

QGIS Application - Bug report #13608

Possible Bug in GEOS when calculating intersection of two polygons with inner rings?

2015-10-15 05:45 AM - Adrian Klink

Status: Closed	
Priority: Normal	
Assignee:	
Category:	
Affected QGIS version: 2.10.1	Regression?: No
Operating System:	Easy fix?: No
Pull Request or Patch supplied:	Resolution: fixed/implemented
Crashes QGIS or corrupts data:	Copied to github as #: 21647

Description

As far as I understand, GEOS is responsible for calculating intersections between polygons in QGIS. When I try to intersect two polygons with inner rings (holes), intersection fails. Is this a possible bug in GEOS module in QGIS? Using ArcGIS creates a valid geometry. I have tried using QGIS 2.10 Pisa 64bit Windows 7 and QGIS 2.10 Pisa 32bit Windows 8.1, using Vector -> Intersection via menu and/or Python scripting. Either I get no geometry or invalid GeometryCollection.

Can someone double check, please?

Here are the polygons (as WKT String, can be imported into QGIS via QuickWKT Plugin):

```
Polygon ((32363196.675240271 5467660.3907237295, 32363272.961243533 5467641.608177687, 32363283.202260282 5467556.0808803849, 32363090.88836604 5467558.0382346781, 32363089.014254488 5467625.9334499743, 32363196.675240271 5467660.3907237295),(32363160.68400000035762787 5467605.09290000051259995, 32363150.1810000017285347 5467599.87690000049769878, 32363135.58999999985098839 5467593.77390000037848949, 32363124.54699999839067459 5467587.28889999911189079, 32363160.21000000089406967 5467594.69590000063180923, 32363157.51599999889731407 5467596.38389999978244305, 32363156.73499999940395355 5467598.88590000011026859, 32363158.03199999779462814 5467602.30690000019967556, 32363160.68400000035762787 5467605.09290000051259995))
```

intersection with:

```
Polygon ((32363196.675240271 5467660.3907237295, 32363272.961243533 5467641.608177687, 32363283.202260282 5467556.0808803849, 32363090.88836604 5467558.0382346781, 32363089.014254488 5467625.9334499743, 32363196.675240271 5467660.3907237295),(32363262.36500000208616257 5467580.39589999988675117,32363173.8289999991059303 5467597.48589999973773956, 32363160.21000000089406967 5467594.69590000063180923, 32363124.54699999839067459 5467587.28889999911189079, 32363108.69399999982714653 5467581.39589999988675117, 32363262.36500000208616257 5467580.39589999988675117))
```

Associated revisions

Revision 34dc3143 - 2015-10-15 10:48 PM - Nyal Dawson

Fix exporting geometry collections to WKT

Child types were incorrectly being dropped when the collection consisted of mixed geometry types (eg line & polygon) (refs #13608)

History

2025-04-27

1/3

#1 - 2015-10-15 01:27 PM - Jukka Rahkonen

Paste also the result geometry from ArcGIS.

#2 - 2015-10-15 01:51 PM - Nyall Dawson

- Status changed from Open to Feedback

Thanks - that's helped me track down a possibly related bug in geometry collections. Looks like that intersection operation results in a collection of a string and polygon.

Can you please confirm which tool/processing algorithm/menu item you are using to perform the intersection? That will probably need to be updated to handle this case.

#3 - 2015-10-16 01:33 AM - Adrian Klink

Nyall Dawson wrote:

Thanks - that's helped me track down a possibly related bug in geometry collections. Looks like that intersection operation results in a collection of a string and polygon.

Can you please confirm which tool/processing algorithm/menu item you are using to perform the intersection? That will probably need to be updated to handle this case.

Originally this WKT was taken from a Shapefile. This problem (empty geometry) occurred, when using:

QGIS Menu -> Vector -> Geoprocessing Tools -> Intersect

The second approach (resulting in invalid GeometryCollection) was using Python Scripting in QGIS:

```
layer1 = iface.addVectorLayer(first_file, "first_layer", "ogr")
layer2 = iface.addVectorLayer(second_file, "second_layer", "ogr")
iter1 = layer1.getFeatures()
for feature1 in iter1:
    geom1 = feature1.geometry()
    for feature2 in iter2:
        geom2 = feature2.geometry()
        if geom1.intersects(geom2):
            geomintersect = geom1.intersection(geom2)
            print "%s" % (geomintersect.exportToWkt())
```

Resulting Geometry in ArcGIS is (Polygon only, since input have been 2 polygons and intersecting line of inner rings has no area, thus is no polygon):

```
Polygon ((32363272.96124353259801865 5467641.60817768704146147, 32363283.20226028189063072 5467556.08088038489222527,
32363090.88836603984236717 5467558.03823467809706926, 32363089.01425448805093765 5467625.93344997335225344,
32363196.67524027079343796 5467660.39072373043745756, 32363272.96124353259801865
5467641.60817768704146147),(32363108.6939999982714653 5467581.39590000081807375, 32363262.36500000208616257
5467580.39589999988675117, 32363173.82899999991059303 5467597.48589999973773956, 32363160.21000000089406967
```

```
5467594.69590000063180923, 32363157.51599999889731407 5467596.38389999978244305, 32363156.73499999940395355
5467598.88590000104159117, 32363158.03199999779462814 5467602.30690000019967556, 32363160.68400000035762787
5467605.09289999958127737, 32363150.1810000017285347 5467599.87690000049769878, 32363135.5899999985098839
5467593.77389999944716692, 32363124.54699999839067459 5467587.28889999911189079, 32363108.6939999982714653
5467581.39590000081807375))
```

#4 - 2015-10-16 01:54 AM - Adrian Klink

Adrian Klink wrote:

Polygon only, since input have been 2 polygons and intersecting line of inner rings has no area, thus is no polygon

Since I mentioned that ArcGIS and QGIS behave different on intersections of polygons (result is polygon only in ArcGIS) there is also a second case (I currently have no example, but I may provide one next week):

Two **polygons** touching each other at a line string behave different in QGIS and ArcGIS:

- ArcGIS: no intersection (touching line string has no area - thus no polygon)
- QGIS: intersection resulting in a line string (same behaviour as with above case which was resulting in a GeometryCollection of Polygon and LineString, but this time the outer ring and not the inner rings are affected)

#5 - 2015-12-27 02:37 PM - Giovanni Manghi

- Resolution set to fixed/implemented
- Status changed from Feedback to Closed

this was caused by a change in the qgis code that left several tools in the vector menu "broken" when the result contained a collection, this was fixed recently in qgis master.