup code. | `modules/agents/state/store.py` |

| `competitive\_positioning\_records` | Database table discovered from migrations or module setup code. | `modules/agents/state/store.py` |

|

| `compliance\_readiness\_snapshots` | Database table discovered from migrations or module setup code. | `modules/agents/state/store.py` |

| `consistency\_snapshots` | Database table discovered from migrations or module setup code. | `modules/enterprise\_experience/service.py` |

|

| `core\_product\_protection\_records` | Database table discovered from migrations or module setup code. | `modules/agents/state/store.py` |

|

| `cost\_forecasts` | Database table discovered from migrations or module setup code. | `modules/cost\_management/service.py` |

| `cost\_optimization\_suggestions` | Database table discovered from migrations or module setup code. |

| `modules/cost\_management/service.py` |

| `cost\_usage\_metrics` | Database table discovered from migrations or module setup code. | `modules/cost\_management/service.py` |

| `crisis\_intelligence\_records` | Database table discovered from migrations or module setup code. | `modules/agents/state/store.py` |

| `csv\_agent\_settings` | Database table discovered from migrations or module setup code. | `modules/ai/csv\_agent.py` |

| `customer\_activity` | Database table discovered from migrations or module setup code. | `modules/customer\_success/service.py` |

| `customer\_health` | Database table discovered from migrations or module setup code. | `modules/customer\_success/service.py` |

| `customer\_offer\_recommendations` | Database table discovered from migrations or module setup code. |

| `modules/customer\_intelligence/service.py` |

| `customer\_segments` | Database table discovered from migrations or module setup code. | `modules/customer\_intelligence/service.py` |

| `customer\_success\_events` | Database table discovered from migrations or module setup code. | `modules/customer\_success/service.py` |

| `customers` | Customer profiles, loyalty points, and credit information. | `init\_db.py` |

| `daily\_operations` | Database table discovered from migrations or module setup code. | `modules/business\_activity/service.py` |

| `demo\_accounts` | Database table discovered from migrations or module setup code. | `modules/demo\_system/service.py` |

| `demo\_ai\_agent\_runs` | Database table discovered from migrations or module setup code. | `modules/demo/ai/update\_agent.py` |

| `demo\_ai\_approval\_queue` | Database table discovered from migrations or module setup code. | `modules/demo\_ai/state/store.py` |

| `demo\_ai\_artifacts` | Database table discovered from migrations or module setup code. | `modules/demo\_ai/state/store.py` |

| `demo\_ai\_audit\_logs` | Database table discovered from migrations or module setup code. | `modules/demo\_ai/state/store.py` |

| `demo\_ai\_creative\_reviews` | Database table discovered from migrations or module setup code. | `modules/demo\_ai/state/store.py` |

| `demo\_ai\_execution\_locks` | Database table discovered from migrations or module setup code. | `modules/demo\_ai/state/store.py` |

| `demo\_ai\_experience\_memory` | Database table discovered from migrations or module setup code. | `modules/demo\_ai/state/store.py` |

| `demo\_ai\_runs` | Database table discovered from migrations or module setup code. | `modules/demo\_ai/state/store.py` |

| `demo\_ai\_state\_hashes` | Database table discovered from migrations or module setup code. | `modules/demo\_ai/state/store.py` |

| `demo\_experience\_events` | Database table discovered from migrations or module setup code. |

`modules/demo/services/session\_manager.py` |

| `demo\_experience\_sessions` | Database table discovered from migrations or module setup code. |

`modules/demo/services/session\_manager.py` |

| `demo\_feature\_catalog` | Database table discovered from migrations or module setup code. | `modules/demo/ai/update\_agent.py` |

| `deployment\_audits` | Database table discovered from migrations or module setup code. | `modules/agents/state/store.py`,

`modules/deployment\_discipline/service.py` |

| `deployment\_communications` | Database table discovered from migrations or module setup code. |

`modules/business\_reliability/service.py` |

| `deployment\_events` | Database table discovered from migrations or module setup code. | `modules/operations.py` |

| `deprecated\_features` | Database table discovered from migrations or module setup code. | `modules/maintainability/service.py` |

| `devops\_assistant\_runs` | Database table discovered from migrations or module setup code. | `modules/devops\_assistant/service.py` |

| `digital\_twin\_simulations` | Database table discovered from migrations or module setup code. | `modules/agents/state/store.py` |

| `distribution\_partners` | Database table discovered from migrations or module setup code. | `modules/distribution/service.py` |

| `documentation\_quality\_reports` | Database table discovered from migrations or module setup code. | `modules/agents/state/store.py` |

| `documentation\_versions` | Database table discovered from migrations or module setup code. | `modules/agents/state/store.py` |

| `economic\_sustainability\_snapshots` | Database table discovered from migrations or module setup code. |

`modules/agents/state/store.py` |

| `engagement\_campaigns` | Database table discovered from migrations or module setup code. | `modules/retention\_engine/service.py` |

| `engagement\_events` | Database table discovered from migrations or module setup code. | `modules/retention\_engine/service.py` |

| `enterprise\_chaos\_validation\_runs` | Database table discovered from migrations or module setup code. |

`modules/operational\_intelligence/service.py` |

| `enterprise\_event\_bus` | Database table discovered from migrations or module setup code. | `modules/pos\_acceleration/service.py` |

| `enterprise\_recovery\_checkpoints` | Database table discovered from migrations or module setup code. |

`modules/pos\_acceleration/service.py` |

| `enterprise\_resilience\_runs` | Database table discovered from migrations or module setup code. | `modules/pos\_acceleration/service.py`

|

| `enterprise\_resilience\_scorecards` | Database table discovered from migrations or module setup code. |

`modules/stability\_governance/service.py` |

| `enterprise\_runtime\_state` | Database table discovered from migrations or module setup code. | `modules/pos\_acceleration/service.py` |

| `enterprise\_settings` | Database table discovered from migrations or module setup code. | `modules/enterprise\_experience/service.py` |

| `evolution\_stage\_records` | Database table discovered from migrations or module setup code. | `modules/agents/state/store.py` |

| `expenses` | Recorded business expenses for finance reporting. | `init\_db.py`, `modules/finance/routes.py` |

| `export\_audit\_logs` | Database table discovered from migrations or module setup code. | `modules/reports/services.py` |

| `export\_deliveries` | Database table discovered from migrations or module setup code. | `modules/reports/services.py` |

| `export\_jobs` | Database table discovered from migrations or module setup code. | `modules/analytics/warehouse.py`,

`modules/reports/services.py` |

| `export\_schedules` | Database table discovered from migrations or module setup code. | `modules/reports/services.py` |

| `feature\_flags` | Database table discovered from migrations or module setup code. | `modules/agents/state/store.py` |

| `feature\_necessity\_records` | Database table discovered from migrations or module setup code. | `modules/agents/state/store.py` |

| `feature\_priority\_scores` | Database table discovered from migrations or module setup code. | `modules/focus\_engine/service.py` |

| `feature\_usage\_events` | Database table discovered from migrations or module setup code. | `modules/product\_feedback/service.py` |

| `feature\_usage\_logs` | Database table discovered from migrations or module setup code. | `modules/product\_analytics/service.py` |

| `finance\_transactions` | Finance ledger entries created by fund and expense workflows. | `migrate\_fund\_tracking.py`,

`modules/finance/routes.py`, `modules/inventory/routes.py` |

| `founder\_continuity\_records` | Database table discovered from migrations or module setup code. | `modules/agents/state/store.py` |

| `founder\_load\_snapshots` | Database table discovered from migrations or module setup code. | `modules/agents/state/store.py` |

| `fraud\_alerts` | Suspicious activity records used by alerts and unread-count APIs. | `modules/alerts/services.py` |

| `fund\_balance` | Database table discovered from migrations or module setup code. | `migrate\_fund\_tracking.py`,

`modules/finance/routes.py` |

| `governance\_violations` | Database table discovered from migrations or module setup code. | `modules/agents/state/store.py` |

| `human\_governance\_scores` | Database table discovered from migrations or module setup code. | `modules/agents/state/store.py` |

| `incident\_center` | Database table discovered from migrations or module setup code. | `modules/observability/service.py` |

| `incident\_reports` | Database table discovered from migrations or module setup code. | `modules/observability/service.py`,

`modules/support/service.py` |

| `innovation\_records` | Database table discovered from migrations or module setup code. | `modules/agents/state/store.py` |

| `integrity\_validation\_jobs` | Database table discovered from migrations or module setup code. | `modules/data\_governance/service.py` |

| `internal\_messages` | Database table discovered from migrations or module setup code. | `modules/communication/service.py` |

| `internal\_operation\_roles` | Database table discovered from migrations or module setup code. |

`modules/internal\_operations/service.py` |

| `internal\_operation\_tasks` | Database table discovered from migrations or module setup code. |

`modules/internal\_operations/service.py` |

| `inventory\_audit\_trail` | Database table discovered from migrations or module setup code. | `modules/inventory\_intelligence/schema.py`

|

| `inventory\_automation\_rules` | Database table discovered from migrations or module setup code. |  
`modules/inventory\_intelligence/schema.py` |  
| `inventory\_expiry\_batches` | Database table discovered from migrations or module setup code. |  
`modules/inventory\_intelligence/schema.py` |  
| `inventory\_funds` | Fund source records for inventory purchases and fund tracking. | `migrate\_fund\_tracking.py`,  
`modules/inventory/routes.py` |  
| `inventory\_intelligence\_alerts` | Database table discovered from migrations or module setup code. |  
`modules/inventory\_intelligence/schema.py` |  
| `inventory\_intelligence\_runs` | Database table discovered from migrations or module setup code. |  
`modules/inventory\_intelligence/schema.py` |  
| `inventory\_knowledge\_edges` | Database table discovered from migrations or module setup code. |  
`modules/inventory\_intelligence/schema.py` |  
| `inventory\_operational\_memory` | Database table discovered from migrations or module setup code. |  
`modules/inventory\_intelligence/schema.py` |  
| `inventory\_recovery\_journal` | Database table discovered from migrations or module setup code. |  
`modules/inventory\_intelligence/schema.py` |  
| `inventory\_search\_index` | Database table discovered from migrations or module setup code. |  
`modules/inventory\_intelligence/schema.py` |  
| `inventory\_timeline\_events` | Database table discovered from migrations or module setup code. |  
`modules/inventory\_intelligence/schema.py` |  
| `invoice\_history` | Database table discovered from migrations or module setup code. | `modules/billing/service.py` |  
| `knowledge\_graph\_edges` | Database table discovered from migrations or module setup code. | `modules/agents/state/store.py` |  
| `knowledge\_graph\_nodes` | Database table discovered from migrations or module setup code. | `modules/agents/state/store.py` |  
| `legacy\_preservation\_records` | Database table discovered from migrations or module setup code. | `modules/agents/state/store.py` |  
| `local\_first\_chaos\_runs` | Database table discovered from migrations or module setup code. | `modules/local\_first/service.py` |  
| `local\_first\_runtime\_events` | Database table discovered from migrations or module setup code. | `modules/local\_first/service.py` |  
| `maintainability\_reports` | Database table discovered from migrations or module setup code. | `modules/maintainability/service.py` |  
| `market\_feedback` | Database table discovered from migrations or module setup code. | `modules/market\_validation/service.py` |  
| `migration\_logs` | Database table discovered from migrations or module setup code. | `modules/operations.py` |  
| `module\_dependency\_maps` | Database table discovered from migrations or module setup code. | `modules/maintainability/service.py` |  
| `notification\_logs` | Database table discovered from migrations or module setup code. | `modules/notifications/service.py` |  
| `notification\_queue` | Database table discovered from migrations or module setup code. | `modules/notifications/service.py` |  
| `offline\_client\_snapshots` | Database table discovered from migrations or module setup code. | `modules/offline/state/store.py` |  
| `offline\_conflicts` | Database table discovered from migrations or module setup code. | `modules/offline/state/store.py` |  
| `offline\_recovery\_events` | Database table discovered from migrations or module setup code. | `modules/offline/state/store.py` |  
| `offline\_resilience\_metrics` | Database table discovered from migrations or module setup code. | `modules/offline/state/store.py` |  
| `offline\_sync\_audit` | Database table discovered from migrations or module setup code. | `modules/offline/state/store.py` |  
| `offline\_sync\_events` | Database table discovered from migrations or module setup code. | `modules/offline/state/store.py` |  
| `onboarding\_progress` | Database table discovered from migrations or module setup code. | `modules/onboarding/service.py` |  
| `onboarding\_recommendations` | Database table discovered from migrations or module setup code. | `modules/onboarding/service.py` |  
| `operational\_accountability\_events` | Database table discovered from migrations or module setup code. |  
`modules/organizational\_governance/service.py` |  
| `operational\_alerts` | Database table discovered from migrations or module setup code. | `modules/operations.py` |  
| `operational\_announcements` | Database table discovered from migrations or module setup code. | `modules/communication/service.py` |  
| `operational\_approvals` | Database table discovered from migrations or module setup code. |  
`modules/organizational\_governance/service.py` |  
| `operational\_compliance\_checks` | Database table discovered from migrations or module setup code. |  
`modules/organizational\_governance/service.py` |  
| `operational\_event\_bus` | Database table discovered from migrations or module setup code. |  
`modules/operational\_intelligence/service.py` |  
| `operational\_governance\_policies` | Database table discovered from migrations or module setup code. |  
`modules/organizational\_governance/service.py` |  
| `operational\_heatmap\_events` | Database table discovered from migrations or module setup code. |  
`modules/operational\_intelligence/service.py` |  
| `operational\_improvement\_opportunities` | Database table discovered from migrations or module setup code. |  
`modules/operational\_memory/service.py` |  
| `operational\_intelligence\_edges` | Database table discovered from migrations or module setup code. | `modules/agents/state/store.py` |  
| `operational\_memory\_records` | Database table discovered from migrations or module setup code. |  
`modules/operational\_memory/service.py` |  
| `operational\_regression\_alerts` | Database table discovered from migrations or module setup code. |  
`modules/operational\_intelligence/service.py` |  
| `operational\_self\_healing\_events` | Database table discovered from migrations or module setup code. |  
`modules/operational\_intelligence/service.py` |  
| `operational\_trust\_checks` | Database table discovered from migrations or module setup code. | `modules/trust/service.py` |  
| `operational\_usage\_metrics` | Database table discovered from migrations or module setup code. | `modules/operations\_mode/service.py` |  
| `operational\_warnings` | Database table discovered from migrations or module setup code. | `modules/trust/service.py` |

