

COMMIT and ROLLBACK to Manage Changes

by Sophia Tutorial



WHAT'S COVERED

This tutorial explores using COMMIT and ROLLBACK in two parts:

1. Introduction
2. Example Transaction

1. Introduction

Up to this point, we have looked at transactions as single units that start with a BEGIN and end with the COMMIT statement, with multiple SQL commands in between that are executed at once. Remember as well that without the BEGIN command, each individual SQL statement is viewed as a transaction with an implicit BEGIN and COMMIT command executed. However, you can split this up to execute the commands one at a time and control the results as if they were in a transaction to keep the ACID properties.

2. Example Transaction

To start a transaction in the PostgreSQL command line, you can start with either:

```
BEGIN;
```

or

```
BEGIN TRANSACTION;
```

This will start the transaction until the next COMMIT or ROLLBACK command is encountered. However, if there is an error in any of the statements after the BEGIN statement, the changes will automatically be rolled back.

The COMMIT command is used to save changes from a transaction to the database. This COMMIT command will save all of the SQL statements to the database that followed the BEGIN command. The syntax for the COMMIT command looks like this:

COMMIT;

or

END TRANSACTION;

The ROLLBACK command is used to undo or revert SQL statements that have not already been saved to the database. The ROLLBACK command can only be used to undo SQL statements that follow the BEGIN command. The syntax looks like this:

ROLLBACK;

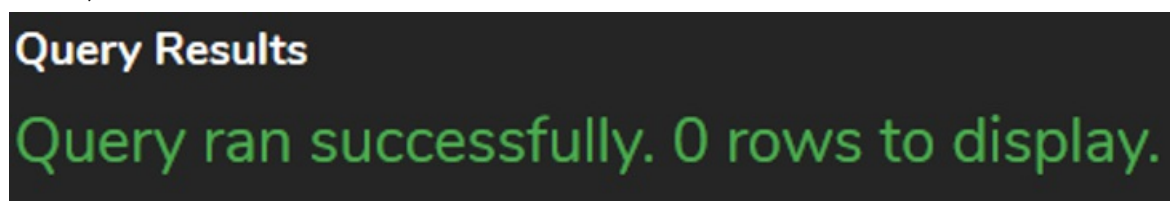
Let us take a look at an example of a series of statements:

```
SELECT *  
FROM customer  
ORDER BY customer_id;
```

Query Results									
Row count: 59									
customer_id	first_name	last_name	company	address	city	state	country	postal_code	phone
1	Luís	Gonçalves	Embraer - Empresa Brasileira de Aeronáutica S.A.	Av. Brigadeiro Faria Lima, 2170	São José dos Campos	SP	Brazil	12227-000	+55 (12) 39
2	Leonie	Köhler		Theodor-Heuss-Straße 34	Stuttgart		Germany	70174	+49 0711 2
3	François	Tremblay		1498 rue Bélanger	Montréal	QC	Canada	H2G 1A7	+1 (514) 72
4	Björn	Hansen		Ullevålsveien 14	Oslo		Norway	0171	+47 22 44
5	František	Wichterlová	JetBrains s.r.o.	Klanova 9/506	Prague		Czech Republic	14700	+420 2 411

Let us start our transaction:

BEGIN;



Let us go ahead to update the CUSTOMER table to set the customer_id equal to 1 to have the first name set to Bob:

```
UPDATE customer  
SET first_name = 'Bob';
```

Oops, we accidentally updated all of the names to Bob, as we forgot the WHERE clause.

```
SELECT *  
FROM customer;
```

Query Results									
Row count: 59									
customer_id	first_name	last_name	company	address	city	state	country	postal_code	phone
1	Bob	Gonçalves	Embraer - Empresa Brasileira de Aeronáutica S.A.	Av. Brigadeiro Faria Lima, 2170	São José dos Campos	SP	Brazil	12227-000	+55 (12) 39
2	Bob	Köhler		Theodor-Heuss-Straße 34	Stuttgart		Germany	70174	+49 0711 2
3	Bob	Tremblay		1498 rue Bélanger	Montréal	QC	Canada	H2G 1A7	+1 (514) 72
4	Bob	Hansen		Ullevålsveien 14	Oslo		Norway	0171	+47 22 44
5	Bob	Wichterlová	JetBrains s.r.o.	Klanova 9/506	Prague		Czech Republic	14700	+420 2 411

We can use the ROLLBACK statement to undo the changes:

ROLLBACK;

Query Results									
Row count: 59									
customer_id	first_name	last_name	company	address	city	state	country	postal_code	phone
1	Luis	Gonçalves	Embraer - Empresa Brasileira de Aeronáutica S.A.	Av. Brigadeiro Faria Lima, 2170	São José dos Campos	SP	Brazil	12227-000	+55 (12) 39
2	Leonie	Köhler		Theodor-Heuss-Straße 34	Stuttgart		Germany	70174	+49 0711 2
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4	Bjørn	Hansen		Ullevålsveien 14	Oslo		Norway	0171	+47 22 44
5	František	Wichterlová	JetBrains s.r.o.	Klanova 9/506	Prague		Czech Republic	14700	+420 2 412
6	Helena	Hrbá		Pilečá 3174/R	Prague		Czech Republic	14300	+420 2 412

So although the database did not throw any errors, we can revert the changes from the last BEGIN statement with the use of the ROLLBACK statement.



SUMMARY

The COMMIT statement will save results to the database ,while the ROLLBACK statement will undo results from the start of a transaction.

Source: Authored by Vincent Tran