概览

如何使CockroachDB简单易用是我们最重视的事情，所以我们选择实现SQL。然而尽管有SQL标准，但没有一个数据库实现了全部的SQL标准，也没有一个标准实现了所有的特性。

要了解我们支持哪些标准SQL功能（以及标准的常见扩展），请看下表.

* **Component**列出了通常被视为SQL一部分的组件
* **Supported** 展示了CockroachDB对组件的支持级别
* **Type** 指出了组件是SQL标准的一部分，还是我们或者其他人创造的扩展
* **Details** 提供了关于组件的更多内容

特性

行值

| **Component** | **Supported** | **Type** | **Details** |
| --- | --- | --- | --- |
| Identifiers | ✓ | 标准 | [Identifiers documentation](https://www.cockroachlabs.com/docs/v2.0/keywords-and-identifiers.html#identifiers) |
| INT | ✓ | 标准 | [INT documentation](https://www.cockroachlabs.com/docs/v2.0/int.html) |
| FLOAT, REAL | ✓ | 标准 | [FLOAT documentation](https://www.cockroachlabs.com/docs/v2.0/float.html) |
| BOOLEAN | ✓ | 标准 | [BOOL documentation](https://www.cockroachlabs.com/docs/v2.0/bool.html) |
| DECIMAL, NUMERIC | ✓ | 标准 | [DECIMAL documentation](https://www.cockroachlabs.com/docs/v2.0/decimal.html) |
| NULL | ✓ | 标准 | [*NULL*-handling documentation](https://www.cockroachlabs.com/docs/v2.0/null-handling.html) |
| BYTES | ✓ | CockroachDB 扩展 | [BYTES documentation](https://www.cockroachlabs.com/docs/v2.0/bytes.html) |
| Automatic key generation | ✓ | 通用扩展 | [Automatic key generation FAQ](https://www.cockroachlabs.com/docs/v2.0/sql-faqs.html#how-do-i-auto-generate-unique-row-ids-in-cockroachdb) |
| STRING, CHARACTER | ✓ | 标准 | [STRING documentation](https://www.cockroachlabs.com/docs/v2.0/string.html) |
| COLLATE | ✓ | 标准 | [COLLATE documentation](https://www.cockroachlabs.com/docs/v2.0/collate.html) |
| AUTO INCREMENT | Alternative | 通用扩展 | [Automatic key generation FAQ](https://www.cockroachlabs.com/docs/v2.0/sql-faqs.html#how-do-i-auto-generate-unique-row-ids-in-cockroachdb) |
| Key-value pairs | Alternative | Extension | [Key-Value FAQ](https://www.cockroachlabs.com/docs/v2.0/frequently-asked-questions.html#can-i-use-cockroachdb-as-a-key-value-store) |
| New in v1.1: ARRAY | ✓ | 标准 | [ARRAY documentation](https://www.cockroachlabs.com/docs/v2.0/array.html) |
| New in v1.1: UUID | ✓ | PostgreSQL扩展 | [UUID documentation](https://www.cockroachlabs.com/docs/v2.0/uuid.html) |
| New in v2.0: JSON | ✓ | 通用扩展 | [JSONB documentation](https://www.cockroachlabs.com/docs/v2.0/jsonb.html) |
| New in v2.0: TIME | ✓ | 标准 | [TIME documentation](https://www.cockroachlabs.com/docs/v2.0/time.html) |
| XML | ✗ | 标准 | XML数据可以被存储为BYTES，不过我们不提供XML转换功能。 |
| UNSIGNED INT | ✗ | 通用扩展 | UNSIGNED INT 会导致许多问题，所以我们不打算支持它 |
| SET, ENUM | ✗ | MySQL, PostgreSQL 扩展 | 仅允许行包含已定义的术语集中的值 |
| INET | ✓ | PostgreSQL扩展 | [INET documentation](https://www.cockroachlabs.com/docs/v2.0/inet.html) |

