PostgreSQL Cross Join By Example

Summary: in this tutorial, you will learn how to use the PostgreSQL `CROSS JOIN` to produce a cartesian product of rows from the joined tables.

Introduction to the PostgreSQL CROSS JOIN clause

A `CROSS JOIN` clause allows you to produce a Cartesian Product of rows in two or more tables.

Different from other join (https://www.postgresqltutorial.com/postgresql-tutorial/postgresql-joins/) clauses such as LEFT JOIN (https://www.postgresqltutorial.com/postgresql-tutorial/postgresql-left-join/) or INNER JOIN (https://www.postgresqltutorial.com/postgresql-tutorial/postgresql-inner-join/) , the `CROSS JOIN` clause does not have a join predicate.

Suppose you have to perform a `CROSS JOIN` of two tables T1 and T2.

If T1 has `n` rows and T2 has `m` rows, the result set will have `nxm` rows. For example, the T1 has `1,000` rows and T2 has `1,000` rows, the result set will have `1,000 x 1,000 = 1,000,000` rows.

The following illustrates the syntax of the `CROSS JOIN` syntax:

```
SELECT select_list
FROM T1
CROSS JOIN T2;
```

The following statement is equivalent to the above statement:

```
SELECT select_list
FROM T1, T2;
```

Also, you can use an `INNER JOIN` clause with a condition that always evaluates to true to simulate the cross-join:

```
SELECT *
FROM T1
INNER JOIN T2 ON true;
```

PostgreSQL CROSS JOIN example

The following CREATE TABLE (https://www.postgresqltutorial.com/postgresql-tutorial/postgresql-create-table/) statements create T1 and T2 tables and insert some sample data (https://www.postgresqltutorial.com/postgresql-tutorial/postgresql-insert/) for the cross-demonstration.

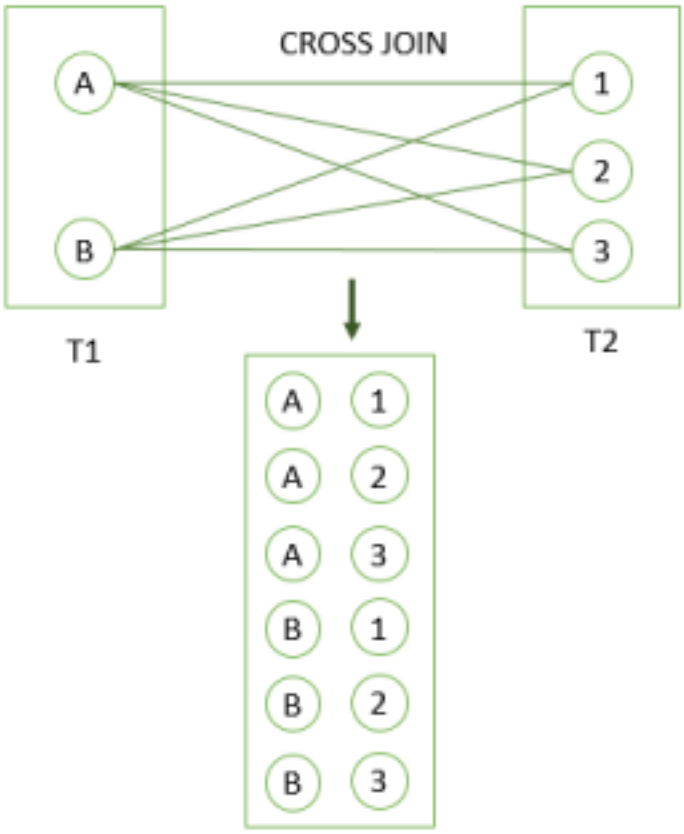
```
DROP TABLE IF EXISTS T1;
CREATE TABLE T1 (label CHAR(1) PRIMARY KEY);

DROP TABLE IF EXISTS T2;
CREATE TABLE T2 (score INT PRIMARY KEY);

INSERT INTO T1 (label)
VALUES
        ('A'),
        ('B');

INSERT INTO T2 (score)
VALUES
        (1),
        (2),
        (3);
```

The following statement uses the `CROSS JOIN` operator to join table T1 with table T2.

```
SELECT *
FROM T1
CROSS JOIN T2;
```

```
 label | score
-------+-------
 A     |     1
 B     |     1
 A     |     2
 B     |     2
 A     |     3
 B     |     3
(6 rows)
```

The following picture illustrates the result of the `CROSS JOIN` when joining the table T1 to the table T2:



In this tutorial, you have learned how to use the PostgreSQL CROSS JOIN clause to make a Cartesian Product of rows in two or more tables.