# Physical Data Design for Licensing Self-Certification Portal (LSCP)

**Version 0.1**

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? The Government of the Hong Kong Special Administrative Region

## Introduction

This document provides a comprehensive description of the physical data structure and process design for the Licensing Self-Certification Portal (LSCP) Project. It serves as a blueprint for implementing the LSCP database, ensuring a robust and efficient data management system.

The document details the relationships between key business entities within the LSCP, providing a clear diagrammatic representation and comprehensive descriptions of each entity, its attributes, and data types. Data relationships are explained, highlighting primary keys, foreign keys, and constraints.

This document is a valuable resource for developers, database administrators, and other stakeholders involved in the implementation and maintenance of the LSCP.

## Objectives

The objectives of the LSCP are to:

1. Provide user-friendly and meaningful messages to users.
2. Store all electronic and paper submissions from applicants and authorized persons (AP)/registered structural engineers (RSE) for requisite safety certificates.
3. Implement a secure BD departmental portal login for internal users, with User ID and password as an alternative.
4. Support the latest web browsers.
5. Comply with the standards of the Government System Architecture and government IT security policy.

## Physical Data Structure Specification

This section documents the data model and its descriptions.

### Physical Data Structure

The database uses an entity-relationship diagram consisting of entities, relationships, and attributes. Notations include cardinality and ordinality to define relationships.

**Entity-Relationship Diagram:**

(The diagram is not possible to be rendered in plain text. Refer to the original documents for the visual representation.)

There are 7 categories of entities in the data model design:

* (GCIS) Frontend - Application Forms Submission
* (GCIS) Frontend - OTP login control
* Backend - Users
* Backend - Workflow of Application Forms submission

### (GCIS) Frontend - Application Forms Submission

(Diagram 3.1-1 is not possible to be rendered in plain text. Refer to the original documents for the visual representation.)

### (GCIS) Frontend - OTP login control

(Diagram 3.1-2 is not possible to be rendered in plain text. Refer to the original documents for the visual representation.)

### (BD) Backend - TBC

(Diagram 3.1-3 is not possible to be rendered in plain text. Refer to the original documents for the visual representation.)

## Data Entity Description

This section details the conversion rules, assumptions, physical data table names, corresponding system entities, and key details to be stored in the database.

**Database Management System:** Microsoft SQL Server 2019

**Data Storage:** Spatial and textual entities are stored in Microsoft SQL Server 2019.

**Conversion Rules and Assumptions:** *[This section is currently missing from the input documents and needs to be defined based on the specific requirements of the LSCP.]*

**Table Mappings:**

LSCP Frontend

| Table ID | LSCP Name | LSCP Entity Description | Key Nature | Key Data Item |
| --- | --- | --- | --- | --- |
| T-S-01 | ApplicationCases | Table to store all the application number | PK | Id |
|  |  |  |  | ApplicationNo |
| T-S-02 | SchoolApp\_Infos | Table to store the latest update of the submitted application data as 1 row | PK | Id |
|  |  |  |  | ApplicationNo |
| T-S-03 | SchoolApp\_Submissions | Table to store the submission of each application | PK | Id |
|  |  |  |  | ApplicationNo |
|  |  |  |  | SubmissionId |
| T-S-04 | ApplicationFiles | Table to store all the path of applicant upload files | PK | Id |
|  |  |  |  | ApplicationNo |
|  |  |  |  | SubmissionId |
| T-S-05 | LSCPMasterTable | Table to store meta-data or parameter data for frontend | PK | Id |
|  |  |  |  | Code |
|  |  |  |  | Type + Code |
| T-S-06 | GenOtp | Table to store generated OTP code and the usage status | PK | Id |
|  |  |  |  | ApplicationNo + userId + Otp |
| T-S-07 | AdrBlk | Table to store addresses that import from BCIS | PK | ADR\_BLK\_ID |
| T-S-08 | SYS\_META\_DATA | Table to store meta data that import from BCIS | PK | SYS\_META\_DATA\_ID |
|  |  |  |  | REC\_TYPE |
|  |  |  |  | CODE |
| T-S-09 | Aprse | Table to store AP / RSE information that import from MWMS 2.0 | PK | Id |
|  |  |  |  | Name + RegistrationNumber |

LSCP Backend

| Table ID | LSCP Name | LSCP Entity Description | Key Nature | Key Data Item |
| --- | --- | --- | --- | --- |
| T-S-01 | ApplicationCases | Table to store all the application number | PK | Id |
|  |  |  |  | ApplicationNo |
| T-S-02 | SchoolApp\_Infos | Table to store the latest update of the submitted application data as 1 row | PK | Id |
|  |  |  |  | ApplicationNo |
| T-S-03 | SchoolApp\_Submissions | Table to store the submission of each application | PK | Id |
|  |  |  |  | ApplicationNo |
|  |  |  |  | SubmissionId |
| T-S-04 | ApplicationFiles | Table to store all the path of applicant upload files | PK | Id |
|  |  |  |  | ApplicationNo |
|  |  |  |  | SubmissionId |
| T-S-05 | LSCPMasterTable | Table to store meta-data or parameter data for frontend | PK | Id |
|  |  |  |  | Code |
|  |  |  |  | Type + Code |
| T-S-06 | SYS\_META\_DATA | Table to store meta data that import from BCIS | PK | SYS\_META\_DATA\_ID |
|  |  |  |  | REC\_TYPE |
|  |  |  |  | CODE |
| T-S-07 | SYS\_META\_DATA | Table to store meta data that import from BCIS | PK | SYS\_META\_DATA\_ID |
|  |  |  |  | REC\_TYPE |
|  |  |  |  | CODE |

### Detailed Table Schemas (MongoDB)

The following sections detail the schemas for the MongoDB collections, including field names, data types, and constraints.

#### Collection: tasks

* **Document Count:** 5523
* **Size:** 0.99 MB
* **Average Document Size:** 0.18 KB

| Field | Type | Occurrences | Description ITY, Physical Data Design 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