

Code-Point[®] User guide



www.ordnancesurvey.co.uk

Preface

This user guide contains all the information you need to make effective use of Code-Point® and is designed to help you understand the information contained in the data, as well as providing detailed technical information and the data format specification.

This user guide has been checked and validated before issue and every endeavour made to ensure that the contents are accurate. If you find an error, omission, or otherwise wish to make a suggestion as to how this user guide can be improved, please contact us at the address shown under Contact details or use the Product performance report form at [appendix B](#).

Contact details

The Customer Contact Centre will be pleased to deal with your enquiries:

Customer Contact Centre
Phone: 023 8030 5030
Fax: 023 8079 2615
Email: enquiries@ordsvy.gov.uk

or write to:

Sales Information
Ordnance Survey
Romsey Road
SOUTHAMPTON
United Kingdom
SO16 4GU

Visit Ordnance Survey on our web site at: www.ordnancesurvey.co.uk.

Product performance

If you have any problems with or identify any errors in the Code-Point data, please complete the Product performance report form at [appendix B](#).

Liability

The terms and conditions of supply and use of Code-Point are detailed in the business geographic products order form and in the licence document supplied with the product.

Ordnance Survey makes every effort to ensure that data supplied are free from errors and omissions. We will remedy, as soon as reasonably practicable, errors and omissions that the customer notifies us of in writing. It is the customer's responsibility to ensure that data ordered is suitable for the intended purpose. We will not be liable to the customer or any other party for any loss, damage, inconvenience or expense resulting from the use of, or reliance upon, the data.

Delivery of Code-Point

You are advised to copy the supplied data to a back-up medium.

Rejecting the product

To reject the product you must contact us within 28 days of delivery and must confirm your instructions in writing. If you do not, we will assume that you are satisfied with them. You cannot reject the products after this time. If you are a 'consumer', as defined in the *Consumer Transactions (Restriction on Statements) Order 1976*, this paragraph does not affect your statutory rights.

Data copyright

All Ordnance Survey digital map data are Crown copyright. Full details of the conditions under which our digital map data may be processed and/or manipulated or copied by a customer – whether or not for use on PCs or workstations or for making hard copies – are available from the Customer Contact Centre, please see [Contact details](#). You should check the terms and conditions with us before using the data. It is also the responsibility of the holder of the digital map data to ensure that any plotted or printed output contains the required copyright acknowledgement.

User guide copyright

This user guide is © Crown copyright 2002. All rights reserved. It is supplied with Code-Point to allow you to make effective use of the data. Any part of the guide may be copied for your own business use. Business use is defined as actions related to business decision making or as part of day-to-day operations associated with the running of a business. No part of the guide may be copied or incorporated in products, services or publications you generate for onward sale, or as free promotional or support material, without the prior written permission of Ordnance Survey.

Trademarks

Ordnance Survey, the OS Symbol, ADDRESS-POINT, Code-Point, Gridlink, Land-Form PANORAMA, Land-Line, Land-Line.Plus and OSCAR are registered trademarks and Boundary-Line is a trademark of Ordnance Survey, the national mapping agency of Great Britain.

PAF, Postzon and Royal Mail are registered trademarks of Consignia plc.

Ordnance Survey acknowledges all other trademarks.

Contents

Chapter 1	Introduction	1.1
	Code-Point features	1.1
	Applications of Code-Point	1.1
	What you need to use Code-Point	1.2
	Supply definition	1.2
	Update	1.2
	Code-Point content	1.3
	Formats	1.4
	NTF	1.4
	Comma Delimited File (CDF)	1.4
Chapter 2	Overview of Code-Point	2.1
	Data overview	2.1
	Basic principles	2.1
	Application overview	2.2
	Uses of Code-Point	2.2
	Scenarios	2.3
Chapter 3	Code-Point explained	3.1
	Reference	3.1
	Postcode	3.1
	Position	3.2
	Code-Point location coordinate (CPLC)	3.2
	Positional quality indicator (PQI)	3.2
	Attributes	3.3
	Administrative and health authority codes	3.5
Chapter 4	Quality statements	4.1
Chapter 5	NTF explained	5.1
	An overview of the data in NTF	5.1
	Introduction	5.1
	Record size	5.1

	Continuation mark {CONT_MARK}	5.1
	Record terminator {EOR}	5.2
	Transfer set	5.2
	Transfer set structure	5.2
	Volume records	5.2
	Database records	5.2
	Section records	5.3
	Supply of data on media	5.4
	Formatted media	5.4
Chapter 6	Record structures for the transfer of Code-Point in NTF	6.1
	NTF record list	6.1
	Volume Header Record [VOLHDREC] 01	6.2
	Database Header Record [DBHREC] 02	6.3
	Attribute Description Record [ATTDESC] 40	6.4
	Feature Classification Record [FEATCLASS] 05	6.6
	Section Header Record [SECHREC] 07	6.7
	Point Record [POINTREC] 15	6.9
	Geometry Record [GEOMETRY1] 21	6.10
	Attribute Record [ATTREC] 14	6.11
	Volume Terminator Record [VOLTERM] 99	6.13
Chapter 7	Comma Delimited Files (CDF) explained	7.1
	An overview of the data in CDF format	7.1
Chapter 8	Record structures for the transfer of Code-Point in CDF	8.1
	CDF fields	8.1
Appendix A	Glossary	A.1
	Introduction	A.1
	Code-Point glossary	A.1
Appendix B	Product and service performance report form	B.1

Chapter 1 Introduction

Code-Point is an Ordnance Survey data product that provides a National Grid coordinate for a point within each unit postcode in Great Britain.

