ORDNANCE SURVEY GB

CODE-POINT® – OVERVIEW

OFFICIAL
Ver 3.0

Ordnance Survey

Version history

Version	Date	Description
2.14	12/2014	Minor updates.
3.0	05/2022	Introduction of GeoPackage format to the product. Original combined User Guide and Technical Specification document split out into three separate documents: Overview, Technical Specification, and Getting Started Guide. Formatting improvements to the Overview.

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 Technical Specification.

The terms and conditions on which Code-Point is made available to you and your organisation are contained in that Ordnance Survey customer contract. Please ensure your organisation has signed a valid current customer contract to be able to use Code-Point.

We may change the information in this document at any time, giving you the notice period set out in your contract. We do not accept responsibility for the content of any third-party websites referenced or accessed in or through this document.

This document has been screened according to Ordnance Survey's Equality Scheme. If you have difficulty reading this information in its current format and would like to find out how to access it in a different format (braille, large print, computer disk or in another language), please contact us on:
+44 (0)3456 05 05 05.

Copyright in this document

Trade marks

Contact details

OS website 'Contact us' page (https://www.ordnancesurvey.co.uk/contact-us).

Contents

1. Introduction

Code-Point locates over 1.7 million 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.

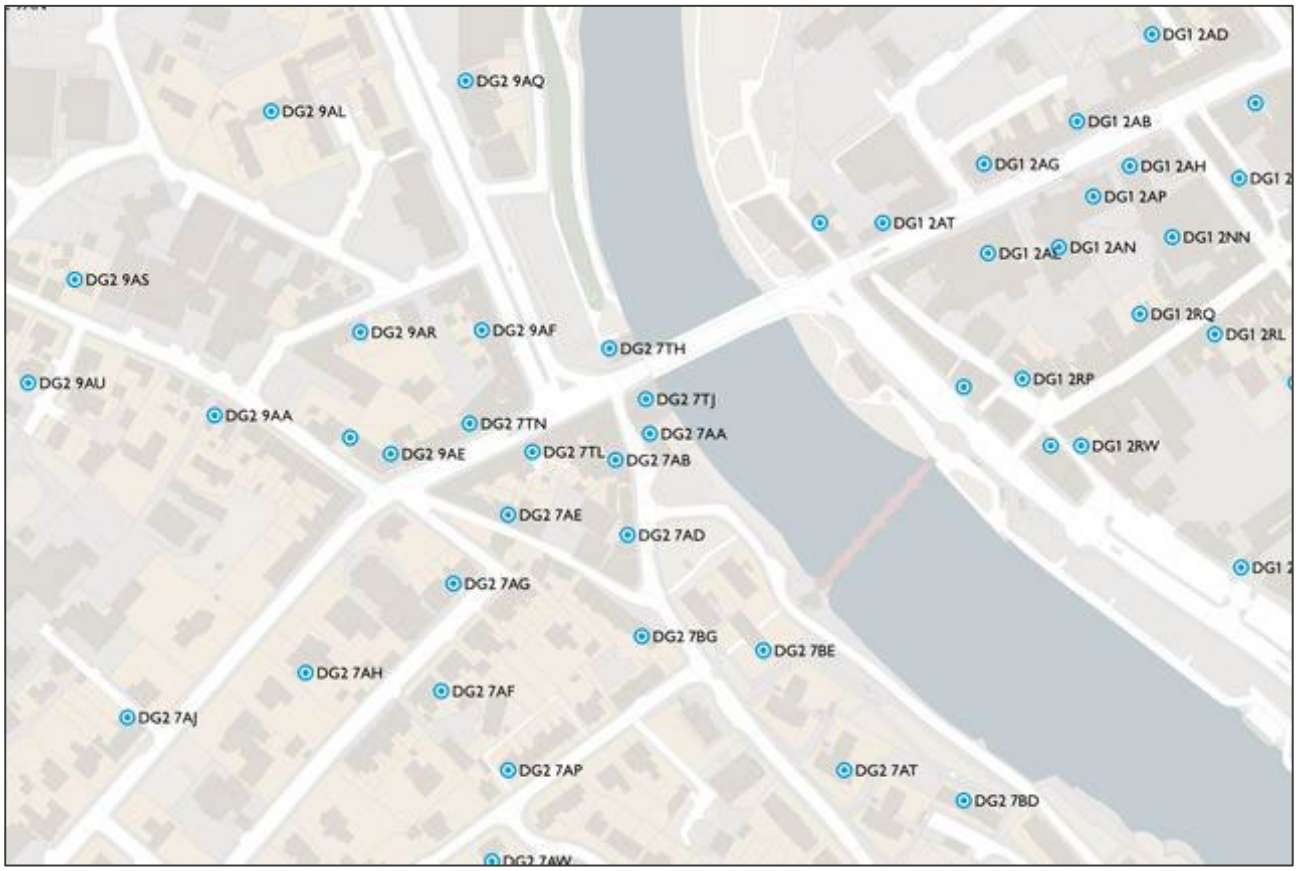

Figure 1. Code-Point provides geographical locations for postcodes in Great Britain and Northern Ireland

1.1 Key product features

With each coordinated point, the Code-Point product provides:

- Information about the number and type of postal delivery points in the postcode, including the split between domestic and non-domestic delivery points per postcode unit
- A positional quality indicator, which indicates the quality of the data underlying the Code-Point location coordinate
- The country indicator (either England, Scotland, Wales, or Northern Ireland)
- The postcode type (either a large-user postcode or a small-user postcode)
- The National Health Service region and area codes
- The local government county, district, and ward codes

1.2 Product applications

Code-Point can be used to display and analyse any data collected at the postcode level. This has led to the product being widely used in a variety of applications, including:

- Site location
- Enabling web searches
- Market analysis and profiling
- Health and epidemiology
- Resource allocation
- End to end journey route planning
- Socio-economic profiling
- Sales targeting

2. Product details

2.1 Postcodes