| `organizational\_knowledge\_entries` | Database table discovered from migrations or module setup code. |  
`modules/organizational\_governance/service.py` |  
| `orphaned\_data\_findings` | Database table discovered from migrations or module setup code. | `modules/data\_governance/service.py` |  
| `overengineering\_risk\_records` | Database table discovered from migrations or module setup code. | `modules/agents/state/store.py` |  
| `ownership\_records` | Database table discovered from migrations or module setup code. | `modules/agents/state/store.py` |  
| `partner\_accounts` | Database table discovered from migrations or module setup code. | `modules/growth\_engine/service.py` |  
| `partner\_deployments` | Database table discovered from migrations or module setup code. | `modules/distribution/service.py` |  
| `partner\_leads` | Database table discovered from migrations or module setup code. | `modules/growth/service.py` |  
| `partner\_referrals` | Database table discovered from migrations or module setup code. | `modules/growth\_engine/service.py` |  
| `password\_resets` | Database table discovered from migrations or module setup code. | `migrate\_password\_reset.py`,  
`modules/auth/routes.py` |  
| `payment\_providers` | Database table discovered from migrations or module setup code. | `init\_db.py`, `migrate\_payment\_system.py` |  
| `payment\_status\_log` | Database table discovered from migrations or module setup code. | `migrate\_payment\_verification.py` |  
| `performance\_alerts` | Database table discovered from migrations or module setup code. | `modules/scaling/service.py` |  
| `performance\_budgets` | Database table discovered from migrations or module setup code. | `modules/performance.py` |  
| `performance\_cache\_events` | Database table discovered from migrations or module setup code. | `modules/performance.py` |  
| `performance\_chaos\_runs` | Database table discovered from migrations or module setup code. | `modules/performance.py` |  
| `performance\_guardrail\_alerts` | Database table discovered from migrations or module setup code. | `modules/performance.py` |  
| `performance\_guardrail\_events` | Database table discovered from migrations or module setup code. |  
`modules/enterprise\_experience/service.py` |  
| `performance\_query\_findings` | Database table discovered from migrations or module setup code. | `modules/performance.py` |  
| `performance\_route\_metrics` | Database table discovered from migrations or module setup code. | `modules/performance.py` |  
| `philosophy\_drift\_reports` | Database table discovered from migrations or module setup code. | `modules/agents/state/store.py` |  
| `pilot\_feedback` | Database table discovered from migrations or module setup code. | `modules/pilot\_program/service.py` |  
| `pilot\_metrics` | Database table discovered from migrations or module setup code. | `modules/pilot\_program/service.py` |  
| `pilot\_sessions` | Database table discovered from migrations or module setup code. | `modules/pilot\_program/service.py` |  
| `pilot\_shops` | Database table discovered from migrations or module setup code. | `modules/pilot\_program/service.py` |  
| `plan\_usage\_metrics` | Database table discovered from migrations or module setup code. | `modules/billing/service.py` |  
| `platform\_identity\_records` | Database table discovered from migrations or module setup code. | `modules/agents/state/store.py` |  
| `platform\_trust\_snapshots` | Database table discovered from migrations or module setup code. | `modules/platform\_trust/service.py` |  
| `plugin\_agent\_audits` | Database table discovered from migrations or module setup code. | `modules/agents/state/store.py` |  
| `plugin\_installations` | Database table discovered from migrations or module setup code. | `modules/marketplace/service.py` |  
| `plugin\_marketplace\_entries` | Database table discovered from migrations or module setup code. | `modules/marketplace/service.py` |  
| `plugins` | Database table discovered from migrations or module setup code. | `migrate\_plugins.py` |  
| `pos\_cache\_snapshots` | Database table discovered from migrations or module setup code. | `modules/pos\_acceleration/service.py` |  
| `pos\_checkout\_memory` | Database table discovered from migrations or module setup code. | `modules/pos\_acceleration/service.py` |  
| `pos\_performance\_events` | Database table discovered from migrations or module setup code. | `modules/pos\_acceleration/service.py` |  
| `pos\_recovery\_events` | Database table discovered from migrations or module setup code. | `modules/pos\_acceleration/service.py` |  
| `pos\_stress\_test\_runs` | Database table discovered from migrations or module setup code. | `modules/pos\_acceleration/service.py` |  
| `pos\_transaction\_states` | Database table discovered from migrations or module setup code. | `modules/pos\_acceleration/service.py` |  
| `procurement\_approvals` | Database table discovered from migrations or module setup code. | `modules/procurement/service.py` |  
| `procurement\_quotations` | Database table discovered from migrations or module setup code. | `modules/procurement/service.py` |  
| `product\_usage\_metrics` | Database table discovered from migrations or module setup code. | `modules/product\_analytics/service.py` |  
| `products` | Products and services with stock, pricing, barcodes, and shop-specific identifiers. | `init\_db.py` |  
| `products\_new` | Database table discovered from migrations or module setup code. | `migrate\_barcode\_constraint.py`,  
`migrate\_fix\_column\_order.py` |  
| `real\_world\_operation\_simulations` | Database table discovered from migrations or module setup code. |  
`modules/stability\_governance/service.py` |  
| `realtime\_events` | Database table discovered from migrations or module setup code. | `modules/realtime/service.py` |  
| `realtime\_presence` | Database table discovered from migrations or module setup code. | `modules/realtime/service.py` |  
| `receipt\_delivery\_settings` | Database table discovered from migrations or module setup code. | `init\_db.py`,  
`modules/receipts/services.py` |  
| `receipts` | Database table discovered from migrations or module setup code. | `init\_db.py` |  
| `recovery\_actions` | Database table discovered from migrations or module setup code. | `modules/observability/service.py` |  
| `recovery\_checkpoints` | Database table discovered from migrations or module setup code. | `modules/disaster\_recovery.py` |  
| `recovery\_drill\_runs` | Database table discovered from migrations or module setup code. | `modules/stability\_governance/service.py` |  
| `recovery\_recommendations` | Database table discovered from migrations or module setup code. | `modules/agents/state/store.py` |  
| `recovery\_simulations` | Database table discovered from migrations or module setup code. | `modules/disaster\_recovery.py` |  
| `referral\_programs` | Database table discovered from migrations or module setup code. | `modules/growth/service.py` |  
| `referral\_rewards` | Database table discovered from migrations or module setup code. | `modules/growth\_engine/service.py` |  
| `release\_checkpoints` | Database table discovered from migrations or module setup code. | `modules/operations.py` |  
| `release\_history` | Database table discovered from migrations or module setup code. | `modules/agents/state/store.py`,  
`modules/operations.py` |  
| `release\_notes` | Database table discovered from migrations or module setup code. | `modules/release\_notes/agent.py` |  
| `release\_validations` | Database table discovered from migrations or module setup code. | `modules/deployment\_discipline/service.py` |  
| `reliability\_cache\_events` | Database table discovered from migrations or module setup code. | `modules/reliability/service.py` |

| `reliability\_circuit\_breakers` | Database table discovered from migrations or module setup code. | `modules/reliability/service.py` |

| `reliability\_errors` | Database table discovered from migrations or module setup code. | `modules/reliability/service.py` |

| `reliability\_events` | Database table discovered from migrations or module setup code. | `modules/business\_reliability/service.py` |

| `reliability\_idempotency\_records` | Database table discovered from migrations or module setup code. | `modules/reliability/service.py` |

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| `reliability\_metrics` | Database table discovered from migrations or module setup code. | `modules/reliability/service.py` |

| `reliability\_modes` | Database table discovered from migrations or module setup code. | `modules/reliability/service.py` |

| `reliability\_recovery\_actions` | Database table discovered from migrations or module setup code. | `modules/reliability/service.py` |

| `report\_usage\_events` | Database table discovered from migrations or module setup code. | `modules/reports/services.py` |

| `report\_versions` | Database table discovered from migrations or module setup code. | `modules/reports/services.py` |

| `request\_traces` | Database table discovered from migrations or module setup code. | `modules/observability/service.py` |

| `resource\_usage\_logs` | Database table discovered from migrations or module setup code. | `modules/scaling/service.py` |

| `restock\_request\_items` | Database table discovered from migrations or module setup code. | `modules/restock/service.py` |

| `restock\_requests` | Database table discovered from migrations or module setup code. | `modules/restock/service.py` |

| `restore\_logs` | Database table discovered from migrations or module setup code. | `init\_db.py`, `modules/backup/services.py` |

| `retry\_jobs` | Database table discovered from migrations or module setup code. | `modules/business\_reliability/service.py` |

| `returns` | Database table discovered from migrations or module setup code. | `migrate\_fund\_tracking.py`, `migrate\_returns.py` |

| `roadmap\_discipline\_items` | Database table discovered from migrations or module setup code. | `modules/focus\_engine/service.py` |

| `role\_permissions` | Database table discovered from migrations or module setup code. | `modules/security/permissions.py` |

| `rollback\_events` | Database table discovered from migrations or module setup code. | `modules/deployment\_discipline/service.py` |

| `rollback\_helpers` | Database table discovered from migrations or module setup code. | `modules/devops\_assistant/service.py` |

| `route\_security\_events` | Database table discovered from migrations or module setup code. | `modules/security/route\_guard.py` |

| `sale\_items` | Line items connected to sales, quantities, pricing, and return tracking. | `migrate\_fund\_tracking.py`,  
`migrate\_returns.py`, `modules/offline/sync/processor.py` |

| `sales` | Sale headers, totals, cashier/shop/branch context, customer contact, and payment status. | `init\_db.py` |

| `sales\_analysis` | Database table discovered from migrations or module setup code. | `migrate\_fund\_tracking.py` |

| `scaling\_metrics` | Database table discovered from migrations or module setup code. | `modules/scaling/service.py` |

| `scheduled\_reports` | Database table discovered from migrations or module setup code. | `modules/analytics/warehouse.py` |

| `security\_audit\_events` | Database table discovered from migrations or module setup code. | `modules/security/audit.py` |

| `security\_maturity\_reports` | Database table discovered from migrations or module setup code. | `modules/security\_maturity/service.py` |

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| `self\_healing\_events` | Database table discovered from migrations or module setup code. | `modules/self\_healing/agent.py` |

| `self\_healing\_state` | Database table discovered from migrations or module setup code. | `modules/self\_healing/agent.py` |

| `sensitive\_action\_verifications` | Database table discovered from migrations or module setup code. | `modules/security/permissions.py` |

|

| `server\_agent\_notifications` | Database table discovered from migrations or module setup code. | `modules/self\_healing/agent.py` |

| `settings` | Database table discovered from migrations or module setup code. | `init\_db.py`, `modules/receipts/services.py`,  
`modules/verification\_controls/service.py` |

| `shop\_health\_scores` | Database table discovered from migrations or module setup code. | `modules/business\_activity/service.py` |

| `shop\_invitations` | Database table discovered from migrations or module setup code. | `modules/growth/service.py` |

| `shop\_operational\_profiles` | Database table discovered from migrations or module setup code. | `modules/operations\_mode/service.py` |

| `shop\_payment\_methods` | Database table discovered from migrations or module setup code. | `init\_db.py`, `migrate\_payment\_system.py` |

| `shops` | Tenant/shop registry, branding, status, verification, currency, and ownership context. | `init\_db.py` |

| `simplicity\_score\_snapshots` | Database table discovered from migrations or module setup code. | `modules/agents/state/store.py` |

| `simplicity\_warnings` | Database table discovered from migrations or module setup code. | `modules/agents/state/store.py` |

| `stability\_forecasts` | Database table discovered from migrations or module setup code. | `modules/agents/state/store.py` |

| `stability\_security\_events` | Database table discovered from migrations or module setup code. |  
`modules/stability\_governance/service.py` |

| `stability\_validation\_runs` | Database table discovered from migrations or module setup code. |  
`modules/stability\_governance/service.py` |

| `startup\_validation\_reports` | Database table discovered from migrations or module setup code. | `modules/system\_health.py` |

| `strategic\_intelligence\_scores` | Database table discovered from migrations or module setup code. | `modules/agents/state/store.py` |

| `strategic\_operational\_memory` | Database table discovered from migrations or module setup code. |  
`modules/operational\_memory/service.py` |

| `subscription\_history` | Database table discovered from migrations or module setup code. | `modules/billing/service.py` |

| `subscriptions` | Database table discovered from migrations or module setup code. | `modules/billing/service.py` |

| `supplier\_accounts` | Database table discovered from migrations or module setup code. | `modules/procurement/service.py` |

| `supplier\_inventory\_sync` | Database table discovered from migrations or module setup code. | `modules/procurement/service.py` |

| `supplier\_products` | Database table discovered from migrations or module setup code. | `modules/restock/service.py` |

| `supplier\_response\_events` | Database table discovered from migrations or module setup code. | `modules/procurement/service.py` |

| `suppliers` | Database table discovered from migrations or module setup code. | `modules/restock/service.py` |

| `support\_assignments` | Database table discovered from migrations or module setup code. | `modules/support/service.py` |

| `support\_diagnostics` | Database table discovered from migrations or module setup code. | `modules/support/service.py` |

| `support\_logs` | Database table discovered from migrations or module setup code. | `modules/support/service.py` |

| `support\_priority\_levels` | Database table discovered from migrations or module setup code. | `modules/support/service.py` |

| `support\_resolution\_metrics` | Database table discovered from migrations or module setup code. | `modules/support/service.py` |