约束

| **Component** | **Supported** | **Type** | **Details** |
| --- | --- | --- | --- |
| Not Null | ✓ | 标准 | [Not Null documentation](https://www.cockroachlabs.com/docs/v2.0/not-null.html) |
| Unique | ✓ | 标准 | [Unique documentation](https://www.cockroachlabs.com/docs/v2.0/unique.html) |
| Primary Key | ✓ | 标准 | [Primary Key documentation](https://www.cockroachlabs.com/docs/v2.0/primary-key.html) |
| Check | ✓ | 标准 | [Check documentation](https://www.cockroachlabs.com/docs/v2.0/check.html) |
| Foreign Key | ✓ | 标准 | [Foreign Key documentation](https://www.cockroachlabs.com/docs/v2.0/foreign-key.html) |
| Default Value | ✓ | 标准 | [Default Value documentation](https://www.cockroachlabs.com/docs/v2.0/default-value.html) |

事务

| **Component** | **Supported** | **Type** | **Details** |
| --- | --- | --- | --- |
| Transactions (ACID semantics) | ✓ | 标准 | [Transactions documentation](https://www.cockroachlabs.com/docs/v2.0/transactions.html) |
| BEGIN | ✓ | 标准 | [BEGIN documentation](https://www.cockroachlabs.com/docs/v2.0/begin-transaction.html) |
| COMMIT | ✓ | 标准 | [COMMIT documentation](https://www.cockroachlabs.com/docs/v2.0/commit-transaction.html) |
| ROLLBACK | ✓ | 标准 | [ROLLBACK documentation](https://www.cockroachlabs.com/docs/v2.0/rollback-transaction.html) |
| SAVEPOINT | ✓ | CockroachDB 扩展 | 虽然SAVEPOINT是SQL标准的一部分, 但我们只支持 [our extension of it](https://www.cockroachlabs.com/docs/v2.0/transactions.html#transaction-retries) |

索引

| **Component** | **Supported** | **Type** | **Details** |
| --- | --- | --- | --- |
| Indexes | ✓ | 通用扩展 | [Indexes documentation](https://www.cockroachlabs.com/docs/v2.0/https://www.cockroachlabs.com/docs/indexes.html) |
| Multi-column indexes | ✓ | 通用扩展 | 我们不限制索引能包含的列数 |
| Covering indexes | ✓ | 通用扩展 | [Storing Columns documentation](https://www.cockroachlabs.com/docs/v2.0/create-index.html#store-columns) |
| New in v2.0: Inverted indexes | ✓ | 通用扩展 | [Inverted Indexes documentation](https://www.cockroachlabs.com/docs/v2.0/inverted-indexes.html) |
| Multiple indexes per query | Planned | 通用扩展 | 在单个查询中使用多个索引来过滤表格的值 |
| Full-text indexes | Planned | 通用扩展 | [GitHub issue tracking full-text index support](https://www.cockroachlabs.com/docs/v2.0/https://github.com/cockroachdb/cockroach/issues/7821) |
| Prefix/Expression Indexes | Potential | 通用扩展 | 在进行索引之前，将表达式（例如LOWER()）应用于值 |
| Geospatial indexes | Potential | 通用扩展 | 提高计算地理空间数据的查询性能 |
| Hash indexes | ✗ | 通用扩展 | 提高查找单个精确值的查询性能 |
| Partial indexes | ✗ | 通用扩展 | 仅从索引列索引特定行 |

Schema 变更

| **Component** | **Supported** | **Type** | **Details** |
| --- | --- | --- | --- |
| ALTER TABLE | ✓ | 标准 | [ALTER TABLE documentation](https://www.cockroachlabs.com/docs/v2.0/alter-table.html) |
| Database renames | ✓ | 标准 | [RENAME DATABASE documentation](https://www.cockroachlabs.com/docs/v2.0/rename-database.html) |
| Table renames | ✓ | 标准 | [RENAME TABLE documentation](https://www.cockroachlabs.com/docs/v2.0/rename-table.html) |
| Column renames | ✓ | 标准 | [RENAME COLUMN documentation](https://www.cockroachlabs.com/docs/v2.0/rename-column.html) |
| Adding columns | ✓ | 标准 | [ADD COLUMN documentation](https://www.cockroachlabs.com/docs/v2.0/add-column.html) |
| Removing columns | ✓ | 标准 | [DROP COLUMN documentation](https://www.cockroachlabs.com/docs/v2.0/drop-column.html) |
| Adding constraints | ✓ | 标准 | [ADD CONSTRAINT documentation](https://www.cockroachlabs.com/docs/v2.0/add-constraint.html) |
| Removing constraints | ✓ | 标准 | [DROP CONSTRAINT documentation](https://www.cockroachlabs.com/docs/v2.0/drop-constraint.html) |
| Index renames | ✓ | 标准 | [RENAME INDEX documentation](https://www.cockroachlabs.com/docs/v2.0/rename-index.html) |
| Adding indexes | ✓ | 标准 | [CREATE INDEX documentation](https://www.cockroachlabs.com/docs/v2.0/create-index.html) |
| Removing indexes | ✓ | 标准 | [DROP INDEX documentation](https://www.cockroachlabs.com/docs/v2.0/drop-index.html) |

