

SQL

Structured Query Language

Reference Guide version 0.1.0



Constraints

AUTO_INCREMENT: auto increasing integer
CHECK: ensures that data is compliant
DEFAULT: sets a default value
FOREIGN KEY: sets a unique link with another table
INDEX: sets an index
NULL, NOT NULL: allows null for columns
PRIMARY KEY: sets a primary index key
UNIQUE: ensures that values are unique
UNSIGNED: only positive numbers

Data

DELETE FROM tblname **WHERE** condition: delete rows in a table when condition is true
INSERT INTO tblname (fieldname, fieldname, ...) **VALUES** (data, data, ...): insert data in table
INSERT INTO tblname (fieldname, fieldname, ...) **SELECT** columnname **FROM** tblname **WHERE** condition: cloning data from table in a new table
SELECT columnname, columnname **FROM** tblname: shows all columns in a given table
SELECT DISTINCT columnname **FROM** tblname: only show non-duplicated data
SELECT columnname **FROM** tblname **GROUP BY** columnname: groups output on columnname
SELECT columnname **FROM** tblname **GROUP BY** columnname **HAVING** aggregated_function condition: groups output on columnname with a aggregated condition on the group by clause
SELECT columnname **FROM** tblname **LIMIT** int, int: only show int first rows from offset int (optional)
SELECT columnname **FROM** tblname **ORDER BY** columnname **ASC|DESC**: sorts output on columnname ascending or descending (optional)
SELECT columnname **FROM** tblname **WHERE** condition: return rows with correct condition
SELECT columnname **FROM** tblname **WHERE** columnname **LIKE** data: return rows where condition is like data (% , * , _ wildcards)
UPDATE tblname **SET** columnname=data **WHERE** condition: updates the data in a given column when the condition is true

Data types

CHAR(size), **VARCHAR**(size), **TINYTEXT**, **TEXT**(size), **MEDIUMTEXT**, **LONGTEXT**: string data types
TINYINT, **SMALLINT**, **MEDIUMINT**, **INT**, **FLOAT**(size, dec), **DOUBLE** (size, dec), **DECIMAL** (size, dec), **BIT** (size): numeric data types
DATE, **TIME**, **YEAR**, **DATETIME**, **TIMESTAMP**: date and time data types
BINARY (size), **VARBINARY** (size), **TINYBLOB**, **BLOB** (size), **MEDIUMBLOB**, **LOB**: binary data types
SET (value, value, ...), **ENUM** (value, value, ...): collection of string objects

Databases

CALL procname: calls a stored procedure
CREATE DATABASE dbname: creates a new database with name dbname
CREATE PROCEDURE name () queries: defines a stored procedure within the database
DELIMITER symbol

CREATE PROCEDURE name ()
BEGIN query1; query2; ...
END symbol: creates multi-query stored procedure
DROP DATABASE dbname: deletes the database
DROP PROCEDURE name: deletes stored procedure
SHOW DATABASES: show databases within server
USE dbname: use database dbname

Functions | Date

CURRENT_DATE, **CURRENT_TIME**: current data
DATE, **TIME**, **HOUR**, **MINUTE**, **SECOND**: extracts the specific part from a date-time expression
DATE_ADD, **DATE_SUB**, **DATEDIFF**: calculations
DATE_FORMAT: specific format
%a %b: abbreviated dayname, monthname
%W %M %Y: full week, day, month, year
%d %m %y: numerical day, month, year
%j %u: elapsed days, weeks in the year
%p %r: AM/PM, time in 12-hours notation
%s: seconds in two digits
%T: time in 24-hours notation

Functions | Numeric

ABS, **AVG**, **COUNT**, **MOD**, **DIV**, **MAX**, **MIN**, **POWER**, **RAND**(seed), **FLOOR**, **CEILING**, **ROUND**, **SIGN**, **SQRT**, **SUM**: classic numerical functions
FORMAT: predetermines form in character data
TRUNCATE: predetermines form in numeric data

Functions | String

CHARACTER_LENGTH: returns string with length
CONCAT: bind two strings
LCASE, **UCASE**: change string case
LEFT, **RIGHT**, **SUBSTRING**: extracts substring
LENGTH: returns byte with length of string
TRIM: removes leading and trailing spaces

Joins

SELECT columnname **FROM** tblname **LEFT JOIN** tblname **ON** join_condition: makes a left join using a join condition using all rows in tblname and common rows with tblname
SELECT columnname **FROM** tblname **INNER JOIN** tblname **ON** join_condition: makes an inner join using a join condition
SELECT employee.rate **FROM** employee **INNER JOIN** score **ON** employee.name = score.name
SELECT columnname **FROM** tblname **RIGHT JOIN** tblname **ON** join_condition: makes a right join using a join condition using all rows in tblname and common rows with tblname
UNION: merge results of different select queries
UNION ALL: merge results of different select queries without ruling out same data

Operators | Arithmetic

+, -, *, /: classic arithmetic
%: modulus

Operators | Comparison

=, !=: equality
<>, <, >, <=, >=: greater or less
AND, **OR**: logical condition
BETWEEN, **NOT BETWEEN**: ranges
IN, **NOT IN**: values in collection
LIKE, **NOT LIKE**: pattern matching

Special

tblname.columnname: dot operator for queries needing multiple tables at once
--: single line comment
/* comments */: multi line comment
(sub-query): a sub-query for a regular query
AS: alias for tblname or columnname
SELECT emp.name, emp.rate **FROM** employee **AS** emp;
CASE
WHEN condition **THEN** result
ELSE default result
END: checks various conditions

Tables

ALTER TABLE tblname **ADD** columnname datatype (size): adds a column to the table schema
ALTER TABLE tblname **CHANGE COLUMN** columnname columnname datatype(size): change the columnname to columnname
ALTER TABLE tblname **DROP COLUMN** columnname: deletes a column
ALTER TABLE tblname **DROP CONSTRAINT** fkname: deletes a foreign key constraint in a table
ALTER TABLE tblname **DROP INDEX** indexname: deletes an index on a table
ALTER TABLE tblname **MODIFY COLUMN** columnname datatype(size): changes the data type of the column
CREATE INDEX indexname **ON** tblname (columnname): creates an index on the column
CREATE TABLE tblname (columnname datatype(size) constraints **PRIMARY KEY** (columnname) ...): creates a new table in the current database
CREATE TABLE tblname (columnname datatype(size) constraints **PRIMARY KEY** (columnname) **CONSTRAINT** fk_name **FOREIGN KEY** tblname **REFERENCES** tblname (columnname) ...): creates a foreign key with name fk_name with tblname in child table and tblname in parent table on columnname in parent table
CREATE TEMPORARY TABLE tblname ...: creates a temporary table, will be deleted when connection to the database has ended
DROP TABLE tblname: deletes the table
RENAME TABLE tblname **TO** tblname: renames a tblname to a new tblname
SHOW COLUMNS FROM tblname: show the structure/schema of the table
SHOW TABLES: show all tables

User management

CREATE USER 'username'@'host' **IDENTIFIED BY** 'password': creates a new database user
DROP USER 'username'@'host': deletes the user
GRANT queries **ON** dbname **TO** 'username'@'host': grant query privileges to a user, use all privileges to assign all rights
REVOKE queries **ON** dbname **FROM** 'username'@'host': revokes queries to user