

Enhancement request to Geometry Service

At (ArcGIS Server 9.3.1) Geometry Service has the following supported operations:

- a. **Project**
- b. Simplify
- c. Buffer
- d. Areas And Lengths
- e. Lengths
- f. Label Points
- g. Relation Operation

Project is sufficient for coordinate conversion when there is no Datum Transformation. See Figure 1.

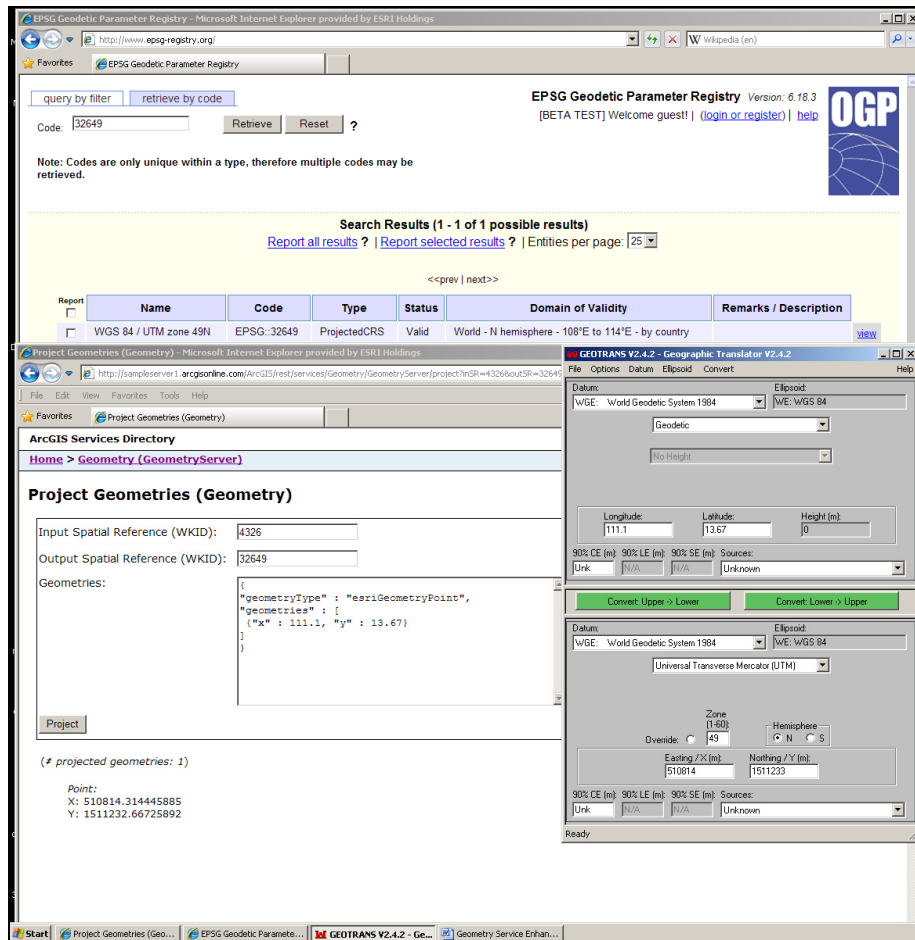


Figure 1 - No Change in Datum

When there is a Datum transformation then it is unsatisfactory. In the following example the Lat/Long using WGS 1984 Datum (EPSG:4326) is converted to Lat/Long in OSGB 1936 Datum (EPSG:4277). Using the Project operation between 4326 and 4277, the Project operation returns no change in the Lat and Long; see Figure 2.

There are 6 Geodetic Datum Transformation (GDT) between WGS 1984 and OSGB 1936 Datums available within ArcGIS 9.3.1 Projection Engine, which vary for differing parts of the country and vary with different accuracies. The best GDT available within Projection Engine is OSGB_1936_To_WGS_1984_Petroleum which equates to EPSG:1314 (See Figure 3). This GDT is valid for the whole of UK including the North Sea with an accuracy of ± 2 metres.