Code-Point features

With each coordinated point, Code-Point products provide:

- information about the number and type of postal delivery points in the postcode;
- a positional quality indicator (PQI), which indicates the quality of the data underlying the Code-Point location coordinate (CPLC);
- the country indicator (either England, Scotland, Wales or Northern Ireland);
- the postcode type;
- the National Health Service region and area codes; and
- the local government county, district and ward codes.

Applications of Code-Point

Code-Point provides a comprehensive base of geographically-located data on which a wide range of applications can be built. Typical applications include:

- market analysis;
- risk analysis for insurance, financial and environmental services;
- site location analysis for retailing;
- lifestyle analysis; and
- approximate site location for route planning.

What you need to use Code-Point

Code-Point is a data product and does not include software for analysis, but can be used with a variety of programs. Code-Point can be loaded onto any desktop PC. To exploit fully the potential of Code-Point, the recommended requirements are at least a 486 PC or equivalent. Consult your geographical information system (GIS) vendor to establish actual system requirements.

Supply definition

Code-Point is only available as national cover of Great Britain and Northern Ireland and is supplied on CD-ROM containing CDF and NTF data.

Update

Code-Point is recreated quarterly using updates from Ordnance Survey field surveys and Gridlink® (a consortium made up of Royal Mail® (RM), Ordnance Survey, the Office of National Statistics (ONS), Ordnance Survey of Northern Ireland (OSNI) and the General Register Office for Scotland (GROS)), via ADDRESS-POINT® and Boundary-Line™.

Updates are supplied annually – depending upon the terms of your contract – and are also available on request. Updates are provided as a complete resupply, but do not include deleted postcodes.

Code-Point content

Code-Point provides the following data:

- unit postcode;
- PQI;
- PO box indicator;
- total number of delivery points within unit postcode;
- number of delivery points with the same PQI as the unit postcode itself;
- number of domestic delivery points;
- number of non-domestic delivery points;
- number of delivery points which are PO boxes;
- number of premises with a matched address;
- number of unmatched delivery points;
- National Grid CPLC;
- country code;
- National Health Service regional health authority code;
- National Health Service health authority code;
- administrative county code;
- administrative district code;
- administrative ward code; and
- postcode type.

Formats

Code-Point is available in:

- BS 7567 (NTF v2.0) Level 2; and
- Comma Delimited File (CDF).

NTF

NTF is the standard transfer format for most of Ordnance Survey's digital map data products. Code-Point is supplied in NTF v2.0 Level 2, which has been formally recognised as a [British Standard – BS 7567](#).

For convenience, BS 7567 (NTF v2.0) Level 2 is referred to as NTF throughout this user guide. The structure of Code-Point supplied in NTF is described in [chapter 5](#) and [chapter 6](#).

Comma Delimited File (CDF)

CDF is a standard method for delivering data. It is a common interchange format for spreadsheets and databases, and facilitates simplistic use of Code-Point.

For convenience, this is referred to as CDF throughout this user guide. The structure of Code-Point supplied in CDF is described in [chapter 7](#) and [chapter 8](#).

Chapter 2 Overview of Code-Point

Data overview

Code-Point provides National Grid coordinates for each unit postcode in Great Britain. The data source for Code-Point is Gridlink, which consists of ADDRESS-POINT, Boundary-Line and Land-Line® data; Royal Mail's Postcode Address File (PAF®) and Postzon® products; and National Health Service (NHS) and administrative area codes provided by ONS.

ADDRESS-POINT contains postal address data for approximately 26 million postal delivery points. These delivery points may be premises that are shown in Land-Line data such as buildings, or they might be features that do not form part of the Land-Line specification such as PO boxes, caravan parks, buildings under railway arches, temporary buildings and houseboats. All unit postcodes in PAF, which have valid and current postal delivery points, will be in Code-Point.

Basic principles

- Each unit postcode will be allocated a National Grid reference (NGref) of a point that falls within the notional extent of the unit postcode – there may be a small number of instances where coordinates cannot be allocated.
- Multiple postcodes in a single block of flats or offices will share one NGref – these may be either *large users* or *small users*, or both.
- Administrative area codes are allocated using the Boundary-Line polygon that the CPLC falls within; currency is that of the latest available Boundary-Line data. Where addresses in a postcode fall in two or more administrative areas, only the codes for the area in which the CPLC falls are given.
- NHS codes are allocated using the premise that areas are always *supersets* of administrative areas.

