

ORDNANCE SURVEY GB

CODE-POINT[®] – TECHNICAL SPECIFICATION

Version history

Version	Date	Description
2.14	12/2014	Minor updates.
3.0	06/2022	Introduction of GeoPackage format to the product. Splitting out of the original combined User Guide and Technical Specification document into three separate documents: an Overview, a Technical Specification, and a Getting Started Guide. Formatting updates.
3.1	08/2022	Removal of NTF supply format information due to format withdrawal.

Purpose of this document

This document provides information about and insight into the Code-Point product and its potential applications. For information on the contents and structure of Code-Point, please refer to the Overview.

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Contents

1. Introduction.....	4
2. Product structure	4
2.1 Attributes	4
3. Supply formats overview.....	6
3.1 CSV and GeoPackage	6

1. Introduction

Code-Point is a dataset that contains postcode units for Great Britain and Northern Ireland, each having a notional geographical location. Postcodes are an alphanumeric abbreviated form of an address. Postcode units are unique references and identify an average of 15 addresses. In some cases, where an address receives a substantial amount of mail, a postcode will apply to only one address and is defined as a large-user postcode. The maximum number of addresses in a postcode is 100.

2. Product structure

2.1 Attributes

Attribute	Description
Postcode	Contains elements for postal area, district, sector, and unit.
Positional quality indicator (PQI)	A flag used to indicate the positional accuracy of the coordinates allocated to each postcode record.
PO Box indicator	Denotes if the postcode is a PO Box.
Total delivery points	The total number of both matched and unmatched delivery points in the postcode. Not in BT data for Northern Ireland.
Delivery points	Number of matched addresses in the postcode unit that have a PQI of 10 or 20. Not in BT data for Northern Ireland.
Domestic delivery points	Number of non-PO box delivery points that have no PAF organisation name. Not in BT data for Northern Ireland.
Non-domestic delivery	Number of non-PO box delivery points that have a PAF organisation name. Not in BT data for Northern Ireland.
PO Box domestic delivery points	Number of PO Box delivery points. Not in BT data for Northern Ireland or where PQI is 20 in Scotland.
Matched addressed premises	Number of delivery points in buildings or building subdivisions, after exclusion of duplicated coordinate pairs. Not in BT data for Northern Ireland or where PQI is 20 in Scotland.

Attribute	Description
Unmatched delivery points	Number of delivery points awaiting improvement on location. Not in BT data for Northern Ireland or where PQI is 20 in Scotland.
Easting	Distance in metres east of National Grid origin.
Northing	Distance in metres north of National Grid origin.
Country code	Code used by ONS to identify the country in which the Code-Point georeferenced coordinates lies.
NHS regional health authority code	English Pan Strategic Health Authority in which CPLC falls.
NHS health authority code	English Strategic Health Authority or Scottish Health Board in which CPLC falls.
Administrative county code	County in which CPLC falls.
Administrative district code	Unitary Authority, Metropolitan and Non- Metropolitan District, London Borough or Scottish Council Area in which CPLC falls.
Administrative ward code	Electoral Ward or Division in which CPLC falls.
Postcode type	Indicates whether the user is large, L, or small, S. Large postcode type users receive more than 500 pieces of mail. Small users receive 70 pieces per day.

Each postcode unit location – also known as CPLC (Code-Point Location Co-ordinate) – is coordinated on the respective National Grid, with eastings and northings quoted to a resolution of 1m. The accuracy of each postcode unit coordinate pair is defined by the positional quality indicator (PQI), which provides a quality statement of that Code-Point record. There are seven PQI values for the positional quality:

PQI	Description
10	Within the building of the matched address closest to the postcode mean determined automatically by Ordnance Survey (or Land & Property Services for the BT postcode area only).
20	As above but determined by visual inspection by National Records of Scotland (NRS).
30	Approximate to within 50m of the true position (postcodes relating to developing sites may be within 100m of true position).
40	The mean of the positions of addresses previously matched in PALF but which have subsequently been deleted or recoded (very rarely used).
50	Estimated position based on surrounding postcode coordinates, usually to 100m resolution, but 10m in Scotland.
60	Postcode sector mean.
90	No coordinates available.

3. Supply formats overview

3.1 CSV and GeoPackage

GeoPackage is an open, standard, platform-independent, portable, self-describing, compact format for transferring geospatial information. For more information on this format, please see the 'Getting started with GeoPackage' guide, which is available on the [Code-Point Product Support page of the OS website](https://www.ordnancesurvey.co.uk/business-government/tools-support/code-point-support) (<https://www.ordnancesurvey.co.uk/business-government/tools-support/code-point-support>).

The following table gives a comparison between the CSV attributes and the GeoPackage attribution.

