

QGIS Application - Feature request #16375

Change Way SDO_RELATE is used in QGIS spatial queries

2017-03-23 06:31 PM - Simon Greener

Status: Open	
Priority: Normal	
Assignee:	
Category: Data Provider/Oracle	
Pull Request or Patch supplied:	Resolution:
Easy fix?: No	Copied to github as #: 24285

Description

Background.

I executed an "identify" in QGIS against a single mapped object that comes from an Oracle table with sdo_geometry column.

Using database SQL Trace, I dumped the SQL that QGIS executes and I got the following (which I have compared to the C++ source code):

```
SELECT "GEOM","ROWID","FID","FID_INT","FID_NUM9","FID_NUM8","FID_NUM7",
"AN_ATTRIBUTE"
FROM
"QGIS"."FOO" "FEATUREREQUEST"
WHERE sdo_filter("GEOM",
mdsys.sdo_geometry(2003,2872,NULL,mdsys.sdo_elem_info_array(1,1003,3),
mdsys.sdo_ordinate_array(5992381.68001308757811785,
2112468.83721287222579122,5992389.06444318685680628,
2112476.22164297243580222))='TRUE'
AND sdo_relate("GEOM",
mdsys.sdo_geometry(2003,2872,NULL,mdsys.sdo_elem_info_array(1,1003,3),
mdsys.sdo_ordinate_array(5992381.68001308757811785,
2112468.83721287222579122,5992389.06444318685680628,
2112476.22164297243580222)), 'mask=ANYINTERACT')='TRUE'
```

Looking at qgsoracleconn.cpp there's an hasSpatial() method which runs:

```
"SELECT 1 FROM v$option WHERE parameter='Spatial' AND value='TRUE'"
```

This is then used at line 96 of qgsoraclefeatureiterator.cpp where it says:

```
// sdo_relate requires Spatial
```

If the connection has Spatial, it appends this to the query where clause:

```
AND sdo_relate(%1,%2,'mask=ANYINTERACT')='TRUE'
```

Now, SDO_RELATE has always been a Location spatial filter, and so is free for all Oracle users.

Only SDO_GEOM.RELATE requires Spatial in 11g but not 12c.

Additionally, SDO_RELATE is a secondary filter that executes a Primary filter (SDO_FILTER) internally to generate a candidate set of possible objects that are sent to the internal Secondary filter which does the topological analysis.

Even if SDO_RELATE was a licensed filter, it does not need to be used in conjunction with SDO_FILTER.

Additionally, the Oracle Query Optimizer is still not smart enough to realise that the SDO_FILTER is not needed so the use of it with

SDO_RELATE doubles the primary filtering.

So the above query should always be running SDO_RELATE... ANYINTERACT and leaving out the SDO_FILTER part. But, also, the "mask=ANYINTERACT" should be a bind variable as it could be set to "mask=CONTAINS" etc.

In summary (**the sentences in bold are the requested functional changes**):

1. SDO_RELATE is a free function and not subject to Spatial licensing
 - **the hasSpatial() test in the C++ is invalid and should be removed;**
2. SDO_GEOM.RELATE is a spatial function up till 12c and free afterwards
 - AFAIK QGIS currently doesn't use SDO_GEOM.RELATE;
3. Because SDO_RELATE executes its own primary filtering, SDO_FILTER is not needed
 - **Modify the C++ to remove SDO_FILTER when SDO_RELATE is needed.**
4. **SDO_FILTER mask parameter should be a bind variable.**

regards

Simon

History

#1 - 2017-03-23 06:34 PM - Simon Greener

Reference for licensing.

11.2

[\[\[https://docs.oracle.com/cd/E18283_01/appdev.112/e11830/sdo_locator.htm#i632018\]\]](https://docs.oracle.com/cd/E18283_01/appdev.112/e11830/sdo_locator.htm#i632018)

12.2

[\[\[http://docs.oracle.com/database/122/SPATL/oracle-locator.htm#SPATL340\]\]](http://docs.oracle.com/database/122/SPATL/oracle-locator.htm#SPATL340)

Simon

#2 - 2017-05-01 01:01 AM - Giovanni Manghi

- *Easy fix? set to No*

- *Regression? set to No*

#3 - 2017-05-01 02:22 AM - Giovanni Manghi

- *Tracker changed from Bug report to Feature request*

- *Priority changed from High to Normal*

- *Description updated*

#4 - 2017-09-08 01:35 PM - Jürgen Fischer

- *Assignee deleted (Jürgen Fischer)*