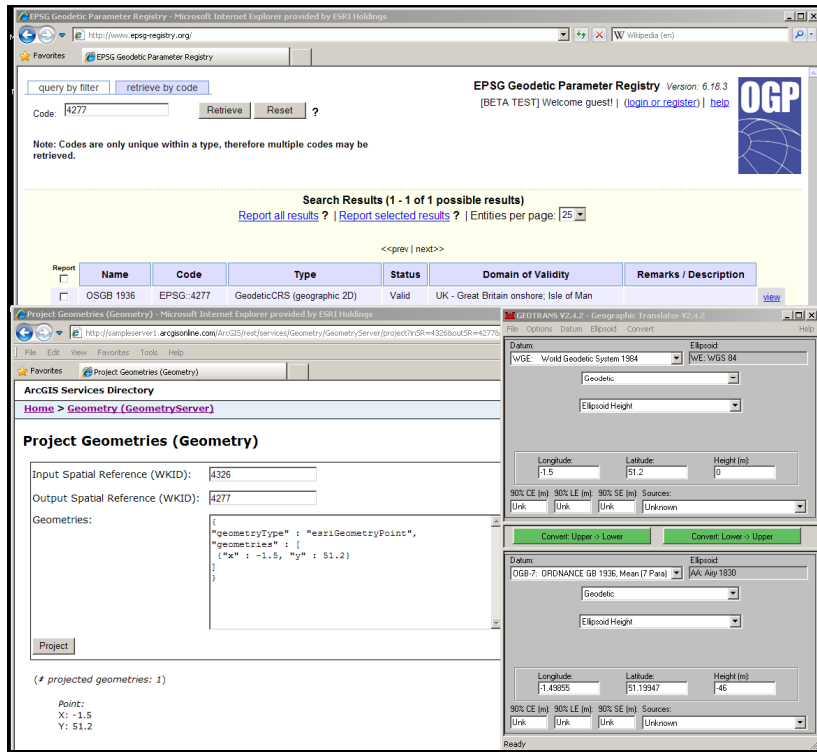


Figure 2 - Change in Datum (No change in Project)

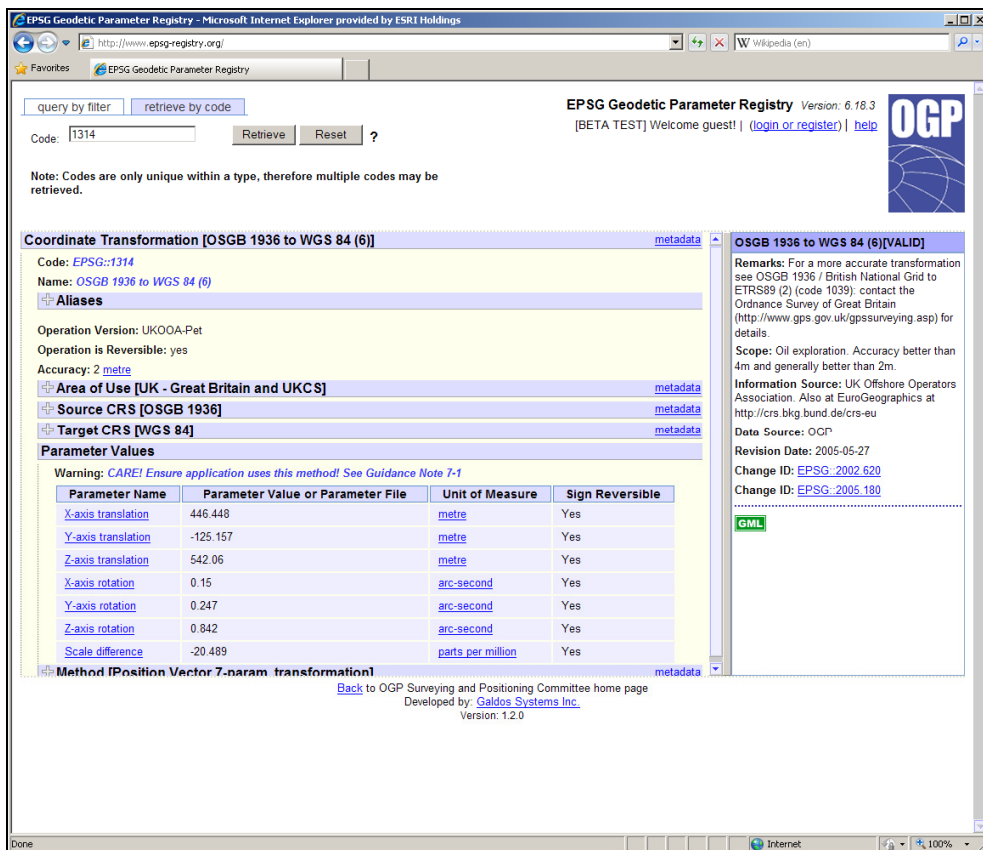


Figure 3 - EPSG:1314

To show the error in metres the Lat/Long WGS 1984 was converted to British National Grid (EPSG:27700) (not with the Bigram but numeric). Figure 4 shows the differences.