| `support\_sessions` | Database table discovered from migrations or module setup code. | `modules/support/service.py` |  
 | `support\_slas` | Database table discovered from migrations or module setup code. | `modules/support/service.py` |  
 | `support\_tickets` | Database table discovered from migrations or module setup code. | `modules/support/service.py` |  
 | `suspicious\_activity\_findings` | Database table discovered from migrations or module setup code. |  
 `modules/organizational\_governance/service.py` |  
 | `suspicious\_activity\_scores` | Database table discovered from migrations or module setup code. |  
 `modules/security\_maturity/service.py` |  
 | `system\_alerts` | Database table discovered from migrations or module setup code. | `modules/system\_health.py` |  
 | `system\_constitution\_records` | Database table discovered from migrations or module setup code. | `modules/agents/state/store.py` |  
 | `system\_evolution\_snapshots` | Database table discovered from migrations or module setup code. | `modules/agents/state/store.py` |  
 | `system\_failures` | Database table discovered from migrations or module setup code. | `modules/system\_health.py` |  
 | `system\_health` | Database table discovered from migrations or module setup code. | `init\_db.py`, `modules/system\_health.py` |  
 | `system\_metrics` | Database table discovered from migrations or module setup code. | `modules/operations.py` |  
 | `technical\_debt\_records` | Database table discovered from migrations or module setup code. | `modules/agents/state/store.py` |  
 | `tenant\_integrity\_audits` | Database table discovered from migrations or module setup code. | `modules/agents/state/store.py` |  
 | `tenant\_isolation\_validations` | Database table discovered from migrations or module setup code. |  
 `modules/security\_maturity/service.py` |  
 | `trace\_spans` | Database table discovered from migrations or module setup code. | `modules/observability/service.py` |  
 | `transaction\_consistency\_checks` | Database table discovered from migrations or module setup code. |  
 `modules/data\_governance/service.py` |  
 | `trust\_indicators` | Database table discovered from migrations or module setup code. | `modules/trust\_engine/service.py` |  
 | `trust\_reliability\_snapshots` | Database table discovered from migrations or module setup code. | `modules/agents/state/store.py` |  
 | `tutorial\_videos` | Server-posted training videos for admins and cashiers. | `modules/admin/routes.py`,  
 `modules/admin/routes\_fixed.py`, `modules/sales/routes.py` |  
 | `universal\_audit\_events` | Database table discovered from migrations or module setup code. |  
 `modules/enterprise\_experience/service.py` |  
 | `usage\_metering` | Database table discovered from migrations or module setup code. | `modules/billing/service.py` |  
 | `user\_reports` | Database table discovered from migrations or module setup code. | `migrate\_create\_user\_reports.py`,  
 `modules/self\_healing/agent.py` |  
 | `users` | Admin and cashier accounts, role assignments, shop association, profile fields, and credentials. | `init\_db.py` |  
 | `ux\_friction\_logs` | Database table discovered from migrations or module setup code. | `modules/product\_feedback/service.py` |  
 | `ux\_friction\_records` | Database table discovered from migrations or module setup code. | `modules/agents/state/store.py` |  
 | `verification\_delivery\_events` | Database table discovered from migrations or module setup code. |  
 `modules/verification\_controls/service.py` |  
 | `verification\_route\_controls` | Database table discovered from migrations or module setup code. |  
 `modules/verification\_controls/service.py` |  
 | `webhook\_events` | Database table discovered from migrations or module setup code. | `modules/integrations/service.py` |  
 | `webhook\_subscriptions` | Database table discovered from migrations or module setup code. | `modules/integrations/service.py` |  
 | `workflow\_approvals` | Database table discovered from migrations or module setup code. | `modules/workflows/service.py` |  
 | `workflow\_definitions` | Database table discovered from migrations or module setup code. | `modules/workflows/service.py` |  
 | `workflow\_failures` | Database table discovered from migrations or module setup code. | `modules/product\_feedback/service.py` |  
 | `workflow\_runs` | Database table discovered from migrations or module setup code. | `modules/workflows/service.py` |  
 | `workspace\_states` | Database table discovered from migrations or module setup code. | `modules/enterprise\_experience/service.py` |

## Template Inventory

| Template | Responsibility |  
 | --- | --- |  
 | `templates/add\_customer.html` | UI template rendered by one or more workflows. |  
 | `templates/add\_product\_scan.html` | UI template rendered by one or more workflows. |  
 | `templates/add\_products.html` | UI template rendered by one or more workflows. |  
 | `templates/add\_service.html` | UI template rendered by one or more workflows. |  
 | `templates/admin.html` | UI template rendered by one or more workflows. |  
 | `templates/admin\_ai\_chat.html` | UI template rendered by one or more workflows. |  
 | `templates/admin\_app\_billing.html` | UI template rendered by one or more workflows. |  
 | `templates/admin\_plugins.html` | UI template rendered by one or more workflows. |  
 | `templates/admin\_tutorial\_videos.html` | UI template rendered by one or more workflows. |  
 | `templates/admin\_updates.html` | UI template rendered by one or more workflows. |  
 | `templates/admin\_user\_reports.html` | UI template rendered by one or more workflows. |  
 | `templates/ai\_csv\_agent.html` | UI template rendered by one or more workflows. |  
 | `templates/ai\_dashboard.html` | UI template rendered by one or more workflows. |  
 | `templates/ai\_insights.html` | UI template rendered by one or more workflows. |  
 | `templates/alerts.html` | UI template rendered by one or more workflows. |  
 | `templates/analytics.html` | UI template rendered by one or more workflows. |  
 | `templates/app\_billing\_pay.html` | UI template rendered by one or more workflows. |  
 | `templates/app\_guide.html` | UI template rendered by one or more workflows. |

| `templates/automation.html` | UI template rendered by one or more workflows. |  
| `templates/backup.html` | UI template rendered by one or more workflows. |  
| `templates/branches.html` | UI template rendered by one or more workflows. |  
| `templates/branches\_analytics.html` | UI template rendered by one or more workflows. |  
| `templates/bulk\_import\_products.html` | UI template rendered by one or more workflows. |  
| `templates/bulk\_import\_status.html` | UI template rendered by one or more workflows. |  
| `templates/bulk\_operations.html` | UI template rendered by one or more workflows. |  
| `templates/business\_activity.html` | UI template rendered by one or more workflows. |  
| `templates/business\_retention.html` | UI template rendered by one or more workflows. |  
| `templates/business\_transformation.html` | UI template rendered by one or more workflows. |  
| `templates/calendar.html` | UI template rendered by one or more workflows. |  
| `templates/cashier\_busy\_hours.html` | UI template rendered by one or more workflows. |  
| `templates/cashier\_tutorial\_videos.html` | UI template rendered by one or more workflows. |  
| `templates/cashiers.html` | UI template rendered by one or more workflows. |  
| `templates/change\_password.html` | UI template rendered by one or more workflows. |  
| `templates/cloud.html` | UI template rendered by one or more workflows. |  
| `templates/commercial\_billing.html` | UI template rendered by one or more workflows. |  
| `templates/company\_metrics.html` | UI template rendered by one or more workflows. |  
| `templates/company\_operations.html` | UI template rendered by one or more workflows. |  
| `templates/connect\_phone\_scanner.html` | UI template rendered by one or more workflows. |  
| `templates/customer\_intelligence.html` | UI template rendered by one or more workflows. |  
| `templates/customer\_success.html` | UI template rendered by one or more workflows. |  
| `templates/customers.html` | UI template rendered by one or more workflows. |  
| `templates/dashboard.html` | UI template rendered by one or more workflows. |  
| `templates/demo\_system.html` | UI template rendered by one or more workflows. |  
| `templates/deployment\_discipline.html` | UI template rendered by one or more workflows. |  
| `templates/deployment\_probe.html` | UI template rendered by one or more workflows. |  
| `templates/deployment\_trust.html` | UI template rendered by one or more workflows. |  
| `templates/distribution.html` | UI template rendered by one or more workflows. |  
| `templates/document\_view.html` | UI template rendered by one or more workflows. |  
| `templates/documentation.html` | UI template rendered by one or more workflows. |  
| `templates/edit\_admin.html` | UI template rendered by one or more workflows. |  
| `templates/edit\_cashier.html` | UI template rendered by one or more workflows. |  
| `templates/enterprise\_branches.html` | UI template rendered by one or more workflows. |  
| `templates/enterprise\_experience.html` | UI template rendered by one or more workflows. |  
| `templates/expenses.html` | UI template rendered by one or more workflows. |  
| `templates/finance.html` | UI template rendered by one or more workflows. |  
| `templates/finance\_cashflow.html` | UI template rendered by one or more workflows. |  
| `templates/forgot\_password.html` | UI template rendered by one or more workflows. |  
| `templates/fund\_analysis.html` | UI template rendered by one or more workflows. |  
| `templates/governance\_snapshot.html` | UI template rendered by one or more workflows. |  
| `templates/growth.html` | UI template rendered by one or more workflows. |  
| `templates/growth\_engine.html` | UI template rendered by one or more workflows. |  
| `templates/help\_center.html` | UI template rendered by one or more workflows. |  
| `templates/internal\_operations.html` | UI template rendered by one or more workflows. |  
| `templates/inventory.html` | UI template rendered by one or more workflows. |  
| `templates/login.html` | UI template rendered by one or more workflows. |  
| `templates/market\_validation.html` | UI template rendered by one or more workflows. |  
| `templates/mobile\_scan.html` | UI template rendered by one or more workflows. |  
| `templates/offline\_continuity.html` | UI template rendered by one or more workflows. |  
| `templates/operational\_memory.html` | UI template rendered by one or more workflows. |  
| `templates/operations\_center.html` | UI template rendered by one or more workflows. |  
| `templates/operations\_mode.html` | UI template rendered by one or more workflows. |  
| `templates/operations\_runbooks.html` | UI template rendered by one or more workflows. |  
| `templates/organizational\_governance.html` | UI template rendered by one or more workflows. |  
| `templates/payment.html` | UI template rendered by one or more workflows. |  
| `templates/payment\_methods.html` | UI template rendered by one or more workflows. |  
| `templates/payment\_status.html` | UI template rendered by one or more workflows. |  
| `templates/phone\_scanner.html` | UI template rendered by one or more workflows. |  
| `templates/phone\_scanner\_error.html` | UI template rendered by one or more workflows. |  
| `templates/pilot\_program.html` | UI template rendered by one or more workflows. |  
| `templates/pos\_acceleration.html` | UI template rendered by one or more workflows. |  
| `templates/procurement\_dashboard.html` | UI template rendered by one or more workflows. |  
| `templates/product\_analytics.html` | UI template rendered by one or more workflows. |  
| `templates/product\_feedback.html` | UI template rendered by one or more workflows. |  
| `templates/product\_intelligence.html` | UI template rendered by one or more workflows. |

| `templates/profile.html` | UI template rendered by one or more workflows. |  
 | `templates/profit\_loss.html` | UI template rendered by one or more workflows. |  
 | `templates/receipt\_delivery\_settings.html` | UI template rendered by one or more workflows. |  
 | `templates/receipt\_detail.html` | UI template rendered by one or more workflows. |  
 | `templates/receipts.html` | UI template rendered by one or more workflows. |  
 | `templates/recommendations.html` | UI template rendered by one or more workflows. |  
 | `templates/register.html` | UI template rendered by one or more workflows. |  
 | `templates/register\_admin.html` | UI template rendered by one or more workflows. |  
 | `templates/register\_verify.html` | UI template rendered by one or more workflows. |  
 | `templates/release\_notes.html` | UI template rendered by one or more workflows. |  
 | `templates/reliability.html` | UI template rendered by one or more workflows. |  
 | `templates/reliability\_center.html` | UI template rendered by one or more workflows. |  
 | `templates/report\_verification.html` | UI template rendered by one or more workflows. |  
 | `templates/reports.html` | UI template rendered by one or more workflows. |  
 | `templates/reports\_exports.html` | UI template rendered by one or more workflows. |  
 | `templates/restock\_dashboard.html` | UI template rendered by one or more workflows. |  
 | `templates/restock\_request.html` | UI template rendered by one or more workflows. |  
 | `templates/restock\_suppliers.html` | UI template rendered by one or more workflows. |  
 | `templates/retention\_engine.html` | UI template rendered by one or more workflows. |  
 | `templates/return\_goods.html` | UI template rendered by one or more workflows. |  
 | `templates/sales.html` | UI template rendered by one or more workflows. |  
 | `templates/scan.html` | UI template rendered by one or more workflows. |  
 | `templates/scanner\_center.html` | UI template rendered by one or more workflows. |  
 | `templates/server\_dashboard.html` | UI template rendered by one or more workflows. |  
 | `templates/server\_shops.html` | UI template rendered by one or more workflows. |  
 | `templates/server\_verification\_controls.html` | UI template rendered by one or more workflows. |  
 | `templates/shop\_verify.html` | UI template rendered by one or more workflows. |  
 | `templates/shops.html` | UI template rendered by one or more workflows. |  
 | `templates/supplier\_restock\_review.html` | UI template rendered by one or more workflows. |  
 | `templates/support.html` | UI template rendered by one or more workflows. |  
 | `templates/system\_operations.html` | UI template rendered by one or more workflows. |  
 | `templates/system\_trust.html` | UI template rendered by one or more workflows. |  
 | `templates/terms.html` | UI template rendered by one or more workflows. |  
 | `templates/transactions.html` | UI template rendered by one or more workflows. |  
 | `templates/trust.html` | UI template rendered by one or more workflows. |  
 | `templates/trust\_engine.html` | UI template rendered by one or more workflows. |  
 | `templates/welcome.html` | UI template rendered by one or more workflows. |  
 | `templates/welcome\_details.html` | UI template rendered by one or more workflows. |  
 | `templates/workflows.html` | UI template rendered by one or more workflows. |