Application overview

Uses of Code-Point

Code-Point forms a nationally consistent postcode reference and is a standard link between:

- Databases and GIS.
- Two or more databases.

Retail

- Market analysis and profiling.
- Sales analysis by store.
- Competitor analysis.
- Market analysis and profiling.
- Store location.
- Targeting promotions.

Insurance

- Market analysis and profiling.
- Competitor analysis.
- Geological and flood risk analysis.
- Personal and household risk assessment.
- Sales territory management.

Health

- Targeting of services to population needs.
- Plan resource allocation.
- Epidemiology.
- Analysis of *What if...?* scenarios.

Utilities

- Assessment of markets for targeting.
- Consumption analysis.
- Pressure zone analysis.
- Transport.
- Location finding.
- Route planning.

Government

- Statistical analysis.
- Crime analysis.
- Flood warnings.
- Pollution monitoring.

Scenarios

Medical research for health authorities

It is necessary for health authorities to be able to analyse and identify the effects and potential implications of contamination. Is the incidence of bronchitis uneven throughout a health authority's area? Does this relate to air quality?

Customer survey for market research purposes

A questionnaire has been distributed to all houses within a large geographical area. The results and the relationships between groups of customers need to be analysed.

Incident analysis for emergency services

An ambulance service wishes to assess the efficiency and value of various mobile unit locations, in reducing call response times.

Insurance for financial services

JS Insurance has been asked to quote structural insurance for a potential customer within the Southampton (SO) area. SO has been labelled, geographically, as a clay area and therefore insurance companies charge higher premiums because of the higher incidence of subsidence.

With the use of Code-Point, *JS Insurance* can closely highlight blocks of houses within SO on clay. If a particular house does not fall within this category, *JS Insurance* can, with no risk, quote a premium which is lower than the market average.

Chapter 3 Code-Point explained

Reference

The full postcode itself forms a unique reference.

Postcode

Postcodes are an alphanumeric abbreviated form of address. A postcode will uniquely identify an average of 15 addresses. In some cases, where a customer receives a substantial amount of mail, a postcode will apply to only one address (a large user postcode). The maximum number of addresses in a postcode is 100.

The postcode is held in Code-Point as a seven-character field. Although, when used in an address, the incode should be separated from the outcode by a single space, within Code-Point data, there may be 0, 1 or 2 spaces between these elements of the postcode. The following is a list of the valid formats of postcode held. An A indicates an alphabetic character, an N indicates a numeric character.

Format		Example	Example as held in
Outcode	Incode	postcode	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

Please refer to the glossary for a further description of [postcode](#).

Postcode example:

Area District Sector Unit
KY 12 8 UP

Position

Code-Point location coordinate (CPLC)

Code-Point provides an NGref, to a resolution of 1 metre, for each unit postcode in Great Britain and Northern Ireland, and is known as the CPLC. A CPLC is normally allocated to a point that falls within the extent of the unit postcode. The point is given the ADDRESS-POINT coordinates of the nearest delivery point to the calculated mean position of the delivery points in the unit. A lower positional quality CPLC will be allocated to unit postcodes awaiting a surveyed position, or which relate to addresses that will not have a surveyed position on Land-Line data.

Where several unit postcodes apply to one surveyed position, for example, a block of flats or offices, there is an identical CPLC for each. There may be occurrences where the position of the CPLC is distorted by the erroneous allocation by Royal Mail of a postcode to an address outside the contiguous geographical extent of that postcode. These distortions may also affect the allocation of NHS and administrative area codes, and/or the size or extent of a postcode polygon.

Such occurrences, when discovered or notified to Ordnance Survey by customers, will be referred to Royal Mail for possible improvement.

Positional quality indicator (PQI)

The importance of checking the PQI, to establish CPLC positional quality, cannot be overemphasised.

It indicates the positional accuracy of the Code-Point coordinates. There are seven PQI values for the positional quality of CPLCs. The order shown indicates the level of quality associated with the PQI, PQ10 is the most accurate and PQ90 the least. The PQI assigned to the CPLC will depend on the coordinates available in ADDRESS-POINT to generate the CPLC. Those derived from addresses with a PQ3 in ADDRESS-POINT will therefore be assigned a PQ10 in Code-Point.

PQI Description of source ADDRESS-POINT data

- 10 Within the building of the matched address closest to the postcode mean determined automatically by Ordnance Survey or OSNI (BT postcode area only).
- 20 As above, but determined to visual inspection by GROS.
- 30 Approximate to within 50 m of true position (postcodes relating to developing sites may be within 100 m true position).
- 40 The mean of the positions of addresses previously matched in ADDRESS-POINT but which have subsequently been deleted or recoded (very rarely used).
- 50 Estimated position based on surrounding postcode coordinates, usually to 100 m resolution, but 10 m in Scotland.
- 60 Postcode sector mean (direct copy from ADDRESS-POINT) – mainly PO boxes. See [glossary](#) for additional information.
- 90 No coordinates available.

