



Power BI shape maps

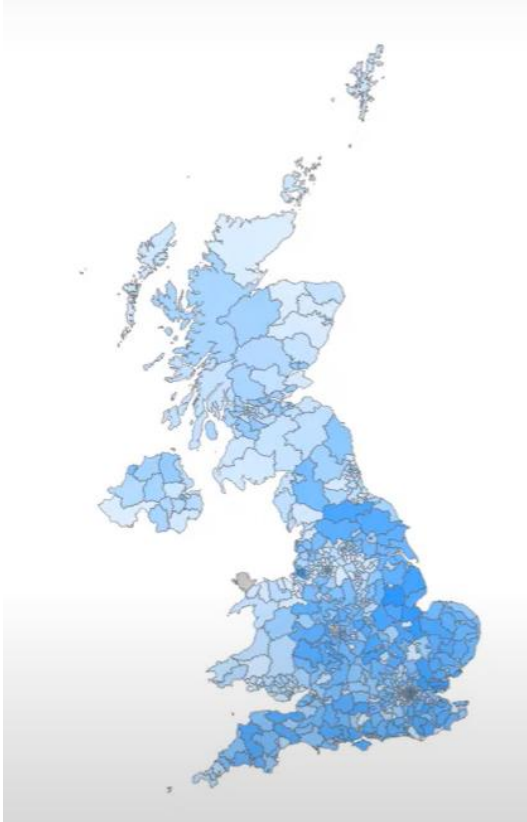
3. SPECIFIC LONDON BOROUGH(S) WITH WARDS