## Static Asset Inventory

| Asset | Responsibility |  
 | --- | --- |  
 | `static/admin-dashboard.css` | Static asset loaded by app pages. |  
 | `static/ai-csv-agent.css` | Static asset loaded by app pages. |  
 | `static/app-icon-16.png` | Static asset loaded by app pages. |  
 | `static/app-icon-192.png` | Static asset loaded by app pages. |  
 | `static/app-icon-32.png` | Static asset loaded by app pages. |  
 | `static/app-icon-48.png` | Static asset loaded by app pages. |  
 | `static/app-icon-512.png` | Static asset loaded by app pages. |  
 | `static/app-icon.svg` | Static asset loaded by app pages. |  
 | `static/automation-offline.js` | Static asset loaded by app pages. |  
 | `static/automation.css` | Static asset loaded by app pages. |  
 | `static/automation.js` | Static asset loaded by app pages. |  
 | `static/autonomous-resilience.js` | Static asset loaded by app pages. |  
 | `static/bevian-theme.css` | Static asset loaded by app pages. |  
 | `static/bevian-theme.js` | Static asset loaded by app pages. |  
 | `static/charts.js` | Static asset loaded by app pages. |  
 | `static/enterprise-experience.css` | Static asset loaded by app pages. |  
 | `static/enterprise-experience.js` | Static asset loaded by app pages. |  
 | `static/enterprise-runtime.css` | Static asset loaded by app pages. |  
 | `static/enterprise-runtime.js` | Static asset loaded by app pages. |  
 | `static/favicon.ico` | Static asset loaded by app pages. |  
 | `static/indexeddb-operational-engine.js` | Static asset loaded by app pages. |  
 | `static/instant-navigation.css` | Static asset loaded by app pages. |

| `static/instant-navigation.js` | Static asset loaded by app pages. |  
| `static/manifest.webmanifest` | Static asset loaded by app pages. |  
| `static/offline-operational.js` | Static asset loaded by app pages. |  
| `static/offline.html` | Static asset loaded by app pages. |  
| `static/operational-experience.css` | Static asset loaded by app pages. |  
| `static/pos-accelerator.css` | Static asset loaded by app pages. |  
| `static/pos-accelerator.js` | Static asset loaded by app pages. |  
| `static/pwa-install.js` | Static asset loaded by app pages. |  
| `static/reliability-consolidation.js` | Static asset loaded by app pages. |  
| `static/reliability-runtime.js` | Static asset loaded by app pages. |  
| `static/scanner.js` | Static asset loaded by app pages. |  
| `static/service-worker.js` | Static asset loaded by app pages. |  
| `static/style.css` | Static asset loaded by app pages. |  
| `static/ultra-performance.css` | Static asset loaded by app pages. |  
| `static/ultra-performance.js` | Static asset loaded by app pages. |  
| `static/voice-commands.js` | Static asset loaded by app pages. |  
| `static/vyntra-app-icon-16.png` | Static asset loaded by app pages. |  
| `static/vyntra-app-icon-192.png` | Static asset loaded by app pages. |  
| `static/vyntra-app-icon-32.png` | Static asset loaded by app pages. |  
| `static/vyntra-app-icon-48.png` | Static asset loaded by app pages. |  
| `static/vyntra-app-icon-512.png` | Static asset loaded by app pages. |  
| `static/vyntra-app-icon.svg` | Static asset loaded by app pages. |  
| `static/vyntra-brand-board.svg` | Static asset loaded by app pages. |  
| `static/vyntra-favicon.ico` | Static asset loaded by app pages. |  
| `static/vyntra-wordmark.svg` | Static asset loaded by app pages. |

## Payment System

- Cash checkout is the default path and completes immediately after a sale is saved.
- Electronic providers are configured through Payment Methods and processed through `/process-payment/<provider\_code>`.
- Supported provider modules include M-Pesa, PayPal, Stripe, Paystack, Flutterwave, Wise, and bank transfer.
- M-Pesa callback, B2C result, and timeout routes are available for provider notifications.
- Payment status pages and APIs let the UI show pending, completed, failed, or verification-required states.

## Inventory And Sales Rules

- Products and services are stored in the catalog and can be searched, scanned, imported, edited, restocked, or deleted.
- The sales cart is database-backed in `carts` and `cart\_items`, so active carts survive refresh, logout, restart, and redeploy.
- Stock quantity checks apply to physical products; service entries can be sold without stock pressure.
- Receipts are generated after completed sales and can be viewed, sent, or used as the entry point for returns.
- Return flows update sale item state and can trigger fraud alerts for high-risk refund patterns.

## Finance, Analytics, And Reporting

- Finance features track expenses, loans, fund allocation, and cash-flow by fund source.
- Analytics routes provide dashboard metrics, product performance, branch overview APIs, and AI-assisted summaries.
- Reports include shop reporting and server-owner user reports with read/reply actions.
- Branch analytics compares operational activity across branch contexts.

## Backup, Cloud, And Update Operations

- Backup routes can create, validate, restore SQLite backups, and track PostgreSQL backup metadata.
- Cloud routes can upload full backup data, export shop/user data, download exports, list update packages, create updates, and apply updates.
- Update application should be treated as an administrative operation because it can restart or modify app files.
- The persistence layer, Alembic migrations, PostgreSQL backups, and startup validation protect operational data around deploys and updates.

## AI Features

- AI Dashboard: summarizes business signals from local shop data.
- AI Help: refreshes usage guidance when the app changes.
- AI CSV Agent: analyzes inventory CSV data and supports auto/manual CSV modes.
- Documentation Agent: keeps this professional system document synchronized with the application.
- Branch AI: supports branch optimization and branch-level analytical recommendations.

## Deployment And Configuration

- Main entry point: `app.py`.
- WSGI/start command: defined by `Procfile`.

- Python dependencies: listed in `requirements.txt`.
- Production database: PostgreSQL through `DATABASE\_URL`.
- Development fallback database: `database.db`.
- Persistent upload, backup, cloud sync, and log directories resolve through environment-aware storage helpers.
- Runtime secret: `SECRET\_KEY`, required in production.
- Startup validation: `deployment/startup\_checks.py` verifies env vars, database connectivity, migration state, and persistent directories.

## Production Hardening Layer

- Config is split into `config/base.py`, `config/development.py`, `config/production.py`, and `config/testing.py`.
- Runtime schema bootstrapping is skipped for Alembic CLI commands so `flask --app app:app db upgrade` runs without import-time table mutation.
- Central structured logging writes rotating logs with request correlation IDs and response `X-Request-ID` headers.
- The storage abstraction under `modules/storage/` supports local persistent disk now and leaves a provider boundary for S3 or Cloudinary.
- Carts use database persistence, checkout tokens, locks, optimistic versions, expiration timestamps, and checked-out completion timestamps.
- `backup\_metadata`, `backup\_logs`, `restore\_logs`, `system\_health`, and `admin\_audit\_logs` track durability, restore safety, health, and privileged writes.
- Background tasks retain synchronous compatibility while adding retry, scheduled backup/cart cleanup, database queue, backend hooks, and dead-letter persistence.

## Dependencies

```
| Dependency |
| --- |
| `Flask==3.1.3` |
| `Werkzeug==3.1.8` |
| `Jinja2==3.1.6` |
| `itsdangerous==2.2.0` |
| `click==8.3.2` |
| `requests==2.32.5` |
| `gunicorn==21.2.0` |
| `qrcode==8.2` |
| `python-barcode==0.15.1` |
| `Pillow` |
| `openpyxl` |
| `psycpg2-binary` |
| `Flask-SQLAlchemy==3.1.1` |
| `Flask-Migrate==4.0.7` |
```

## Maintenance Checklist

- Run migrations before serving new code.
- Confirm `/readiness` returns `ok: true` after deploy.
- Keep Render persistent disk paths on `/var/data` for uploads, backups, cloud sync files, and logs.
- Confirm `DOCUMENTATION.md` refreshes after route or template changes.
- Check route references after adding buttons, form actions, or fetch calls.
- Keep payment provider credentials out of source files.
- Back up `database.db` before applying updates or destructive cleanup actions.
- Validate server-owner routes after admin module changes.
- Test checkout, receipt, return, backup, and restore flows after database schema changes.

## Troubleshooting Guide

- 404 on a button: verify the template `href`, `action`, or `fetch()` target exists in the route reference.
- 405 on form submit: confirm the route supports the submitted HTTP method.
- Login loop: check session keys, role, shop status, and suspended-shop guards.
- Checkout failure: confirm cart contents, idempotency key, enabled payment method, and provider configuration.
- Missing analytics data: confirm `shop\_id`, `branch\_id`, sales timestamps, and migration status.
- Documentation not updating: clear or update `app\_meta.documentation\_hash`, then restart the app or call the documentation agent with `force=True`.

---

\*Generated by the Vyntra AI Documentation Agent on 2026-05-20 12:08:16.\*

## docs/api/API\_REFERENCE.md

# API Reference

\_Generated by the API Documentation Agent on 2026-05-18 15:27:49 UTC. Secrets and sensitive implementation details are intentionally excluded.\_

## Executive Summary

This document catalogs the current Flask route surface and exports OpenAPI-compatible records. It is conservative by design: schemas are inferred at route level and sensitive payload examples are not generated.

## API Surface Metrics

|                                                     |
|-----------------------------------------------------|
| Metric   Value                                      |
| ---   ---                                           |
| Endpoints discovered   176                          |
| Modules with routes   24                            |
| OpenAPI export   `docs/api/openapi.json`            |
| Swagger-compatible export   `docs/api/swagger.yaml` |

## Routes By Module

|                      |
|----------------------|
| Module   Route count |
| ---   ---            |
| admin   21           |
| sales   16           |
| auth   13            |
| inventory   12       |
| analytics   11       |
| app   11             |
| cloud   10           |
| receipts   9         |
| agents   8           |
| payments   8         |
| barcode   7          |
| finance   7          |
| restock   7          |
| cashiers   6         |
| ai   5               |
| backup   5           |
| customers   4        |
| reports   4          |
| recommendations   3  |
| alerts   2           |
| dashboard   2        |
| release_notes   2    |
| server   2           |
| branches   1         |

## Auth Requirements Summary

|                         |
|-------------------------|
| Auth hint   Route count |
| ---   ---               |
| admin   67              |
| authenticated   39      |
| public   3              |
| server_owner   44       |
| unknown   23            |

## Sensitivity Summary

|                           |
|---------------------------|
| Sensitivity   Route count |
| ---   ---                 |
| high   54                 |
| medium   37               |
| normal   85               |

## Endpoint Catalog

|                                                    |
|----------------------------------------------------|
| Route   Methods   Module   Auth hint   Sensitivity |
|----------------------------------------------------|

```

| --- | --- | --- | --- | --- |
| '/admin/add-cashier' | POST | admin | admin | high |
| '/admin/announce-cashiers' | POST | admin | authenticated | high |
| '/admin/app-billing' | GET | admin | server_owner | high |
| '/admin/app-billing/exemptions' | POST | admin | server_owner | high |
| '/admin/app-billing/methods' | POST | admin | server_owner | high |
| '/admin/app-billing/pay' | GET | admin | authenticated | high |
| '/admin/app-billing/pay' | POST | admin | authenticated | high |
| '/admin/app-billing/payments/<int:payment_id>/status' | POST | admin | server_owner | high |
| '/admin/app-billing/settings' | POST | admin | server_owner | high |
| '/admin/app-billing/tiers' | POST | admin | server_owner | high |
| '/admin/app-billing/tiers/<int:tier_id>/delete' | POST | admin | server_owner | high |
| '/admin/brand' | POST | admin | authenticated | high |
| '/admin/calendar' | GET, POST | admin | authenticated | high |
| '/admin/calendar/delete' | POST | admin | authenticated | high |
| '/admin/plugins' | GET | admin | server_owner | high |
| '/admin/plugins/register' | POST | admin | server_owner | high |
| '/admin/plugins/toggle' | POST | admin | server_owner | high |
| '/admin/sales/cleanup' | POST | admin | authenticated | high |
| '/admin/system-operations' | GET | admin | unknown | high |
| '/admin/tutorial-videos' | GET | admin | server_owner | high |
| '/admin/tutorial-videos/post' | POST | admin | server_owner | high |
| '/admin/agents/<agent_name>/queue' | POST | agents | unknown | high |
| '/admin/agents/api' | GET | agents | unknown | high |
| '/admin/agents/architecture' | GET | agents | unknown | high |
| '/admin/agents/deployment' | GET | agents | unknown | high |
| '/admin/agents/queue' | POST | agents | unknown | high |
| '/admin/agents/releases' | GET | agents | unknown | high |
| '/admin/agents/run-now' | POST | agents | unknown | high |
| '/admin/agents/security' | GET | agents | unknown | high |
| '/ai' | GET | ai | admin | normal |
| '/ai-csv-agent' | GET, POST | ai | admin | normal |
| '/ai-csv-agent/download' | GET | ai | admin | normal |
| '/ai-help' | GET | ai | server_owner | normal |
| '/api/ai-help/update-guide' | POST | ai | server_owner | medium |
| '/alerts' | GET | alerts | admin | normal |
| '/api/alerts/fraud-unread-count' | GET | alerts | admin | medium |
| '/analytics' | GET | analytics | admin | normal |
| '/analytics/ai-insights' | GET | analytics | admin | normal |
| '/analytics/branches' | GET | analytics | admin | normal |
| '/analytics/funds' | GET | analytics | admin | normal |
| '/analytics/profit-loss' | GET | analytics | admin | normal |
| '/api/analytics/ai-agent' | POST | analytics | admin | medium |
| '/api/analytics/branches/ai' | POST | analytics | admin | medium |
| '/api/analytics/branches/overview' | GET | analytics | admin | medium |
| '/api/analytics/compare' | POST | analytics | admin | medium |
| '/api/product-performance/<period>' | GET | analytics | admin | medium |
| '/api/sales-chart/<period>' | GET | analytics | admin | medium |
| '/admin/shops' | GET | app | server_owner | high |
| '/admin/shops/<int:shop_id>' | GET, POST | app | server_owner | high |
| '/admin/shops/<int:shop_id>/delete' | POST | app | server_owner | high |
| '/app-entry-qrcode.svg' | GET | app | unknown | normal |
| '/app_guide' | GET | app | authenticated | normal |
| '/documentation' | GET | app | unknown | normal |
| '/documentation/update' | POST | app | unknown | normal |
| '/healthz' | GET | app | unknown | normal |
| '/help-center' | GET, POST | app | authenticated | normal |
| '/readiness' | GET | app | unknown | normal |
| '/service-worker.js' | GET | app | unknown | normal |
| '/' | GET | auth | public | normal |
| '/admin/edit' | GET, POST | auth | admin | high |
| '/change-password' | GET, POST | auth | server_owner | normal |
| '/forgot-password' | GET, POST | auth | authenticated | normal |
| '/free_server_entry' | POST | auth | server_owner | high |
| '/login' | GET, POST | auth | admin | normal |
| '/logout' | GET | auth | authenticated | normal |