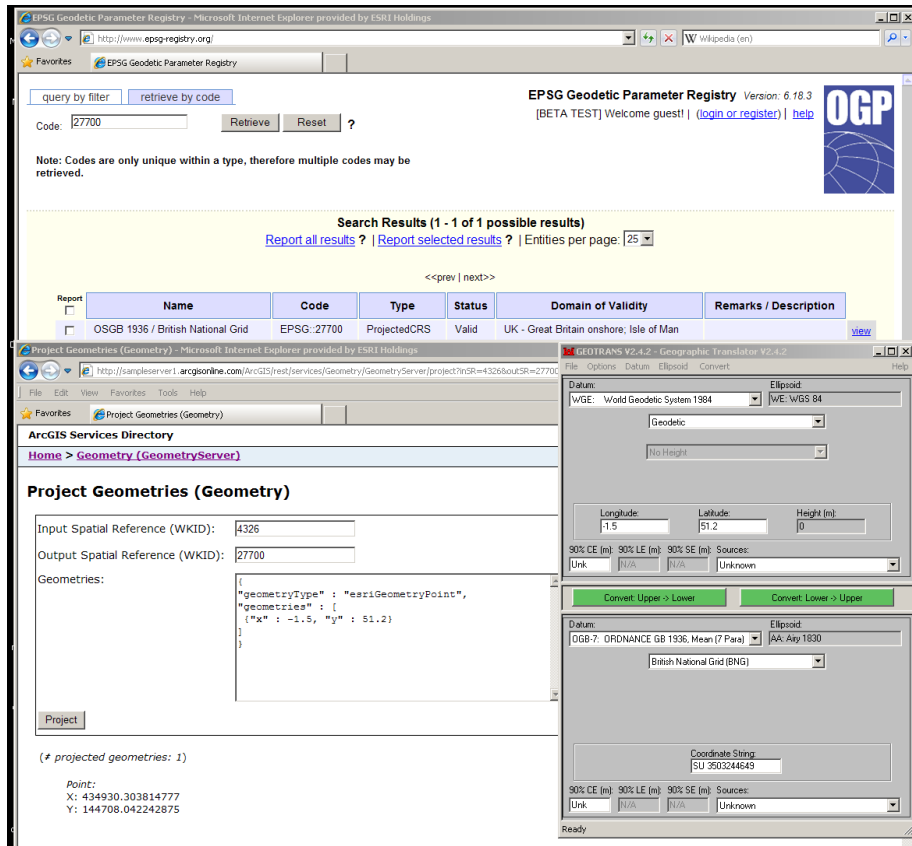


Figure 4 - WGS 1984 to BNG

Using GEOTRANS the result in Bigram was SU 3503244649 which is X: 435032, Y: 0144649. The Geodetic Datum Transformation used by GEOTRANS was EPSG:1314 which equates to OSGB_1936_To_WGS_1984_Petroleum. Hence the difference between the Geometry Service (which uses Project) and that which ProjectEx would produce is X: 102 metres and Y: 59 metres.

Enhancement Request

It is requested that ProjectEx is exposed through Geometry Service. Figure 5 comprises of 2 Mock-up Web pages showing what ProjectEx may look like. If the User did not know the GDT it may be useful to have a 2 stage process where Input and Output are then posted and a GDT dropdown created for valid entries.

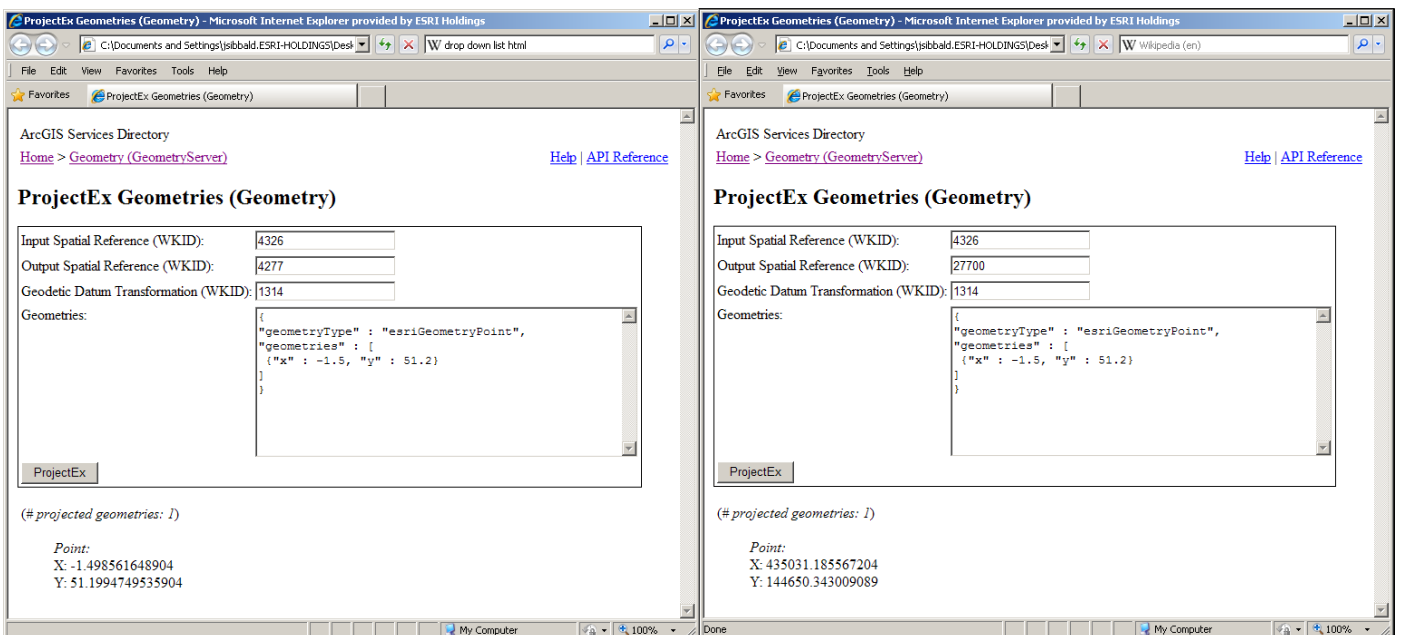


Figure 5 – ProjectEx Mock-up