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Difference between On Delete Cascade & On Update Cascade in mysql

Asked 6 years, 9 months ago Active 3 years, 6 months ago Viewed 179k times



I have two tables in MySQL database- parent, child. I'm trying to add foreign key references to my child table ba the parent table. Is there any significant difference between ON UPDATE CASCADE and ON DELETE CASCADE

My Parent Table

CREATE TABLE parent (id INT NOT NULL, PRIMARY KEY (id))ENGINE=INNODB;

My Question is: What is the difference between the following sql queries.

1. ON DELETE CASCADE

CREATE TABLE child (
id INT,
parent_id INT,
INDEX par_ind (parent_id),
FOREIGN KEY (parent_id)
REFERENCES parent(id)
ON DELETE CASCADE
) ENGINE=INNODB;

2. ON UPDATE CASCADE

CREATE TABLE child (
id INT,
parent, id INT,
INDEX par_ind (parent_id),
FOREIGN KEY (parent_id)
REFERENCES parent(id)
ON UPDATE CASCADE
) ENGINE=INNODB;

3. ON UPDATE CASCADE ON DELETE CASCADE

CREATE TABLE child (SALE...

SI INT.,
parent_id INT,
NDEX par _ind (parent_id),
FOREIGN KEY (parent_id)
REFERENCES parent(id)
ON UPDATE CASCADE ON DELETE CASCADE
ENGINE=INNODB;

Are there any errors in the queries? What do these queries (1,2 & 3) mean?? Are they same???

mysql innodb mysql-5.5 foreign-key

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d Nov 22 '17 at 18:55 asked Aug 22 '14 at 6:22

p.s. nilpick for completeness, what you are talking about above are DDL (Data Definition Language) **statements**, and rqueries. A query is generally considered to be DML (Data Manipulation Language SELECT, INSERT, UPDATE, DELETE) https://dispick-Verince-Aug 22144 a5924

Another p.s. again for completeness, I wondered what the default was. So I created a child with no on update or on delete. What happens then is that you can neither update nor delete a parent that has a dependent child. That makes perfect sense, however MySQI, is not always a model of that particular sharaciestics:)— Potence Aug 22714 at 12.53

3 Answers

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A very good thread on this subject is to be found here and also here. The definitive guide for MySQL is, of course, the documentation, to be found here.

In the SOL 2003 standard there are 5 different referential actions

- CASCADE
 RESTRICT
 NO ACTION
 SET NULL
- 5. SET DEFAULT

To answer the question:

- ON DELETE CASCADE means that if the parent record is deleted, any child records are also deleted. This is not a good idea in my opinion. You should keep track of all data that's ever been in a database, although this can be done using TRIGGER s. (However, see caveat in comments below).

 ON UPDATE CASCADE means that if the parent primary key is changed, the child value will also change to reflect that. Again in my opinion, not a great idea. If you're changing PRIMARY KEYs with any regularity (or even at all!), there is something wrong with your design. Again, see comments.

 ON UPDATE CASCADE ON DELETE CASCADE means that if you UPDATE OR DELETE the parent, the change is cascaded to the child. This is the equivalent of AND ing the outcomes of first two statements.

 PRESTRICT

2 RESTRICT

RESTRICT means that any attempt to delete and/or update the parent will fail throwing an error. This is the
default behaviour in the event that a referential action is not explicitly specified.

For an ONDELETE or ONUPDATE that is not specified, the default action is always RESTRICT

3. NO ACTION

NO ACTION: From the manual. A keyword from standard SQL. In MySQL, equivalent to RESTRICT. The
MySQL Server rejects the delete or update operation for the parent table if there is a related foreign key value
in the referenced table. Some database systems have deferred checks, and NO ACTION is a deferred check.
In MySQL, foreign key constraints are checked immediately, so NO ACTION is the same as RESTRICT.

