

# Database Schema Documentation (ERD)

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## Core Architecture

The HRM Laravel Base system uses a **multi-tenant architecture** with organization-based isolation. The database schema supports comprehensive ERP functionality including Financial Management, HR, Inventory, and advanced business operations.

## 1. Core Tables

### organizations

Multi-tenant organization management with hierarchical structure.

Column	Type	Constraints	Description
id	integer	PRIMARY KEY	Unique identifier
name	varchar	UNIQUE	Organization name
description	text	NULLABLE	Organization description
is_active	tinyint	DEFAULT 1	Active status
deleted_at	datetime	NULLABLE	Soft delete timestamp
created_at	datetime		Creation timestamp
updated_at	datetime		Last update timestamp

### Relationships:

- Has many: users, employees, chart\_of\_accounts, inventory\_stores, etc.

### users

Laravel Jetstream-based user authentication with multi-organization support.

Column	Type	Constraints	Description
id	integer	PRIMARY KEY	User ID
name	varchar		Full name
email	varchar	UNIQUE	Email address
email_verified_at	datetime	NULLABLE	Email verification
password	varchar		Hashed password
current_organization_id	integer	FOREIGN KEY → organizations.id	Active organization
two_factor_secret	text	NULLABLE	2FA secret
two_factor_recovery_codes	text	NULLABLE	2FA recovery codes
two_factor_confirmed_at	datetime	NULLABLE	2FA confirmation
remember_token	varchar	NULLABLE	Remember me token
current_team_id	integer	FOREIGN KEY → teams.id	Current team
profile_photo_path	varchar	NULLABLE	Profile photo
created_at	datetime		Creation
updated_at	datetime		Last update

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## 2. HR Management Tables

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### employees

Comprehensive employee management with organizational structure integration.

Column	Type	Constraints	Description
id	integer	PRIMARY KEY	Employee ID
user_id	integer	FOREIGN KEY → users.id	Linked user account
organization_id	integer	FOREIGN KEY → organizations.id	Organization
organization_unit_id	integer	FOREIGN KEY → organization_units.id	Department/Unit
position_id	integer	FOREIGN KEY → job_positions.id	Job position
shift_id	integer	FOREIGN KEY → shifts.id	Work shift
biometric_id	varchar	UNIQUE	Biometric device ID
first_name	varchar		First name
last_name	varchar		Last name
middle_name	varchar	NULLABLE	Middle name
date_of_birth	date		Birth date
gender	varchar		Gender
email	varchar	INDEX	Email address
phone	varchar		Phone number
address	text		Full address
city	varchar		City
state	varchar		State
country	varchar		Country
zip_code	varchar		Postal code
photo	varchar	NULLABLE	Photo path
is_active	tinyint	DEFAULT 1	Active status
is_admin	tinyint	DEFAULT 0	Admin status
deleted_at	datetime	NULLABLE	Soft delete
created_at	datetime		Creation
updated_at	datetime		Last update

### Indexes:

- UNIQUE: biometric\_id
- UNIQUE: user\_id + organization\_id
- INDEX: email, organization\_id + is\_active

## job\_positions

Job position and role management.

Column	Type	Constraints	Description
id	integer	PRIMARY KEY	Position ID
organization_id	integer	FOREIGN KEY → organizations.id	Organization
organization_unit_id	integer	FOREIGN KEY → organization_units.id	Unit
title	varchar		Position title
code	varchar	UNIQUE	Position code
description	text	NULLABLE	Description
min_salary	numeric	NULLABLE	Minimum salary
max_salary	numeric	NULLABLE	Maximum salary
requirements	text	NULLABLE	Job requirements
is_active	tinyint	DEFAULT 1	Active status
deleted_at	datetime	NULLABLE	Soft delete
created_at	datetime		Creation
updated_at	datetime		Last update

## shifts

Work shift management with flexible scheduling.

Column	Type	Constraints	Description
id	integer	PRIMARY KEY	Shift ID
organization_id	integer	FOREIGN KEY → organizations.id	Organization
name	varchar		Shift name
code	varchar	UNIQUE	Shift code
start_time	time		Start time
end_time	time		End time
days_of_week	text		JSON days array
working_hours	integer		Hours per shift
description	text	NULLABLE	Description
is_active	tinyint	DEFAULT 1	Active status
deleted_at	datetime	NULLABLE	Soft delete
created_at	datetime		Creation
updated_at	datetime		Last update

## attendance\_records

Biometric-integrated attendance tracking.