```

| `/register` | GET, POST | auth | admin | normal |  
 | `/register-admin` | GET, POST | auth | unknown | high |  
 | `/register/verify` | GET, POST | auth | authenticated | normal |  
 | `/register/verify/resend` | POST | auth | unknown | normal |  
 | `/terms` | GET | auth | public | normal |  
 | `/welcome` | GET | auth | public | normal |  
 | `/backup` | GET | backup | server\_owner | high |  
 | `/backup/create` | POST | backup | server\_owner | high |  
 | `/backup/download/<filename>` | GET | backup | server\_owner | high |  
 | `/backup/restore/<filename>` | POST | backup | server\_owner | high |  
 | `/backup/validate/<filename>` | POST | backup | server\_owner | high |  
 | `/api/phone-scanner/<token>/next` | GET | barcode | authenticated | medium |  
 | `/api/phone-scanner/<token>/scan` | POST | barcode | authenticated | medium |  
 | `/connect-phone-scanner` | GET | barcode | authenticated | normal |  
 | `/mobile-scan` | GET | barcode | authenticated | normal |  
 | `/phone-scanner/<token>` | GET | barcode | authenticated | normal |  
 | `/scan` | GET, POST | barcode | authenticated | normal |  
 | `/scanner-center` | GET | barcode | authenticated | normal |  
 | `/admin/branches` | GET, POST | branches | admin | high |  
 | `/cashier\_tutorial\_videos` | GET | cashiers | admin | normal |  
 | `/cashiers` | GET, POST | cashiers | admin | normal |  
 | `/cashiers/<int:cashier\_id>/edit` | GET, POST | cashiers | admin | normal |  
 | `/profile` | GET, POST | cashiers | authenticated | normal |  
 | `/set-language` | POST | cashiers | admin | normal |  
 | `/uploads/certifications/<filename>` | GET | cashiers | admin | normal |  
 | `/cloud` | GET | cloud | server\_owner | normal |  
 | `/cloud/apply-update/<filename>` | POST | cloud | server\_owner | normal |  
 | `/cloud/create-update` | POST | cloud | server\_owner | normal |  
 | `/cloud/download-backup/<filename>` | GET | cloud | server\_owner | high |  
 | `/cloud/download-export/<filename>` | GET | cloud | admin | normal |  
 | `/cloud/export-all-user-data` | POST | cloud | server\_owner | normal |  
 | `/cloud/export-user-data` | POST | cloud | admin | normal |  
 | `/cloud/restore/<filename>` | POST | cloud | server\_owner | high |  
 | `/cloud/updates` | GET | cloud | server\_owner | normal |  
 | `/cloud/upload` | POST | cloud | server\_owner | normal |  
 | `/add-credit/<int:id>` | POST | customers | admin | normal |  
 | `/add-customer` | GET, POST | customers | admin | normal |  
 | `/add-points/<int:id>/<int:points>` | POST | customers | admin | normal |  
 | `/customers` | GET | customers | admin | normal |  
 | `/admin` | GET | dashboard | server\_owner | high |  
 | `/dashboard` | GET | dashboard | server\_owner | normal |  
 | `/add-expense` | GET, POST | finance | admin | normal |  
 | `/add-loan` | POST | finance | admin | normal |  
 | `/allocate-fund` | POST | finance | admin | normal |  
 | `/expenses` | GET | finance | admin | normal |  
 | `/expenses/<int:expense\_id>/delete` | POST | finance | admin | high |  
 | `/finance` | GET | finance | admin | normal |  
 | `/finance/cashflow/<fund\_source>` | GET | finance | admin | normal |  
 | `/add-product` | GET, POST | inventory | admin | normal |  
 | `/add-product-scan` | GET | inventory | admin | normal |  
 | `/add-service` | GET, POST | inventory | admin | normal |  
 | `/bulk-import-products` | GET, POST | inventory | server\_owner | normal |  
 | `/bulk-import-products/jobs/<int:job\_id>` | GET | inventory | server\_owner | normal |  
 | `/bulk-import-products/jobs/<int:job\_id>/process` | POST | inventory | server\_owner | normal |  
 | `/bulk-import-products/jobs/<int:job\_id>/status` | GET | inventory | server\_owner | normal |  
 | `/delete/<int:id>` | POST | inventory | admin | high |  
 | `/inventory` | GET | inventory | admin | medium |  
 | `/search-inventory` | GET | inventory | authenticated | medium |  
 | `/update-stock/<int:id>` | POST | inventory | admin | normal |  
 | `/voice-search-product` | POST | inventory | authenticated | normal |  
 | `/api/payment-methods` | GET | payments | authenticated | medium |  
 | `/checkout-methods` | GET | payments | authenticated | normal |  
 | `/mpesa/b2c/result` | POST | payments | unknown | normal |  
 | `/mpesa/b2c/timeout` | POST | payments | unknown | normal |  
 | `/mpesa/callback` | POST | payments | unknown | medium |  
 | `/payment-methods` | GET | payments | admin | medium |

```

| `/payment-methods/save` | POST | payments | admin | medium |
| `/process-payment/<provider_code>` | POST | payments | admin | medium |
| `/admin/receipt-delivery` | GET, POST | receipts | admin | high |
| `/api/payment-status/<int:sale_id>` | GET | receipts | authenticated | medium |
| `/payment-status/<int:sale_id>` | GET | receipts | admin | medium |
| `/payment-status/<int:sale_id>/confirm` | POST | receipts | admin | medium |
| `/payment-status/<int:sale_id>/refresh` | POST | receipts | authenticated | medium |
| `/payment-verify/<int:sale_id>` | POST | receipts | admin | medium |
| `/receipt/<int:sale_id>/send` | POST | receipts | authenticated | medium |
| `/receipts` | GET | receipts | authenticated | medium |
| `/receipts/<int:sale_id>` | GET | receipts | authenticated | medium |
| `/api/recommendations` | GET | recommendations | authenticated | medium |
| `/api/recommendations/refresh` | POST | recommendations | authenticated | medium |
| `/recommendations` | GET | recommendations | authenticated | normal |
| `/admin/release-notes` | GET, POST | release_notes | server_owner | high |
| `/release-notes` | GET | release_notes | server_owner | normal |
| `/admin/user-reports` | GET, POST | reports | server_owner | high |
| `/admin/user-reports/<int:report_id>/mark-read` | POST | reports | server_owner | high |
| `/admin/user-reports/<int:report_id>/reply` | POST | reports | server_owner | high |
| `/reports` | GET | reports | admin | normal |
| `/restock` | GET | restock | authenticated | normal |
| `/restock/generate` | POST | restock | authenticated | normal |
| `/restock/request/<int:request_id>` | GET, POST | restock | authenticated | normal |
| `/restock/request/<int:request_id>/download` | GET | restock | authenticated | normal |
| `/restock/request/<int:request_id>/notify-admins` | POST | restock | authenticated | high |
| `/restock/supplier/<token>` | GET, POST | restock | unknown | normal |
| `/restock/suppliers` | GET, POST | restock | authenticated | normal |
| `/api/cart` | GET | sales | admin | medium |
| `/api/cart/add` | POST | sales | admin | medium |
| `/api/cart/clear` | POST | sales | admin | medium |
| `/api/cart/price` | POST | sales | admin | medium |
| `/api/cart/remove/<int:product_id>` | POST | sales | admin | medium |
| `/api/cart/update` | POST | sales | admin | medium |
| `/api/customers/search` | GET | sales | admin | medium |
| `/checkout` | GET | sales | authenticated | normal |
| `/process-payment/cash` | GET | sales | unknown | medium |
| `/receipt/<int:sale_id>` | GET | sales | admin | medium |
| `/return-goods` | GET, POST | sales | admin | normal |
| `/sales` | GET, POST | sales | admin | medium |
| `/search-product` | GET | sales | admin | normal |
| `/set-currency` | POST | sales | admin | normal |
| `/transactions` | GET | sales | admin | normal |
| `/voice-add-to-cart` | POST | sales | admin | normal |
| `/server/dashboard` | GET | server | unknown | high |
| `/server/shops` | GET | server | server_owner | high |

```

## Request Schema Policy

- Form routes generally accept browser form data and return HTML or redirects.
- JSON API routes generally use request JSON or query parameters and return JSON.
- Path parameters are exported to OpenAPI when they use Flask-style ``<name>`` markers.
- Provider credentials, payment secrets, tokens, and environment values are never included in examples.

## Response Schema Policy

- HTML routes can return `200` pages, `302` redirects, or validation errors.
- API routes can return JSON success/error envelopes depending on workflow.
- Payment and callback routes should be tested with provider sandbox tooling before production changes.

## Route Change Tracking

- Additive routes should be documented with route, role, request expectations, and response behavior.
- Auth or role changes should be treated as security-impacting release items.
- Payment, callback, billing, backup, restore, cleanup, and server-owner routes require manual review before deployment.
- Deprecated routes should remain documented until removed from production and release notes.

## Example Payload Guidance

```
```json
{
  "example": "Use route-specific forms or JSON payloads. Sensitive fields must be supplied through environment or secure admin configuration, not
generated documentation."
}
```
```

Schema Policy

- Request and response schemas are inferred conservatively from Flask routes.
- Payment provider secrets, tokens, and callback credentials are never written to generated docs.
- Role hints should be reviewed when route guards change.

Enterprise Completeness Appendix

Record Scope

This record is maintained by the API Documentation Agent. Its scope is: endpoint catalogs, auth requirements, role hints, route sensitivity, OpenAPI exports, Swagger exports, and schema-change policy

Generated Outputs Covered

```
| Output |
| --- |
| `docs/api/API_REFERENCE.md` |
| `docs/api/openapi.json` |
| `docs/api/swagger.yaml` |
```

Completion Checklist

```
| Requirement | Status |
| --- | --- |
| Professional markdown structure | Included |
| Evidence-oriented summaries | Included |
| Safety boundaries | Included |
| Operational review notes | Included |
| Generated backup before overwrite | Handled by agent writer |
| No secrets or credentials | Required by generator policy |
| Solo-founder maintainability | Prioritized |
```

Maintenance Rule

- Regenerate this record after feature, route, database, deployment, branding, payment, security, or governance changes.
- Review the generated result before using it externally.
- Commit the record with release milestones when it is part of release evidence.
- Keep archived versions as historical evidence, not as the primary current source.

Safety Boundary

- Secrets, API keys, provider credentials, passwords, customer data, and environment variable values are never exported.
- Generated files are backed up before overwrite.
- Hash comparison and cooldowns reduce unnecessary regeneration.
- Heavy analysis runs through explicit agent execution or background queues, not normal request rendering.

docs/database/DATABASE\_INTELLIGENCE.md

Database Intelligence Report

\_Generated by the Database Intelligence Agent on 2026-05-18 15:27:55 UTC. Secrets and sensitive implementation details are intentionally excluded.\_

Executive Summary

This report documents database structure discovered from migrations and module setup code. It is static-analysis based and designed to support PostgreSQL production compatibility and SQLite development fallback.