Attributes

Attribute	Description
Postcode	Contains elements for postal area, district, sector and unit. See Postcode in this chapter.
Positional quality	Indicates the source of the ADDRESS-POINT data indicator used and hence the quality of the coordinates provided for each record. It is determined by the best available data in ADDRESS-POINT.
PO box indicator	Denotes if the postcode is used for a PO box.
Total delivery points	The total number of both matched and unmatched delivery points in the postcode.

Attribute	Description
Delivery points used to the CPLC where the PQI value is 10 or 20	Number of matched addresses in the postcode unit of the same positional quality in create ADDRESS-POINT as the PQI for that postcode in Code-Point, provided that the Code-Point record has a PQI value of 10 or 20.
Domestic delivery points	Number of non-PO box delivery points that have no PAF organisation name.
Non-domestic delivery	Number of non-PO box delivery points that have a PAF organisation name.
PO box domestic delivery points	Number of PO box delivery points.
Matched addressed premises	Number of PQ3 ADDRESS-POINT delivery points in buildings or building sub-divisions, after exclusion of duplicated coordinate pairs.
Unmatched delivery points	Number awaiting improvement to PQ3 ADDRESS-POINT.
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 georeference lies. See glossary .
NHS regional health authority code	Region in which CPLC falls.
NHS health authority code	Area in which CPLC falls.
Administrative county code	County in which CPLC falls.
Administrative district code	District in which CPLC falls.
Administrative ward code	Ward in which CPLC falls.
Postcode type	Indicates whether the user is large, L, or small, S. Large postcode type users receive more than 25 items in rural areas, 50 in towns or 100 in large towns or cities

Administrative and health authority codes

Administrative and health authority codes are those used by ONS. Allocation of codes to postcode is by point-in-polygon comparison against Boundary-Line data.

In the case of unitary authorities, 00 is given for administrative county; the authority code appears as the district code.

Where a district or unitary authority is divided into electoral districts, the code appears as the ward code. Postcodes with a PQI of 90 or 60 are not allocated codes.

Chapter 4

Quality statements

Each Code-Point record contains an individual quality statement (the PQI), which is explained in [chapter 3](#).

Lineage – where does the data come from?

Code-Point is derived from Gridlink data – ADDRESS-POINT, which was initially created from a comparison of the Royal Mail PAF with Land-Line and OSCAR® datasets from Ordnance Survey and administrative and national health area codes used by ONS, but allocated using Boundary-Line data.

Currency – how up to date is the data?

Currency is a measure of the real-world change included in Code-Point. Monthly postcode updates from the Royal Mail Postzon and PAF, together with improvements derived from Ordnance Survey field activity, are included in each version of Code-Point.

Positional accuracy – is it in the right place?

Each CPLC is coordinated on the National Grid, with eastings and northings quoted to a resolution of one metre. The accuracy of each unit postcode coordinate pair is defined by the PQI, which provides a quality statement of that Code-Point record.

Attribute accuracy – are the attribute values correct?

The representation of postcode attributes is checked as part of Royal Mail maintenance of PAF and by Ordnance Survey when coordination and quality assurance of ADDRESS-POINT is carried out during field survey activity.

Logical consistency – is the data structure correct?

Logical consistency is a measure of the degree to which Code-Point data agrees with its specified structure. Data is monitored to ensure that attributes are present in the correct format and in valid combinations.

Completeness – is it all there?

Code-Point contains coordinates for all available unit postcodes supplied to Ordnance Survey from the Royal Mail PAF. Resources are directed towards continually improving attribute and positional accuracy. Deleted postcodes are not included. Errors and omissions which are identified by customers can be referred to Ordnance Survey for investigation and, where appropriate, onward notification to Royal Mail.

Chapter 5 NTF explained

An overview of the data in NTF

Introduction

This chapter gives an outline of the data structure of Code-Point in NTF. It should be read in conjunction with [chapter 6](#).

There are certain conventions used in the record examples, which are:

- [] Square brackets are placed around record names, for example, [VOLHDREC].
- { } A pair of braces denote field names, for example, {REC_DESC} is the record descriptor field.
- [] 21 A two-digit number following square brackets denotes the record descriptor, which uniquely identifies the record name between the brackets.
- <S> This is the space character (ASCII code 32).
- <3S> This denotes three successive space characters.
- % The percentage character (ASCII code 37).

Record size

NTF data is written to the supply media in variable length records, with a maximum physical record length of 80 characters, which includes {CONT_MARK} continuation mark and {EOR} record terminator.

