

# Truncating Tables

Let us understand details related to truncating tables.

- If you want to delete the data from a table entirely, then **TRUNCATE** is the fastest way to do so.
- Irrespective of size of the table, data can be cleaned up with in no time.
- Truncate operations can be rolled back.
- **TRUNCATE** is a DDL statement. In Postgres, DDL statements are not auto committed. In most of the databases, DDL statements are committed automatically.
- One cannot **truncate** the table with only DML permissions.
- As part of the web or mobile applications, we typically will not have **TRUNCATE** as part of the core logic.
- In Data Engineering or ETL applications, it is used more commonly to truncate intermediate or stage tables.
- If we have to truncate multiple related tables at the same time, then typically we truncate child tables first and then parent tables.
- We can also use **CASCADE** to truncate the data in child tables as well as in the parent.

```
%load_ext sql
```

```
%env  
DATABASE_URL=postgresql://itversity_retail_user:retail_password@localhost:5432/itversity_retail_db
```

```
env:  
DATABASE_URL=postgresql://itversity_retail_user:retail_password@localhost:5432/itversity_retail_db
```

```
%sql DROP TABLE IF EXISTS user_logins
```

```
* postgresql://itversity_retail_user:***@localhost:5432/itversity_retail_db  
Done.
```

```
[]
```

```
%sql DROP TABLE IF EXISTS users
```

```
* postgresql://itversity_retail_user:***@localhost:5432/itversity_retail_db  
Done.
```

```
[]
```

```
%sql DROP SEQUENCE IF EXISTS users_user_id_seq
```

```
* postgresql://itversity_retail_user:***@localhost:5432/itversity_retail_db  
Done.
```

```
[]
```

```
%%sql
```

```
CREATE TABLE users (  
    user_id SERIAL PRIMARY KEY,  
    user_first_name VARCHAR(30) NOT NULL,  
    user_last_name VARCHAR(30) NOT NULL,  
    user_email_id VARCHAR(50) NOT NULL,  
    user_email_validated BOOLEAN,  
    user_password VARCHAR(200),  
    user_role VARCHAR(1),  
    is_active BOOLEAN,  
    created_dt DATE DEFAULT CURRENT_DATE  
)
```

```
* postgresql://itversity_retail_user:***@localhost:5432/itversity_retail_db  
Done.
```

```
[]
```

```
%%sql
```

```
CREATE TABLE user_logins (  
    user_login_id SERIAL PRIMARY KEY,  
    user_id INT,  
    user_login_ts TIMESTAMP DEFAULT CURRENT_TIMESTAMP,  
    user_ip_addr VARCHAR(20)  
)
```

```
* postgresql://itversity_retail_user:***@localhost:5432/itversity_retail_db  
Done.
```

```
[]
```

```
%%sql
```

```
ALTER TABLE user_logins  
    ADD FOREIGN KEY (user_id)  
    REFERENCES users(user_id)
```

```
* postgresql://itversity_retail_user:***@localhost:5432/itversity_retail_db  
Done.
```

```
[]
```