Database Footprint

```
| Metric | Value |
| --- | --- |
```

| Tables discovered | 201 |  
| Migration files discovered | 31 |  
| Schema export | `docs/database/schema.json` |  
| ERD export | `docs/database/erd.mmd` |

## Table Grouping

| Prefix/domain | Table count |  
| --- | --- |  
| app | 8 |  
| support | 8 |  
| ai | 6 |  
| customer | 5 |  
| operational | 5 |  
| agent | 4 |  
| partner | 4 |  
| pilot | 4 |  
| release | 4 |  
| shop | 4 |  
| supplier | 4 |  
| system | 4 |  
| workflow | 4 |  
| branch | 3 |  
| business | 3 |  
| cost | 3 |  
| deployment | 3 |  
| feature | 3 |  
| internal | 3 |  
| recovery | 3 |  
| admin | 2 |  
| api | 2 |  
| architecture | 2 |  
| background | 2 |  
| backup | 2 |  
| billing | 2 |  
| cashier | 2 |  
| engagement | 2 |  
| incident | 2 |  
| notification | 2 |

## Schema Catalog

| Table | Maintained in |  
| --- | --- |  
| `admin\_audit\_logs` | `init\_db.py`, `modules/security/audit.py` |  
| `admin\_logins` | `migrate\_admin\_logins.py` |  
| `agent\_failures` | `modules/agents/state/store.py` |  
| `agent\_runs` | `modules/agents/state/store.py` |  
| `agent\_state` | `modules/agents/state/store.py` |  
| `agent\_task\_dedupe` | `modules/agents/state/store.py` |  
| `ai\_admin\_reports` | `modules/ai/product\_memory\_agent.py` |  
| `ai\_operation\_events` | `modules/ai/product\_memory\_agent.py` |  
| `ai\_operational\_insights` | `modules/ai/operations\_engine/engine.py` |  
| `ai\_product\_memory` | `modules/ai/product\_memory\_agent.py` |  
| `ai\_product\_memory\_snapshots` | `modules/ai/product\_memory\_agent.py` |  
| `ai\_recommendations` | `modules/recommendations/engine.py` |  
| `analytics\_snapshots` | `modules/analytics/warehouse.py` |  
| `api\_keys` | `modules/integrations/service.py` |  
| `api\_snapshots` | `modules/agents/state/store.py` |  
| `app\_billing\_exemptions` | `modules/admin/routes.py` |  
| `app\_billing\_methods` | `modules/admin/routes.py` |  
| `app\_billing\_settings` | `modules/admin/routes.py` |  
| `app\_billing\_subscriptions` | `modules/admin/routes.py` |  
| `app\_meta` | `modules/ai/documentation\_agent.py`, `modules/ai/routes.py`, `modules/release\_notes/agent.py` |  
| `app\_pricing\_tiers` | `modules/admin/routes.py` |  
| `app\_usage\_guides` | `modules/ai/routes.py` |  
| `app\_usage\_payments` | `modules/admin/routes.py` |

| `architecture\_snapshots` | `modules/agents/state/store.py` |  
 | `architecture\_validations` | `modules/maintainability/service.py` |  
 | `audit\_logs` | `modules/security/audit.py` |  
 | `background\_dead\_letters` | `modules/background\_tasks/queue.py` |  
 | `background\_tasks` | `modules/background\_tasks/queue.py` |  
 | `backup\_logs` | `init\_db.py`, `modules/backup/services.py` |  
 | `backup\_metadata` | `init\_db.py`, `modules/backup/services.py` |  
 | `billing\_audit\_logs` | `modules/billing/service.py` |  
 | `billing\_events` | `modules/billing/service.py` |  
 | `branch\_analytics` | `init\_db.py` |  
 | `branch\_operational\_scores` | `modules/enterprise\_branches/service.py` |  
 | `branch\_stock\_transfers` | `modules/enterprise\_branches/service.py` |  
 | `branches` | `init\_db.py`, `modules/branches/service.py` |  
 | `branding\_assets` | `modules/agents/state/store.py` |  
 | `bulk\_import\_jobs` | `modules/inventory/routes.py` |  
 | `business\_activity\_metrics` | `modules/business\_activity/service.py` |  
 | `business\_insights` | `modules/business\_retention/service.py` |  
 | `business\_report\_runs` | `modules/business\_retention/service.py` |  
 | `cart\_items` | `init\_db.py`, `modules/sales/carts.py` |  
 | `carts` | `init\_db.py`, `modules/sales/carts.py` |  
 | `cashier\_announcements` | `modules/admin/routes.py`, `modules/sales/routes.py` |  
 | `cashier\_simulation\_runs` | `modules/operations\_mode/service.py` |  
 | `cost\_forecasts` | `modules/cost\_management/service.py` |  
 | `cost\_optimization\_suggestions` | `modules/cost\_management/service.py` |  
 | `cost\_usage\_metrics` | `modules/cost\_management/service.py` |  
 | `csv\_agent\_settings` | `modules/ai/csv\_agent.py` |  
 | `customer\_activity` | `modules/customer\_success/service.py` |  
 | `customer\_health` | `modules/customer\_success/service.py` |  
 | `customer\_offer\_recommendations` | `modules/customer\_intelligence/service.py` |  
 | `customer\_segments` | `modules/customer\_intelligence/service.py` |  
 | `customer\_success\_events` | `modules/customer\_success/service.py` |  
 | `customers` | `init\_db.py` |  
 | `daily\_operations` | `modules/business\_activity/service.py` |  
 | `demo\_accounts` | `modules/demo\_system/service.py` |  
 | `deployment\_audits` | `modules/agents/state/store.py`, `modules/deployment\_discipline/service.py` |  
 | `deployment\_communications` | `modules/business\_reliability/service.py` |  
 | `deployment\_events` | `modules/operations.py` |  
 | `deprecated\_features` | `modules/maintainability/service.py` |  
 | `devops\_assistant\_runs` | `modules/devops\_assistant/service.py` |  
 | `distribution\_partners` | `modules/distribution/service.py` |  
 | `documentation\_versions` | `modules/agents/state/store.py` |  
 | `engagement\_campaigns` | `modules/retention\_engine/service.py` |  
 | `engagement\_events` | `modules/retention\_engine/service.py` |  
 | `expenses` | `init\_db.py`, `modules/finance/routes.py` |  
 | `export\_jobs` | `modules/analytics/warehouse.py` |  
 | `feature\_priority\_scores` | `modules/focus\_engine/service.py` |  
 | `feature\_usage\_events` | `modules/product\_feedback/service.py` |  
 | `feature\_usage\_logs` | `modules/product\_analytics/service.py` |  
 | `finance\_transactions` | `migrate\_fund\_tracking.py`, `modules/finance/routes.py`, `modules/inventory/routes.py` |  
 | `fraud\_alerts` | `modules/alerts/services.py` |  
 | `fund\_balance` | `migrate\_fund\_tracking.py`, `modules/finance/routes.py` |  
 | `incident\_center` | `modules/observability/service.py` |  
 | `incident\_reports` | `modules/observability/service.py`, `modules/support/service.py` |  
 | `innovation\_records` | `modules/agents/state/store.py` |  
 | `integrity\_validation\_jobs` | `modules/data\_governance/service.py` |  
 | `internal\_messages` | `modules/communication/service.py` |  
 | `internal\_operation\_roles` | `modules/internal\_operations/service.py` |  
 | `internal\_operation\_tasks` | `modules/internal\_operations/service.py` |  
 | `inventory\_funds` | `migrate\_fund\_tracking.py`, `modules/inventory/routes.py` |  
 | `invoice\_history` | `modules/billing/service.py` |  
 | `maintainability\_reports` | `modules/maintainability/service.py` |  
 | `market\_feedback` | `modules/market\_validation/service.py` |  
 | `migration\_logs` | `modules/operations.py` |  
 | `module\_dependency\_maps` | `modules/maintainability/service.py` |  
 | `notification\_logs` | `modules/notifications/service.py` |  
 | `notification\_queue` | `modules/notifications/service.py` |

```

| `offline_conflicts` | `modules/offline/routes.py` |
| `offline_sync_events` | `modules/offline/routes.py` |
| `onboarding_progress` | `modules/onboarding/service.py` |
| `onboarding_recommendations` | `modules/onboarding/service.py` |
| `operational_alerts` | `modules/operations.py` |
| `operational_announcements` | `modules/communication/service.py` |
| `operational_trust_checks` | `modules/trust/service.py` |
| `operational_usage_metrics` | `modules/operations_mode/service.py` |
| `operational_warnings` | `modules/trust/service.py` |
| `orphaned_data_findings` | `modules/data_governance/service.py` |
| `ownership_records` | `modules/agents/state/store.py` |
| `partner_accounts` | `modules/growth_engine/service.py` |
| `partner_deployments` | `modules/distribution/service.py` |
| `partner_leads` | `modules/growth/service.py` |
| `partner_referrals` | `modules/growth_engine/service.py` |
| `password_resets` | `migrate_password_reset.py`, `modules/auth/routes.py` |
| `payment_providers` | `init_db.py`, `migrate_payment_system.py` |
| `payment_status_log` | `migrate_payment_verification.py` |
| `performance_alerts` | `modules/scaling/service.py` |
| `pilot_feedback` | `modules/pilot_program/service.py` |
| `pilot_metrics` | `modules/pilot_program/service.py` |
| `pilot_sessions` | `modules/pilot_program/service.py` |
| `pilot_shops` | `modules/pilot_program/service.py` |
| `plan_usage_metrics` | `modules/billing/service.py` |
| `platform_trust_snapshots` | `modules/platform_trust/service.py` |
| `plugin_installations` | `modules/marketplace/service.py` |
| `plugin_marketplace_entries` | `modules/marketplace/service.py` |
| `plugins` | `migrate_plugins.py` |
| `procurement_approvals` | `modules/procurement/service.py` |
| `procurement_quotations` | `modules/procurement/service.py` |
| `product_usage_metrics` | `modules/product_analytics/service.py` |
| `products` | `init_db.py` |
| `products_new` | `migrate_barcode_constraint.py`, `migrate_fix_column_order.py` |
| `realtime_events` | `modules/realtime/service.py` |
| `realtime_presence` | `modules/realtime/service.py` |
| `receipt_delivery_settings` | `init_db.py`, `modules/receipts/services.py` |
| `receipts` | `init_db.py` |
| `recovery_actions` | `modules/observability/service.py` |
| `recovery_checkpoints` | `modules/disaster_recovery.py` |
| `recovery_simulations` | `modules/disaster_recovery.py` |
| `referral_programs` | `modules/growth/service.py` |
| `referral_rewards` | `modules/growth_engine/service.py` |
| `release_checkpoints` | `modules/operations.py` |
| `release_history` | `modules/agents/state/store.py`, `modules/operations.py` |
| `release_notes` | `modules/release_notes/agent.py` |
| `release_validations` | `modules/deployment_discipline/service.py` |
| `reliability_events` | `modules/business_reliability/service.py` |
| `request_traces` | `modules/observability/service.py` |
| `resource_usage_logs` | `modules/scaling/service.py` |
| `restock_request_items` | `modules/restock/service.py` |
| `restock_requests` | `modules/restock/service.py` |
| `restore_logs` | `init_db.py`, `modules/backup/services.py` |
| `retry_jobs` | `modules/business_reliability/service.py` |
| `returns` | `migrate_fund_tracking.py`, `migrate_returns.py` |
| `roadmap_discipline_items` | `modules/focus_engine/service.py` |
| `role_permissions` | `modules/security/permissions.py` |
| `rollback_events` | `modules/deployment_discipline/service.py` |
| `rollback_helpers` | `modules/devops_assistant/service.py` |
| `route_security_events` | `modules/security/route_guard.py` |
| `sale_items` | `migrate_fund_tracking.py`, `migrate_returns.py` |
| `sales` | `init_db.py` |
| `sales_analysis` | `migrate_fund_tracking.py` |
| `scaling_metrics` | `modules/scaling/service.py` |
| `scheduled_reports` | `modules/analytics/warehouse.py` |
| `security_audit_events` | `modules/security/audit.py` |
| `security_maturity_reports` | `modules/security_maturity/service.py` |

```

```

| `self_healing_events` | `modules/self_healing/agent.py` |
| `self_healing_state` | `modules/self_healing/agent.py` |
| `sensitive_action_verifications` | `modules/security/permissions.py` |
| `server_agent_notifications` | `modules/self_healing/agent.py` |
| `settings` | `init_db.py` |
| `shop_health_scores` | `modules/business_activity/service.py` |
| `shop_invitations` | `modules/growth/service.py` |
| `shop_operational_profiles` | `modules/operations_mode/service.py` |
| `shop_payment_methods` | `init_db.py`, `migrate_payment_system.py` |
| `shops` | `init_db.py` |
| `startup_validation_reports` | `modules/system_health.py` |
| `subscription_history` | `modules/billing/service.py` |
| `subscriptions` | `modules/billing/service.py` |
| `supplier_accounts` | `modules/procurement/service.py` |
| `supplier_inventory_sync` | `modules/procurement/service.py` |
| `supplier_products` | `modules/restock/service.py` |
| `supplier_response_events` | `modules/procurement/service.py` |
| `suppliers` | `modules/restock/service.py` |
| `support_assignments` | `modules/support/service.py` |
| `support_diagnostics` | `modules/support/service.py` |
| `support_logs` | `modules/support/service.py` |
| `support_priority_levels` | `modules/support/service.py` |
| `support_resolution_metrics` | `modules/support/service.py` |
| `support_sessions` | `modules/support/service.py` |
| `support_slas` | `modules/support/service.py` |
| `support_tickets` | `modules/support/service.py` |
| `suspicious_activity_scores` | `modules/security_maturity/service.py` |
| `system_alerts` | `modules/system_health.py` |
| `system_failures` | `modules/system_health.py` |
| `system_health` | `init_db.py`, `modules/system_health.py` |
| `system_metrics` | `modules/operations.py` |
| `tenant_isolation_validations` | `modules/security_maturity/service.py` |
| `trace_spans` | `modules/observability/service.py` |
| `transaction_consistency_checks` | `modules/data_governance/service.py` |
| `trust_indicators` | `modules/trust_engine/service.py` |
| `tutorial_videos` | `modules/admin/routes.py`, `modules/admin/routes_fixed.py`, `modules/sales/routes.py` |
| `usage_metering` | `modules/billing/service.py` |
| `user_reports` | `migrate_create_user_reports.py`, `modules/self_healing/agent.py` |
| `users` | `init_db.py` |
| `ux_friction_logs` | `modules/product_feedback/service.py` |
| `webhook_events` | `modules/integrations/service.py` |
| `webhook_subscriptions` | `modules/integrations/service.py` |
| `workflow_approvals` | `modules/workflows/service.py` |
| `workflow_definitions` | `modules/workflows/service.py` |
| `workflow_failures` | `modules/product_feedback/service.py` |
| `workflow_runs` | `modules/workflows/service.py` |

```

## Migration Lineage

```

| Migration or schema file |
| --- |
| 0001_persistent_cloud_architecture.py |
| 0002_production_hardening_persistence.py |
| 0003_enterprise_operational_scaling.py |
| 0004_engineering_workflow_operations.py |
| 0005_commerce_ecosystem_foundation.py |
| 0006_market_validation_business_platform.py |
| 0007_commercial_ecosystem_operations.py |
| 0008_operational_execution_company_layer.py |
| env.py |
| migrate_add_indexes.py |
| migrate_add_shop_name.py |
| migrate_admin_logins.py |
| migrate_barcode_constraint.py |
| migrate_checkout_efficiency.py |
| migrate_create_user_reports.py |

