



Power BI Geodata

HOW TO MAP POSTCODES TO ONS GEODATA



In this Mapping ONS data to postcodes guide

- ✓ What is the ONS
- ✓ What information can you discover from a postcode
- ✓ Where to find postcode data in an easy to use format
- ✓ How to map that data to your own data in Power BI
- ✓ How to handle potential errors

Please note you will need to have a correctly formatted postcode column in your data set



What is the ONS?

The ONS is the Office for National Statistics, it is the UK's largest independent producer of official statistics and the recognised national statistical institute of the UK.

<https://www.ons.gov.uk/>



What information can you discover from a postcode?

If you have a post code for an individual or an organisation you're sitting on the potential to uncover a huge amount of geographical data linked to it using data from the Office of National Statistics (ONS)

For example, they link each post code to:

- ✓ County
- ✓ Borough
- ✓ Local Authority
- ✓ London Assembly constituency
- ✓ Ward



How to map London postcodes to ONS data*

1. Go to <https://www.doogal.co.uk/PostcodeDownloads> and download the London postcode csv file to a shared drive.
2. Use **Get data** in Power BI to bring the postcode data into PowerBI
3. Name the query **London Postcodes**
4. In **Manage Relationships**, create a relationship between the downloaded London postcode data and your own data (see the next page for detailed instructions)

* The process is the same for other regions but we using London for the example.



Open the Relationship Manager

1. Select **Manage Relationships** to open the Relationship Manager
2. Click on **New**

The screenshot shows the Power BI interface with the 'Modeling' ribbon selected. The 'Manage relationships' button is highlighted with a purple arrow labeled '1'. The 'Manage relationships' dialog box is open, showing a table of active relationships. A purple arrow labeled '2' points to the 'New...' button in the dialog box.

Active	From: Table (Column)	To: Table (Column)
<input checked="" type="checkbox"/>	Events - API (id)	Organisations - API (id)
<input type="checkbox"/>	Events - API (id)	Organisations with Geo data (id)
<input type="checkbox"/>	Monitoring-API (id)	Organisations with Geo data (id)
<input checked="" type="checkbox"/>	Monitoring-API (Org ID)	Organisations - API (id)

Buttons at the bottom of the dialog box: New..., Edit..., Delete, Close.



Merge query settings

1. Select the table with your data
2. Select the postcode column in your table
3. Select the postcode table
4. Select the postcode column in the table
5. Cardinality will = **Many to one**
This is because you might have **many** people or organisations in **one** postcode area
6. Tick the box **Make this relationship active**
7. Click on **OK**

Create relationship

Select tables and columns that are related.

Organisations - API

town	county	postcode	telephone	additional_telephone	email	email_permission	organisation_sec
<i>null</i>	<i>null</i>	CR7 8QQ	<i>null</i>	<i>null</i>	<i>null</i>	No	
<i>null</i>	<i>null</i>	<i>null</i>	<i>null</i>	<i>null</i>	<i>null</i>	No	
<i>null</i>	<i>null</i>	SW9	<i>null</i>	<i>null</i>	<i>null</i>	No	

London postcodes

Postcode	In Use?	Latitude	Longitude	Easting	Northing	Grid Ref	County	District
E1 0FA	Yes	51.51727	-0.038938	536166	181639	TQ361816	Greater London	Tower Hamlets
E1 0FD	<i>null</i>	51.512603	-0.042684	535920	181113	TQ359811	Greater London	Tower Hamlets
E1 0FE	Yes	51.51245	-0.043253	535881	181095	TQ358810	Greater London	Tower Hamlets

Cardinality: Many to one (*:1)

Cross filter direction: Single

Make this relationship active

Assume referential integrity

Apply security filter in both directions

OK



Reviewing the relationship in the data model

1. Click on the data model icon
2. Review the relationship in the model

The screenshot shows the data model interface with three tables:

- Monitoring-API**: assigned_to, category, closed_date, Contact name, contacts, created_at, date, Delivery Method, Funding stream, Collapse ^
- Organisations - API**: about, additional_telephone, address_line_1, address_line_2, address_line_3, areas, client-groups, county, created_at, Collapse ^
- London postcodes**: Altitude, Average Income, Built up area, Built up sub-division, Census output area, Census output area 2021, Constituency, Constituency Code, Country, Collapse ^

A relationship is shown between the 'address_line_3' field in the 'Organisations - API' table and the 'Country' field in the 'London postcodes' table. A red arrow labeled '1' points to the data model icon in the left sidebar, and a red arrow labeled '2' points to the relationship between the 'address_line_3' field in the 'Organisations - API' table and the 'Country' field in the 'London postcodes' table.



Creating visuals using ONS postcode data

Fields can now be selected from the tables linked to the postcode table.

In this example, we are using a Matrix visual to show how many clients are in each London borough & ward

1. Select the **Matrix** visual
2. Select the geographical information you want to group by to **rows** e.g. district or ward
3. Add the data you want to count to the **values** e.g. Organisation ID (show value as **Count**)

The screenshot shows a data visualization tool interface. On the left, a table lists districts and their corresponding client counts. The 'Visualizations' pane in the center shows a 'Matrix' visual selected, with 'District' and 'Ward' assigned to the 'Rows' field and 'Clients' assigned to the 'Values' field. The 'Data' pane on the right shows a search bar and a list of data sources, including 'London postcodes' and 'Organisations with Geo data'. Three red arrows point to the 'Matrix' visual icon, the 'Rows' field, and the 'Values' field.

District	Clients
Barking and Dagenham	353
Barnet	8
Bexley	21
Bexleyheath	6
Crayford	2
Crook Log	1
Thamesmead East	2
Brent	1
Bromley	23
Camden	19
City of London	37
Croydon	9
Ealing	47
Enfield	10
Greenwich	17
Hackney	10
Hammersmith and Fulham	39
Haringey	9
Harrow	22
Havering	4
Hillingdon	2
Hounslow	8
Islington	58
Kensington and Chelsea	19
Kingston upon Thames	58
Lambeth	44
Lewisham	26
Merton	22
Newham	18
Redbridge	6
Total	1108



Possible next steps

- ✓ Create a heat map for a geographical area (see the Datawise London guides for creating maps on our [Power BI Resources](#) page)

29015 Charities with registered offices in London