Postcodes are stored in Code-Point as alphanumerical values with a length of seven characters. A postcode contains two parts:

- **The outward code (also called outcode)**: the first two to four characters of the postcode, constituting the postcode area and the postcode district. It is the part of the postcode that enables mail to be sent from the accepting office to the correct area for delivery.

- **The inward code (also called incode)**: the last three characters of the postcode, constituting the postcode sector and the postcode unit. It is used to sort mail at the local delivery office.

For example:

Outward		Inward	
NW	**6**	**4**	**DP**
			Unit
		Sector	
	District		
Area			

When used in an address, the incode should be separated from the outcode by a single space. To enforce the field length of seven characters with Code-Point data, there may be zero, one or two spaces between these elements of the postcode. The following is a list of the valid formats of postcodes. A indicates an alphabetic character, and N indicates a numeric character. The last column shows how they would be represented in Code-Point, noting the number of spaces (an underscore symbol: _ indicates a space).

Outcode	Incode	Example postcode	As held in Code-Point
AN	NAA	M2 5BQ	M2__5BQ
ANN	NAA	M34 3AB	M34_3AB
AAN	NAA	DN5 7XY	DN5_7XY
AANN	NAA	DN16 9AA	DN169AA
ANA	NAA	W1A 4WW	W1A_4WW
AANA	NAA	EC1A 1HQ	EC1A1HQ

2.2 Postcode position

Each postcode unit will be allocated a National Grid reference of a point that falls within the notional extent of the postcode unit, given as an Easting and Northing. This point is the co-ordinate of the nearest delivery point to the calculated mean position of the delivery points in the postcode unit. These coordinates are provided to a resolution of 1 metre.

Where several postcode units apply to one surveyed position, for example, a block of flats or offices, there is an identical location for each. However, there may be instances where the location is imprecise or approximate, due to the manual allocation by Royal Mail of a postcode outside the recognised geographical extent of that postcode. There may also be a small number of instances where coordinates cannot be allocated.

The accuracy of each postcode unit coordinate pair is defined by the Positional Quality indicator (PQI), which provides a quality statement for the position of that Code-Point record. There are seven PQI values for the positional quality. A lower positional quality indicator will be allocated to postcode units awaiting a surveyed position, or which relate to addresses that do not have a surveyed position. Full details of the PQI can be found in the product's technical specification, which is available from the Code-Point Product Support page on the OS website (https://www.ordnancesurvey.co.uk/business-government/tools-support/code-point-support/).