#### Warning

You will not be able to truncate parent table with out cascade (even when tables are empty)

```
%sql TRUNCATE TABLE users
```

```
* postgresql://itversity_retail_user:***@localhost:5432/itversity_retail_db
```

```

-----
FeatureNotSupported                                Traceback (most recent call last)
/opt/anaconda3/envs/beakerx/lib/python3.6/site-packages/sqlalchemy/engine/base.py in
_execute_context(self, dialect, constructor, statement, parameters, *args)
    1276         self.dialect.do_execute(
-> 1277             cursor, statement, parameters, context
    1278         )

/opt/anaconda3/envs/beakerx/lib/python3.6/site-packages/sqlalchemy/engine/default.py in
do_execute(self, cursor, statement, parameters, context)
    592     def do_execute(self, cursor, statement, parameters, context=None):
-> 593         cursor.execute(statement, parameters)
    594

FeatureNotSupported: cannot truncate a table referenced in a foreign key constraint
DETAIL:  Table "user_logins" references "users".
HINT:  Truncate table "user_logins" at the same time, or use TRUNCATE ... CASCADE.

The above exception was the direct cause of the following exception:

NotSupportedError                                Traceback (most recent call last)
<ipython-input-154-a8605a816166> in <module>
----> 1 get_ipython().run_line_magic('sql', 'TRUNCATE TABLE users')

/opt/anaconda3/envs/beakerx/lib/python3.6/site-packages/IPython/core/interactiveshell.py in
run_line_magic(self, magic_name, line, _stack_depth)
    2324         kwargs['local_ns'] = sys._getframe(stack_depth).f_locals
    2325         with self.builtin_trap:
-> 2326             result = fn(*args, **kwargs)
    2327         return result
    2328

<decorator-gen-135> in execute(self, line, cell, local_ns)

/opt/anaconda3/envs/beakerx/lib/python3.6/site-packages/IPython/core/magic.py in <lambda>(f,
*a, **k)
    185     # but it's overkill for just that one bit of state.
    186     def magic_deco(arg):
-> 187         call = lambda f, *a, **k: f(*a, **k)
    188
    189         if callable(arg):

<decorator-gen-134> in execute(self, line, cell, local_ns)

/opt/anaconda3/envs/beakerx/lib/python3.6/site-packages/IPython/core/magic.py in <lambda>(f,
*a, **k)
    185     # but it's overkill for just that one bit of state.
    186     def magic_deco(arg):
-> 187         call = lambda f, *a, **k: f(*a, **k)
    188
    189         if callable(arg):

/opt/anaconda3/envs/beakerx/lib/python3.6/site-packages/sql/magic.py in execute(self, line,
cell, local_ns)
    215
    216     try:
-> 217         result = sql.run.run(conn, parsed["sql"], self, user_ns)
    218
    219         if (

/opt/anaconda3/envs/beakerx/lib/python3.6/site-packages/sql/run.py in run(conn, sql, config,
user_namespace)
    365         else:
    366             txt = sqlalchemy.sql.text(statement)
-> 367             result = conn.session.execute(txt, user_namespace)
    368             _commit(conn=conn, config=config)
    369             if result and config.feedback:

/opt/anaconda3/envs/beakerx/lib/python3.6/site-packages/sqlalchemy/engine/base.py in
execute(self, object_, *multiparams, **params)
    1009         )
    1010     else:
-> 1011         return meth(self, multiparams, params)
    1012
    1013     def _execute_function(self, func, multiparams, params):

/opt/anaconda3/envs/beakerx/lib/python3.6/site-packages/sqlalchemy/sql/elements.py in
_execute_on_connection(self, connection, multiparams, params)
    296     def _execute_on_connection(self, connection, multiparams, params):
    297         if self.supports_execution:
-> 298             return connection._execute_clauseelement(self, multiparams, params)
    299         else:
    300             raise exc.ObjectNotExecutableError(self)

/opt/anaconda3/envs/beakerx/lib/python3.6/site-packages/sqlalchemy/engine/base.py in
_execute_clauseelement(self, elem, multiparams, params)
    1128         distilled_params,

```

```

1129         compiled_sql,
-> 1130         distilled_params,
1131     )
1132     if self._has_events or self.engine._has_events:

/opt/anaconda3/envs/beakerx/lib/python3.6/site-packages/sqlalchemy/engine/base.py in
_execute_context(self, dialect, constructor, statement, parameters, *args)
1315     except BaseException as e:
1316         self._handle_dbapi_exception(
-> 1317             e, statement, parameters, cursor, context
1318         )
1319

/opt/anaconda3/envs/beakerx/lib/python3.6/site-packages/sqlalchemy/engine/base.py in
_handle_dbapi_exception(self, e, statement, parameters, cursor, context)
1509     elif should_wrap:
1510         util.raise_(
-> 1511             sqlalchemy_exception, with_traceback=exc_info[2], from_=e
1512         )
1513     else:

/opt/anaconda3/envs/beakerx/lib/python3.6/site-packages/sqlalchemy/util/compat.py in
raise_(*failed resolving arguments*)
180
181     try:
--> 182         raise exception
183     finally:
184         # credit to

/opt/anaconda3/envs/beakerx/lib/python3.6/site-packages/sqlalchemy/engine/base.py in
_execute_context(self, dialect, constructor, statement, parameters, *args)
1275     if not evt_handled:
1276         self.dialect.do_execute(
-> 1277             cursor, statement, parameters, context
1278         )
1279

/opt/anaconda3/envs/beakerx/lib/python3.6/site-packages/sqlalchemy/engine/default.py in
do_execute(self, cursor, statement, parameters, context)
591
592     def do_execute(self, cursor, statement, parameters, context=None):
--> 593         cursor.execute(statement, parameters)
594
595     def do_execute_no_params(self, cursor, statement, context=None):

NotSupportedError: (psycopg2.errors.FeatureNotSupported) cannot truncate a table referenced
in a foreign key constraint
DETAIL:  Table "user_logins" references "users".
HINT:  Truncate table "user_logins" at the same time, or use TRUNCATE ... CASCADE.

[SQL: TRUNCATE TABLE users]
(Background on this error at: http://sqlalche.me/e/13/tw8g)

