QGIS Application - Bug report #9414
Custom CRS with units=mm stored as units=m

2014-01-23 05:05 AM - Andre Joost

Status:	Closed		
Priority:	Normal		
Assignee:			
Category:	Projection Support		
Affected QGIS version:	2.0.1	**Regression?:**	No
Operating System:	Windows	**Easy fix?:**	No
Pull Request or Patch supplied:	No	**Resolution:**	
Crashes QGIS or corrupts data:	No	**Copied to github as #:**	18009

Description

I try to set up a custom CRS with

+proj=tmerc +lat_0=51.4 +lon_0=7.0 +k=1 +x_0=0 +y_0=0 +ellps=WGS84 +towgs84=0,0,0,0,0,0,0 +units=mm +no_defs

This is valid and computes correctly in GDAL cs2cs.

I can input the proj string in Custom CRS dialogue, and the input form saves and does not throw an error. But when I reopen the Custom CRS form, the units have changed to meters. In project settings, the custom CRS is also only in meters.

Additionally, when I create a shapefile with millimeters as units outside QGIS, it will be loaded in a custom CRS with meters as units.

History

#1 - 2014-01-30 02:41 AM - Leyan Ouyang

This is a limitation in OGR, not in QGis. When creating a custom CRS, QGis just uses the OGR function OSRImportFromProj4 to create the CRS. The stored string is the proj4 representation given by OGR, so this means the unit information was lost during the conversion back and forth with OGR.

I just tried with a simple C++ wrapper around OSRImportFromProj4, and it seems OGR doesn't keep the unit for at least dm,cm,mm. It will only work for some units: such as km, ft, yd, us-ft, us-yd, etc.

Another way to specify a unit is using the to_meter= parameter. This seems to be accepted by OSRImportFromProj4, could you try using :

+proj=tmerc +lat_0=51.4 +lon_0=7.0 +k=1 +x_0=0 +y_0=0 +ellps=WGS84 +towgs84=0,0,0,0,0,0,0 +to_meter=0.001 +no_defs

to see if it works with your data?

edit: seems it does not work either. I am actually working on improvements on the CRS management but this will have to wait for 2.4, I will see if I can include a simple bug correction for 2.2.

#2 - 2014-01-30 07:40 AM - Andre Joost

Leyan Ouyang wrote:

> *edit: seems it does not work either.*

No success on my side too.

#3 - 2014-01-30 01:29 PM - kyle -

All units reported by cs2cs -lu should be supported in parsing proj.4 strings in GDAL trunk. See gdal ticket:

http://trac.osgeo.org/gdal/ticket/5370

```
kyle@kyle-workstation:~/src/gdal/trunk/gdal$ cs2cs -lu
      km 1000.          Kilometer
       m 1.           Meter
      dm 1/10          Decimeter
      cm 1/100         Centimeter
      mm 1/1000          Millimeter
     kmi 1852.0          International Nautical Mile
      in 0.0254        International Inch
      ft 0.3048        International Foot
      yd 0.9144         International Yard
      mi 1609.344         International Statute Mile
    fath 1.8288         International Fathom
      ch 20.1168         International Chain
    link 0.201168         International Link
   us-in 1./39.37         U.S. Surveyor's Inch
   us-ft 0.304800609601219   U.S. Surveyor's Foot
   us-yd 0.914401828803658   U.S. Surveyor's Yard
   us-ch 20.11684023368047   U.S. Surveyor's Chain
   us-mi 1609.347218694437   U.S. Surveyor's Statute Mile
  ind-yd 0.91439523        Indian Yard
  ind-ft 0.30479841        Indian Foot
  ind-ch 20.11669506        Indian Chain
```

#4 - 2014-01-31 03:36 AM - Leyan Ouyang

I made a small pull request allowing to avoid the OGR conversion before storing the CRS. Based on my quick tests, it seems to solve your issue, could you try it? https://github.com/qgis/QGIS/pull/1130

I am currently working on more significant improvements in the custom CRS management, but this will have to wait until 2.4.

#5 - 2014-01-31 07:37 AM - Andre Joost

Leyan Ouyang wrote:

> *I made a small pull request allowing to avoid the OGR conversion before storing the CRS. Based on my quick tests, it seems to solve your issue, could you try it?*

Sorry, I can't build QGIS on my own. But I added some test cases to the GDAL ticket http://trac.osgeo.org/gdal/ticket/5370. Only 2 of the 4 shapefiles correctly created by the latest GDAL-dev are displayed properly in QGIS 2.0.1

#6 - 2014-02-17 05:16 PM - Leyan Ouyang

- Status changed from Open to Closed

I just tried the test cases in the GDAL tickets, they are correctly represented with QGis Master.