语句

| **Component** | **Supported** | **Type** | **Details** |
| --- | --- | --- | --- |
| Common statements | ✓ | 标准 | [SQL Statements documentation](https://www.cockroachlabs.com/docs/v2.0/sql-statements.html) |
| UPSERT | ✓ | PostgreSQL, MSSQL 扩展 | [UPSERT documentation](https://www.cockroachlabs.com/docs/v2.0/upsert.html) |
| EXPLAIN | ✓ | 通用扩展 | [EXPLAIN documentation](https://www.cockroachlabs.com/docs/v2.0/explain.html) |
| SELECT INTO | Alternative | 通用扩展 | 您可以使用[CREATE TABLE](https://www.cockroachlabs.com/docs/v2.0/create-table.html)复制类似的功能，然后INSERT INTO ... SELECT ... |

条款

| **Component** | **Supported** | **Type** | **Details** |
| --- | --- | --- | --- |
| Common clauses | ✓ | 标准 | [SQL Grammar documentation](https://www.cockroachlabs.com/docs/v2.0/sql-grammar.html) |
| LIMIT | ✓ | 通用扩展 | 限制语句返回结果的行数 |
| LIMIT with OFFSET | ✓ | 通用扩展 | 跳过一些行，然后限制返回结果的大小 |
| RETURNING | ✓ | 通用扩展 | 返回行操作语句的结果. |

Table 表达式

| **Component** | **Supported** | **Type** | **Details** |
| --- | --- | --- | --- |
| Table and View references | ✓ | 标准 | [Table expressions documentation](https://www.cockroachlabs.com/docs/v2.0/table-expressions.html#table-or-view-names) |
| AS in table expressions | ✓ | 标准 | [Aliased table expressions documentation](https://www.cockroachlabs.com/docs/v2.0/table-expressions.html#aliased-table-expressions) |
| JOIN (INNER, LEFT, RIGHT, FULL, CROSS) | [Functional](https://www.cockroachlabs.com/docs/v2.0/https://www.cockroachlabs.com/blog/better-sql-joins-in-cockroachdb/) | 标准 | [Join expressions documentation](https://www.cockroachlabs.com/docs/v2.0/table-expressions.html#join-expressions) |
| Sub-queries as table expressions | Partial | 标准 | [非关联子查询支持](https://www.cockroachlabs.com/docs/v2.0/table-expressions.html#subqueries-as-table-expressions)；关联子查询不支持 |
| Table generator functions | Partial | PostgreSQL扩展 | [Table generator functions documentation](https://www.cockroachlabs.com/docs/v2.0/table-expressions.html#table-generator-functions) |
| WITH ORDINALITY | ✓ | CockroachDB 扩展 | [Ordinality annotation documentation](https://www.cockroachlabs.com/docs/v2.0/table-expressions.html#ordinality-annotation) |