```

```
| migrate_currency.py |
|migrate_fix_column_order.py |
|migrate_fund_tracking.py |
|migrate_language.py |
|migrate_optimize_db.py |
|migrate_password_reset.py |
|migrate_payment_system.py |
|migrate_payment_verification.py |
|migrate_payments_efficiency.py |
|migrate_plugins.py |
|migrate_returns.py |
|migrate_shop_product_ids.py |
|migrate_soft_delete_products.py |
|migrate_sqlite_to_postgres.py |
|migrate_user_phone.py |
|migrate_user_profiles.py |
```

## ERD

```
```mermaid
erDiagram
    admin_audit_logs {
        string documented
    }
    admin_logins {
        string documented
    }
    agent_failures {
        string documented
    }
    agent_runs {
        string documented
    }
    agent_state {
        string documented
    }
    agent_task_dedupe {
        string documented
    }
    ai_admin_reports {
        string documented
    }
    ai_operation_events {
        string documented
    }
    ai_operational_insights {
        string documented
    }
    ai_product_memory {
        string documented
    }
    ai_product_memory_snapshots {
        string documented
    }
    ai_recommendations {
        string documented
    }
    analytics_snapshots {
        string documented
    }
    api_keys {
        string documented
    }
    api_snapshots {
        string documented
    }
    app_billing_exemptions {
        string documented
    }
    app_billing_methods {
        string documented
    }
    app_billing_settings {
```

```

    string documented
}
app_billing_subscriptions {
    string documented
}
app_meta {
    string documented
}
app_pricing_tiers {
    string documented
}
app_usage_guides {
    string documented
}
app_usage_payments {
    string documented
}
architecture_snapshots {
    string documented
}
architecture_validations {
    string documented
}
audit_logs {
    string documented
}
background_dead_letters {
    string documented
}
background_tasks {
    string documented
}
backup_logs {
    string documented
}
backup_metadata {
    string documented
}
billing_audit_logs {
    string documented
}
billing_events {
    string documented
}
branch_analytics {
    string documented
}
branch_operational_scores {
    string documented
}
branch_stock_transfers {
    string documented
}
branches {
    string documented
}
branding_assets {
    string documented
}
bulk_import_jobs {
    string documented
}
business_activity_metrics {
    string documented
}
business_insights {
    string documented
}
business_report_runs {
    string documented
}
cart_items {
    string documented
}
carts {
    string documented
}

```

```

}
cashier_announcements {
  string documented
}
cashier_simulation_runs {
  string documented
}
}
cost_forecasts {
  string documented
}
cost_optimization_suggestions {
  string documented
}
}
cost_usage_metrics {
  string documented
}
}
csv_agent_settings {
  string documented
}
}
customer_activity {
  string documented
}
}
customer_health {
  string documented
}
}
customer_offer_recommendations {
  string documented
}
}
customer_segments {
  string documented
}
}
customer_success_events {
  string documented
}
}
customers {
  string documented
}
}
daily_operations {
  string documented
}
}
demo_accounts {
  string documented
}
}
deployment_audits {
  string documented
}
}
deployment_communications {
  string documented
}
}
deployment_events {
  string documented
}
}
deprecated_features {
  string documented
}
}
devops_assistant_runs {
  string documented
}
}
distribution_partners {
  string documented
}
}
documentation_versions {
  string documented
}
}
engagement_campaigns {
  string documented
}
}
engagement_events {
  string documented
}
}
expenses {
  string documented
}
}
export_jobs {
  string documented
}
}

```

```

feature_priority_scores {
  string documented
}
feature_usage_events {
  string documented
}
feature_usage_logs {
  string documented
}
finance_transactions {
  string documented
}
fraud_alerts {
  string documented
}
fund_balance {
  string documented
}
incident_center {
  string documented
}
incident_reports {
  string documented
}
innovation_records {
  string documented
}
integrity_validation_jobs {
  string documented
}
internal_messages {
  string documented
}
internal_operation_roles {
  string documented
}
internal_operation_tasks {
  string documented
}
inventory_funds {
  string documented
}
invoice_history {
  string documented
}
maintainability_reports {
  string documented
}
market_feedback {
  string documented
}
migration_logs {
  string documented
}
module_dependency_maps {
  string documented
}
notification_logs {
  string documented
}
notification_queue {
  string documented
}
offline_conflicts {
  string documented
}
offline_sync_events {
  string documented
}
onboarding_progress {
  string documented
}
onboarding_recommendations {
  string documented
}
operational_alerts {

```

```

    string documented
}
operational_announcements {
    string documented
}
operational_trust_checks {
    string documented
}
operational_usage_metrics {
    string documented
}
operational_warnings {
    string documented
}
orphaned_data_findings {
    string documented
}
ownership_records {
    string documented
}
partner_accounts {
    string documented
}
partner_deployments {
    string documented
}
partner_leads {
    string documented
}
partner_referrals {
    string documented
}
password_resets {
    string documented
}
payment_providers {
    string documented
}
payment_status_log {
    string documented
}
performance_alerts {
    string documented
}
pilot_feedback {
    string documented
}
pilot_metrics {
    string documented
}
pilot_sessions {
    string documented
}
pilot_shops {
    string documented
}
plan_usage_metrics {
    string documented
}
platform_trust_snapshots {
    string documented
}
plugin_installations {
    string documented
}
plugin_marketplace_entries {
    string documented
}
plugins {
    string documented
}
procurement_approvals {
    string documented
}
procurement_quotations {
    string documented
}

```

```

}
product_usage_metrics {
  string documented
}
products {
  string documented
}
products_new {
  string documented
}
realtime_events {
  string documented
}
realtime_presence {
  string documented
}
receipt_delivery_settings {
  string documented
}
receipts {
  string documented
}
recovery_actions {
  string documented
}
recovery_checkpoints {
  string documented
}
recovery_simulations {
  string documented
}
referral_programs {
  string documented
}
referral_rewards {
  string documented
}
release_checkpoints {
  string documented
}
release_history {
  string documented
}
release_notes {
  string documented
}
release_validations {
  string documented
}
reliability_events {
  string documented
}
request_traces {
  string documented
}
resource_usage_logs {
  string documented
}
restock_request_items {
  string documented
}
restock_requests {
  string documented
}
restore_logs {
  string documented
}
retry_jobs {
  string documented
}
returns {
  string documented
}
roadmap_discipline_items {
  string documented
}
}

```

```

role_permissions {
  string documented
}
rollback_events {
  string documented
}
rollback_helpers {
  string documented
}
route_security_events {
  string documented
}
sale_items {
  string documented
}
sales {
  string documented
}
sales_analysis {
  string documented
}
scaling_metrics {
  string documented
}
scheduled_reports {
  string documented
}
security_audit_events {
  string documented
}
security_maturity_reports {
  string documented
}
self_healing_events {
  string documented
}
self_healing_state {
  string documented
}
sensitive_action_verifications {
  string documented
}
server_agent_notifications {
  string documented
}
settings {
  string documented
}
shop_health_scores {
  string documented
}
shop_invitations {
  string documented
}
shop_operational_profiles {
  string documented
}
shop_payment_methods {
  string documented
}
shops {
  string documented
}
startup_validation_reports {
  string documented
}
subscription_history {
  string documented
}
subscriptions {
  string documented
}
supplier_accounts {
  string documented
}
supplier_inventory_sync {

```

```

    string documented
}
supplier_products {
    string documented
}
supplier_response_events {
    string documented
}
suppliers {
    string documented
}
support_assignments {
    string documented
}
support_diagnostics {
    string documented
}
support_logs {
    string documented
}
support_priority_levels {
    string documented
}
support_resolution_metrics {
    string documented
}
support_sessions {
    string documented
}
support_slas {
    string documented
}
support_tickets {
    string documented
}
suspicious_activity_scores {
    string documented
}
system_alerts {
    string documented
}
system_failures {
    string documented
}
system_health {
    string documented
}
system_metrics {
    string documented
}
tenant_isolation_validations {
    string documented
}
trace_spans {
    string documented
}
transaction_consistency_checks {
    string documented
}
trust_indicators {
    string documented
}
tutorial_videos {
    string documented
}
usage_metering {
    string documented
}
user_reports {
    string documented
}
users {
    string documented
}
ux_friction_logs {
    string documented
}

```

```

}
webhook_events {
  string documented
}
webhook_subscriptions {
  string documented
}
workflow_approvals {
  string documented
}
workflow_definitions {
  string documented
}
workflow_failures {
  string documented
}
workflow_runs {
  string documented
}
...

```

## Index And Performance Observations

- Static schema discovery does not prove runtime index coverage; review migrations and high-volume routes before scaling.
- Sales, sale items, products, carts, receipts, payment records, background tasks, and agent audit tables are likely growth areas.
- PostgreSQL production deployments should validate sequence synchronization and migration status.
- SQLite development fallback should remain compatible with generated governance tables.

## Schema Risk Watchlist

- Tables with provider, payment, token, or reset semantics should avoid exporting sensitive values.
- Cleanup and delete workflows should maintain backups and audit records.
- New governance tables should be additive and backward-compatible with existing production schemas.

## Observations

- Table discovery is static and migration-aware.
- PostgreSQL and SQLite compatibility should be validated through startup migration checks.

## Enterprise Completeness Appendix

### Record Scope

This record is maintained by the Database Intelligence Agent. Its scope is: schema maps, ERD exports, migration lineage, database observations, and compatibility review notes

### Generated Outputs Covered

```

| Output |
| --- |
| `docs/database/DATABASE_INTELLIGENCE.md` |
| `docs/database/erd.mmd` |
| `docs/database/schema.json` |

```

### Completion Checklist

```

| Requirement | Status |
| --- | --- |
| Professional markdown structure | Included |
| Evidence-oriented summaries | Included |
| Safety boundaries | Included |
| Operational review notes | Included |
| Generated backup before overwrite | Handled by agent writer |
| No secrets or credentials | Required by generator policy |
| Solo-founder maintainability | Prioritized |

```

### Maintenance Rule

- Regenerate this record after feature, route, database, deployment, branding, payment, security, or governance changes.
- Review the generated result before using it externally.
- Commit the record with release milestones when it is part of release evidence.
- Keep archived versions as historical evidence, not as the primary current source.

### Safety Boundary

- Secrets, API keys, provider credentials, passwords, customer data, and environment variable values are never exported.
- Generated files are backed up before overwrite.
- Hash comparison and cooldowns reduce unnecessary regeneration.
- Heavy analysis runs through explicit agent execution or background queues, not normal request rendering.

## docs/security/SECURITY\_POSTURE.md

### Security Governance Report

\_Generated by the Security Governance Agent on 2026-05-18 15:27:57 UTC. Secrets and sensitive implementation details are intentionally excluded.\_

#### Executive Summary

This report documents route sensitivity, authentication posture, payment/callback exposure, and governance review notes. It intentionally excludes secrets, credentials, provider keys, and customer data.

#### Auth Posture Summary

| Auth hint | Route count |  
| --- | --- |  
| admin | 67 |  
| authenticated | 39 |  
| public | 3 |  
| server\_owner | 44 |  
| unknown | 23 |

#### High Sensitivity Routes

| Route | Methods | Module | Auth hint |  
| --- | --- | --- | --- |  
| `/admin/add-cashier` | POST | admin | admin |  
| `/admin/announce-cashiers` | POST | admin | authenticated |  
| `/admin/app-billing` | GET | admin | server\_owner |  
| `/admin/app-billing/exemptions` | POST | admin | server\_owner |  
| `/admin/app-billing/methods` | POST | admin | server\_owner |  
| `/admin/app-billing/pay` | GET | admin | authenticated |  
| `/admin/app-billing/pay` | POST | admin | authenticated |  
| `/admin/app-billing/payments/<int:payment\_id>/status` | POST | admin | server\_owner |  
| `/admin/app-billing/settings` | POST | admin | server\_owner |  
| `/admin/app-billing/tiers` | POST | admin | server\_owner |  
| `/admin/app-billing/tiers/<int:tier\_id>/delete` | POST | admin | server\_owner |  
| `/admin/brand` | POST | admin | authenticated |  
| `/admin/calendar` | GET, POST | admin | authenticated |  
| `/admin/calendar/delete` | POST | admin | authenticated |  
| `/admin/plugins` | GET | admin | server\_owner |  
| `/admin/plugins/register` | POST | admin | server\_owner |  
| `/admin/plugins/toggle` | POST | admin | server\_owner |  
| `/admin/sales/cleanup` | POST | admin | authenticated |  
| `/admin/system-operations` | GET | admin | unknown |  
| `/admin/tutorial-videos` | GET | admin | server\_owner |  
| `/admin/tutorial-videos/post` | POST | admin | server\_owner |  
| `/admin/agents/<agent\_name>/queue` | POST | agents | unknown |  
| `/admin/agents/api` | GET | agents | unknown |  
| `/admin/agents/architecture` | GET | agents | unknown |  
| `/admin/agents/deployment` | GET | agents | unknown |  
| `/admin/agents/queue` | POST | agents | unknown |  
| `/admin/agents/releases` | GET | agents | unknown |  
| `/admin/agents/run-now` | POST | agents | unknown |  
| `/admin/agents/security` | GET | agents | unknown |  
| `/admin/shops` | GET | app | server\_owner |  
| `/admin/shops/<int:shop\_id>` | GET, POST | app | server\_owner |  
| `/admin/shops/<int:shop\_id>/delete` | POST | app | server\_owner |  
| `/admin/edit` | GET, POST | auth | admin |  
| `/free\_server\_entry` | POST | auth | server\_owner |  
| `/register-admin` | GET, POST | auth | unknown |

