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Software Requirements Specification (SRS)

Document	Software Requirements Specification	Release	17/08/26 V1.0
Project	BRN WMS	Project code	200-WMS-26-001-00
Project period	05/01/26–24/08/26		

Objective

To restate the approved Customer Requirements as technical software requirements — standards, structure, elements, relationships, performance, interfaces, security, database, and error handling — so they can drive Software Design, Software Components, Test Cases, and Traceability.

Basis and scaling note

The example reference package (200-TAS-25-001-00) enumerates one SR row per screen/CRUD action because that project is a small brochure site with ~6 modules. BRN WMS is a multi-domain warehouse/ERP system with 31 backend manager classes and 17 top-level application areas (Section 3 below). Reproducing CRUD-button-level granularity would create hundreds of near-duplicate rows without adding traceability value. This SRS therefore keeps the same category structure (SR01–SR09) as the example but sets granularity at the same level already approved in the Customer Requirements (FR-001–FR-024, NFR-001–NFR-010), one SR row per requirement or tight requirement group. Every SR row's Remark links back to its Customer Requirements ID.

SR01: Standards of Software

ID	Requirement	Result*	Remark
SR01:001	The system shall be developed in alignment with ISO/IEC 29110 Basic Profile documentation and traceability practice.	A	NFR-009

ID	Requirement	Result*	Remark
SR01:002	The system shall use PHP 8+ for the application layer, MySQL/MariaDB for data storage, and Node.js for real-time/scheduled services.	A	NFR-008
SR01:003	The system shall be deployable on a Linux server, either via manual LAMP-style installation (<code>setup.php</code>) or the provided Docker Compose stack (<code>php-apache</code> , <code>mariadb</code> , <code>node/pm2</code>).	A	NFR-004
SR01:004	User passwords shall be hashed with <code>PASSWORD_BCRYPT</code> (PHP default cost factor); plaintext passwords shall never be stored or logged.	A	NFR-002
SR01:005	Configuration secrets (<code>app/config.php</code> , <code>.env</code>) shall be excluded from source control and generated at deployment time.	A	NFR-001

SR02: Software Structure Considerations

ID	Requirement	Result*	Remark
SR02:001	The system shall be a browser-based, multi-page PHP web application (not a single native client).	A	FR-002, operational context
SR02:002	The user interface shall be responsive across desktop and warehouse-floor (tablet/mobile) viewports.	A	NFR-005

ID	Requirement	Result*	Remark
SR02:003	Application logic shall be organized as PHP manager/service classes invoked by page controllers, separated from page presentation.	A	NFR-007
SR02:004	Data access shall be encapsulated through manager classes rather than inline SQL scattered across pages, where practical.	A	NFR-007
SR02:005	The system shall be deployable as a container stack (Docker Compose: php-apache, mariadb, node/pm2) in addition to manual installation.	A	NFR-004

SR03: Software Elements (Modules)

ID	Requirement	Result*	Remark
SR03:001	Identity/access module: registration, onboarding, authentication, role (Owner/Admin/Staff/Viewer) and application-access management (app/login/, UserManager, PasswordManager, PasswordResetManager).	A	FR-001–FR-004
SR03:002	Company/system configuration module: company profile, SMTP, system settings (app/setting/, CompanyProfileManager , CompanySettingManager , SmtManager).	A	FR-004

ID	Requirement	Result*	Remark
SR03:003	Master data module: warehouses, storage/bins, product categories, products, contacts (app/inventory/, app/contact/, WarehouseManager, ProductManager, ContactManager).	A	FR-005, FR-006
SR03:004	Inventory/warehouse operations module: stock-in, stock-out, transfer, lot/serial/expiry, barcode labels (app/ics/, StockManager, StockSourceManager, BarcodeManager).	A	FR-007–FR-012
SR03:005	Sales module: quotation, order, invoice, return, credit note (app/order/, app/revenue/, QuotationManager, OrderManager, InvoiceManager, ReturnManager).	A	FR-013
SR03:006	Purchasing module: purchase request, purchase order, purchase invoice, supplier return (app/po/, PurchaseRequestManage r, PurchaseOrderManager, SupplierReturnManager).	A	FR-014
SR03:007	Finance module: receipt billing, receipts, payment billing, payments (app/finance/, ReceiptBillingManager , ReceiptManager, PaymentBillingManager , PaymentManager).	A	FR-015

ID	Requirement	Result*	Remark
SR03:008	Accounting module: chart of accounts, departments, account formulas, journals, general ledger (app/accounting/, app/journal/, PostingManager).	A	FR-016
SR03:009	Reporting/dashboard module: stock, financial, and operational reports and dashboards (app/reports/, app/dashboard/, app/ac_dashboard/, app/revenue/, app/expense/, ReportManager).	A	FR-011, FR-017, FR-020
SR03:010	Document-control module: controlled document numbering and lifecycle/status (DocumentNumberManager).	A	FR-018
SR03:011	Notification/scheduler services: Socket.IO notifications and scheduled aggregate/alert jobs (nodejs/server.js, nodejs/scheduler.js, app/cron/, EtlStockManager).	A	FR-021, FR-022

