GeoPostcodes

Postal Database Normalized structure

Version 2022.02.28

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Introduction

This document focuses on the Normalized version of GeoPostcodes's Postal Database. For more information about the Postal Database, please refer to its product sheet and appendices.

The Normalized tables enable to easily build master geographical data, by providing unique and inter-related lists of the different entities in the dataset: countries, administrative levels, places/localities and postal codes.

Links between tables are made through record IDs, and constraints (e.g., uniqueness, foreign keys, etc.) ensure the integrity of the data.

Data design

The NORMALIZED packages include the following tables, which can be initialized via "GPC-POST-TABLES-STRUCTURE-NORM.sql":
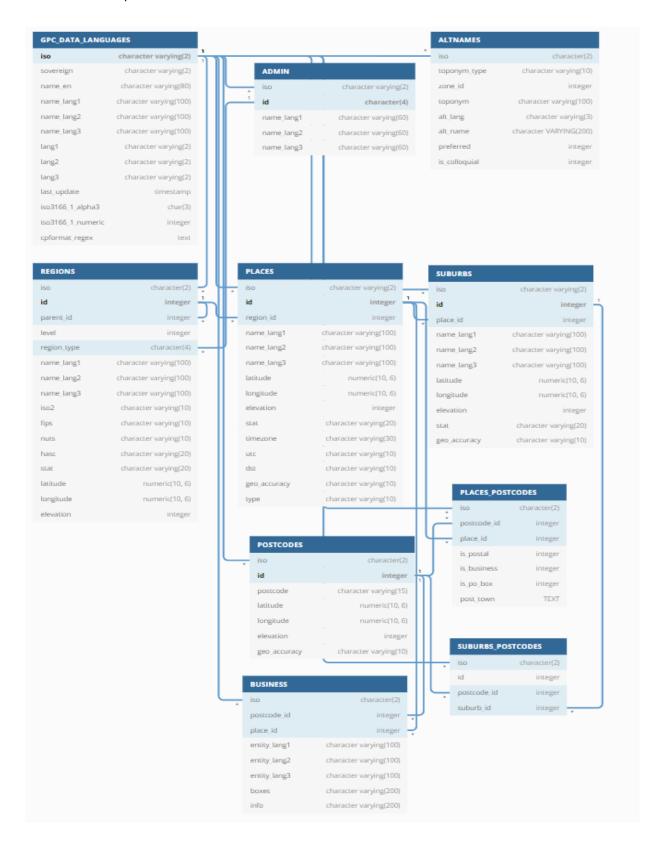
Table name	Description
GPC-DATA-LANGUAGES	The full list of countries, with their ISO codes, names, available languages and postal code formats. **Please note that this table lies under "additional_resources/languages".**
ADMIN	The denomination of the administrative types for each country (e.g., "County", "District", etc.).
REGIONS	The administrative divisions (up to 4 levels) within the countries, with their type and geocodes, and linked to their parent division.

PLACES	The list of localities, with their coordinates, timezone and link to the region they belong to.
POSTCODES	The list of postal codes, with their coordinates.
PLACES-POSTCODES	The MxN associations between places and postal codes (one place can have several postal codes; one postal code can be assigned to several places).
BUSINESS	The list of businesses, linked to their registered place and assigned postal code.
ALTNAMES	The denomination of the regions and places in other languages. This table is not part of the main postal data, but can be leveraged when your data users enter names in a range of (non-local) languages.
SUBURBS	The list of suburbs, with their coordinates and place they belong to.
SUBURBS-POSTCODES	The association between suburbs and postal codes

The relationships between the tables can be illustrated as follows:

GPC-DATA-LANGUAGES table

Field name	Field type	Description	Comments	Key
iso	Char(2)	ISO 3166-1 Country code	The ISO 3166-1 standard is published by the International Organization for Standardization (ISO) and defines a unique code for the name of each country. The country codes are represented as a two-letter code (alpha-2).	PRIMARY
sovereign	Char(2)	ISO 3166-1 Country code of the sovereign state	NULL when the sovereignty is equivalent to the country	
name_en	Char(100)	English name	English name of the country	
name_lang1	Char(100)	Name in the first export language	Name of the country in the first export language	
name_lang2	Char(100)	Name in the second export language	Optional. Name of the country in the second export language	

name_lang3	Char(100)	Name in the third export language	Optional. Name of the country in the third export language.	
lang1	Char(2)	ISO639-1 code of the first export language	Languages information can be found in additional_resources/languages/GPC-OFFICIAL-LANGUAGES	
lang2	Char(2)	ISO639-1 code of the second export language	Optional	
lang3	Char(2)	ISO639-1 code of the third export language	Optional	
last_update	Char(30)	Time of the last update		
iso3166_1_alpha3	Char(3)	ISO3166-1 alpha3 code of the country		
iso3166_1_numeric	Integer	ISO3166-1 numeric code of the country		
pcformat_regex	Char(50)	Postal code format	Expressed as a regular expression	

ADMIN table

Field name	Field type	Description	Comments	Key
iso	Char(2)	ISO 3166-1 Country code		FOREIGN on GPC-DATA-LANGUAGES ISO
id	Char(4)	ID of the record		PRIMARY
name_lang1	Char(60)	Name in the first export language		
name_lang2	Char(60)	Name in the second export language	Optional.	
name_lang3	Char(60)	Name in the third export language	Optional.	