Continuation mark {CONT_MARK}

Continuation records are used where the maximum physical record length of 80 characters does not permit a logical record to be transferred wholly within one physical record. The presence of a continuation record is indicated by the value of the continuation mark {CONT_MARK} that immediately precedes the record terminator {EOR}. The value of {CONT_MARK} is 1 if there is a continuation record present and 0 if there is not.

Record terminator {EOR}

The last character of each physical record is the end of record terminator, which is the percent character (%) (ASCII 37).

Transfer set

A transfer set normally equates to a single file.

Transfer set structure

Volume records

Each transfer set starts with a compulsory Volume Header Record [VOLHDREC] and terminates with a compulsory Volume Terminator Record [VOLTERM].

Database records

Database records transfer information common to all data and their presentation in the subsequent section(s). An NTF transfer set will comprise one database. The database commences with a Database Header Record [DBHREC], which sets up the database. It will be followed by a number of Attribute Description Records [ATTDESC] and Feature Classification Records [FEATCLASS].

Database Header Record [DBHREC]

This mandatory record indicates the commencement of a database and gives details of:

- the database name;
- NTF release date;
- the supply option; and
- creation date that applies to the whole transfer set.

Attribute Description Record [ATTDESC]

These records list and give descriptions of the attributes that can be applied to the features within the transfer set.

Feature Classification Record [FEATCLASS]

These records list and give descriptions of the feature codes that can be present within the transfer set.

Section records

The section records contain the Code-Point data within the postcode area being transferred by that section. It starts with the Section Header Record [SECHREC] and is followed by a number of Section Data Records that contain data on all the unit postcodes within the section. In Code-Point these data records consist of a sequence of three logical records, which is repeated for each unit postcode within the section.

Section Header Record [SECHREC]

This mandatory record starts a section. It contains information and parameters essential for understanding, interpreting and processing some of the fields within the data. It establishes the unit of measure for X and Y coordinates, origins and other constants.

Point Record [POINTREC]

This record identifies the start of the data for a single unit postcode and contains a feature serial number that is unique within any one section.

Geometry Record [GEOMETRY1]

This record contains the coordinate position of the unit postcode identified in the previous point record. All coordinate values within Code-Point are given with a precision of one metre.

Attribute Record [ATTREC]

The Attribute Record gives the attributes or details of the unit postcode, for example, the postcode itself, positional quality indicator and so on. This logical record may have one or more continuation records to transfer all the attribute information.

Supply of data on media

Formatted media

Data requested on logically formatted media such as CD-ROM, as defined by current Ordnance Survey product specifications, will be written directly to the output device. The data files will be written to the medium sequentially.

See also [chapter 6](#).

Chapter 6 Record structures for the transfer of Code-Point in NTF

NTF record list

This list comprises the valid record types used in the Code-Point NTF transfer set.

Descriptor	Description	Record name
01	Volume Header Record – defines the donor and data type.	[VOLHDREC]
02	Database Header Record – transfers data about the database.	[DBHREC]
40	Attribute Description Record – defines attribute descriptions and their fields.	[ATTDESC]
05	Feature Classification Record – defines data classifications.	[FEATCLASS]
07	Section Header Record – coordinate and structure types, unit scale, factors, and so on.	[SECHREC]
15	Point Record – identifies the definition of a unit postcode.	[POINTREC]
21	Geometry Record – defines the two-dimensional geometry for a unit postcode.	[GEOMETRY1]
14	Attribute Record – defines the attributes or details of a unit postcode.	[ATTREC]
99	Volume Terminator Record – defines the end of the transfer set.	[VOLTERM]

Attribute Description Record [ATTDESC] 40

Field	Position	Format	Value example	Description
REC_DESC	01:02	A2	40	Record type identifier
VAL_TYPE	03:04	A2	PR	Attribute mnemonic, for example, PO box indicator
FWIDTH	05:07	A3	001 or <3S>	Fixed width of attribute or three spaces if variable width
FINTER	08:12	A5	A1<3S>	Interpretation of field (A* if variable width)
ATT_NAME	13:*	A*	PO box indicator	Name given to attribute
DIVIDER	*:*	A1	\	
CONT_MARK	*:*	A1	0	No continuation record
EOR	*:*	A1	%	Record terminator

Notes: An attribute description will be needed to describe all attributes used in Code-Point data.
 All the attributes that may appear within the data are given in the [record examples below](#).