2.3 Coordinate reference systems

The coordinates for postcodes in Great Britain (England, Wales, and Scotland) are provided in British National Grid (BNG). BNG uses the OSGB36 (EPSG 27700) geodetic datum and a single Transverse Mercator projection for the whole of Great Britain. Positions on this projection are described using Easting and Northing coordinates in units of metres. The BNG is a horizontal spatial reference system only; it does not specify a vertical (height) reference system.

The coordinates for postcodes in Northern Ireland (BT postcodes) are provided in the Irish National Grid. When loading the BT postcodes into a GIS, you should select the Irish Grid (EPSG: 29902) for the correct projection. If you do not apply the Irish projection, the BT centroid points will not be correctly positioned. For additional information relating to the Irish Grid Reference System, see the Ordnance Survey Ireland website (https://www.osi.ie/resources/reference-information-2/irish-grid-reference-system/).

3. Product supply

3.1 Available formats

Code-Point is available in the following formats:

- Comma-separated value (CSV)
- National Transfer Format (NTF)
- GeoPackage (GPKG)

3.2 Supply mechanism

Code-Point is only available as national cover of Great Britain and Northern Ireland. The product is supplied in three formats (CSV, NTF and GeoPackage) as an online download from the OS Data Hub (https://osdatahub.os.uk/). Alternatively, you can request a DVD of the product in CSV and NTF formats from OS Orders (https://orders.ordnancesurvey.co.uk/sso/login.shtml).

Note: The GeoPackage format of the product is not available as a DVD supply option.

The product is provided as a complete resupply. Any postcode that is deleted between supplies will not be included.

3.3 Product update schedule

Code-Point is supplied to customers quarterly (in February, May, August, and November), incorporating updates from georeferenced Royal Mail Postcode Address File (PAF) and GridLink. GridLink is a joint consortium dataset that provides geospatially referenced postcode data, consisting of UK postcodes, administration areas and health authority codes. The GridLink Consortium comprises Royal Mail, Ordnance Survey, the Office for National Statistics (ONS), Land & Property Services (LPS), and National Records of Scotland (NRS). Each consortium member supplies component data to create the GridLink dataset.

Administrative and health authority codes are allocated to postcodes using a point in polygon comparison against Boundary-Line data.

3.4 Coverage and file sizes

Code-Point covers postcodes for Great Britain and Northern Ireland. Postcodes are divided into postcode areas and supplied as 121 files.

The approximate file sizes of the respective data formats are as follows:

- CSV: 198MB
- NTF: 312MB
- GeoPackage: 290MB

The header file for CSV can be downloaded from the Code-Point Product Support page on the OS website (https://www.ordnancesurvey.co.uk/business-government/tools-support/code-point-support).

3.5 Code-Point data structure

3.5.1 CSV and NTF

There are two folders in the root directory: Doc and Data.

The Doc folder contains the following files:

- CD_INFO.TXT: Note about the data on this DVD
- Codelist.xls: Lookup table of GSS Codes
- NHS_Codelist.xls: Lookup table of Health GSS Codes
- metadata.txt: Number of postcode units in each postcode area
- Readfirst.txt: Summary of copyright, licence, and data format information
- DISCCARE.TXT: Contains information on the care of DVDs

The Data folder contains the following sub-folders:

- CSV: 121 Postcode area files in CSV format
- NTF: 121 Postcode area files in NTF format

3.5.2 GeoPackage

There are two folders in the root directory: Doc and Data.

The Doc folder contains the following files:

- Codelist.xlsx: Lookup table of GSS Codes
- NHS_Codelist.xls: Lookup table of Health GSS Codes
- metadata.txt: Number of postcode units in each postcode area
- Readfirst.txt: Summary of copyright, licence, and data format information

The Data folder contains the following file:

- UK_CODEPOINT.gpkg: One Postcode area file in GeoPackage format