Cascading – Delete and Update

**CREATE** **TABLE** buildings (

building\_no INT PRIMARY **KEY** AUTO\_INCREMENT,

building\_name VARCHAR(255) **NOT** NULL,

address VARCHAR(255) **NOT** NULL

);

**INSERT** **INTO** buildings(building\_name,address)

**VALUES**('ACME Headquaters','3950 North 1st Street CA 95134'),

('ACME Sales','5000 North 1st Street CA 95134');

**CREATE** **TABLE** rooms (

room\_no INT PRIMARY **KEY** AUTO\_INCREMENT,

room\_name VARCHAR(255) **NOT** NULL,

building\_no INT **NOT** NULL,

**FOREIGN** **KEY** (building\_no)

**REFERENCES** buildings (building\_no)

**ON** **DELETE** **CASCADE**

);

**INSERT** **INTO** rooms(room\_name,building\_no)

**VALUES**('Amazon',1),

('War Room',1),

('Office of CEO',1),

('Marketing',2),

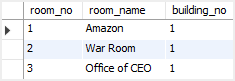
('Showroom',2)

**DELETE** **FROM** buildings

**WHERE** building\_no = 2;

**SELECT** \* **FROM** rooms;

Code language: SQL (Structured Query Language) (sql)



As you can see, all the rows that reference to building\_no 2 were automatically deleted.

Notice that ON DELETE CASCADE  works only with tables with the [storage engines](https://www.mysqltutorial.org/understand-mysql-table-types-innodb-myisam.aspx) that support foreign keys e.g., InnoDB.

Some table types do not support foreign keys such as MyISAM so you should choose appropriate storage engines for the tables that you plan to use the MySQL ON DELETE CASCADE  referential action.

Tips to find tables affected by MySQL ON DELETE CASCADE action

Sometimes, it is useful to know which table is affected by the ON DELETE CASCADE  referential action when you delete data from a table. You can query this data from the referential\_constraints in the information\_schema  database as follows:

**USE** information\_schema;

**SELECT**

table\_name

**FROM**

referential\_constraints

**WHERE**

constraint\_schema = 'database\_name'

**AND** referenced\_table\_name = 'parent\_table'

**AND** delete\_rule = 'CASCADE'

For example, to find tables that associated with the buildings table with the CASCADE  deletion rule  in the classicmodels database, you use the following query:

**USE** information\_schema;

**SELECT**

table\_name

**FROM**

referential\_constraints

**WHERE**

constraint\_schema = 'classicmodels'

**AND** referenced\_table\_name = 'buildings'

**AND** delete\_rule = 'CASCADE'

MySQL ON DELETE CASCADE tips

**CREATE** **TABLE** students (

St\_ID INT PRIMARY **KEY** AUTO\_INCREMENT,

St\_Name VARCHAR(55) **NOT** NULL,

St\_address VARCHAR(55) **NOT** NULL

);

**CREATE** **TABLE** students (

St\_ID INT AUTO\_INCREMENT,

St\_Name VARCHAR(55) **NOT** NULL,

St\_address VARCHAR(55) **NOT** NULL,

PRIMARY KEY (St\_ID)

);

**CREATE** **TABLE** courses (

C\_Code INT PRIMARY **KEY** AUTO\_INCREMENT,

C\_Name VARCHAR(55) **NOT** NULL ,

C\_credit INT(2) **NOT** NULL,

UNIQUE (C\_Name)

);

**CREATE** **TABLE** ENROLLMENT (

S\_id INT,

C\_Id INT,

Marks INT (3),

PRIMARY KEY (S\_id, C\_Id),

FOREIGN KEY (s\_id) REFERENCES students (st\_id),

FOREIGN KEY (C\_Id) REFERENCES courses (c\_code)

);

**CREATE** **TABLE** ENROLLMENT (

St\_id INT,

C\_code INT,

Marks INT (3),

PRIMARY KEY (St\_id, C\_code),

FOREIGN KEY (st\_id) REFERENCES students (st\_id)ON DELETE CASCADE ON UPDATE CASCADE,

FOREIGN KEY (C\_code) REFERENCES courses (c\_code)ON DELETE CASCADE ON UPDATE CASCADE

);

**CREATE** **TABLE** ENROLLMENT (

St\_id INT,

C\_code INT,

Marks INT (3),

PRIMARY KEY (St\_id, C\_code),

FOREIGN KEY (st\_id) REFERENCES students (st\_id)ON UPDATE CASCADE,

FOREIGN KEY (C\_code) REFERENCES courses (c\_code)ON UPDATE CASCADE

);

INSERT INTO students VALUES (1, 'ABC', 'bcd'), (2, 'efg', 'bd'), (3, 'ghi', 'ert'), (4, 'uvw', 'ftr');

|  |  |  |
| --- | --- | --- |
| St\_ID | St\_Name | St\_Address |
| 1 | ABC | Bcd |
| 2 | efg | Bd |
| 3 | ghi | Ert |
| 4 | uvw | Ftr |

INSERT INTO courses VALUES (1, 'ABC', 3), (2, 'efg', 4), (3, 'ghi', 3), (4, 'uvw', 4);

|  |  |  |
| --- | --- | --- |
| C\_code | CName | Credits |
| 1 | ABC | 3 |
| 2 | efg | 4 |
| 3 | ghi | 3 |
| 4 | uvw | 4 |

INSERT INTO enrollment VALUES (1, 1, 70), (1, 2, 75), (1, 3, 45), (2, 1, 80), (2, 3, 45), (2, 4, 67), (3, 3, 45), (3, 4, 67), (3, 1, 45), (3, 2, 67);

|  |  |  |
| --- | --- | --- |
| St\_ID | C\_code | Marks |
| 1 | 1 | 70 |
| 1 | 2 | 75 |
| 1 | 3 | 45 |
| 2 | 1 | 80 |
| 2 | 3 | 45 |
| 2 | 4 | 67 |
| 3 | 3 | 45 |
| 3 | 4 | 67 |
| 3 | 1 | 45 |
| 3 | 2 | 67 |

DELETE FROM COURSES WHERE C\_CODE = 1;

From courses table tuple with course code 1 will be deleted but this course was registered by some students in enrollment table, these tuples with course code 1 in enrollment table will also be deleted using ON DELETE CASCADE statement.

DELETE FROM students WHERE St\_ID = 3;

From students table tuple with student ID 3 will be deleted but this student was registered in some courses also in enrollment table, these tuples with student ID 3 in enrollment table will also be deleted using ON DELETE CASCADE statement.

**USE** information\_schema;

**SELECT**

table\_name

**FROM**

referential\_constraints

**WHERE**

constraint\_schema = 'test'

**AND** referenced\_table\_name = 'students'

**AND** delete\_rule = 'CASCADE'

**USE** information\_schema;

**SELECT**

table\_name

**FROM**

referential\_constraints

**WHERE**

constraint\_schema = 'almasri'

**AND** referenced\_table\_name = 'employee'

**AND** delete\_rule = 'CASCADE'