Column	Type	Constraints	Description
id	integer	PRIMARY KEY	Record ID
employee_id	integer	FOREIGN KEY → employees.id	Employee
organization_id	integer	FOREIGN KEY → organizations.id	Organization
record_date	date		Attendance date
punch_in	datetime	NULLABLE	Clock in time
punch_out	datetime	NULLABLE	Clock out time
total_hours	numeric	NULLABLE	Total hours worked
status	varchar	INDEX	Attendance status
biometric_id	varchar		Biometric device ID
device_serial_no	varchar		Device serial
late_minutes	numeric	NULLABLE	Late minutes
overtime_minutes	numeric	NULLABLE	Overtime minutes
notes	text	NULLABLE	Notes
created_at	datetime		Creation
updated_at	datetime		Last update

#### Indexes:

- UNIQUE: employee\_id + record\_date
- INDEX: organization\_id + record\_date, status

## leave\_requests

Leave management with approval workflows.

Column	Type	Constraints	Description
id	integer	PRIMARY KEY	Request ID
employee_id	integer	FOREIGN KEY → employees.id	Employee
organization_id	integer	FOREIGN KEY → organizations.id	Organization
leave_type	varchar	INDEX	Type of leave
start_date	date		Leave start
end_date	date		Leave end
total_days	integer		Total days
reason	text		Leave reason
status	varchar	INDEX	Request status
approved_by	integer	FOREIGN KEY → users.id	Approver
rejected_by	integer	FOREIGN KEY → users.id	Rejecter
approved_at	datetime	NULLABLE	Approval time
rejected_at	datetime	NULLABLE	Rejection time
rejection_reason	text	NULLABLE	Rejection reason
applied_at	datetime		Application time
created_at	datetime		Creation
updated_at	datetime		Last update

## 3. Financial Management Tables

## chart\_of\_accounts

Double-entry accounting chart of accounts.

Column	Type	Constraints	Description
id	integer	PRIMARY KEY	Account ID
organization_id	integer	FOREIGN KEY → organizations.id	Organization
code	varchar		Account code
name	varchar		Account name
type	varchar		Account type
description	text	NULLABLE	Description
created_at	datetime		Creation
updated_at	datetime		Last update

### Indexes:

- UNIQUE: organization\_id + code

## journal\_entries

Financial transaction management.

Column	Type	Constraints	Description
id	integer	PRIMARY KEY	Entry ID
organization_id	integer	FOREIGN KEY → organizations.id	Organization
reference_number	varchar	UNIQUE	Reference number
entry_date	date		Entry date
description	text		Description
status	varchar		Entry status
created_by	integer	FOREIGN KEY → users.id	Creator
approved_by	integer	FOREIGN KEY → users.id	Approver
posted_at	datetime	NULLABLE	Posting time
voucher_type	varchar		Voucher type
customer_id	integer	FOREIGN KEY → customers.id	Customer
vendor_id	integer	FOREIGN KEY → vendors.id	Vendor
total_amount	numeric	NULLABLE	Total amount
tax_amount	numeric	NULLABLE	Tax amount
invoice_number	varchar	NULLABLE	Invoice number
due_date	date	NULLABLE	Due date
created_at	datetime		Creation
updated_at	datetime		Last update

## ledger\_entries

Detailed ledger entry lines for double-entry accounting.

Column	Type	Constraints	Description
id	integer	PRIMARY KEY	Entry ID
entry_date	date		Entry date
chart_of_account_id	integer	FOREIGN KEY → chart_of_accounts.id	Account
type	varchar		Debit/Credit
amount	numeric		Entry amount
description	text	NULLABLE	Description
transactionable_type	varchar	INDEX	Related model type
transactionable_id	integer	INDEX	Related model ID
created_at	datetime		Creation
updated_at	datetime		Last update

### Indexes:

- INDEX: transactionable\_type + transactionable\_id

## customers & vendors

Customer and vendor management for AR/AP.

Column	Type	Constraints	Description
id	integer	PRIMARY KEY	ID
organization_id	integer	FOREIGN KEY → organizations.id	Organization
name	varchar		Name
email	varchar	NULLABLE	Email
phone	varchar	NULLABLE	Phone
address	text	NULLABLE	Address
tax_number	varchar	NULLABLE	Tax ID
customer_type/vendor_type	varchar	NULLABLE	Type classification
credit_limit/payment_terms	varchar	NULLABLE	Credit terms
status	varchar		Status
created_at	datetime		Creation
updated_at	datetime		Last update

## 4. Inventory Management Tables

### inventory\_stores

Multi-store inventory management.