SET NULL - again from the manual. Delete or update the row from the parent table, and set the foreign key
column or columns in the child table to NULL. This is not the best of ideas IMHO, primarily because there is
no way of "time-travellim": i.e. looking back into the child tables and associating records with NULL is with the
relevant parent record - either CASCADE or use TRIGGER s to populate logging tables to track changes (but,

5. SET DEFAULT

SET DEFAULT . Yet another (potentially very useful) part of the SQL standard that MySQL hasn't bothered

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UPDATE or a DELETE. InnoDB and NDB will reject table definition As mentioned above, you should spend some time looking at the documentation, here. BDS Israel is an Apartheid State 50.3k § 32 § 178 § 375 I like your complete answer however I disagree with this statement. "You should keep track of all data that's ever been in a database" - this is really dependent upon the design and purposes of the database. For example a Recipe Definition (I am not talking food - more like systems configurations) when the recipe definition is deleted it makes no sense to keep the associated children of that recipe - that just bloads the diff on reason. Also work tables for mentine systems - I do not need the data anymore; process and get rid of it. Other than that your answer is fantastic. – Sixo O aug 15°16 at 13-48 similar to @SixO I like this answer mostly, but I gotta disagree with changing primary key. There are definitely designs where this would be a bad idea but when you get into a distributed database it can be very desirable that primary keys are free to be reassigned without losing the identity of a record. – Garet Claborn Aug 11 '17 at 22:50 "This is not a good idea in my opinion. You should keep track of all data that's ever been in a database." - Not sure I understand your point. If you are easeading 'on delete', then you have already decided you need to delete something. If you do decide to never delete anything, nothing will cascade. The benefit of having it though is that in your application you can be sure that when you look for a record with a foreign I/O, you know that it will be there, and there wont be any orphan rows bloating your database should you decide to delete something. – Jeff Ryan Dec 10 '18 at 0.42 The logic here is pretty faulty in places, and even more so in our new GDPR world. I do agree with the notion that if primary keys are changing, it might be a sign of something wrong though. – Chuck Le Butt Feb 19 '19 at 11:44 etc. If you're changing PRIMARY KEYs with any regularity (or even at all!), there is something wrong with your design. Do you mean ON UPDATE CASCADE changes the value of the key or the name of the key?—Billal Begueradj Mar 419 at 11:09 These two are actions to be performed, respectively, when the referenced record on the parent table changes its id and when it gets deleted. UPDATE parent SET id = -1 WHERE id = 1: And there is at least one record on _ehild with _parent_id = 1 , 1) will fail; in cases 2) and 3), all records with parent_id = 1 are updated to parent_id = -1. If you execute: DELETE FROM parent WHERE id = 1; And there is at least one record on \mbox{child} with $\mbox{parent_id} = 1$, 2) will fail; in cases 1) and 3), all records with $\mbox{parent_id} = 1$ are deleted. 3) is syntactically correct. Share Improve this answer Follow red Aug 22 '14 at 8:02 jynus 13.6k % 1 % 26 % 37 Answer would be better served by defining 1,2,3 rather than relying on the question never being edited. – iheanyi Mar 4'20 at 0.277 Ð I don't have enough reputation to comment on the previous answers. So I thought I'd elaborate a bit. 1) ON DELETE CASCADE means if the parent record is deleted, then any referencing child records are also deleted. ON UPDATE defaults to RESTRICT, which means the UPDATE on the parent record will fail. 2) ON DELETE action defaults to RESTRICT, which means the DELETE on the parent record will fail. ON UPDATE CASCADE will update all referencing child records when the parent record is updated. 3) See the CASCADE actions in 1) and 2) above. On using parent record IDs as foreign keys (in child tables) — experience says a) if the IDs are auto-generated sequence numbers, then DO NOT use them as foreign keys. Use some other unique parent key instead. b) if the IDs are GUIDs, then if so k to use them as foreign keys. You'll see the wisdom in this suggestion when you export and import the records or copy records to another database. It's too cumbersome to deal with auto-generated sequence numbers during data migration when they are referenced as foreign keys. gr 71 % 1 % 1 Your Answer Ø 99 () ■ E E E E Sign up or log in Post as a guest Name G Sign up using Google f Sign up using Facebook Sign up using Email and Password By clicking "Post Your Answer", you agree to our terms of service, privacy policy and cookie policy

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