# HIRELINK

## Entity-Relationship Diagram Documentation

*Local Service Provider Platform*

Version 1.0
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# 1. Introduction

This document presents the Entity-Relationship (ER) diagram for the HireLink platform, a comprehensive local service provider application. The ER diagram illustrates the database structure, showing all entities (tables), their attributes, and the relationships between them.

## 1.1 Purpose

The purpose of this ER diagram documentation is to provide a visual and textual representation of the HireLink database schema, helping developers, database administrators, and stakeholders understand the data model and relationships that power the platform.

## 1.2 Scope

This document covers all 18 database tables including user management, service provider profiles, booking system, payment processing, reviews, messaging, and administrative functions.

# 2. ER Diagram Notation

The following notation is used in this ER diagram documentation:

| Symbol | Meaning |
|---|---|
| **PK** | Primary Key - Unique identifier for each record |
| FK | Foreign Key - Reference to another table's primary key |
| **1:1** | One-to-One relationship |
| 1:N | One-to-Many relationship |
| **M:N** | Many-to-Many relationship |
| ———— | Mandatory relationship (solid line) |
| - - - | Optional relationship (dashed line) |

# 3. Entity Overview
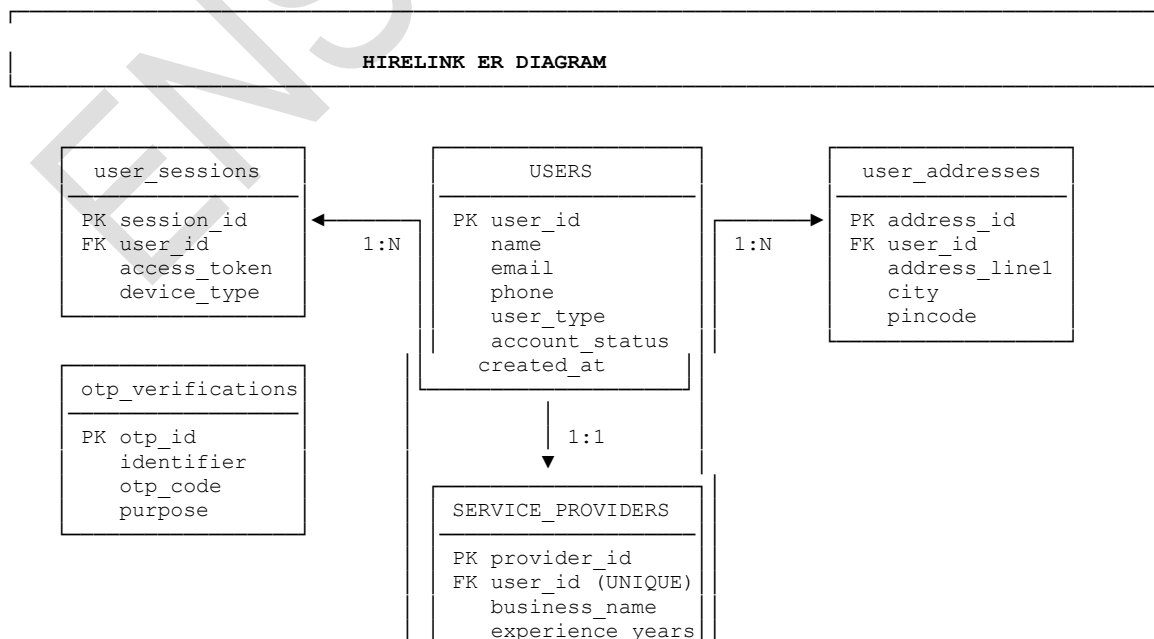
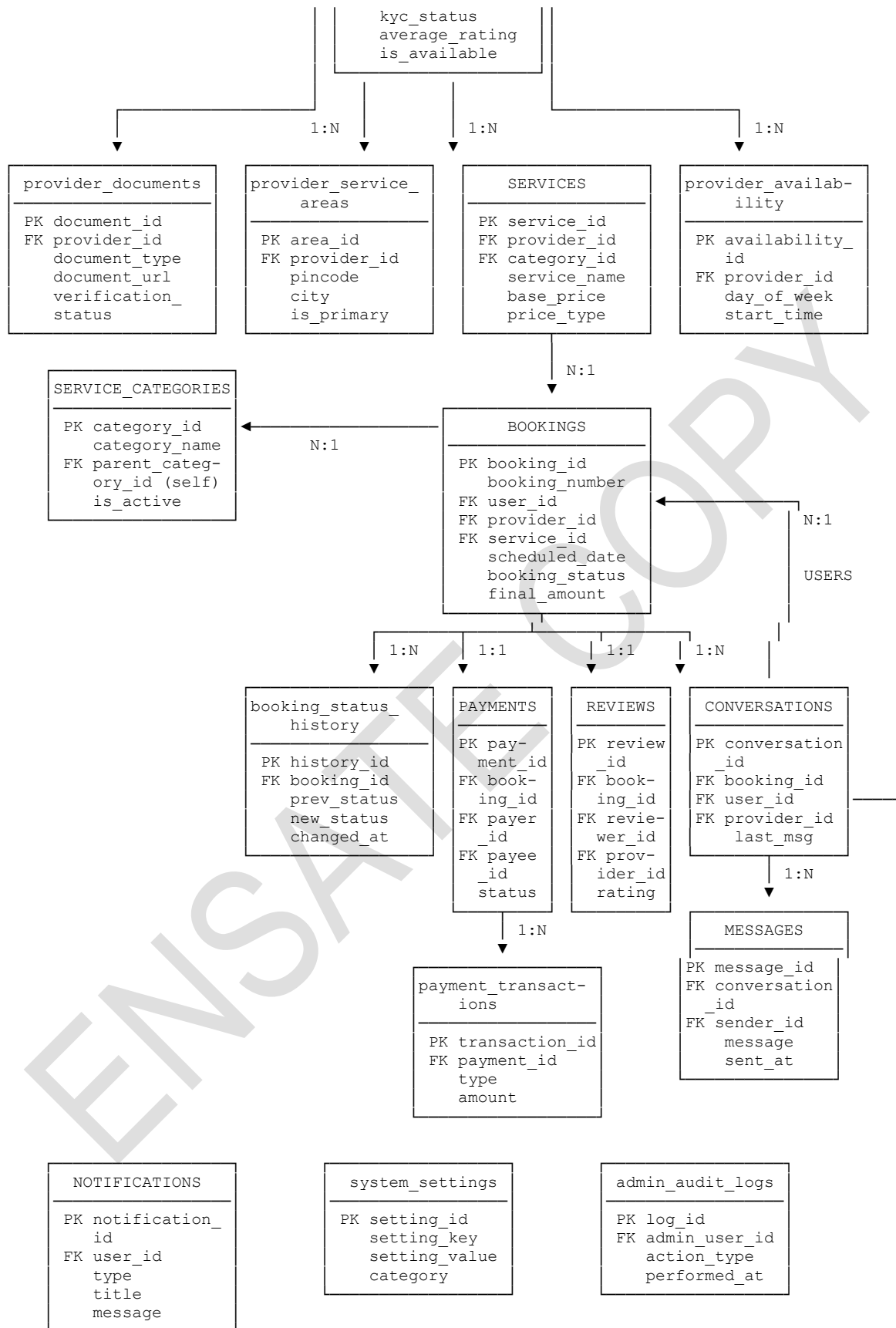The HireLink database consists of 18 entities organized into logical modules:

## 3.1 Entity List by Module

| Module | Entity | Description |
|---|---|---|
| User Management | users | All user accounts |
| | user_sessions | Authentication sessions |
| | otp_verifications | OTP codes for verification |
| | user_addresses | User address book |
| Provider Management | service_providers | Provider profiles |
| | provider_documents | KYC documents |
| | provider_availability | Weekly schedule |
| | provider_service_areas | Service coverage areas |
| Service Catalog | service_categories | Service categories |
| | services | Services offered |
| Booking System | bookings | Service bookings |
| | booking_status_history | Status change audit |
| Payment System | payments | Payment records |
| | payment_transactions | Transaction details |
| Communication | conversations | Chat threads |
| | messages | Chat messages |
| | notifications | Push/in-app alerts |
| Reviews | reviews | User reviews |
| Admin | system_settings | App configuration |
| | admin_audit_logs | Admin action logs |