REGIONS table

Field name	Field type	Description	Comments	Key
iso	Char(2)	ISO 3166-1 Country code		FOREIGN on GPC-DATA-LANGUAGES ISO
id	Integer	ID of the record	IDs of the REGIONS and PLACES tables do not overlap	PRIMARY
parent_id	Integer	ID of the parent region		FOREIGN on REGIONS id
level	Integer	Administrative level	This field contains a value ranked from 0 to 4 to define the administrative division level, from the largest to the smallest (0 for the country, 4 for the smallest division). Depending on the country, only some levels may be available.	
region_type	Char(4)	Type of administrative division	Reference to the ADMIN table	FOREIGN on ADMIN id

name_lang1	Char(100)	Name in the first export language		
name_lang2	Char(100)	Name in the second export language	Optional.	
name_lang3	Char(100)	Name in the third export language	Optional.	
iso2	Char(10)	ISO 3166-2 Region code	The ISO 3166-2 standard is published by the International Organization for Standardization (ISO) and defines codes for the names of the principal subdivisions of all countries. The codes for subdivisions are represented as the alpha-2 code for the country, followed by up to three characters.	
fips	Char(10)	NGA Geopolitical code (formerly	The NGA Geopolitical codes (Formerly known as FIPS PUB 10-4) is a standard	

		FIPS PUB 10-4)	published by the U.S. National Geospatial Intelligence Agency and contains countries, dependencies, areas of special sovereignty and their principal administrative divisions.	
nuts	Char(10)	European statistical division code	The Nomenclature of Territorial Units for Statistics (NUTS) database is a standard provided by the European Commission for statistical purposes.	
hasc	Char(20)	Hierarchical administrative subdivision code	The Hierarchical administrative subdivision codes (HASC) are codes to represent names of country primary subdivisions, such as states, provinces, regions. The codes are alphabetic and have constant length	

			for the first level subdivisions.	
stat	Char(20)	National statistics/census code	The statistical codes are codes defined by each National Statistical Offices.	
latitude	Double	Place latitude (WGS84 coordinates)	These fields contain the geographic coordinates of the administrative division (centroid). All our files are created using the World Geodetic System standard WGS 84. The corresponding SRID reference is EPSG:4326.	
longitude	Double	Place longitude (WGS84 coordinates)		
elevation	Integer	Elevation in meters		

POSTCODES table

Field name	Field type	Description	Comments	Key
iso	Char(2)	ISO 3166-1 Country code		FOREIGN on GPC-DATA-LANGUAGES ISO
id	Integer	ID of the record		PRIMARY
postcode	Char(15)	Postal/ZIP code		
latitude	Double	Place latitude (WGS84 coordinates)	These fields contain the geographic coordinates related to the postal code. All our files are created using the World Geodetic System standard WGS 84. The corresponding SRID reference is EPSG:4326.	
longitude	Double	Place longitude (WGS84 coordinates)		
elevation	Integer	Elevation in meters		
geo_accuracy	Char(10)	Coordinates precision	Whether the coordinates have been derived from street,	

			locality, postal code or region localization	

PLACES table

Field name	Field type	Description	Comments	Key
iso	Char(2)	ISO 3166-1 Country code		FOREIGN on GPC-DATA-LANGUAGES ISO
id	Integer	ID of the record	IDs of the REGIONS and PLACES tables do not overlap	PRIMARY
region_id	Integer	ID of the parent region		FOREIGN on REGIONS id
name_lang1	Char(100)	Name in the first export language		
name_lang2	Char(100)	Name in the second export language	Optional.	
name_lang3	Char(100)	Name in the third export language	Optional.	
latitude	Double	Place latitude	These fields contain the geographic coordinates related to	

		(WGS84 coordinates)	the locality. The geographical position is usually precise to about one hundred meters and corresponds to the center of the locality (generally the historical center, and if not, the geographical center). All our files are created using the World Geodetic System standard WGS 84. The corresponding SRID reference is EPSG:4326.	
longitude	Double	Place longitude (WGS84 coordinates)		
elevation	Integer	Elevation in meters		
stat	Char(20)	National statistics/census code	The statistical codes are codes defined by each National Statistical Offices.	
timezone	Char(30)	Time zone name (Olson)	Following the timezones defined in the IANA tz database (sometimes called Olson database).	

