

ORDNANCE SURVEY GB

# CODE-POINT WITH POLYGONS™ – OVERVIEW

## Version history

Version	Date	Description
1.0	10/2021	Initial release of this Overview document. Addition of vector tiles format to the product.
1.1	06/2022	Addition of GeoPackage format to the product.

## Purpose of this document

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

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## Contact details

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

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## 1.1 Key features of the product

The key features of the Code-Point with Polygons product are as follows:

- A set of 120 postal-area-based files that provide a set of boundaries for the postcode units in Great Britain for shapefile, TAB and MID / MIF supply formats. For vector tiles and GeoPackage supply formats, a single national file is provided.
- Vertical\_streets: A list of polygons for locations that contain more than one postcode, for example, office blocks and flats.
- Corresponding Code-Point information providing the number of delivery addresses and the health and administrative area codes related to each postcode.

## 1.2 Uses of Code-Point with Polygons

The quality of this polygon creation allows the polygons to be used for a wide range of applications. This will include analysis of geographically based information or statistics by postcode, and the pictorial display of information that has been analysed or sorted by postcode.

## 2. Product details

### 2.1 Postcodes

There are two main components of a postcode:

- **The outward code (also called outcode):** The first two to four characters of the postcode constitutes 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 constitutes 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. The following table is a list of the valid formats of postcodes (an *A* indicates an alphabetic character; an *N* indicates a numeric character):

Outcode	Incode	Example postcode
AN	NAA	M2 5BQ
ANN	NAA	M34 3AB
AAN	NAA	DN5 7XY
AANN	NAA	DNI6 9AA
ANA	NAA	W1A 4WW
AANA	NAA	EC1A 1HQ

## 2.2 Postcode polygon geometry

Postcode polygons are produced by the tessellation of georeferenced PAF coordinates for individual Royal Mail delivery addresses. Only addresses having a positional quality value indicating the location is within a building are used to create the polygons file. Postcodes of addresses of lower quality will be included in the discard files.

Due to the nature of postcode geography, the polygons representing some postcode units are unavoidably split. Every effort has been made to ensure the absolute minimum of postcodes is represented by multiple polygons. These split polygons representing a single postcode remain a single object with one set of attributes.

Each polygon is assigned a unique identifier. The identifier will be a 16-digit series. These identifiers are not reused should a polygon be deleted.

The polygon dataset contains non-overlapping polygon coverage of Great Britain, originally constrained by the extent of realm (EOR) coastline from Ordnance Survey's Boundary-Line data and postcode polygons. Should any addresses fall outside the constraining datasets, the postcodes should be included in the discard files.

For Shapefile, TAB and MID / MIF supply formats the data is divided into 120 postcode area files, each file named with a one or two letter postcode area code, and for vector tiles and GeoPackage supply formats, the data is provided as one national file.

## 2.3 Vertical streets

Postcodes that are vertically stacked, that is, two or more postcodes within a single building that are represented by a single large-scale building seed. In these situations, a single square polygon represents all the postcodes attributed to the single building seed. These polygons have a special series of identifiers, all commencing with the letter V.

A separate vertical streets lookup table is provided with the polygons and lists the postcodes with the 20-digit unique identifier that are represented by each special polygon. Where these distinctive polygons are crowded closely together, they are reduced in size to prevent overlaps hiding some of the polygons.

## 2.4 Data capture

The polygon set contains a polygon for every postcode in England, Scotland and Wales that is contained in Royal Mail's PAF product, with the following exceptions:

- Postcodes for which there is no location data of sufficient quality.
- Postcodes for which there is no data that lies within the extent of the realm coastline.
- Postcodes that relate to PO Boxes.
- GeoPlace geocode the PAF data from Royal Mail, using source coordinates from Local Authorities in England, Wales and Scotland and Ordnance Survey. GeoPlace then provide the georeferenced PAF data to Ordnance Survey.

## 2.5 Coordinate reference systems

The Coordinate Reference Systems (CRS) of the polygon data is provided in British National Grid (BNG), (EPSG: 27700), with the exception of the vector tile polygon data which is provided in Web Mercator Projection (EPSG: 3857) For more information on the Code-Point CRS, see the Code-Point Technical Specification, which is available on the [Code-Point support page](#) ([Code-Point | OS Tools & Support](#) ([ordnancesurvey.co.uk](https://ordnancesurvey.co.uk))).

BNG uses the OSGB36 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.

## 2.6 Currency

Updates are supplied quarterly in January, April, July and October, and are a complete resupply of the national dataset.

Each edition of Code-Point with Polygons will have a version number showing the release month for the year (for example, April) followed by the release year (for example, 2022).

The version for each quarterly release will be in this format:

- April\_2022
- July\_2022
- October\_2022
- January\_2023

The Code-Point data packaged alongside the postcode polygon data will be the data from the most recent Code-Point product release. Typically, this is the Code-Point release from two months prior. For example, the October 2022 release of Code-Point with Polygons will be supplied alongside the August 2022 release of Code-Point.

## 3. Product supply

### 3.1 Supply format and media

Code-Point with Polygons is available in the following formats:

- Shapefile
- MapInfo MID / MIF
- MapInfo TAB file
- Vector tiles (MBTiles)
- GeoPackage (GPKG)

Code-Point with Polygons is supplied as a zip file in the Data folder, either downloaded from the [OS Data Hub](https://osdatahub.os.uk/) (<https://osdatahub.os.uk/>) or on a DVD (TAB, Shapefile and MID / MIF formats only). The Code-Point polygon files contain substantial amounts of information, which in shapefile, MID / MIF, TAB and vector tiles formats necessitate that file compression be used.

*Note: The vector tile and GeoPackage formats of the product are not available as a DVD supply option.*

### 3.2 Coverage and file sizes

The polygon data coverage is Great Britain. The shapefile, TAB and MID / MIF formats are split into 120 files where each file represents the notional geometry for a postcode area. The vector tiles and GeoPackage formats are supplied as one national file.

File sizes for Great Britain are approximately:

- Shapefile: 610 MB
- TAB: 524 MB
- MID / MIF: 564 MB
- Vector tiles (MBTiles): 457 MB
- GeoPackage (GPKG): 708 MB

The following two CSV text files accompany the polygon data:

- **Vertical\_streets:** A list of polygons, identified by a serial number that is prefixed by the letter V, which contain more than one postcode. This situation can occur in, for example, a block of flats where there is more than one postcode within a single building.
- **Discard\_files:** A list of the postcodes for which polygons have not been included because there is no data of sufficient quality to use in the polygon creation, or because their constituent addresses lie outside the extent of the realm (coastline). The discard file also contains a list of PO Box postcodes as none of these will have been used in the creation of the polygon set.

The associated Code-Point coverage is for the United Kingdom, provided as 121 comma-separated value (CSV) files, as it includes Northern Ireland postcodes. Polygons are not provided for Northern Ireland postcodes. Code-Point contains georeferenced postcode unit data, with associated metadata such as address counts and quality indicators. It also provides the health and administrative area codes related to each postcode.

The following text files that are associated with the Code-Point data provide:

- The full text equivalents of the administrative area codes.
- The number of postcode units in each postcode area.