# 4. ER Diagram - Visual Representation

Below is the textual representation of the ER diagram showing all entities and their relationships:

```
┌────────────────────────────────────────────────────────────────┐
│                      HIRELINK ER DIAGRAM                         │
└────────────────────────────────────────────────────────────────┘


 ┌───────────────────┐        ┌───────────────────┐        ┌───────────────────┐
 │  user_sessions    │        │      USERS        │        │  user_addresses   │
 ├───────────────────┤        ├───────────────────┤        ├───────────────────┤
 │ PK session_id     │◄─      │ PK user_id        │   ─►   │ PK address_id     │
 │ FK user_id        │  1:N   │    name           │  1:N   │ FK user_id        │
 │    access_token   │        │    email          │        │    address_line1  │
 │    device_type    │        │    phone          │        │    city           │
 └───────────────────┘        │    user_type      │        │    pincode        │
                              │    account_status │        └───────────────────┘
 ┌───────────────────┐        │    created_at     │
 │ otp_verifications │        └───────────────────┘
 ├───────────────────┤               │
 │ PK otp_id         │             1:1
 │    identifier     │               ▼
 │    otp_code       │        ┌───────────────────┐
 │    purpose        │        │ SERVICE_PROVIDERS │
 └───────────────────┘        ├───────────────────┤
                              │ PK provider_id    │
                              │ FK user_id (UNIQUE)│
                              │    business_name  │
                              │    experience_years│
```

```
                              kyc_status
                              average_rating
                              is_available
```

```
          1:N                  1:N                          1:N
```

```
provider_documents      provider_service_        SERVICES          provider_availab-
                              areas                                        ility
─────────────────     ─────────────────     ─────────────────    ─────────────────
PK document_id        PK area_id            PK service_id         PK availability_
FK provider_id        FK provider_id        FK provider_id           id
   document_type         pincode            FK category_id        FK provider_id
   document_url          city                  service_name          day_of_week
   verification_         is_primary            base_price            start_time
   status                                      price_type
```

```
                                                    N:1
```

```
SERVICE_CATEGORIES                              BOOKINGS
─────────────────                           ─────────────────
PK category_id       ◄──────  N:1          PK booking_id                    ◄────────  N:1
   category_name                              booking_number
FK parent_categ-                            FK user_id
   ory_id (self)                            FK provider_id                            USERS
   is_active                                FK service_id
                                               scheduled_date
                                               booking_status
                                               final_amount
```

```
         1:N          1:1           1:1          1:N
```

```
booking_status_      PAYMENTS         REVIEWS         CONVERSATIONS
   history        ─────────────   ─────────────   ─────────────────
─────────────     PK pay-         PK review       PK conversation
PK history_id        ment_id         _id             _id
FK booking_id     FK book-        FK book-        FK booking_id
   prev_status       ing_id          ing_id       FK user_id
   new_status     FK payer        FK revie-       FK provider_id
   changed_at        _id             wer_id          last_msg
                  FK payee        FK prov-
                     _id             ider_id
                     status          rating
```

```
                        1:N                              1:N
```

```
                  payment_transact-              MESSAGES
                        ions                 ─────────────────
                  ─────────────────          PK message_id
                  PK transaction_id          FK conversation
                  FK payment_id                 _id
                     type                    FK sender_id
                     amount                     message
                                                sent_at
```

```
NOTIFICATIONS              system_settings            admin_audit_logs
─────────────────      ─────────────────         ─────────────────
PK notification_       PK setting_id             PK log_id
   id                     setting_key            FK admin_user_id
FK user_id                setting_value             action_type
   type                   category                  performed_at
   title
   message
```