utc	Char(10)	Standard time expressed as an offset with respect to UTC	The Coordinated Universal Time (UTC) is the time standard commonly used across the world to keep time synchronized.	
dst	Char(10)	Daylight saving time expressed as an offset with respect to UTC	The Daylight Saving Time (DST) is the practice of setting the clocks forward one hour from standard time during the summer months, and back again in the fall, in order to make better use of natural daylight.	
geo_accuracy	Char(10)	Coordinates precision	Whether the coordinates have been derived from street, locality, postal code or region localization	
type	Char(10)	Type of Place	'town' for regular places, 'business' where the place is a postal construction to accommodate with industrial areas or businesses which are not attached to their	

			own region but to a major city in a nearby region	17

BUSINESS table

Field name	Field type	Description	Comments	Key
iso	Char(2)	ISO 3166-1 Country code		FOREIGN on GPC-DATA-LANGUAGES ISO
postcode_id	Integer	ID of the postal code	Reference to the POSTCODES table	FOREIGN on POSTCODES id
place_id	Integer	ID of the place	Locality reference in the PLACES table, to which the business record is related	FOREIGN on PLACES id
entity_lang1	Char(100)	Entity Name in the first export language	Optional. Name of the entity to which the Business & Administrative postal code has been attributed.	
entity_lang2	Char(100)	Entity name in the second export language	Optional.	
entity_lang3	Char(100)	Entity name in the third export language	Optional.	

boxes	Char(200)	PO Box, Rural Route, Locked Bags..	Optional. .	19
info	Char(200)	Additional Information on the postal code	Optional.	

PLACES-POSTCODES table

Field name	Field type	Description	Comments	Key
iso	Char(2)	ISO 3166-1 Country code		FOREIGN on GPC-DATA-LANGUAGES ISO
postcode_id	Integer	ID of the postal code	Reference to the POSTCODES table	FOREIGN on POSTCODES id
place_id	Integer	ID of the place	Locality reference in the PLACES table	FOREIGN on PLACES id
is_postal	Integer	Whether the postal code is used for regular mail	1 when the postal code is used for regular mail (street delivery) in that locality, 0 otherwise	
is_business	Integer	Whether the postal code is used for businesses	1 when the postal code is used for businesses in that locality (meaning entities are listed in the Business table for that locality-postcode association), 0 otherwise	
is_po_box	Integer	Whether the postal code	1 when the postal code is used for PO Boxes in that locality (meaning	

		is used for PO Boxes	PO Boxes are listed in the Business table for that locality-postcode association), 0 otherwise	21
post_town	Char(80)	Postal Town	Required by Royal Mail when writing addresses for deliveries in Great Britain (GB) and certain dependencies. Only populated for a few relevant countries (e.g., GB).	

ALTNAMES table

Field name	Field type	Description	Comments	Key
iso	Char(2)	ISO 3166-1 Country code		FOREIGN on GPC-DATA-LANGUAGES ISO
toponym_type	Char(10)	Type of toponym	Type of the given toponym (locality, region, ...)	
zone_id	Integer	ID of the Place or Region	Reference to the record ID in the Place or Region table	
toponym	Char(100)	Name in the local language	First export language of the data	
alt_lang	Char(3)	Code of the alternative language	ISO639-1 or ISO639-2 code of the alternative language[1].	
alt_name	Char(200)	Name in the alternative language		

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[1] Languages information can be found in additional_resources/languages/GPC-OFFICIAL-LANGUAGES

preferred	Integer	Alt_name preference	Indicates a preference (preferred=1) of this alternative name over other alternative names for the same zone_id and the same alt_lang	
is_colloquial	Integer	Nickname flag	Indicates a colloquial alternative name (1) or not (0)	

SUBURBS table

Field name	Field type	Description	Comments	Key
iso	Char(2)	ISO 3166-1 Country code		FOREIGN on GPC-DATA-LANGUAGES ISO
id	Integer	ID of the record	IDs of the SUBURBS, REGIONS and PLACES tables do not overlap	PRIMARY
place_id	Integer	ID of the parent region		FOREIGN on PLACES id
name_lang1	Char(100)	Name in the first export language		
name_lang2	Char(100)	Name in the second export language	Optional.	
name_lang3	Char(100)	Name in the third export language	Optional.	
latitude	Double	Place latitude	These fields contain the geographic coordinates related to	

		(WGS84 coordinates)	the suburb. All our files are created using the World Geodetic System standard WGS 84. The corresponding SRID reference is EPSG:4326.	
longitude	Double	Place longitude (WGS84 coordinates)		
elevation	Integer	Elevation in meters		
stat	Char(20)	National statistics/census code	The statistical codes are codes defined by each National Statistical Offices.	
geo_accuracy	Char(10)	Coordinates precision	Whether the coordinates have been derived from street, locality, postal code or region localization	

SUBURBS-POSTCODES table

Field name	Field type	Description	Comments	Key
iso	Char(2)	ISO 3166-1 Country code		FOREIGN on GPC-DATA-LANGUAGES ISO
id	Integer	ID of the record		PRIMARY
postcode_id	Integer	ID of the postal code	Reference to the POSTCODES table	FOREIGN on POSTCODES id
suburb_id	Integer	ID of the suburb	Suburb reference in the SUBURBS table	FOREIGN on SUBURBS id