Record examples:

40PC007A7 Unit postcode\0%
 40PQ001I1 Positional quality indicator\0%
 40PR001A1 PO box indicator\0%
 40TP003I3 Total number of delivery points\0%
 40DQ003I3 Delivery points with same PQI Indicator as unit itself\0%
 40RP003I3 Domestic delivery points\0%
 40BP003I3 Non-domestic delivery points\0%
 40PD003I3 PO box delivery points\0%
 40MP003I3 Matched address premises\0%
 40UM003I3 Unmatched delivery points\0%
 40CY003I3 Country code\0%
 40RH003A3 NHS regional health authority code\0%
 40LH003A3 NHS health authority code\0%
 40CC002A2 Administrative county code\0%
 40DC002A2 Administrative district code\0%
 40WC002A2 Administrative ward code\0%
 40LS001A1 Postcode type\0%

		1		2		3		4		5		6		7		8													
1	2	3	4	5	6	7	8	9	0	1	2	3	4	5	6	7	8	9	0	1	2	3	4	5	6	7	8	9	0

Template

Section Header Record [SECHREC] 07

Field	Position	Format	Value example	Description
REC_DESC	01:02	A2	07	Record type identifier
SECT_REF	03:12	A10	SO<8S>	Postcode area covered by dataset
COORD_TYPE	13:13	I1	2	Defines rectangular coordinates
STRUC_TYP	14:14	I1	1	Defines vector data
XYLEN	15:19	I5	00007	Defines {X_COORD}, {Y_COORD} as seven-digit fields
XY_UNIT	20:20	I1	2	Defines X and Y units as metres
XY_MULT	21:30	R10,3	0000001000	Multiply X and Y coordinates by 1.000
ZLEN	31:35	I5	00006	Defines Z coordinates as six-digit fields
Z_UNIT	36:36	I1	2	Defines Z units as metres
Z_MULT	37:46	R10,3	0000001000	Multiply Z units by 1.000
X_ORIG	47:56	I10	0000000000	Origin of National Grid, zero
Y_ORIG	57:66	I10	0000000000	Origin of National Grid, zero
Z_DATUM	67:76	I10	0000000000	Not used
CONT_MARK	77:77	A1	1	Continuation record follows
EOR	78:78	A1	%	Record terminator

Point Record [POINTREC] 15

Field	Position	Format	Value example	Description
REC_DESC	01:02	A2	15	Record type identifier
POINT_ID	03:08	I6	000051	Feature serial number (range: 000001–999999)
VAL_TYPE	09:10	A2	<2S>	Not used
VALUE	11:16	A6	<6S>	Not used
FEAT_CODE	17:20	A4	2801	Point feature code
CONT_MARK	21:21	A1	0	No continuation record
EOR	22:22	A1	%	Record terminator

Record example:

15000051

28010%

1		2		3		4		5		6		7		8					
1	2	3	4	5	6	7	8	9	0	1	2	3	4	5	6	7	8	9	0

Template

Geometry Record [GEOMETRY1] 21

Field	Position	Format	Value example	Description
REC_DESC	01:02	A2	21	Record type identifier
GEOM_ID	03:08	16	000000	Not used
GTYPE	09:09	A1	1	Defines point geometry
NUM_COORD	10:13	14	0001	Number of coordinate pairs
IX_COORD	14:20	17	0272530	Easting
IY_COORD	21:27	17	0196956	Northing
IQPLAN	28:28	A1	<S>	Not used
CONT_MARK	29:29	A1	0	No continuation record or
			1	continuation record follows
EOR	30:30	A1	%	Record terminator

Postcodes which have no coordinated position will be given zero coordinates ('00000000000000') and the positional quality indicator in the accompanying Attribute Record will be set to '0'.

Record examples:

210000001000102725300196956 0%

	1	2	3	4	5	6	7	8
1	2	3	4	5	6	7	8	9
10	11	12	13	14	15	16	17	18
19	20	21	22	23	24	25	26	27
28	29	30	31	32	33	34	35	36
37	38	39	40	41	42	43	44	45
46	47	48	49	50	51	52	53	54
55	56	57	58	59	60	61	62	63
64	65	66	67	68	69	70	71	72
73	74	75	76	77	78	79	80	81
82	83	84	85	86	87	88	89	90

Template

Attribute Record [ATTREC] 14

Field	Position	Format	Value example	Description
REC_DESC	01:02	A2	14	Record type identifier
ATT_ID	03:08	I6	000000	Not used
IVAL_TYPE	09:10	A2	PC	Attribute mnemonic
IVALUE	11:*		SO515RU	Attribute value
CONT_MARK	*:*	A1	0	No continuation record or continuation record follows
EOR	*:*	A1	%	Record terminator

The pair of fields {VAL_TYPE} and {VALUE} will repeat to specify all the attributes required. It may be necessary to utilise a continuation record to specify all attributes.

The Attribute Record will contain all or some of the following fields:

Attribute mnemonic	Description	Fixed or variable	Size
PC	Unit postcode	F	A7
PQ	Positional quality indicator	F	I1
PR	PO box indicator	F	A1
TP	Total number of delivery points	F	I3
DQ	Delivery points – used to create the CPLC where PQI value is 10 or 20	F	I3
RP	Domestic delivery points	F	I3
BP	Non-domestic delivery points	F	I3
PD	PO box delivery points	F	I3
MP	Matched address premises	F	I3
UM	Unmatched delivery points	F	I3
CY	Country code	F	I3
RH	NHS regional health authority code	F	A3
LH	NHS health authority code	F	A3
CC	Administrative county code	F	A2
DC	Administrative district code	F	A2
WC	Administrative ward code	F	A2
LS	Postcode type	F	A1

Attributes with null data will be omitted from this record.