# 5. Relationship Details

## 5.1 One-to-One Relationships

| Parent Entity | Child Entity | Description |
|---|---|---|
| users | service_providers | Each provider has exactly one user account |
| bookings | payments | Each booking has one payment record |
| bookings | reviews | Each booking can have one review |

## 5.2 One-to-Many Relationships

| Parent (1) | Child (N) | FK Column | Description |
|---|---|---|---|
| users | user_sessions | user_id | User has many sessions |
| users | user_addresses | user_id | User has many addresses |
| users | bookings | user_id | User makes many bookings |
| users | notifications | user_id | User receives notifications |
| service_providers | services | provider_id | Provider offers services |
| service_providers | provider_documents | provider_id | Provider uploads documents |
| service_providers | provider_availability | provider_id | Provider sets schedule |
| service_providers | provider_service_areas | provider_id | Provider covers areas |
| service_providers | bookings | provider_id | Provider handles bookings |
| service_categories | services | category_id | Category has services |
| service_categories | service_categories | parent_category_id | Self-referential hierarchy |
| bookings | booking_status_history | booking_id | Booking status changes |
| payments | payment_transactions | payment_id | Payment has transactions |
| conversations | messages | conversation_id | Conversation has messages |

# 6. Cardinality Summary

Complete relationship cardinality matrix:

| From Entity | To Entity | Cardinality | Mandatory |
|---|---|---|---|
| users | service_providers | 1:1 | Optional |
| users | user_sessions | 1:N | Optional |
| users | user_addresses | 1:N | Optional |
| users | bookings | 1:N | Mandatory |
| users | reviews | 1:N | Mandatory |
| users | notifications | 1:N | Mandatory |
| users | conversations | 1:N | Mandatory |
| users | messages | 1:N | Mandatory |
| service_providers | services | 1:N | Mandatory |
| service_providers | bookings | 1:N | Mandatory |
| service_providers | reviews | 1:N | Mandatory |
| service_providers | provider_documents | 1:N | Optional |

| From Entity | To Entity | Cardinality | Mandatory |
|---|---|---|---|
| service_providers | provider_availability | 1:N | Optional |
| service_providers | provider_service_areas | 1:N | Optional |
| service_categories | services | 1:N | Mandatory |
| service_categories | service_categories | 1:N | Optional |
| services | bookings | 1:N | Mandatory |
| bookings | payments | 1:1 | Optional |
| bookings | reviews | 1:1 | Optional |
| bookings | booking_status_history | 1:N | Mandatory |
| bookings | conversations | 1:1 | Optional |
| payments | payment_transactions | 1:N | Mandatory |
| conversations | messages | 1:N | Mandatory |

# 7. Key Constraints

## 7.1 Primary Keys

All tables use BIGINT UNSIGNED AUTO_INCREMENT primary keys for optimal performance and scalability.

## 7.2 Unique Constraints

| Table | Column(s) | Purpose |
|---|---|---|
| users | phone | Unique phone per user |
| users | email | Unique email (nullable) |
| service_providers | user_id | One provider per user |
| bookings | booking_number | Unique booking reference |
| payments | payment_number | Unique payment reference |
| reviews | booking_id | One review per booking |
| service_categories | category_name | Unique category names |
| service_categories | category_slug | Unique URL slugs |
| system_settings | setting_key | Unique setting keys |
| provider_service_areas | provider_id, pincode | Unique area per provider |
| provider_availability | provider_id, day_of_week | One schedule per day |

## 7.3 Foreign Key Actions

| Constraint | ON DELETE | ON UPDATE | Reason |
|---|---|---|---|
| User relations | CASCADE | CASCADE | Remove all user data |
| Booking references | RESTRICT | CASCADE | Preserve booking history |
| Category relations | RESTRICT | CASCADE | Prevent orphan services |
| Verified by (admin) | SET NULL | CASCADE | Keep record if admin deleted |

## 8. Revision History

| Version | Date | Author | Changes |
|---|---|---|---|
| 1.0 | January 2026 | HireLink Development Team | Initial ER diagram |