CSV attribution and format				GeoPackage attribution and format		
Mnemonic	Description	Data type	Size	Description	Data type	Size
PC	Postcode	A8	8	postcode	TEXT	8
PQ	Positional_quality_indicator	I2	1	positional_quality_indicator	TINYINT	1
PR	PO_Box_indicator	A1	1	po_box_indicator	TEXT	1
TP	Total_number_of_delivery_points	I3	*	total_number_of_delivery_units	TINYINT	*
DQ	Delivery_points_used_to_create_the_CP LC	I3	*	delivery_points_used_to_create_the_cp_lc	TINYINT	*
RP	Domestic_delivery_points	I3	*	domestic_delivery_points	TINYINT	*
BP	Non_domestic_delivery_points	I3	*	non_domestic_delivery_points	TINYINT	*
PD	PO_Box_delivery_points	I3	*	po_box_delivery_points	TINYINT	*
MP	Matched_address_premises	I3	*	matched_address_premises	TINYINT	*
UM	Unmatched_delivery_points	I3	*	unmatched_delivery_points	TINYINT	*

CSV attribution and format				GeoPackage attribution and format		
Mnemonic	Description	Data type	Size	Description	Data type	Size
EA	Eastings	I6	*	N/A	N/A	N/A
NO	Northings	I7	*	N/A	N/A	N/A
CY	Country_code	A9	9	country_code	TEXT	9
RH	NHS_regional_HA_code	A9	9	nhs_regional_ha_code	TEXT	9
LH	NHS_HA_code	A9	9	nhs_ha_code	TEXT	9
CC	Admin_county_code	A9	9	admin_county_code	TEXT	9
DC	Admin_district_code	A9	9	admin_district_code	TEXT	9
WC	Admin_ward_code	A9	9	admin_ward_code	TEXT	9
LS	Postcode_type	A1	1	postcode_type	TEXT	1

CSV format

- Those fields containing text (A) will be enclosed by double quotes which have not been included in the sizes listed in the table above. An asterisk (*) denotes variable length.
- Fields with null data will appear as "" for text and 0 for numeric.
- Each record will be terminated with a carriage return character (ASCII 13) and a line feed character (ASCII 10).

Example of a Code-Point CSV record:

```
"SOI60AS",10,"N",1,1,0,1,0,1,0,437292,115542,"E92000001","E19000002","E18000009","E10000014","E07000093","E05012936","L"
```

GeoPackage format

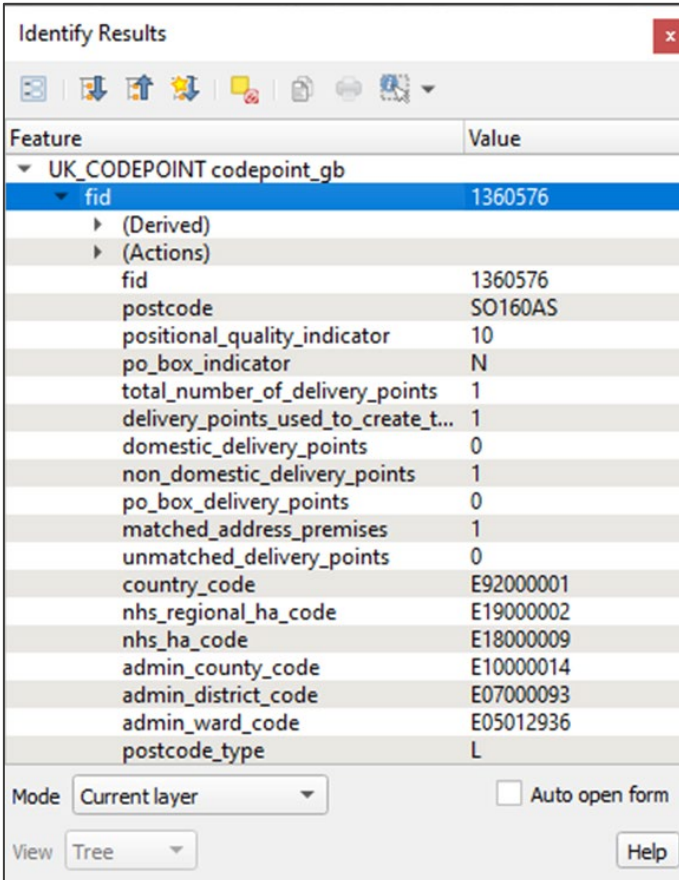
Note that there are no eastings or northings in GeoPackage; the geometry is already created in the GeoPackage container and is not listed as data but will be seen as a column in a database (PostGIS) called *geom* with a coordinate reference system of British National Grid EPSG: 27700 for GB postcodes.

Also supplied with the GeoPackage is the Code-Point data for Northern Ireland. This is already projected in Irish Grid EPSG: 29902 so will display in the correct position for this region.

Fields with a null value will appear as [Null] for text (PostGIS) or as an empty field in a GIS.

A null numeric value will appear as 0 in both a database and an attribute table in a GIS.

Example of a GeoPackage record taken from the Information tool in QGIS:



Feature	Value
UK_CODEPOINT codepoint_gb	
fid	1360576
(Derived)	
(Actions)	
fid	1360576
postcode	SO160AS
positional_quality_indicator	10
po_box_indicator	N
total_number_of_delivery_points	1
delivery_points_used_to_create_t...	1
domestic_delivery_points	0
non_domestic_delivery_points	1
po_box_delivery_points	0
matched_address_premises	1
unmatched_delivery_points	0
country_code	E92000001
nhs_regional_ha_code	E19000002
nhs_ha_code	E18000009
admin_county_code	E10000014
admin_district_code	E07000093
admin_ward_code	E05012936
postcode_type	L

Figure 1. GeoPackage record as displayed in QGIS.

Note: The FeatureID (FID) is autogenerated by a GIS when the GeoPackage is loaded into it; it is not present in the GeoPackage.