Each of the attribute mnemonics will be defined in an Attribute Description Record [ATTDESC] 40 at the start of the transfer set.

Record example:

```
14000000PCSO515RUPQ3PRNTP017DQ017RP017BP000PD000MP017UM000RV19990215RHY06LHQD31%
00CC24DCUNWCFW0%
```

1					2					3					4					5					6					7					8																								
1	2	3	4	5	6	7	8	9	0	1	2	3	4	5	6	7	8	9	0	1	2	3	4	5	6	7	8	9	0	1	2	3	4	5	6	7	8	9	0	1	2	3	4	5	6	7	8	9	0	1	2	3	4	5	6	7	8	9	0

Template

Chapter 7 Comma Delimited Files (CDF) explained

An overview of the data in CDF format

CDF is a de facto standard method for delivering data. This is provided to suit customers requiring a simple business use. CDF can be used in a word processing package or presented as a spreadsheet. Code-Point information in CDF is held within individual fields. Each field is either textual, for example, SO515RU, or numeric, for example, 21. Within CDF each field is separated from the next by a comma. If the field is textual, then the text is enclosed in double quotes, for example, "SO515RU".

This method of representation can also be referred to as Comma Separated Value or Comma Separated Variable (CSV). All coordinate values within Code-Point are given with a precision of one metre.

See also [chapter 8](#).

Chapter 8 Record structures for the transfer of Code-Point in CDF

CDF fields

The CDF will contain the following fields separated by commas in the following order:

Mnemonic	Description	Format	Size	Description
PC	Unit postcode	A7	7	
	Field separator	A1	1	,
PQ	Positional quality indicator	I1	1	
	Field separator	A1	1	,
PR	PO box indicator	A1	1	
	Field separator	A1	1	,
TP	Total number of delivery points	I3	*	
	Field separator	A1	1	,
DQ	Delivery points – used to create the CPLC where the PQI value is 10 or 20	I3	*	
	Field separator	A1	1	,
RP	Domestic delivery points	I3	*	
	Field separator	A1	1	,
BP	Non-domestic delivery points	I3	*	
	Field separator	A1	1	,
PD	PO box delivery points	I3	*	
	Field separator	A1	1	,
MP	Matched address premises	I3	*	
	Field separator	A1	1	,
UM	Unmatched delivery points	I3	*	
	Field separator	A1	1	,
EA	Eastings	I7	*	
	Field separator	A1	1	,
NO	Northings	I7	*	
	Field separator	A1	1	,
CY	Country code	I3	3	
	Field separator	A1	1	,

Mnemonic	Description	Format	Size	Description
RH	NHS regional health authority code	A3	3	
	Field separator	A1	1	,
LH	NHS health authority code	A3	3	
	Field separator	A1	1	,
CC	Administrative county code	A2	2	
	Field separator	A1	1	,
DC	Administrative district code	A2	2	
	Field separator	A1	1	,
WC	Administrative ward code	A2	2	
	Field separator	A1	1	,
LS	Postcode type	A1	1	

Those fields containing text, that is, alphanumerics (A), will be enclosed by double quotes, which have not been included in the sizes listed above.

Fields with null data will appear as “ ” for text or 0 for a numeric.

Each record will be terminated with a carriage return character (ASCII 13) and a line feed character (ASCII 10).

Examples of a Code-Point CDF record:

“SO515RU”,10,”N”,17,17,17,0,0,17,0,437015,120914,064,”Y06”,”QD3”,”24”,”UN”,”FW”,”S”

Appendix A Glossary

Introduction

The purpose of this chapter is to provide a glossary of terms, used in the definition of products, services, licensing and other terms and conditions for Code-Point.

Where terms refer to other terms within the glossary, they are connected by means of hot links to the relevant entries.

Code-Point glossary

A B C D E F G H I J K L M N O P Q R S T U V W X Y Z

addressed premise

A permanent or non-permanent building structure with an address being a potential delivery point for Royal Mail.

Examples of an addressed premise would be: a house, a flat within a block of flats, a caravan site, a bollard to which several houseboats may be moored, or an organisation occupying the whole of a building.

ADDRESS-POINT

An Ordnance Survey text data product which relates Royal Mail [Postcode Address File](#) (PAF) addressed properties within Great Britain to the [National Grid](#).

area based postcode

A type of [large user postcode](#) which is allocated to a small number of organisations who receive an exceptionally large amount of mail. These postcodes still relate to a geographical area but may overlap other sector areas or be scattered.

building

A physical, walled structure connected to foundations that has, or will have, a roof. This definition includes buildings surveyed at foundation stage.

CPLC (Code-Point location coordinate)

A [National Grid reference](#) for each [unit postcode](#). It is a two-dimensional coordinated point to a resolution of one metre. Coordinates are attributed from ADDRESS-POINT using an accuracy hierarchy.

