



# Learn CockroachDB SQL

[CONTRIBUTE](#)

This page walks you through some of the most essential CockroachDB SQL statements. For a complete list and related details, see [SQL Statements \(sql-statements.html\)](#).

## Note:

CockroachDB aims to provide standard SQL with extensions, but some standard SQL functionality is not yet available. See our [SQL Feature Support \(sql-feature-support.html\)](#) page for more details.

## On This Page

- [Create a Database](#)
- [Show Databases](#)
- [Set the Default Database](#)
- [Create a Table](#)
- [Show Tables](#)
- [Insert Rows into a Table](#)
- [Create an Index](#)
- [Show Indexes on a Table](#)
- [Query a Table](#)
- [Update Rows in a Table](#)

- Delete Rows in a Table

What's Next?

## Keep up-to-date with CockroachDB software releases and usage best practices

### Create a Database

CockroachDB comes with a single default `system` database, which contains CockroachDB metadata and is read-only. To create a new database, use `CREATE DATABASE` ([create-database.html](#)) followed by a database name:

```
> CREATE DATABASE bank;
```

COPY 

Database names must follow these identifier rules ([keywords-and-identifiers.html#identifiers](#)). To avoid an error in case the database already exists, you can include `IF NOT EXISTS`:

```
> CREATE DATABASE IF NOT EXISTS bank;
```

COPY 

When you no longer need a database, use `DROP DATABASE` ([drop-database.html](#)) followed by the database name to remove the database and all its objects:

```
> DROP DATABASE bank;
```

COPY 



## Show Databases

To see all databases, use the `SHOW DATABASES` ([show-databases.html](#)) statement:

```
> SHOW DATABASES;
```

COPY 

## Keep up-to-date with CockroachDB software releases and usage best practices

```
+-----+
| bank          |
| crdb_internal |
Email          | SUBMIT
| information_schema |
| pg_catalog    |
| system        |
+-----+
(5 rows)
```

## Set the Default Database

To set the default database, use the `SET` ([set-vars.html#examples](#)) statement:

```
> SET DATABASE = bank;
```

COPY 

When working with the default database, you don't need to reference it explicitly in statements. To see which database is currently the default, use the `SHOW DATABASE` statement (note the singular form):

Help  
(<https://gitter>)

```
> SHOW DATABASE;
```

COPY 

```
+-----+
| database |
+-----+
| bank     |
+-----+
(1 row)
```

# Create a Table

## Keep up-to-date with CockroachDB software releases and usage best practices

To create a table, use `CREATE TABLE` ([create-table.html](#)) followed by a table name, the column names, and the data type ([data-types.html](#)) and constraint ([constraints.html](#)), if any, for each column:

Email **SUBMIT**

```
> CREATE TABLE accounts (  
    id INT PRIMARY KEY,  
    balance DECIMAL  
);
```

**COPY** 

Table and column names must follow these rules ([keywords-and-identifiers.html#identifiers](#)). Also, when you don't explicitly define a primary key ([primary-key.html](#)), CockroachDB will automatically add a hidden `rowid` column as the primary key.

To avoid an error in case the table already exists, you can include `IF NOT EXISTS`:

```
> CREATE TABLE IF NOT EXISTS accounts (  
    id INT PRIMARY KEY,  
    balance DECIMAL  
);
```

**COPY** 

To show all of the columns from a table, use `SHOW COLUMNS FROM` ([show-columns.html](#)) followed by the table name:

```
> SHOW COLUMNS FROM accounts;
```

**COPY** 

## Keep up-to-date with CockroachDB software releases and usage best practices

```
+-----+-----+-----+-----+
| id     | INT     | false | NULL   | {primary} |
| balance | DECIMAL | true  | NULL   | {}         |
Email
+-----+-----+-----+-----+
(2 rows)
```

When you no longer need a table, use `DROP TABLE` (drop-table.html) followed by the table name to remove the table and all its data:

```
> DROP TABLE accounts;
```

**COPY** 

## Show Tables

To see all tables in the active database, use the `SHOW TABLES` (show-tables.html) statement:

```
> SHOW TABLES;
```

**COPY** 

```
+-----+
| Table |
+-----+
| accounts |
| users   |
+-----+
(2 rows)
```

To view tables in a database that's not active, use `SHOW TABLES FROM` followed by the name of the database:

```
> SHOW TABLES FROM animals;
```

COPY 

## Keep up-to-date with CockroachDB software releases and usage best practices

```
+-----+
| Table |
+-----+
| aardvarks |
| elephants |
| frogs     |
| moles     |
| pandas    |
| turtles   |
+-----+
(6 rows)
```