Options for shape maps

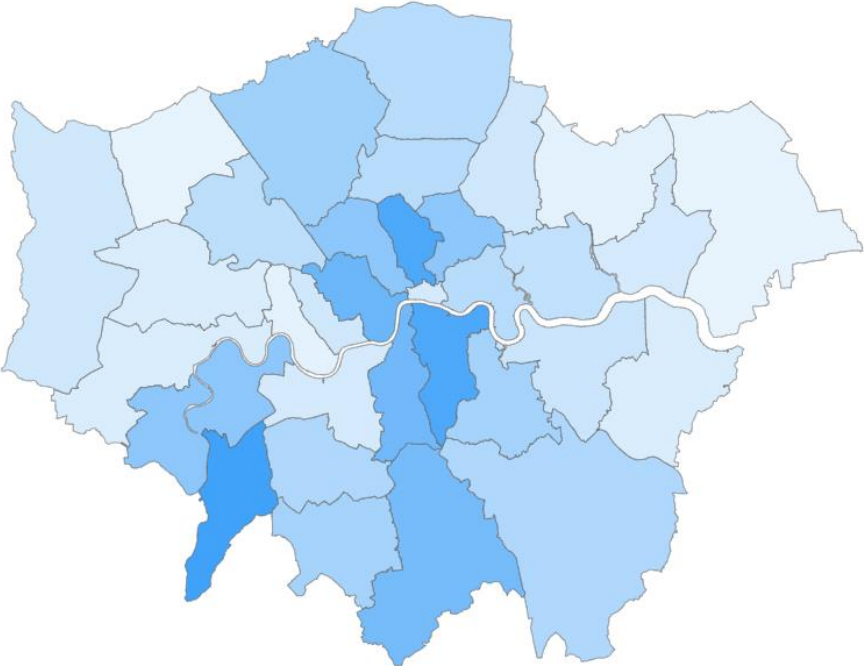
1

UK shape map



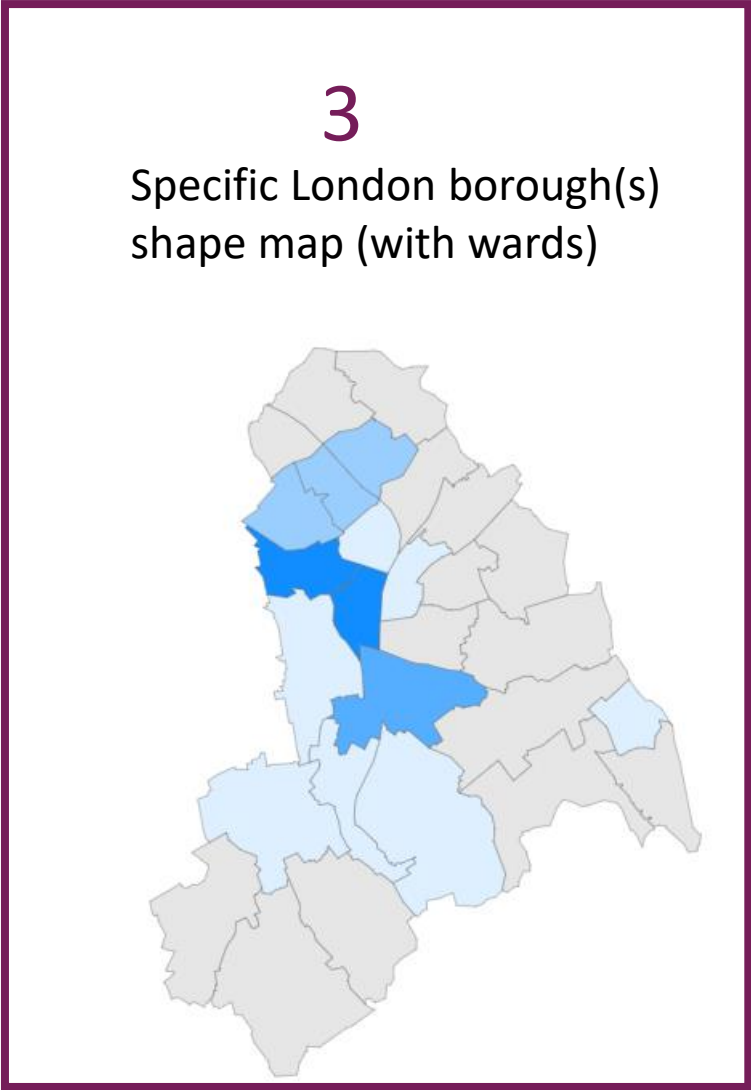
2

London boroughs shape map



3

Specific London borough(s) shape map (with wards)



Enable shape files in Power BI

In PowerBI go to File > Options and Settings > Options > Preview Features and tick the Shape map visual checkbox.

Options

GLOBAL

- Data Load
- Power Query Editor
- DirectQuery
- R scripting
- Python scripting
- Security
- Privacy
- Regional Settings
- Updates
- Usage Data
- Diagnostics
- Preview features**
- Auto recovery
- Report settings

CURRENT FILE

- Data Load
- Regional Settings
- Privacy

Preview features

The following features are available for you to try in this release. Preview features might change or be removed in future releases.

- Shape map visual [Learn more](#)
- Spanish language support for Q&A [Learn more](#)
- Q&A for live connected Analysis Services databases [Learn more](#)
- Connect to external datasets shared with me [Learn more](#) | [Share feedback](#)
- Modern visual tooltips [Learn more](#) | [Share feedback](#)
- Sparklines [Learn more](#)
- Metrics visual [Learn more](#)
- Quick measure suggestions [Learn more](#) | [Share feedback](#)
- Field parameters [Learn more](#)
- Enhanced row-level security editor [Learn more](#)
- On-object interaction [Learn more](#) | [Share feedback](#)
- Enable setting sensitivity label on exported PDF [Learn more](#)
- Dynamic format string for measures [Learn more](#)
- Save to OneDrive and SharePoint [Learn more](#)
 - Share to OneDrive and SharePoint [Learn more](#)
- Power BI Project (.pbip) save option [Learn more](#)
- New card visual [Learn more](#)

OK Cancel



What is a TopoJSON file?

A TopoJSON file is a type of data file that is used to store geographic information. It is specifically designed to be more efficient and compact than traditional geographic data formats like Shapefiles, making it easier to work with in PowerBI.