Scalar 表达式 和 Boolean 公式

| **Component** | **Supported** | **Type** | **Details** |
| --- | --- | --- | --- |
| Common functions | ✓ | 标准 | [Functions calls and SQL special forms documentation](https://www.cockroachlabs.com/docs/v2.0/scalar-expressions.html#function-calls-and-sql-special-forms) |
| Common operators | ✓ | 标准 | [Operators documentation](https://www.cockroachlabs.com/docs/v2.0/scalar-expressions.html#unary-and-binary-operations) |
| IF/CASE/NULLIF | ✓ | 标准 | [Conditional expressions documentation](https://www.cockroachlabs.com/docs/v2.0/scalar-expressions.html#conditional-expressions) |
| COALESCE/IFNULL | ✓ | 标准 | [Conditional expressions documentation](https://www.cockroachlabs.com/docs/v2.0/scalar-expressions.html#conditional-expressions) |
| AND/OR/NOT | ✓ | 标准 | [Logical operators documentation](https://www.cockroachlabs.com/docs/v2.0/scalar-expressions.html#logical-operators) |
| LIKE/ILIKE | ✓ | 标准 | [String pattern matching documentation](https://www.cockroachlabs.com/docs/v2.0/scalar-expressions.html#string-pattern-matching) |
| SIMILAR TO | ✓ | 标准 | [SQL regexp pattern matching documentation](https://www.cockroachlabs.com/docs/v2.0/scalar-expressions.html#string-matching-using-sql-regular-expressions) |
| Matching using POSIX regular expressions | ✓ | 通用扩展 | [POSIX regexp pattern matching documentation](https://www.cockroachlabs.com/docs/v2.0/scalar-expressions.html#string-matching-using-posix-regular-expressions) |
| EXISTS | Partial | 标准 | [非关联子查询支持](https://www.cockroachlabs.com/docs/v2.0/table-expressions.html#subqueries-as-table-expressions)；关联子查询不支持,目前仅支持用于小型数据集 |
| Scalar subqueries | Partial | 标准 | [非关联子查询支持](https://www.cockroachlabs.com/docs/v2.0/table-expressions.html#subqueries-as-table-expressions)；关联子查询不支持,目前仅支持用于小型数据集 |
| Bitwise arithmetic | ✓ | 通用扩展 | [Operators documentation](https://www.cockroachlabs.com/docs/v2.0/scalar-expressions.html#unary-and-binary-operations) |
| Array constructors and subscripting | Partial | PostgreSQL扩展 | 数组表达式文档: [Constructor syntax](https://www.cockroachlabs.com/docs/v2.0/scalar-expressions.html#array-constructors) and [Subscripting](https://www.cockroachlabs.com/docs/v2.0/scalar-expressions.html#subscripted-expressions) |
| COLLATE | ✓ | 标准 | [Collation expressions documentation](https://www.cockroachlabs.com/docs/v2.0/scalar-expressions.html#collation-expressions) |
| Column ordinal references | ✓ | CockroachDB 扩展 | [Column references documentation](https://www.cockroachlabs.com/docs/v2.0/scalar-expressions.html#column-references) |
| Type annotations | ✓ | CockroachDB 扩展 | [Type annotations documentation](https://www.cockroachlabs.com/docs/v2.0/scalar-expressions.html#explicitly-typed-expressions) |

权限

| **Component** | **Supported** | **Type** | **Details** |
| --- | --- | --- | --- |
| Users | ✓ | 标准 | [GRANT documentation](https://www.cockroachlabs.com/docs/v2.0/grant.html) |
| Privileges | ✓ | 标准 | [Privileges documentation](https://www.cockroachlabs.com/docs/v2.0/privileges.html) |
| ### 其他 |  |  |  |
| Component | Supported | Type | Details |
| ----------- | ----------- | ------ | --------- |
| Column families | ✓ | CockroachDB 扩展 | [Column Families documentation](https://www.cockroachlabs.com/docs/v2.0/column-families.html) |
| Interleaved tables | ✓ | CockroachDB 扩展 | [Interleaved Tables documentation](https://www.cockroachlabs.com/docs/v2.0/interleave-in-parent.html) |
| Parallel Statement Execution | ✓ | CockroachDB 扩展 | [Parallel Statement Execution documentation](https://www.cockroachlabs.com/docs/v2.0/parallel-statement-execution.html) |
| Information Schema | ✓ | 标准 | [Information Schema documentation](https://www.cockroachlabs.com/docs/v2.0/information-schema.html) |
| Views | ✓ | 标准 | [Views documentation](https://www.cockroachlabs.com/docs/v2.0/views.html) |
| Window functions | ✓ | 标准 | [Window Functions documentation](https://www.cockroachlabs.com/docs/v2.0/window-functions.html) |
| Common Table Expressions | Partial | 通用扩展 | [Common Table Expressions documentation](https://www.cockroachlabs.com/docs/v2.0/common-table-expressions.html) |
| Stored Procedures | Planned | 通用扩展 | 明确执行一个procedure |
| Cursors | ✗ | 标准 | 遍历表格的行 |
| Triggers | ✗ | 标准 | 每当发生指定事件时执行一组命令 |
| New in v2.0: Sequences | ✓ | 通用扩展 | [CREATE SEQUENCE documentation](https://www.cockroachlabs.com/docs/v2.0/create-sequence.html) |