**SUBMIT**

## Insert Rows into a Table

To insert a row into a table, use `INSERT INTO` (insert.html) followed by the table name and then the column values listed in the order in which the columns appear in the table:

```
> INSERT INTO accounts VALUES (1, 10000.50);
```

COPY 

If you want to pass column values in a different order, list the column names explicitly and provide the column values in the corresponding order:

```
> INSERT INTO accounts (balance, id) VALUES
    (25000.00, 2);
```

COPY 

To insert multiple rows into a table, use a comma-separated list of parentheses, each containing column values for one row:

```
> INSERT INTO accounts VALUES
```

COPY 

## Keep up-to-date with CockroachDB software releases and usage best practices

Default values (default-value.html) are used when you leave specific columns out of your statement, or when you explicitly request default values. For example, both of the following statements would create a row with `balance` filled with its default value, in this case `NULL`:

```
> INSERT INTO accounts (id, balance) VALUES
    (5);
```

COPY 

```
> INSERT INTO accounts (id, balance) VALUES
    (6, DEFAULT);
```

COPY 

```
> SELECT * FROM accounts WHERE id in (5, 6);
```

COPY 

```
+-----+-----+
| id | balance |
+-----+-----+
|  5 | NULL    |
|  6 | NULL    |
+-----+-----+
(2 rows)
```

## Create an Index

Indexes (indexes.html) help locate data without having to look through every row of a table. They're automatically created for the primary key (primary-key.html) of a table and any columns with a Unique

**Keep up-to-date with CockroachDB software releases and**

## usage best practices

To create an index for non-unique columns, use `CREATE INDEX` (create-index.html) followed by an optional index name and an `ON` clause identifying the table and column(s) to index. For each column, you can choose whether to sort ascending (`ASC`) or descending (`DESC`).

```
> CREATE INDEX balance_idx ON accounts (balance DESC);
```

**COPY** 

You can create indexes during table creation as well; just include the `INDEX` keyword followed by an optional index name and the column(s) to index:

```
> CREATE TABLE accounts (
  id INT PRIMARY KEY,
  balance DECIMAL,
  INDEX balance_idx (balance)
);
```

**COPY** 

## Show Indexes on a Table

To show the indexes on a table, use `SHOW INDEX FROM` (show-index.html) followed by the name of the table:

```
> SHOW INDEX FROM accounts;
```

**COPY** 



## Keep up-to-date with CockroachDB software releases and usage best practices

	accounts	primary	true	1	id	ASC	false	false	
	accounts	balance_idx	false	1	balance	DESC	false	false	
Email	accounts	balance_idx	false	2	id	ASC	false	true	

(3 rows)

## Query a Table

To query a table, use `SELECT` (select.html) followed by a comma-separated list of the columns to be returned and the table from which to retrieve the data:

```
> SELECT balance FROM accounts;
```

**COPY** 

```
+-----+
| balance |
+-----+
| 10000.50 |
| 25000.00 |
| 8100.73  |
| 9400.10  |
| NULL     |
| NULL     |
+-----+
(6 rows)
```

To retrieve all columns, use the `*` wildcard:

```
> SELECT * FROM accounts;
```

COPY 

## Keep up-to-date with CockroachDB software releases and usage best practices

```
+-----+-----+
| id | balance |
Email
+-----+-----+
| 1 | 10000.50 |
| 2 | 25000.00 |
| 3 | 8100.73 |
| 4 | 9400.10 |
| 5 | NULL    |
| 6 | NULL    |
+-----+-----+
(6 rows)
```

**SUBMIT**

To filter the results, add a **WHERE** clause identifying the columns and values to filter on:

```
> SELECT id, balance FROM accounts WHERE balance > 9000;
```

COPY 

```
+-----+-----+
| id | balance |
+-----+-----+
| 2 | 25000 |
| 1 | 10000.5 |
| 4 | 9400.1 |
+-----+-----+
(3 rows)
```

To sort the results, add an **ORDER BY** clause identifying the columns to sort by. For each column, you can choose whether to sort ascending (**ASC**) or descending (**DESC**).

COPY 

```
> SELECT id, balance FROM accounts ORDER BY balance DESC;
```

## Keep up-to-date with CockroachDB software releases and usage best practices

```
+-----+-----+
| id | balance |
Email
+-----+-----+
|  2 |   25000 |
|  1 |  10000.5 |
|  4 |   9400.1 |
|  3 |   8100.73 |
|  5 |    NULL  |
|  6 |    NULL  |
+-----+-----+
(6 rows)
```

**SUBMIT**

## Update Rows in a Table

To update rows in a table, use `UPDATE` (update.html) followed by the table name, a `SET` clause identifying the columns to update and their new values, and a `WHERE` clause identifying the rows to update:

```
> UPDATE accounts SET balance = balance - 5.50 WHERE balance < 10000;
```

**COPY** 

```
> SELECT * FROM accounts;
```

**COPY** 

## Keep up-to-date with CockroachDB software releases and usage best practices

```
+-----+-----+
| 1 | 10000.50 |
| 2 | 25000.00 |
Email | 3 | 8095.23 |
| 4 | 9394.60 |
| 5 | NULL |
| 6 | NULL |
+-----+-----+
(6 rows)
```

**SUBMIT**

If a table has a primary key, you can use that in the `WHERE` clause to reliably update specific rows; otherwise, each row matching the `WHERE` clause is updated. When there's no `WHERE` clause, all rows in the table are updated.