Power BI comes with some TopoJSON files pre-installed but if you're working in London and want a London boroughs map or a specific London borough map you will need to upload a TopoJSON file to PowerBI either for the whole of London or for just one borough.



Where to find the right TopoJSON file

1. Check the PowerBI user group Team site where we have a number of TopoJSON files available, if you find the one you need you can skip to the section on Uploading your JSON file.
2. If you can't find what you're looking for you can create your own using the following steps.
3. Pick which of the 3 types of map you want to generate – UK, London boroughs, Specific borough(s) and then follow the steps.



Create a TopoJSON file

Specific map of London
borough(s) at ward level



Office for National Statistics (ONS)

Open Geography Portal

1. Go to <https://geoportal.statistics.gov.uk/>
2. Go to **Boundaries>Wards/Electoral Divisions>2023 Interim Boundaries** (or the year that corresponds to the work you are reporting on)

The screenshot shows the Office for National Statistics Open Geography Portal. The 'Boundaries' menu is expanded, showing a list of boundary types. The '2023 Interim Boundaries' link is highlighted with a purple arrow. The 'Latest Releases' section is also visible.

Product Name	Boundary Type
Local Planning Authorities (April 2023) Boundaries for	All Administrative Boundaries
ONS UPRN Directory (August 2023) for Great Britain	Combined Authorities
County Electoral Divisions (May 2023) Boundaries for	Counties
National Statistics UPRN Lookup (August 2023) for Gr	Counties and Unitary Authorities
A Beginners Guide to UK Geography (2023)	Countries
Standard Area Measurements for the latest Health Areas in England	County Electoral Divisions
ONS Postcode Directory (Aug 2023) in the United Kingdom	Local Authority Districts
National Statistics Postcode Lookup (Aug 2023) (2021 Version) in the United Kingdom	Local Planning Authorities
National Statistics Postcode Lookup (Aug 2023) (2011 Version) in the United Kingdom	Metropolitan Counties
	Parishes
	Parishes and Non-Civil Parished Areas
	Regions
	Wards / Electoral Divisions

Latest Releases

- 2023 Interim Boundaries**
- 2022 Boundaries
- 2021 Boundaries
- 2020 Boundaries
- 2019 Boundaries
- 2011 Boundaries

Ward Boundaries UK BSC

1. Scroll down through the list to find a link to [Wards \(May 2023\) Boundaries UK BSC](#)
2. Click on the link to open the map

Data

[Wards \(May 2023\) Boundaries UK BSC](#)
Office for National Statistics | ONSGeography_data

This file contains the digital vector boundaries for Wards in the United Kingdom as at May 2023. The May version is based on the draft release of Ordnance Survey's BoundaryLine product and are therefor...

Type: Feature Layer	Rows: 8,441
Last Updated: 28 June 2023	Tags: Boundaries, Administrative Boundaries, BDY_ADM, War...

For the curious amongst you: We could select any of the datasets on this page, but the BSC file is the smallest and so will run quickest in your PowerBI. If you want to find out more about datasets to understand which one to pick the ONS have a short guide to [Boundary dataset guidance](#)



Filter the data set

1. Click on the filter icon & the column headings will appear as possible filters on the lefthand side
2. Tick the filter LAD23NM, this is the Local Authority Name column
3. Type the name of the Local Authority you want into the filter box

TIP: If you want more than one borough or ward simply add them to the selection in the filter

Open Geography portalx

Records: 8,441

Filters Styling

Filter as map moves

LAD23NM

Kingst

Kingston upon Hull, City of
Kingston upon Thames

<input type="checkbox"/>	WD23CD 2,000 values	↑↓
<input type="checkbox"/>	WD23NM 2,000 values	↑↓
<input type="checkbox"/>	WD23NMW 752 values	↑↓
<input type="checkbox"/>	LAD23CD 361 values	↑↓
<input checked="" type="checkbox"/>	LAD23NM 361 values	↑↓
<input type="checkbox"/>	BNG_E 10,133 to 654,365	123
<input type="checkbox"/>	BNG_N	123

