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Activities relating to the Working Group on Toponymic Data Files and Gazetteers

The National Land Survey of Finland Geographic Names Register WFS (Web Feature Service) *

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The National Land Survey of Finland
Geographic Names Register WFS (Web Feature Service)

Summary

The Geographic Names Register (GNR) developed and maintained by the National Land Survey of Finland (NLS) is one of the elements included in the national and international geographic names and spatial data infrastructure.

The multi-lingual and multi-names circumstances in Finland as well as the multi-product and multi-scale production environment of the National Land Survey have guided the design and development of the GNR.

The Geographic Names Register comprises the Place Name Register and the Map Name Register. The Place Name Register is not based on any map scale and includes no cartographic information but contains data on the type and location of the named features and the approved spelling and the language information of the names. The Map Name Register is organised by map series and includes the cartographic representation parameters for the selected names in the Place Name Register.

The data model of the GNR is feature oriented and includes objects such as Place, representing a named feature, Place name, representing a geographic name, and Map name, representing a cartographic occurrence of a geographic name. A Place has one or more Place names that for one may have zero, one or several Map name occurrences in different cartographic products.

The GNR data is disseminated e.g. through NLS standard WFS (Web Feature Service) interfaces. The geographic names WFS products include two GML profile schemas for the Place Name Register, serving a little different use case purposes, and one schema for the Map Name Register.

A Place Name Register WFS query can be filtered by Place and Place name identifiers, by location, by feature type or feature type group, by the spelling, by the language and language status information, by the objects' database lifespan information, and by a 'Relevance at Scale' indicator depicting the size/importance of the named feature. A Map Name Register WFS query can be filtered by the map product and by location.

Examples of fields of application for the GNR data and WFS services include:
- Standardisation; clear and consistent use of accurate geographic names in communication;
- Interoperability (id links); national and international names and spatial data infrastructures and projects (e.g. INSPIRE, EuroGeoNames, EuroRegionalMap);
- Search; finding named places and geographic names by using their attributes (location, feature type, spelling, language) as search criteria; geocoding; geoportals; gazetteers and gazetteer services; map browsing applications; automatic positioning and navigation;
- Visualisation; map production; geographic names as information layer in viewing services;
- Research of different kind;
- Semantic web applications; ontology;
- Cultural heritage promotion; safeguarding of the cultural heritage related to (traditional) geographic names.

The National Land Survey of Finland
Geographic Names Register WFS (Web Feature Service)

The Geographic Names Register

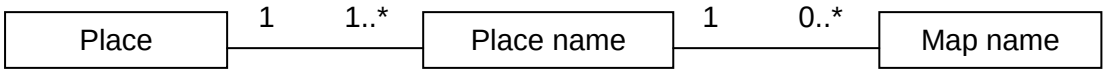
The Geographic Names Register (GNR) developed and maintained by the National Land Survey of Finland (NLS) is one of the elements included in the national and international geographic names and spatial data infrastructure. As the national geographic names repository and database the GNR serves as the reference dataset for the standardisation of Finland's geographic names, and the official names data source for different kinds of information services and applications, including the varied spatial data and map production in the NLS.

The multi-lingual and multi-names circumstances in Finland as well as the multi-product and multi-scale production environment of the National Land Survey have guided the design and development of the GNR. In Finland a specific geographic feature may have different parallel names in one or several languages. In bilingual (Finnish–Swedish) areas a feature typically has two names, and in Lapland's Saami language areas where Finnish, North Saami, Inari Saami and Skolt Saami are spoken a feature may have up to four names, each of which being provided by national geographic names services and represented in national topographic maps.

The Geographic Names Register comprises the Place Name Register and the Map Name Register integrated into a single database in which every item of information is stored once. The Place Name Register is not based on any map scale and includes no cartographic information but contains data on the type and location of the named features and the approved spelling and the language information of the names. The Map Name Register is organised by map series and includes the cartographic representation parameters (text placement, direction, bending, capitalisation, typeface, font, size etc.) for the selected names in the Place Name Register.

The Place Name Register of the GNR contains about 800,000 names of natural and cultural/man-made features. About 42% of the toponyms are names of terrain features, 18% names of hydrographic features, 34% names of settlements and houses, and the remaining 6% names of other cultural and man-made features. Roughly 720,000 names are Finnish, 75,000 Swedish, 6,400 North Saami, 4,600 Inari Saami and 500 Skolt Saami. The spelling of names has been standardised by the Research Institute for the Languages of Finland.

