



Information Schema

Key Tables

- **TABLES** – Provides information about tables in each database.
- **COLUMNS** – Contains details about columns in tables, including data types and defaults.
- **STATISTICS** – Lists index information for tables.
- **KEY_COLUMN_USAGE** – Shows information on foreign keys and primary keys.
- **USER_PRIVILEGES** – Contains information about user privileges at the global level.
- **SCHEMATA** – Lists available databases on the server.
- **CHARACTER_SETS** – Provides information on character sets supported by the server.
- **COLLATIONS** – Shows available collations and default character sets.
- **TABLE_CONSTRAINTS** – Details constraints like primary keys, unique constraints, and foreign keys.
- **ROUTINES** – Contains information about stored procedures and functions.
- **VIEWS** – Provides information about views in each database.
- **PARTITIONS** – Lists information about table partitions.
- **TRIGGERS** – Contains details about triggers on tables.



Database Schema Exploration

```
SELECT TABLE_NAME, TABLE_TYPE FROM information_schema.TABLES  
WHERE TABLE_SCHEMA = 'your_database';
```

Column and Data Type Analysis

- `SELECT TABLE_NAME, COLUMN_NAME, DATA_TYPE,
CHARACTER_MAXIMUM_LENGTH FROM information_schema.COLUMNS
WHERE TABLE_SCHEMA = 'your_database';`

Identifying Primary and Foreign Keys

- `SELECT TABLE_NAME, COLUMN_NAME, CONSTRAINT_NAME,
REFERENCED_TABLE_NAME, REFERENCED_COLUMN_NAME
FROM information_schema.KEY_COLUMN_USAGE
WHERE TABLE_SCHEMA = 'your_database' AND
REFERENCED_TABLE_NAME IS NOT NULL;`

Checking Indexes and Optimizing Queries

- `SELECT TABLE_NAME, INDEX_NAME, COLUMN_NAME, NON_UNIQUE
FROM information_schema.STATISTICS
WHERE TABLE_SCHEMA = 'your_database';`

Auditing User Privileges and Permissions

- `SELECT USER, PRIVILEGE_TYPE
FROM information_schema.USER_PRIVILEGES;`

Finding Unused or Empty Tables

- `SELECT TABLE_NAME, TABLE_ROWS FROM information_schema.TABLES WHERE TABLE_SCHEMA = 'your_database' AND TABLE_ROWS = 0;`

Storage Analysis and Monitoring

- ```
SELECT TABLE_NAME, DATA_LENGTH, INDEX_LENGTH, DATA_LENGTH
+ INDEX_LENGTH AS total_size
FROM information_schema.TABLES
WHERE TABLE_SCHEMA = 'your_database'
ORDER BY total_size DESC;
```

# Detecting Schema Changes and Auditing Database Structure

- `SELECT TABLE_NAME, COLUMN_NAME, DATA_TYPE, COLUMN_TYPE  
FROM information_schema.COLUMNS WHERE TABLE_SCHEMA =  
'your_database';`

# Verifying Collation and Character Sets

- `SELECT TABLE_NAME, COLUMN_NAME, CHARACTER_SET_NAME, COLLATION_NAME FROM information_schema.COLUMNS WHERE TABLE_SCHEMA = 'your_database';`