Column	Type	Constraints	Description
id	integer	PRIMARY KEY	Store ID
organization_id	integer	FOREIGN KEY → organizations.id	Organization
name	varchar		Store name
code	varchar	UNIQUE	Store code
location	varchar	NULLABLE	Location
manager_id	integer	FOREIGN KEY → employees.id	Store manager
is_active	tinyint	DEFAULT 1	Active status
created_at	datetime		Creation
updated_at	datetime		Last update

## inventory\_items

Item catalog and product management.

Column	Type	Constraints	Description
id	integer	PRIMARY KEY	Item ID
organization_id	integer	FOREIGN KEY → organizations.id	Organization
name	varchar		Item name
code	varchar	UNIQUE	Item code/SKU
description	text	NULLABLE	Description
category	varchar	NULLABLE	Category
unit	varchar	NULLABLE	Unit of measure
cost_price	numeric	NULLABLE	Cost price
selling_price	numeric	NULLABLE	Selling price
min_stock_level	numeric	NULLABLE	Minimum stock
max_stock_level	numeric	NULLABLE	Maximum stock
is_active	tinyint	DEFAULT 1	Active status
created_at	datetime		Creation
updated_at	datetime		Last update

## inventory\_transactions

Stock movement tracking.



Column	Type	Constraints	Description
id	integer	PRIMARY KEY	Transaction ID
organization_id	integer	FOREIGN KEY → organizations.id	Organization
store_id	integer	FOREIGN KEY → inventory_stores.id	Store
transaction_type	varchar	IN/OUT/TRANSFER/ADJUST	
reference_number	varchar	UNIQUE	Reference
transaction_date	datetime		Transaction date
notes	text	NULLABLE	Notes
status	varchar		Status
created_by	integer	FOREIGN KEY → users.id	Creator
approved_by	integer	FOREIGN KEY → users.id	Approver
created_at	datetime		Creation
updated_at	datetime		Last update

## inventory\_transaction\_items

Detailed transaction line items.

Column	Type	Constraints	Description
id	integer	PRIMARY KEY	Line ID
transaction_id	integer	FOREIGN KEY → inventory_transactions.id	Transaction
item_id	integer	FOREIGN KEY → inventory_items.id	Item
quantity	numeric		Quantity
unit_cost	numeric	NULLABLE	Unit cost
total_cost	numeric	NULLABLE	Total cost
batch_number	varchar	NULLABLE	Batch number
expiry_date	date	NULLABLE	Expiry date
created_at	datetime		Creation
updated_at	datetime		Last update

## 5. Organizational Structure Tables

### organization\_units

Hierarchical organizational structure.

Column	Type	Constraints	Description
id	integer	PRIMARY KEY	Unit ID
organization_id	integer	FOREIGN KEY → organizations.id	Organization
name	varchar		Unit name
type	varchar		Unit type
parent_id	integer	FOREIGN KEY → organization_units.id	Parent unit
custom_fields	text	NULLABLE	JSON custom fields
deleted_at	datetime	NULLABLE	Soft delete
created_at	datetime		Creation
updated_at	datetime		Last update

## organization\_user

User-organization membership with roles.

Column	Type	Constraints	Description
id	integer	PRIMARY KEY	Membership ID
organization_id	integer	FOREIGN KEY → organizations.id	Organization
user_id	integer	FOREIGN KEY → users.id	User
organization_unit_id	integer	FOREIGN KEY → organization_units.id	Unit
roles	text	NULLABLE	JSON roles array
permissions	text	NULLABLE	JSON permissions
position	varchar	NULLABLE	Position
created_at	datetime		Creation
updated_at	datetime		Last update

## 6. Payroll Management Tables

### payroll\_runs

Payroll processing batches.

Column	Type	Constraints	Description
id	integer	PRIMARY KEY	Run ID
organization_id	integer	FOREIGN KEY → organizations.id	Organization
period	varchar		Pay period
start_date	date		Period start
end_date	date		Period end
status	varchar		Run status
total_gross	numeric	NULLABLE	Total gross pay
total_net	numeric	NULLABLE	Total net pay
journal_entry_id	integer	FOREIGN KEY → journal_entries.id	Accounting entry
created_at	datetime		Creation
updated_at	datetime		Last update

## payroll\_entries

Individual employee payroll calculations.