The data model of the GNR is feature oriented and includes objects such as Place, representing a named feature, Place name, representing a geographic name, and Map name, representing a cartographic occurrence of a geographic name. A Place has one or more Place names that for one may have zero, one or several Map name occurrences in different cartographic products. Places, Place names and Map names are interconnected and are provided with external persistent unique identifiers to facilitate efficient data management and to aim at well-functioning organisational, national and international interoperability including data exchange by change-only updates.



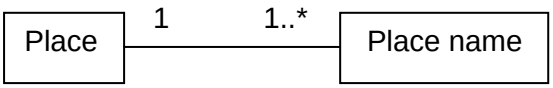
Data model of the Geographic Names Register

The GNR data is maintained in two processes. The maintenance of the Place Name Register and the Map Name Register 1:25,000 is integrated with the NLS Topographic Database and Basic Map production while smaller scale Map Name Registers (at present 1:100,000 and 1:250,000) are integrated as a part of NLS small scale spatial and map data production of respective scales.

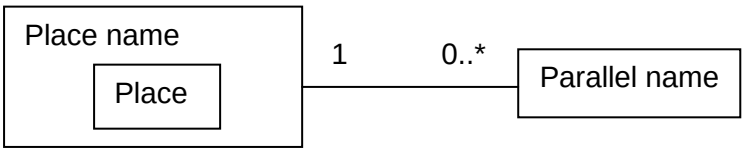
The Geographic Names Register was discussed in more detail in the 9th United Nations Conference on the Standardization of Geographical Names, New York, 2007 (E/CONF.98/133/Add.1, http://unstats.un.org/unsd/geoinfo/9th-UNCSGN-Docs/E-CONF-98-133-Add1.pdf).

The Geographic Names Register WFS

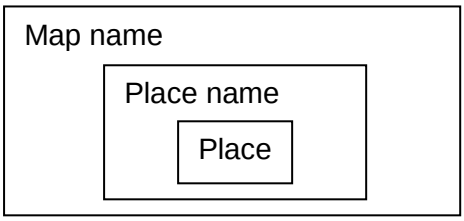
The GNR data is disseminated e.g. through NLS standard WFS (Web Feature Service) interfaces. The WFS names data products include two GML profile schemas for the Place Name Register, serving a little different use case purposes, and one schema for the Map Name Register. The Place Name Register GML profiles are a feature oriented schema (Place is the root and Place names are attributes of Place) and a name oriented schema (Place name is the root and Place and possible parallel names are "attributes" of Place name). The Map Name Register GML profile has Map name as the root and (selected) corresponding Place and Place name information as "attributes". The schemas also include the enumerations and explanations for the codes used in the service.



Conceptual model, the feature oriented Place Name Register WFS profile



Conceptual model, the name oriented Place Name Register WFS profile



Conceptual model, the Map Name Register WFS profile

The feature oriented Place Name Register WFS – UML and XML schemas (see Appendix for translations):

UML schema: http://xml.nls.fi/Nimisto/Asiakasdokumentaatio/WFS/UMLmallit/Paikat/PaikannimirekisterinPaikat.jpg
XML schema: http://xml.nls.fi/Nimisto/Asiakasdokumentaatio/WFS/Kuvaus/describeFeatureType_paikka_vastaus.xml

The name oriented Place Name Register WFS – UML and XML schemas (see Appendix for translations):

UML schema: http://xml.nls.fi/Nimisto/Asiakasdokumentaatio/WFS/UMLmallit/Paikannimet/PaikannimirekisterinPaikannimet.jpg
XML schema: http://xml.nls.fi/Nimisto/Asiakasdokumentaatio/WFS/Kuvaus/describeFeatureType_paikannimi_vastaus.xml

The Map Name Register WFS – UML and XML schemas (see Appendix for translations):

UML schema: http://xml.nls.fi/Nimisto/Asiakasdokumentaatio/WFS/UMLmallit/Karttanimet/KarttanimirekisterinKarttanimet.jpg
XML schema: http://xml.nls.fi/Nimisto/Asiakasdokumentaatio/WFS/Kuvaus/describeFeatureType_karttanimi_vastaus.xml

A Place Name Register WFS query can be filtered by Place and Place name identifiers, by location (co-ordinate based or indirect by administrative unit or map sheet), by feature type or feature type group, by the spelling, by the language and municipal language status information, by the objects' database lifespan information (timestamps for creation, modification and retirement) and by a 'Relevance at Scale' indicator depicting the size/importance of the named feature by means of the smallest map scale in which the names of the feature have been rendered as Map names in national topographic maps. A Map Name Register WFS query can be filtered by the product (at present topographic maps 1:25,000, 1:100,000 and 1:250,000) and by location (e.g. a bounding box or a polygon).

