ORDNANCE SURVEY GB

CODE-POINT OPEN™ – OVERVIEW

Ordnance
Survey

Version history

Version	Date	Description
2.2	11/2019	Updated contact details.
3.0	09/2022	Maximum postcode attribute length information updated from seven to eight characters. 'Creating single-space postcodes' section removed. Product supply information added (including available product formats, the supply mechanism, the product update schedule, and coverage, file size and data structure information). Document name changed from User Guide to Overview. Formatting improvements.
3.1	05/2023	Update to the acknowledgement statement on the copyright page. Addition of Annex A which contains links to additional product documentation.

Purpose of this document

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

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Contact details

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

Contents

1. Introduction to the product

Code-Point Open locates over 1.7 million postcode units for Great Britain, 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.

1.1 Key product features

With each coordinate point, the Code-Point Open product provides:

- A postcode

- A positional quality indicator (PQI), which indicates the quality of the data underlying the Code-Point location coordinate (CPLC)

- The country code (either England, Scotland or Wales)

- The National Health Service (NHS) region and area codes

- The local government county, district and ward codes

1.2 Product applications

Code-Point Open 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 the following:

- 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 Open as alphanumerical values with a maximum length of eight characters (the number of characters in a postcode can vary from six to eight). A postcode contains two parts:

- **The outcode (also called outward code)**: 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 incode (also called inward code)**: 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:

Outcode		Incode	
NW	**6**	**4**	**DP**
Area	District	Sector	Unit

When used in an address, the incode is always separated from the outcode by a single space. The single space counts as a character.

The following table provides a list of the valid formats of postcodes. In the first two columns, an *A* indicates an alphabetic character, while an *N* indicates a numeric character. The last column shows how many characters each example postcode contains.

Outcode	Incode	Example postcode	Number of characters in the example postcode
AN	NAA	M2 5BQ	6
ANN	NAA	M34 3AB	7
AAN	NAA	DN5 7XY	7
AANN	NAA	DN16 9AA	8
ANA	NAA	W1A 4WW	7
AANA	NAA	EC1A 1HQ	8

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 1metre.

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 Open 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 Open Product Support page on the OS website](https://www.ordnancesurvey.co.uk/business-government/tools-support/code-point-open-support) (https://www.ordnancesurvey.co.uk/business-government/tools-support/code-point-open-support).

2.3   Coordinate reference system

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.

3. Product supply

3.1 Available formats

Code-Point Open is available in the following formats:

- Comma-separated values (CSV)

- GeoPackage (GPKG)

3.2 Supply mechanism

Code-Point Open is only available as national cover of Great Britain. The product is supplied in two formats (CSV and GeoPackage) as an online download from the OS Data Hub (https://osdatahub.os.uk/).

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 Open 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 Open covers postcodes for Great Britain.

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

- CSV: 153MB

- GeoPackage: 257MB

3.5 Code-Point Open data structure

3.5.1 CSV

The Code-Point Open CSV format contains two folders in the root directory: Doc and Data

The Doc folder contains the following files:

- Codelist.xlsx – Lookup table of Government Statistical Service (GSS) codes

- Code-Point_Open_Column_Headers.csv – Description of column headers

- licence.txt – Important licence information

- metadata.txt – Number of postcode units in each postcode area

- NHS_Codelist.xls – Lookup table of health GSS codes

- readme.txt – Summary of supplied data

The Data folder contains the following sub-folder:

- CSV – 120 postcode area files in CSV format

3.5.2 GeoPackage

The Code-Point Open GeoPackage format contains the following text file in the root directory:

- Readme.txt – Summary of supplied data

And two folders: Doc and Data

The Doc folder contains the following files:

- Codelist.xlsx – Lookup table of GSS codes

- Code-Point_Open_Column_Headers.csv – Description of column headers

- Licence.txt – Important licence information

- Metadata.txt – Number of postcode units in each postcode area

- NHS_Codelist.xls – Lookup table of health GSS codes

The Data folder contains the following file:

- Codepo_gb.gpkg – One postcode area file in GeoPackage format

Annex A: Product support links

Guides

You can find additional information and documentation about the Code-Point Open product on the ['Code-Point Open Product Support page' on the OS website](https://www.ordnancesurvey.co.uk/business-government/tools-support/code-point-open-support) (https://www.ordnancesurvey.co.uk/business-government/tools-support/code-point-open-support).

We recommend you read the following guides:

- *Code-Point Open – Getting Started Guide*

- *Code-Point Open – Technical Specification*

- *Getting Started with GeoPackage*