QGIS Application - Bug report #10145 Projection EPSG 2398 inaccurate

2014-04-30 11:00 AM - Rudi Uhl

2014-04-30 11.00 F				
Status:	Closed			
Priority:	Normal			
Assignee:				
Category:	Projection Support			
Affected QGIS version:2.2.0		Regression?:	No	
Operating System:		Easy fix?:	No	
Pull Request or Patch supplied:		Resolution:		
Crashes QGIS or corru ptis data:			Copied to github as #: 18603	
Description			•	
Projecting data fr	om Gauß-Krüger 4, DHDN/Bess	el (EPSG:31468), 1	to Gauß-Krüger 4, F	Pulkova/Krasowski (EPSG 2398) and vice versa
gives me data that seemingly are projected correctly, but there is a difference of 3 m mainly in one direction (resulting EPSG 2398 data				
are too far in the west). In the Halle region (Sachsen-Anhalt) the result should be roughly a simple 2D-Transformation of +22m (east) and				
+589m (west). The difference can be told e.g. by comparing world files of orthophotos delivered by the Landesvermessungsamt for both				
projections. However, in the example provided projecting in QGIS yields +19.13 (to the east) 588.10 (to the north) instead of +21.97 and				
+589.05. I measured by loading into ArcView (3.2), which doesn't provide on-the-fly projections.				
Minor differences	(order of magnitude 0.5 m) are	also detectable con	nparing projections	of QGIS (GK4 -> UTM 32) to those by ArcGIS
(which projects reliably, albeit not necessarily reliably on the fly). I was quite shocked. I thought those reprojections have been tested for a				
long time aiready in the Open GIS community. I understand that minor differences of less than a meter depend e.g. on the type of				
transformation us	ed, but 3 meters with not having	a choice of transfo	rmation parameter s	sets seem too much to me.
Krassowski tfw:				
0.2				
0.0				
0.0				
-0.2				
4494022.074 upr	per left corner (center of pixel, th	is 22.074 - 0.1 and	589.039 +0.1 shou	Id be difference of upper left coordinate of
projected extent)				
5708589 039				
Bessel.tfw:				

0.2 0.0 -0.2 4494000.100 5707999.900

History

#1 - 2014-05-01 02:35 AM - Andre Joost

- Status changed from Open to Closed

This is not a QGIS issue, rather one of PROJ4, the underlying projection engine and its parameter database. PROJ and QGIS are programmed to use only one transformation for a specific projection, while Arcgis lets the user choose between several allowed transformations.

For DHDN, there are many transformation paramters used within Germany. The best results can be reached with a ntv2 grid.

For Pulkovo 1942(83), PROJ uses the 3-parameter-projection for Czekoslovakia (EPSG transformation code 15998). There is a 7-parameter transformation available for East Germany. You have to create a custom CRS for that when you use QGIS:

+proj=tmerc +lat_0=0 +lon_0=12 +k=1 +x_0=4500000 +y_0=0 +ellps=krass +towgs84=24,-123,-94,0.02,-0.25,-0.13,1.1 +units=m +no_defs

See also http://www.kvwmap.de/index.php/Verbesserte towgs84-Parameter f%C3%BCr epsg und spatial ref sys

and http://trac.osgeo.org/proj/ticket/235 for the enhancement ticket in PROJ4.

Files

extent_4494_5706.zip

8.56 KB 2014-04-30

Rudi Uhl