Fields of application of the Geographic Names Register WFS

Examples of fields of application for the GNR data and WFS services include:
- Standardisation; clear and consistent use of accurate geographic names in communication;
- Interoperability (id links); national and international names and spatial data infrastructures and projects (e.g. INSPIRE, EuroGeoNames, EuroRegionalMap);
- Search; finding named places and geographic names by using their attributes (location, feature type, spelling, language) as search criteria; geocoding; gazetteers and gazetteer services; map browsing applications; automatic positioning and navigation;
- Visualisation; map production; geographic names as information layer in viewing services;
- Research of different kind;
- Semantic web applications; ontology;
- Cultural heritage promotion; safeguarding of the cultural heritage related to (traditional) geographic names.

Appendix – Geographic Names Register WFS, English translations for the UML and XML schemas:

Paikka – Place
paikkaID – Place id
paikkatyyppiKoodi – Feature type, code
paikkatyyppiryhmaKoodi – Feature type group, code (e.g. natural features, cultural features)
paikkatyyppialaryhmaKoodi – Feature type subgroup, code (e.g. terrain features, hydrographic features, administrative units, populated places)
paikkaSijainti – Place location (point co-ordinates)
tm35Fin7Koodi – Map sheet, code, ETRS-TM35FIN index system
ylj7Koodi – Map sheet, code, national KKJ index system
pp6Koodi – National rescue grid square, code
kuntaKoodi – Municipality, code
maakuntaKoodi – Region, code
laaniKoodi – Province, code
seutukuntaKoodi – Statistical region, code
suuralueKoodi – Statistical province, code
mittakaavarelevanssiKoodi – 'Relevance at scale', code
paikkaLuontiAika – Timestamp for the creation of database object Place
paikkaMuutosAika – Timestamp for the last modification of database object Place
paikkaPoistoAika – Timestamp for the retirement of database object Place

Paikannimi – Place name, Rinnakkaisnimi – Parallel name
paikannimiID – Place name id
kirjoitusasu – Spelling
kieliKoodi – Language, code
kieliVirallisuusKoodi – Municipal status of the language (official/unofficial language)
kieliEnemmistoKoodi – Municipal status of the language (majority/minority language)
paikannimiLuontiAika – Timestamp for the creation of database object Place name
paikannimiMuutosAika – Timestamp for the last modification of database object Place name
paikannimiPoistoAika – Timestamp for the retirement of database object Place name

Karttanimi – Map name (place name in map)
karttanimiID – Map name id
karttanimiTeksti – Map name, text in map
karttanimiSijainti – Map name location (point co-ordinates)
karttanimiXP – Map name northing in product co-ordinate system
karttanimiYI – Map name easting in product co-ordinate system
karttanimiSuuntaDXP – Text direction, relative northing
karttanimiSuuntaDYI – Text direction, relative easting
karttanimiTaivutus – Text bending, pairs of relative co-ordinates conducting curved texts
kirjasintyyppiKoodi – Text typeface/font, code
kirjasinkoko – Text size (graphic size, in mm/100)
kirasinvariKoodi – Text colour, code
kirjasinKallistusKulma – Letter tilt angle (in degrees)
harvennusLippu – Spacing flag (whether the text direction parameters (dx,dy) also indicate the length of the text
mtkLadontaKoodi – 'Typesetting code' in the Topographic Database (original data source)
paikkaID – Place id
paikkatyyppiKoodi – Feature type, code
paikkaSijainti – Place location (point co-ordinates)
paikannimiID – Place name id
kirjoitusasu – Spelling
kieliKoodi – Language, code
kieliVirallisuusKoodi – Municipal status of the language (official/unofficial language)
kieliEnemmistoKoodi – Municipal status of the language (majority/minority language)
karttatuoteTunnus – Map series, code
mittakaavaluokkaKoodi – Map scale, code (1:25,000, 1:100,000 or 1:250,000)
koordinaattijarjestelmaKoodi – Coordinate system for interpreting karttanimiXP and karttanimiYI, code