```

```
%%sql
```

```

INSERT INTO users (user_first_name, user_last_name, user_email_id)
VALUES ('Donald', 'Duck', 'donald@duck.com')

```

```

* postgresql://itversity_retail_user:***@localhost:5432/itversity_retail_db
1 rows affected.

```

```
[]
```

```
%%sql
```

```

INSERT INTO users (user_first_name, user_last_name, user_email_id, user_role, is_active)
VALUES ('Mickey', 'Mouse', 'mickey@mouse.com', 'U', true)

```

```

* postgresql://itversity_retail_user:***@localhost:5432/itversity_retail_db
1 rows affected.

```

```
[]
```

```
%%sql
```

```
INSERT INTO users
(user_first_name, user_last_name, user_email_id, user_password, user_role, is_active)
VALUES
('Gordan', 'Bradock', 'gbradock0@barnesandnoble.com', 'h9LAz7p7ub', 'U', true),
('Tobe', 'Lyness', 'tlynness1@paginegialle.it', 'oEofndp', 'U', true),
('Addie', 'Mesias', 'amesias2@twitpic.com', 'ih7Y69u56', 'U', true)
```

```
* postgresql://itversity_retail_user:***@localhost:5432/itversity_retail_db
3 rows affected.
```

```
[]
```

```
%%sql
```

```
INSERT INTO user_logins
(user_id)
VALUES
(1),
(2),
(3),
(1),
(1),
(4)
```

```
* postgresql://itversity_retail_user:***@localhost:5432/itversity_retail_db
6 rows affected.
```

```
[]
```

```
%sql SELECT * FROM users
```

```
* postgresql://itversity_retail_user:***@localhost:5432/itversity_retail_db
5 rows affected.
```

user_id	user_first_name	user_last_name	user_email_id	user_email_validated
1	Donald	Duck	donald@duck.com	None
2	Mickey	Mouse	mickey@mouse.com	None
3	Gordan	Bradock	gbradock0@barnesandnoble.com	None
4	Tobe	Lyness	tlynness1@paginegialle.it	None
5	Addie	Mesias	amesias2@twitpic.com	None

◀ ▶

```
%sql SELECT * FROM user_logins
```

```
* postgresql://itversity_retail_user:***@localhost:5432/itversity_retail_db
6 rows affected.
```

user_login_id	user_id	user_login_ts	user_ip_addr
1	1	2020-11-23 16:44:08.289602	None
2	2	2020-11-23 16:44:08.289602	None
3	3	2020-11-23 16:44:08.289602	None
4	1	2020-11-23 16:44:08.289602	None
5	1	2020-11-23 16:44:08.289602	None
6	4	2020-11-23 16:44:08.289602	None

#### Note

TRUNCATE with CASCADE will truncate data from child table as well.

```
%sql TRUNCATE TABLE users CASCADE
```

```
* postgresql://itversity_retail_user:***@localhost:5432/itversity_retail_db
Done.
```

```
[]
```

```
%sql SELECT * FROM users
```

```
* postgresql://itversity_retail_user:***@localhost:5432/itversity_retail_db
0 rows affected.
```

user_id	user_first_name	user_last_name	user_email_id	user_email_validated	user_password	u
---------	-----------------	----------------	---------------	----------------------	---------------	---



```
%sql SELECT * FROM user_logins
```

```
* postgresql://itversity_retail_user:***@localhost:5432/itversity_retail_db
0 rows affected.
```

user_login_id	user_id	user_login_ts	user_ip_addr
---------------	---------	---------------	--------------

---

By Durga Gadiraju

© Copyright ITVersity, Inc.