1. Click on the filter icon

2. Tick the LAD23NM filter option

3. Type the name of the Local Authority you want into the filter box



Export the data set

1. Click on the info icon
2. Click on Download

Open Geography portalx

Wards (May 2023) Boundaries UK BSC

Records: Filtering 19 of 8,441

✔ Authoritative

ONS Geography
Office for National Statistics

Summary
Boundaries

View Full Details

Download

Details

- Dataset
Feature Layer
- 28 June 2023
Info Updated
- 28 June 2023
Data Updated
- 28 June 2023 at 11:51
Published Date
- Records: 8,441
[View data table](#)
- Public
Anyone can see this content
- Custom License
[View license details](#)

1. Click on the info icon

3. Click on Download



Download the data set

1. Flip the Toggle Filters switch on.

If you don't do this it will export a shape file with ALL data not just the boroughs you have selected

2. Download the Shapefile

Open Geography portalx

Download Options
Wards (May 2023) Boundaries UK BSC

Records: Filtering 19 of 8,441

Records: (Filtered) 19

Toggle Filters:

Creating a new file with your filters will take some time

CSV

Downloading an updated file may take some time.

Download

KML

Downloading an updated file may take some time.

Download

Shapefile

Downloading an updated file may take some time.

Download

1. Flip the Toggle Filters switch to on

2. Click on Download Shapefile



Edit the map projection

OSGB36 to WGS84

The Shapefile from the ONS you've downloaded uses a OSGB36 (Ordnance Survey Great Britain 1936) projection.

Unfortunately, Power BI requires a WGS84 (World Geodetic System) projection otherwise it won't render properly

This can be done in a free online tool called [Mapshaper.org](https://www.mapshaper.org)



Create your TopoJSON in www.mapshaper.org

1. The Shapefile which you have downloaded now needs to be converted into a TopoJSON file with the correct resolution
2. Go to Mapshaper.org to convert the file
3. Click on the select button and then upload the zip file from your downloads
4. Click on **Open** and then **Import**

mapshaper

Mapshaper is an editor for map data

Drop or paste files here or **select** from a folder

Shapefile, GeoJSON, TopoJSON, KML and CSV files are supported

Files can be gzipped or in a zip archive

1. Click on select

2. Select the file

3. Click on open

4. Click on Import

Files

- PCON_Future_EW_BUC.cpg
- PCON_Future_EW_BUC.dbf
- PCON_Future_EW_BUC.prj
- PCON_Future_EW_BUC.shp
- PCON_Future_EW_BUC.shx