SR04: Software Elements Relationship

ID	Requirement	Result*	Remark
SR04:001	Every operational module shall be reachable only through the identity/access module's authentication and role/application-access checks.	A	FR-002, FR-024

ID	Requirement	Result*	Remark
SR04:002	Sales, purchasing, and finance modules shall post related stock and general-ledger effects through the inventory and accounting modules rather than duplicating their logic.	A	FR-013–FR-016
SR04:003	The reporting module shall read from, and never bypass, the authorization scope enforced by the master-data and inventory modules (company/warehouse isolation).	A	FR-024
SR04:004	The notification/scheduler services shall relay events from the PHP application through a secret-protected internal endpoint, not directly from the browser to internal services.	A	NFR-002
SR04:005	Document-control numbering shall be invoked by every module that creates a controlled business document (order, invoice, receipt, payment, journal, etc.).	A	FR-018

SR05: Performance Characteristics

ID	Requirement	Result*	Remark
SR05:001	Representative daily operations (screen loads, list/search, document creation) shall complete within practical operational time on the agreed environment.	A	NFR-006

ID	Requirement	Result*	Remark
SR05:002	Stock, GL, and dashboard aggregates shall be maintained on a schedule (ETL/summary tables) so dashboard and report queries do not require full recomputation on each request.	A	NFR-006, FR-022
SR05:003	The system shall support the representative concurrent-user and data-volume levels agreed for the production environment.	A	NFR-006

SR06: Software Interfaces

ID	Requirement	Result*	Remark
SR06:001	The PHP application shall connect to two MariaDB databases: <code>wms</code> (identity/company) and <code>wms2</code> (WMS/accounting).	A	Operational context, SR08
SR06:002	The application shall be usable on current standards-based browsers (Chrome, Edge, Firefox).	A	NFR-008
SR06:003	The application shall support mobile/tablet browser access through the responsive UI.	A	NFR-005
SR06:004	The PHP application shall relay events to the Node.js service over an internal, secret-protected HTTP endpoint (<code>NODE_EMIT_URL</code> , <code>NODE_EMIT_SECRET</code>).	A	NFR-002
SR06:005	The browser shall connect to the Node.js Socket.IO endpoint (<code>NODE_PUBLIC_URL</code>) for real-time notification delivery.	A	FR-021

SR07: Security Characteristics

ID	Requirement	Result*	Remark
SR07:001	Production deployment shall terminate the client connection over HTTPS/TLS.	A	NFR-001
SR07:002	Server-side actions shall validate input and enforce authentication, authorization, and tenant (company/warehouse) scope.	A	NFR-002
SR07:003	The system shall enforce single active-session (block concurrent login) behavior per the implemented login policy.	A	NFR-002
SR07:004	The system shall protect against SQL injection and cross-site scripting in server-side input handling and output rendering.	A	NFR-002
SR07:005	Role-based access control (Owner/Admin/Staff/Viewer) shall restrict server-side actions, not only UI visibility.	A	FR-002, NFR-002

SR08: Database Design Requirements

ID	Requirement	Result*	Remark
SR08:001	Identity/company database (wms): user, company_list, company_map_user, company_setting, company_smtp, company_usage, whitelist.	A	FR-001–FR-004

ID	Requirement	Result*	Remark
SR08:002	Master-data tables in the WMS database (wms2): md_warehouse, md_storage, md_bin, md_product, md_product_category, md_contact, md_contact_type, md_account, md_account_formula, md_account_formula_item, md_department, md_barcode, md_sku_barcode_label, md_lot, md_lock_operation.	A	FR-005, FR-006, FR-010, FR-012, FR-016
SR08:003	Transaction-data tables (td_*): td_stock, td_order/td_order_item, td_quotation/_item, td_invoice/_item, td_return/_item, td_purchase_request/_item, td_purchase_order/_item, td_supplier_return/_item, td_receipt/_item, td_receipt_billing/_item, td_payment/_item, td_payment_billing/_item, td_gl/td_gl_item, td_batch_action, td_bin_log.	A	FR-007–FR-018
SR08:004	Aggregate/document-control tables: etl_stock_summary, etl_gl_summary, document_number_sequences, document_types, schema_migrations.	A	FR-018, FR-022
SR08:005	All tables created by the delivered setup.php shall be reproducible in a fresh environment without manual schema editing.	A	NFR-004

SR09: Error Handling and Recovery Attributes

ID	Requirement	Result*	Remark
SR09:001	Destructive actions (delete, void, cancel of a controlled record) shall require an explicit confirmation step.	A	Usability practice; not a numbered CR/FR but implemented consistently across modules
SR09:002	Errors shall present a usable message to the user rather than an unhandled fatal error, for the primary operational workflows.	A	NFR-006
SR09:003	Related database changes (e.g., document + stock + GL postings) shall be transactional where required to avoid partial/inconsistent updates.	A	NFR-003

Remark:

- * Result: A = Accepted (implemented and evidenced in the current codebase), U = Unaccepted, N/A = Not Applicable. No SR row in this document is marked A without an identifiable implementing module, class, or table.
- This SRS restates already-approved Customer Requirements; it does not introduce new scope. Any SR row without a direct FR/NFR precedent must be raised through the Change Report before being treated as binding.

Approval

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