```
| '/backup' | GET | backup | server_owner |
| '/backup/create' | POST | backup | server_owner |
| '/backup/download/<filename>' | GET | backup | server_owner |
| '/backup/restore/<filename>' | POST | backup | server_owner |
| '/backup/validate/<filename>' | POST | backup | server_owner |
| '/admin/branches' | GET, POST | branches | admin |
| '/cloud/download-backup/<filename>' | GET | cloud | server_owner |
| '/cloud/restore/<filename>' | POST | cloud | server_owner |
| '/admin' | GET | dashboard | server_owner |
| '/expenses/<int:expense_id>/delete' | POST | finance | admin |
| '/delete/<int:id>' | POST | inventory | admin |
| '/admin/receipt-delivery' | GET, POST | receipts | admin |
| '/admin/release-notes' | GET, POST | release_notes | server_owner |
| '/admin/user-reports' | GET, POST | reports | server_owner |
| '/admin/user-reports/<int:report_id>/mark-read' | POST | reports | server_owner |
| '/admin/user-reports/<int:report_id>/reply' | POST | reports | server_owner |
| '/restock/request/<int:request_id>/notify-admins' | POST | restock | authenticated |
| '/server/dashboard' | GET | server | unknown |
| '/server/shops' | GET | server | server_owner |
```

## Route Sensitivity Map

```
| Route | Methods | Auth hint | Sensitivity |
| --- | --- | --- | --- |
| '/admin/add-cashier' | POST | admin | high |
| '/admin/announce-cashiers' | POST | authenticated | high |
| '/admin/app-billing' | GET | server_owner | high |
| '/admin/app-billing/exemptions' | POST | server_owner | high |
| '/admin/app-billing/methods' | POST | server_owner | high |
| '/admin/app-billing/pay' | GET | authenticated | high |
| '/admin/app-billing/pay' | POST | authenticated | high |
| '/admin/app-billing/payments/<int:payment_id>/status' | POST | server_owner | high |
| '/admin/app-billing/settings' | POST | server_owner | high |
| '/admin/app-billing/tiers' | POST | server_owner | high |
| '/admin/app-billing/tiers/<int:tier_id>/delete' | POST | server_owner | high |
| '/admin/brand' | POST | authenticated | high |
| '/admin/calendar' | GET, POST | authenticated | high |
| '/admin/calendar/delete' | POST | authenticated | high |
| '/admin/plugins' | GET | server_owner | high |
| '/admin/plugins/register' | POST | server_owner | high |
| '/admin/plugins/toggle' | POST | server_owner | high |
| '/admin/sales/cleanup' | POST | authenticated | high |
| '/admin/system-operations' | GET | unknown | high |
| '/admin/tutorial-videos' | GET | server_owner | high |
| '/admin/tutorial-videos/post' | POST | server_owner | high |
| '/admin/agents/<agent_name>/queue' | POST | unknown | high |
| '/admin/agents/api' | GET | unknown | high |
| '/admin/agents/architecture' | GET | unknown | high |
| '/admin/agents/deployment' | GET | unknown | high |
| '/admin/agents/queue' | POST | unknown | high |
| '/admin/agents/releases' | GET | unknown | high |
| '/admin/agents/run-now' | POST | unknown | high |
| '/admin/agents/security' | GET | unknown | high |
| '/ai' | GET | admin | normal |
| '/ai-csv-agent' | GET, POST | admin | normal |
| '/ai-csv-agent/download' | GET | admin | normal |
| '/ai-help' | GET | server_owner | normal |
| '/api/ai-help/update-guide' | POST | server_owner | medium |
| '/alerts' | GET | admin | normal |
| '/api/alerts/fraud-unread-count' | GET | admin | medium |
| '/analytics' | GET | admin | normal |
| '/analytics/ai-insights' | GET | admin | normal |
| '/analytics/branches' | GET | admin | normal |
| '/analytics/funds' | GET | admin | normal |
| '/analytics/profit-loss' | GET | admin | normal |
| '/api/analytics/ai-agent' | POST | admin | medium |
```

| `/api/analytics/branches/ai` | POST | admin | medium |  
 | `/api/analytics/branches/overview` | GET | admin | medium |  
 | `/api/analytics/compare` | POST | admin | medium |  
 | `/api/product-performance/<period>` | GET | admin | medium |  
 | `/api/sales-chart/<period>` | GET | admin | medium |  
 | `/admin/shops` | GET | server\_owner | high |  
 | `/admin/shops/<int:shop\_id>` | GET, POST | server\_owner | high |  
 | `/admin/shops/<int:shop\_id>/delete` | POST | server\_owner | high |  
 | `/app-entry-qr.svg` | GET | unknown | normal |  
 | `/app\_guide` | GET | authenticated | normal |  
 | `/documentation` | GET | unknown | normal |  
 | `/documentation/update` | POST | unknown | normal |  
 | `/healthz` | GET | unknown | normal |  
 | `/help-center` | GET, POST | authenticated | normal |  
 | `/readiness` | GET | unknown | normal |  
 | `/service-worker.js` | GET | unknown | normal |  
 | `/` | GET | public | normal |  
 | `/admin/edit` | GET, POST | admin | high |  
 | `/change-password` | GET, POST | server\_owner | normal |  
 | `/forgot-password` | GET, POST | authenticated | normal |  
 | `/free\_server\_entry` | POST | server\_owner | high |  
 | `/login` | GET, POST | admin | normal |  
 | `/logout` | GET | authenticated | normal |  
 | `/register` | GET, POST | admin | normal |  
 | `/register-admin` | GET, POST | unknown | high |  
 | `/register/verify` | GET, POST | authenticated | normal |  
 | `/register/verify/resend` | POST | unknown | normal |  
 | `/terms` | GET | public | normal |  
 | `/welcome` | GET | public | normal |  
 | `/backup` | GET | server\_owner | high |  
 | `/backup/create` | POST | server\_owner | high |  
 | `/backup/download/<filename>` | GET | server\_owner | high |  
 | `/backup/restore/<filename>` | POST | server\_owner | high |  
 | `/backup/validate/<filename>` | POST | server\_owner | high |  
 | `/api/phone-scanner/<token>/next` | GET | authenticated | medium |  
 | `/api/phone-scanner/<token>/scan` | POST | authenticated | medium |  
 | `/connect-phone-scanner` | GET | authenticated | normal |  
 | `/mobile-scan` | GET | authenticated | normal |  
 | `/phone-scanner/<token>` | GET | authenticated | normal |  
 | `/scan` | GET, POST | authenticated | normal |  
 | `/scanner-center` | GET | authenticated | normal |  
 | `/admin/branches` | GET, POST | admin | high |  
 | `/cashier\_tutorial\_videos` | GET | admin | normal |  
 | `/cashiers` | GET, POST | admin | normal |  
 | `/cashiers/<int:cashier\_id>/edit` | GET, POST | admin | normal |  
 | `/profile` | GET, POST | authenticated | normal |  
 | `/set-language` | POST | admin | normal |  
 | `/uploads/certifications/<filename>` | GET | admin | normal |  
 | `/cloud` | GET | server\_owner | normal |  
 | `/cloud/apply-update/<filename>` | POST | server\_owner | normal |  
 | `/cloud/create-update` | POST | server\_owner | normal |  
 | `/cloud/download-backup/<filename>` | GET | server\_owner | high |  
 | `/cloud/download-export/<filename>` | GET | admin | normal |  
 | `/cloud/export-all-user-data` | POST | server\_owner | normal |  
 | `/cloud/export-user-data` | POST | admin | normal |  
 | `/cloud/restore/<filename>` | POST | server\_owner | high |  
 | `/cloud/updates` | GET | server\_owner | normal |  
 | `/cloud/upload` | POST | server\_owner | normal |  
 | `/add-credit/<int:id>` | POST | admin | normal |  
 | `/add-customer` | GET, POST | admin | normal |  
 | `/add-points/<int:id>/<int:points>` | POST | admin | normal |  
 | `/customers` | GET | admin | normal |  
 | `/admin` | GET | server\_owner | high |  
 | `/dashboard` | GET | server\_owner | normal |  
 | `/add-expense` | GET, POST | admin | normal |  
 | `/add-loan` | POST | admin | normal |

| `/allocate-fund` | POST | admin | normal |  
 | `/expenses` | GET | admin | normal |  
 | `/expenses/<int:expense\_id>/delete` | POST | admin | high |  
 | `/finance` | GET | admin | normal |  
 | `/finance/cashflow/<fund\_source>` | GET | admin | normal |  
 | `/add-product` | GET, POST | admin | normal |  
 | `/add-product-scan` | GET | admin | normal |  
 | `/add-service` | GET, POST | admin | normal |  
 | `/bulk-import-products` | GET, POST | server\_owner | normal |  
 | `/bulk-import-products/jobs/<int:job\_id>` | GET | server\_owner | normal |  
 | `/bulk-import-products/jobs/<int:job\_id>/process` | POST | server\_owner | normal |  
 | `/bulk-import-products/jobs/<int:job\_id>/status` | GET | server\_owner | normal |  
 | `/delete/<int:id>` | POST | admin | high |  
 | `/inventory` | GET | admin | medium |  
 | `/search-inventory` | GET | authenticated | medium |  
 | `/update-stock/<int:id>` | POST | admin | normal |  
 | `/voice-search-product` | POST | authenticated | normal |  
 | `/api/payment-methods` | GET | authenticated | medium |  
 | `/checkout-methods` | GET | authenticated | normal |  
 | `/mpesa/b2c/result` | POST | unknown | normal |  
 | `/mpesa/b2c/timeout` | POST | unknown | normal |  
 | `/mpesa/callback` | POST | unknown | medium |  
 | `/payment-methods` | GET | admin | medium |  
 | `/payment-methods/save` | POST | admin | medium |  
 | `/process-payment/<provider\_code>` | POST | admin | medium |  
 | `/admin/receipt-delivery` | GET, POST | admin | high |  
 | `/api/payment-status/<int:sale\_id>` | GET | authenticated | medium |  
 | `/payment-status/<int:sale\_id>` | GET | admin | medium |  
 | `/payment-status/<int:sale\_id>/confirm` | POST | admin | medium |  
 | `/payment-status/<int:sale\_id>/refresh` | POST | authenticated | medium |  
 | `/payment-verify/<int:sale\_id>` | POST | admin | medium |  
 | `/receipt/<int:sale\_id>/send` | POST | authenticated | medium |  
 | `/receipts` | GET | authenticated | medium |  
 | `/receipts/<int:sale\_id>` | GET | authenticated | medium |  
 | `/api/recommendations` | GET | authenticated | medium |  
 | `/api/recommendations/refresh` | POST | authenticated | medium |  
 | `/recommendations` | GET | authenticated | normal |  
 | `/admin/release-notes` | GET, POST | server\_owner | high |  
 | `/release-notes` | GET | server\_owner | normal |  
 | `/admin/user-reports` | GET, POST | server\_owner | high |  
 | `/admin/user-reports/<int:report\_id>/mark-read` | POST | server\_owner | high |  
 | `/admin/user-reports/<int:report\_id>/reply` | POST | server\_owner | high |  
 | `/reports` | GET | admin | normal |  
 | `/restock` | GET | authenticated | normal |  
 | `/restock/generate` | POST | authenticated | normal |  
 | `/restock/request/<int:request\_id>` | GET, POST | authenticated | normal |  
 | `/restock/request/<int:request\_id>/download` | GET | authenticated | normal |  
 | `/restock/request/<int:request\_id>/notify-admins` | POST | authenticated | high |  
 | `/restock/supplier/<token>` | GET, POST | unknown | normal |  
 | `/restock/suppliers` | GET, POST | authenticated | normal |  
 | `/api/cart` | GET | admin | medium |  
 | `/api/cart/add` | POST | admin | medium |  
 | `/api/cart/clear` | POST | admin | medium |  
 | `/api/cart/price` | POST | admin | medium |  
 | `/api/cart/remove/<int:product\_id>` | POST | admin | medium |  
 | `/api/cart/update` | POST | admin | medium |  
 | `/api/customers/search` | GET | admin | medium |  
 | `/checkout` | GET | authenticated | normal |  
 | `/process-payment/cash` | GET | unknown | medium |  
 | `/receipt/<int:sale\_id>` | GET | admin | medium |  
 | `/return-goods` | GET, POST | admin | normal |  
 | `/sales` | GET, POST | admin | medium |  
 | `/search-product` | GET | admin | normal |  
 | `/set-currency` | POST | admin | normal |  
 | `/transactions` | GET | admin | normal |  
 | `/voice-add-to-cart` | POST | admin | normal |

| `/server/dashboard` | GET | unknown | high |  
| `/server/shops` | GET | server\_owner | high |

## Sensitive Workflow Review

- Admin, server-owner, backup, restore, cleanup, billing, payment, and callback routes require extra review before release.
- CSRF protection should remain active for state-changing browser routes.
- Payment integrations should avoid logging secrets and should verify provider status before marking payments complete.
- Tenant/shop scope should be validated for shop-owned data routes.
- Password reset, phone scanner, supplier, and tokenized routes should treat tokens as sensitive even when only route placeholders are documented.

## Audit Coverage

- Generated route sensitivity map: `docs/security/route\_sensitivity.json`.
- Admin actions and security events should remain auditable through existing security modules.
- Governance agent failures are stored in `agent\_failures`.

## Security Posture Notes

- This report does not export secrets, tokens, provider credentials, or environment variable values.
- High-sensitivity routes should keep CSRF, session, role, and tenant guards under review.
- Payment callback routes should be validated against provider signature or status verification logic.

## Enterprise Completeness Appendix

### Record Scope

This record is maintained by the Security Governance Agent. Its scope is: security posture, route sensitivity, auth architecture, payment callback exposure, and audit coverage

### Generated Outputs Covered

| Output |  
| --- |  
| `docs/security/SECURITY\_POSTURE.md` |  
| `docs/security/route\_sensitivity.json` |

### Completion Checklist

| Requirement | Status |  
| --- | --- |  
| Professional markdown structure | Included |  
| Evidence-oriented summaries | Included |  
| Safety boundaries | Included |  
| Operational review notes | Included |  
| Generated backup before overwrite | Handled by agent writer |  
| No secrets or credentials | Required by generator policy |  
| Solo-founder maintainability | Prioritized |

### Maintenance Rule

- Regenerate this record after feature, route, database, deployment, branding, payment, security, or governance changes.
- Review the generated result before using it externally.
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