Options

- detect line intersections

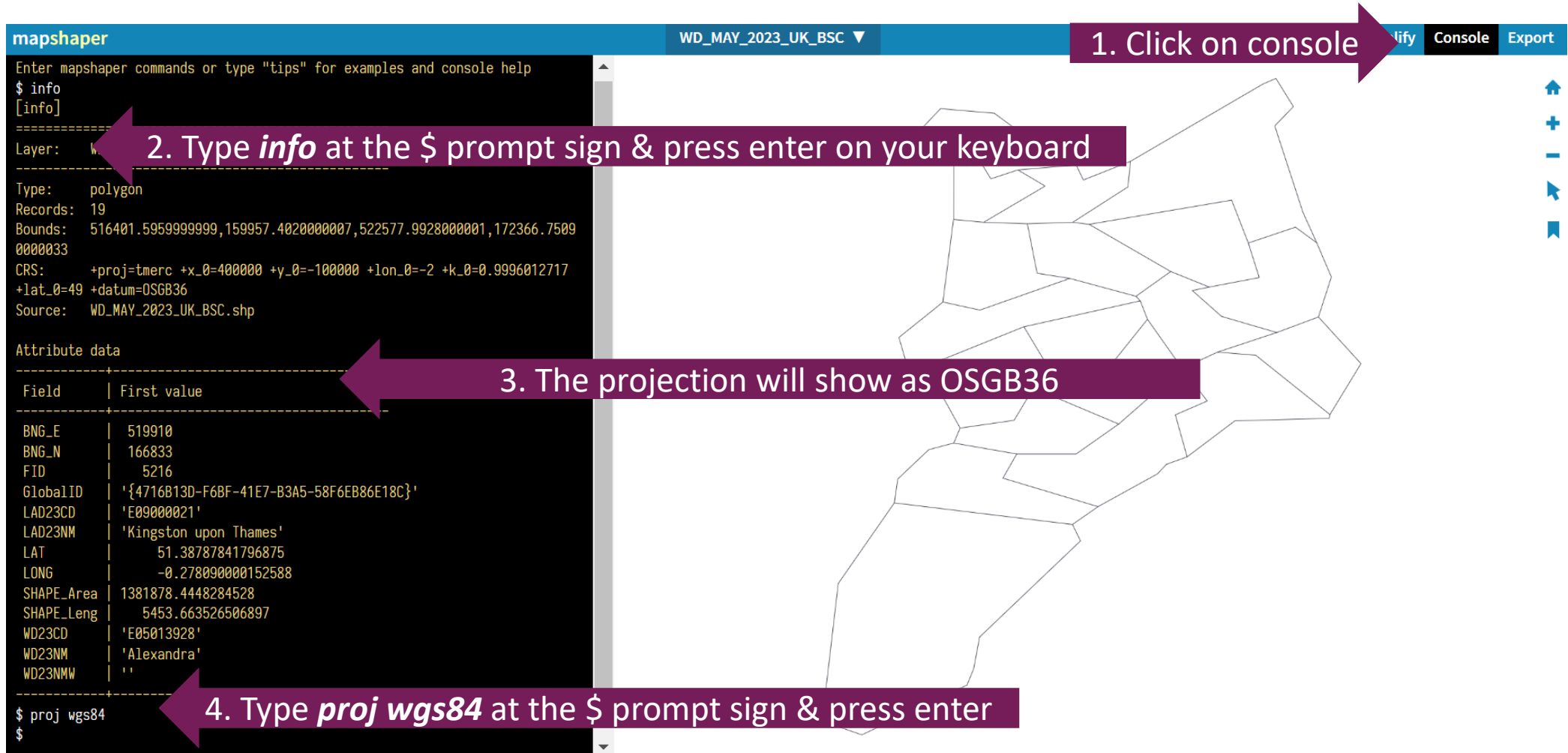
import options

Cancel Select Import



Change the projection in Mapshaper.org

1. Click on **Console**
2. Type the word **info** at the prompt to bring up the map information
3. Review the projection which will show as OSGB36
4. At the \$ prompt type **proj wgs84**
5. Press enter on your keyboard



The screenshot shows the Mapshaper.org interface with a map of a region in the UK. The console is open, displaying the following information:

```
mapshaper WD_MAY_2023_UK_BSC
Enter mapshaper commands or type "tips" for examples and console help
$ info
[info]
-----
Layer:
Type: polygon
Records: 19
Bounds: 516401.5959999999,159957.4020000007,522577.9928000001,172366.75090000033
CRS: +proj=tmerc +x_0=400000 +y_0=-100000 +lon_0=-2 +k_0=0.9996012717 +lat_0=49 +datum=OSGB36
Source: WD_MAY_2023_UK_BSC.shp

Attribute data
-----
Field | First value
-----
BNG_E | 519910
BNG_N | 166833
FID | 5216
GlobalID | '{4716B13D-F6BF-41E7-B3A5-58F6EB86E18C}'
LAD23CD | 'E09000021'
LAD23NM | 'Kingston upon Thames'
LAT | 51.38787841796875
LONG | -0.278090000152588
SHAPE_Area | 1381878.4448284528
SHAPE_Leng | 5453.663526506897
WD23CD | 'E05013928'
WD23NM | 'Alexandra'
WD23NMW | ''

$ proj wgs84
$
```