Column	Type	Constraints	Description
id	integer	PRIMARY KEY	Entry ID
employee_id	integer	FOREIGN KEY → employees.id	Employee
organization_id	integer	FOREIGN KEY → organizations.id	Organization
period	varchar		Pay period
basic_salary	numeric	NULLABLE	Basic salary
housing_allowance	numeric	NULLABLE	Housing allowance
transport_allowance	numeric	NULLABLE	Transport allowance
overtime_pay	numeric	NULLABLE	Overtime pay
bonus	numeric	NULLABLE	Bonus
gross_pay	numeric	NULLABLE	Gross pay
tax_deduction	numeric	NULLABLE	Tax deduction
insurance_deduction	numeric	NULLABLE	Insurance deduction
other_deductions	numeric	NULLABLE	Other deductions
total_deductions	numeric	NULLABLE	Total deductions
net_pay	numeric	NULLABLE	Net pay
status	varchar	INDEX	Status
paid_at	datetime	NULLABLE	Payment date
created_at	datetime		Creation
updated_at	datetime		Last update

### Indexes:

- UNIQUE: employee\_id + period
- INDEX: organization\_id + period, status

## 7. System & Support Tables

## sequences

Sequence number generation for documents.

Column	Type	Constraints	Description
name	varchar	PRIMARY KEY	Sequence name
last_value	integer		Last value
increment_by	integer	DEFAULT 1	Increment
prefix	varchar	NULLABLE	Number prefix
suffix	varchar	NULLABLE	Number suffix
pad_length	integer	NULLABLE	Zero padding
created_at	datetime		Creation
updated_at	datetime		Last update

## dimensions & dimensionables

Business dimension tracking for reporting.

Column	Type	Constraints	Description
id	integer	PRIMARY KEY	Dimension ID
name	varchar		Dimension name
code	varchar	UNIQUE	Dimension code
type	varchar	INDEX	Dimension type
description	text	NULLABLE	Description
created_at	datetime		Creation
updated_at	datetime		Last update

## dimensionables

Polymorphic relationship for dimensions.

Column	Type	Constraints	Description
id	integer	PRIMARY KEY	ID
dimension_id	integer	FOREIGN KEY → dimensions.id	Dimension
dimensionable_type	varchar		Related model type
dimensionable_id	integer		Related model ID
created_at	datetime		Creation
updated_at	datetime		Last update

### Indexes:

- UNIQUE: dimension\_id + dimensionable\_id + dimensionable\_type
- INDEX: dimensionable\_type + dimensionable\_id

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## 8. Laravel Framework Tables

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Standard Laravel tables for authentication, teams, queues, etc.:

- **teams** - Jetstream team management
  - **team\_user** - Team memberships
  - **team\_invitations** - Team invitations
  - **personal\_access\_tokens** - Sanctum API tokens
  - **sessions** - User sessions
  - **failed\_jobs** - Failed queue jobs
  - **jobs** - Queue jobs
  - **job\_batches** - Job batches
  - **cache & cache\_locks** - Cache storage
  - **password\_reset\_tokens** - Password reset tokens
  - **migrations** - Database migrations
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## 9. Key Relationships & Data Flow

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### Multi-Tenant Data Isolation

- All business tables have `organization_id` foreign keys
- Data access is scoped by user's current organization
- Cross-organization data access is prevented at model level

### Core Business Flows

1. **HR Flow**: organizations → organization\_units → employees → attendance\_records  
payroll\_entries
2. **Accounting Flow**: chart\_of\_accounts → journal\_entries → ledger\_entries → financial\_reports
3. **Inventory Flow**: inventory\_stores → inventory\_items → inventory\_transactions → stock\_levels
4. **User Management**: users → organization\_user → permissions → role\_based\_access

### Integration Points

- **Payroll → Accounting**: payroll\_runs → journal\_entries (automatic posting)
  - **Inventory → Accounting**: inventory\_transactions → ledger\_entries (COGS calculation)
  - **HR → Payroll**: employees + attendance\_records → payroll\_entries (salary calculation)
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## 10. Performance Optimizations

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### Strategic Indexes

- Composite indexes for common queries (organization + status, employee + date)
- Unique constraints for data integrity
- Foreign key indexes for join performance

### Query Optimization

- Eager loading for related data
  - Database-level scoping for multi-tenancy
  - Efficient pagination for large datasets
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## 11. Security & Compliance

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### Data Protection

- Soft deletes for audit trails
- User activity logging through timestamps
- Role-based access control through organization\_user

### Audit Trail

- created\_at/updated\_at on all tables
  - created\_by/approved\_by for critical operations
  - Status tracking for workflow processes
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## 12. Scalability Considerations

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### Multi-Organization Support

- Schema designed for horizontal scaling
- Organization-based data partitioning

- Efficient cross-organization reporting

## High Volume Tables

- Optimized for high transaction volumes
- Efficient indexing strategies
- Bulk operation support

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*This ERD documentation reflects the current production database schema as of November 19, 2025. The schema supports comprehensive ERP functionality with multi-tenant architecture.*

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