# Convert a OneGeology Europe Service to OneGeology Compatible INSPIRE WFS

This document contains brief notes to help a provider who created a OneGeology Europe compatible service adapt it to produce a WFS which is compatible with the current OneGeology Global Portal and INSPIRE download service WFS. It is assumed that the reader has studied “How To Serve a GeoSciML Version 4.0 Web Feature Service (WFS) Using GeoServer” and has downloaded the cookbook example data to help as a reference. It may also be helpful for understanding of GeoSciML v4 to have read “GeoSciML 4.0 Encoding Cookbook for OneGeology 5 star WFS services” although this shouldn’t be absolutely necessary.

There are two main steps in the conversion of OneGeology Europe services:

* Converting the vocabulary URNs used in OneGeology Europe to INSPIRE vocabulary URIs
* Ideally changing the flat single table data structure used in OneGeology Europe to a set of related tables more closely matching the nested feature types in the GeoSciML model.

## Vocabulary Mapping

In order to convert the vocabulary URNs we have produced a number of spreadsheets which can be found at *to be decided* which tabulate the URNs used in OneGeology Europe against the equivalent (or nearest equivalent) INSPIRE vocabulary URI. (It is possible that in some cases you may find better matches for your local terms by examining the full INSPIRE vocabularies but we are not considering that level of effort here.) They also include the equivalent IUGS-CGI vocabulary URIs should you wish to make use of those. The following are the properties described in the OneGeology Europe documentation at <http://onegeology-europe.brgm-rec.fr/how_to201002/index_how_to_dataset.html> and how they should be translated.

MappedFeature

* observationMethod. There was only one term used in 1GE. This property does not exist in the INSPIRE data specification so there is no INSPIRE vocabulary and you can omit it if you wish. If you wish to include the information you can use the CGI URI <http://resource.geosciml.org/classifier/cgi/mappedfeatureobservationmethod/compilation>
* samplingFrame/mappingFrame. 1GE used just two values which have the INSPIRE equivalents in the spreadsheet mentioned above. (There is no IUGS-CGI vocabulary currently.)

GeologicUnit

* observationMethod. 1GE used just two values. This property does not exist in the INSPIRE data specification so there is no INSPIRE vocabulary and you can omit it if you wish. If you wish to include the information you can use the IUGS-CGI URI equivalents in the spreadsheet above.
* geologicUnitType. Translate using the values in the spreadsheet.
* Ages. Translate using the values in the spreadsheet.
* eventProcess. Translate using the values in the spreadsheet.
* eventEnvironment. Translate using the values in the spreadsheet.

CompositionPart

* Lithology. Translate using the values in the spreadsheet.
* geologicUnitPartRole. Translate using the values in the spreadsheet.
* Proportion. This property no longer uses a vocabulary in GeoSciML or the INSPIRE schema, but instead uses a range of numerical values. It may be that you have information on numerical proportions in you locally maintained data that you mapped to 1GE vocabulary terms in the OneGeology Europe project. In that case you might as well use those directly now. If not, the selection of numerical values may be somewhat arbitrary. For information the mapping that BGS used in it’s service was:

|  |  |  |
| --- | --- | --- |
| 1GE URN | Lower | Upper |
| urn:cgi:classifier:CGI:ProportionTerm:201001:all | 95% | 100% |
| urn:cgi:classifier:CGI:ProportionTerm:201001:predominant | 50% | 95% |
| urn:cgi:classifier:CGI:ProportionTerm:201001:subordinate | 5% | 50% |

## Converting Data Structure

In OneGeology Europe the 1GEconnector tool (later renamed to eXows) was used to map from a single table flat file source data structure to the nested GeoSciML v2 structure. Although it may be possible to do something similar using GeoServer app-schema mapping files with conditional logic it is not something we have successfully done. Instead we normalised the 1GE data to match the structure of the GeoSciML (and INSPIRE) models more closely. As can be seen in the WFS Cookbook examples we have 3 separate database tables with roughly the following equivalences between table and GeoSciML feature (the details are in the cookbook example mapping files).

mapped\_feature <-> MappedFeature

geol\_unit <-> GeologicUnit

geol\_unit\_comp\_part <-> CompositionPart

The mapped\_feature table is essentially the same as the original 1GE table with vocabulary columns translated and the columns that belong to geol\_unit and geol\_unit\_comp\_part removed but including the geologic unit id to provide a relationship to the geol\_unit table below.

To create the geol\_unit table the unique geological unit ids (lex\_rcs column in BGS data) from the 1GE data were extracted along with the columns used for geologicUnitType, min and max ages, eventEnvironment and eventProcess. The original 1GE data contained many repeats of the same data for geologic units where they were mapped in several different locations so the extracted table used just the distinct combinations of the above properties.

The 1GE data contained up to 5 sets of (lithology, geologicunitpartrole and proportion) columns. After translating the vocabularies and replacing proportionterms with lower and upper numerical values, these were extracted into a normalised structure with just one set of lithology, geologicunitpartrole and upper and lower proportions linked to geol\_unit by geologic unit id but with repeated rows if there were sets 2, 3, 4 or 5 in the 1GE data.