Country code

The code used by Office of National Statistics to indicate the country in which the Code-Point georeference lies. This has replaced the PAF update date field.

Country	Code
England	064
Scotland	179
Wales	220
N Ireland	152

delivery point

A Royal Mail defined point to which mail is delivered. This may be a property (private address), organisation, mailbox or even the name of an individual. These categories are derived from *The Complete Guide to Postcode Products* from Royal Mail. Distinct from the addressed premise because there may be more than one organisation at an address.

Gridlink

Gridlink is the name given to a joined-up government initiative involving Royal Mail, the Office for National Statistics, the General Registry Office (Scotland), Ordnance Survey (Northern Ireland) and Ordnance Survey. All these organisations are involved in the georeferencing of postcodes and the relating of postcodes to administrative and National Health areas and so on.

inward code or incode

See [postcode](#).

Land-Line data

The Ordnance Survey's definitive product range of large-scale maps in digital form. Land-Line has a vector (point and line) structure which collectively forms 36 feature codes with a further 27 feature codes in Land-Line.Plus®, representing an accurate and detailed representation of the real world.

large user postcode

A large user postcode is allocated when:

- a firm or business at a new address regularly receives, in any one day, 25 or more items of mail in a town area or 50 or more items in a rural area;
- a private box (PO box) is provided;
- Royal Mail Selectapost service is provided;
- a Business Reply or Freepost licence is taken out; or
- all Freepost and Business Replies have their own postcode.

matched address

An address, resulting from a match between the Land-Line address data and the PAF, which has been allocated a coordinate position. The match may be a result of either manual or automatic matching, the latter encompassing both full and fuzzy-logic matching.

National Grid reference (NGref)

The National Grid provides a unique reference system that can be applied to all Ordnance Survey maps of Great Britain. The *map* of Great Britain is covered by 100 km by 100 km grid squares, with the origin lying to the west of the Isles of Scilly. When a National Grid reference is quoted, the easting (left to right direction) is always given before the northing (upwards direction).

A National Grid reference (to one metre) will identify the spatial position of the CPLC.

non-geographic postcodes

Special non-geographic postcodes are allocated to single organisations who receive an exceptionally large amount of mail. These are included in Code-Point.

outward code or outcode

See postcode.

PAF (Postcode Address File)

The PAF was created when all the separately held information was assembled and stored on a Royal Mail central computer system. PAF now contains the postal addresses and postcodes of approximately 26 million delivery points in Great Britain, including approximately 170 000 [large users](#).

postal address

A postal address is a delivery point which is currently receiving mail. There may be many delivery points within an individual building structure as shown in Land-Line data.

postcode

An abbreviated form of address made up of combinations of between five and seven alphanumeric characters. A postcode may cover between 1 and 100 addresses. The average number of addresses per postcode is 15.

There are two main components of a postcode:

- 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 postcode
		sector	
	district		
area			

postcode area

An area given a unique alphabetic coding by Royal Mail to facilitate the delivering of mail. The area is identified by one or two alpha characters at the start of the full postcode, the letters being derived from a town, city or district falling within the postcode area. There are at present 120 postcode areas in Great Britain, for example, SO for Southampton, MK for Milton Keynes, B for Birmingham or W for London West. The postcode area code constitutes the first part of the outward code.

postcode district

A sub-area of the postcode area, specified by the character substring within the first half of a full postcode, which may be numeric, alphabetic or alphanumeric; for example, 42 from MK42 6GH or 1A from W1A 4WW. There are approximately 2 800 postcode districts in Great Britain.

Note: There are certain non-geographic districts. In these instances a district code is allocated to cover all large users in the postcode area.

postcode sector

A sub-area of postcode district, whose area is identified by the number third from the end of a full postcode. There are approximately 9 000 postcode sectors in Great Britain. An example of a postcode sector code is 3 from GU12 3DH.

Post Office box

Generally, a non-geographic address allocated with a number by the Post Office. PO Boxes within ADDRESS-POINT are now matched to the Royal Mail delivery office at which they are based (except in the BT postcode area), rather than the average of matched addresses within the postcode sector. This will enable PO boxes to be matched with a PQI value of 10.

Postzon

A file marketed by Royal Mail that allocates a [National Grid reference](#) to each postcode unit. This coordinate is derived from a 100-metre square that contains the first of the range of addresses that form the unit postcode.

unit postcode

See [postcode](#).

Appendix B Product performance report form

Ordnance Survey welcomes feedback from its customers about Code-Point.

If you would like to share your thoughts with us, please print a copy of the form and when completed post it to the address below.

Your name: Phone:

Organisation: Fax:

Address: Email:

.....

.....

Postcode: Quotation or order reference:

Please record your comments or feedback in the space below.

Please post this form to:

**Ordnance Survey, Code-Point Product Manager,
Romsey Road, Maybush, SOUTHAMPTON, SO16 4GU**