## Delete Rows in a Table

To delete rows from a table, use `DELETE FROM` (delete.html) followed by the table name and a `WHERE` clause identifying the rows to delete:

```
> DELETE FROM accounts WHERE id in (5, 6);
```

**COPY** 

```
> SELECT * FROM accounts;
```

**COPY** 

## Keep up-to-date with CockroachDB software releases and usage best practices

	1	10000.50	
	2	25000.00	
Email	3	8095.23	
	4	9394.60	

(4 rows)

**SUBMIT**

Just as with the `UPDATE` statement, if a table has a primary key, you can use that in the `WHERE` clause to reliably delete specific rows; otherwise, each row matching the `WHERE` clause is deleted. When there's no `WHERE` clause, all rows in the table are deleted.

## What's Next?

- Explore all SQL Statements ([sql-statements.html](#))
- Use the built-in SQL client ([use-the-built-in-sql-client.html](#)) to execute statements from a shell or directly from the command line
- Install the client driver ([install-client-drivers.html](#)) for your preferred language and build an app ([build-an-app-with-cockroachdb.html](#))
- Explore core CockroachDB features ([demo-data-replication.html](#)) like automatic replication, rebalancing, and fault tolerance

Was this page helpful?

YES

NO

# Keep up-to-date with CockroachDB software releases and usage best practices

## PRODUCTS

([HTTPS://WWW.COCKROACHLABS.COM/PRODUCT/COCKROACHDB-CORE/](https://www.cockroachlabs.com/product/cockroachdb-core/))

CockroachDB Core

(<https://www.cockroachlabs.com/product/cockroachdb-core/>)

CockroachDB Enterprise

(<https://www.cockroachlabs.com/product/cockroachdb-enterprise/>)

FAQ

(<https://www.cockroachlabs.com/docs/stable/frequently-asked-questions.html>)

Pricing (<https://www.cockroachlabs.com/pricing/>)

Comparison

(<https://www.cockroachlabs.com/docs/stable/cockroachdb-in-comparison.html>)

## COMPANY

([HTTPS://WWW.COCKROACHLABS.COM/ABOUT/](https://www.cockroachlabs.com/about/))

Blog (<https://www.cockroachlabs.com/blog/>)

About (<https://www.cockroachlabs.com/about/>)

Careers (<https://www.cockroachlabs.com/careers/>)

Press (<https://www.cockroachlabs.com/press/>)

## RESOURCES

([HTTPS://WWW.COCKROACHLABS.COM/COMMUNITY/](https://www.cockroachlabs.com/community/))

Events

(<https://www.cockroachlabs.com/community/events/>)

Tech Talks

(<https://www.cockroachlabs.com/community/tech-talks>)

Forum (<https://forum.cockroachlabs.com/>)

## DOCUMENTATION

([HTTPS://WWW.COCKROACHLABS.COM/DOCS/STABLE](https://www.cockroachlabs.com/docs/stable))

Get Started

(<https://www.cockroachlabs.com/docs/stable/start-a-local-cluster.html>)

Build an App

(<https://www.cockroachlabs.com/docs/stable/build-an-app-with-cockroachdb.html>)

Develop

(<https://www.cockroachlabs.com/docs/stable/install-client-drivers.html>)

Deploy

(<https://www.cockroachlabs.com/docs/stable/cloud-deployment.html>)

Manage

(<https://www.cockroachlabs.com/docs/stable/monitor-cockroachdb-with-prometheus.html>)

---

CONNECT WITH US ([HTTPS://WWW.COCKROACHLABS.COM/CONTACT/](https://www.cockroachlabs.com/contact/))

## Keep up-to-date with CockroachDB software releases and usage best practices

---

Email

Contact Us (<https://www.cockroachlabs.com/contact/>)

Github (<https://github.com/cockroachdb/cockroach/>)

Forum (<https://forum.cockroachlabs.com/>)

Gitter (<https://gitter.im/cockroachdb/cockroach>)

Twitter (<https://twitter.com/cockroachdb>)

© 2017 Cockroach Labs