Four purple callout boxes with arrows point to specific parts of the console:

- 1. Click on console (points to the Console button)
- 2. Type **info** at the \$ prompt sign & press enter on your keyboard (points to the '\$ info' command)
- 3. The projection will show as OSGB36 (points to the 'CRS: +proj=tmerc ... +datum=OSGB36' line)
- 4. Type **proj wgs84** at the \$ prompt sign & press enter (points to the '\$ proj wgs84' command)



Check the new projection

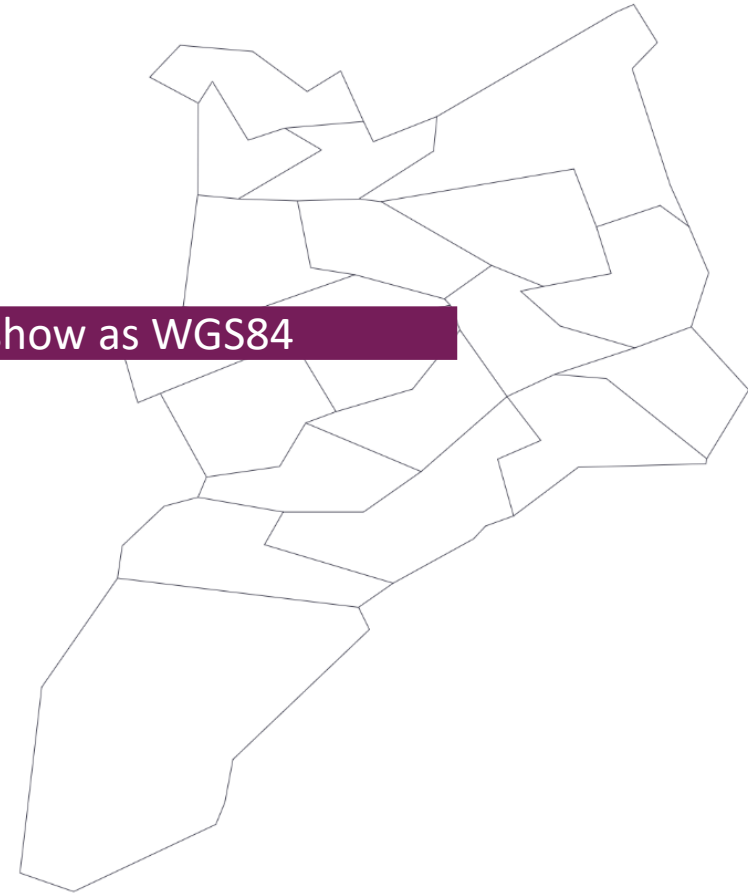
1. Type the word **info** at the prompt to bring up the map information again
2. The projection should now show as **WGS84**

```
mapshaper
WD23NM | 'Alexandra'
WD23NMW | ''
-----
$ proj wgs84
$ info
[info]
-----
Layer:   WD_MAY_2023_UK_BSC
-----
Type:    polygon
Records: 19
Bounds:  -0.33067911914868886,51.326717438726675,-0.2397149693616519,51.437288451430284
CRS:     +proj=longlat +datum=WGS84
Source:  WD_MAY_2023_UK_BSC.shp
-----
Attribute data
-----
Field   | First value
-----
BNG_E   | 519910
BNG_N   | 166833
FID     | 5216
GlobalID | '{4716B13D-F6BF-41E7-B3A5-58F6EB86E18C}'
LAD23CD | 'E09000021'
LAD23NM | 'Kingston upon Thames'
LAT     | 51.38787841796875
LONG    | -0.2780900000152588
SHAPE_Area | 1381878.4448284528
SHAPE_Leng | 5453.663526506897
WD23CD  | 'E05013928'
WD23NM  | 'Alexandra'
WD23NMW | ''
-----
$ |
```

1. Type **info** again at the \$ prompt sign

2. The projection should show as **WGS84**

TIP: The map should now look a little flattened, but it will look fine once in Power BI.



Export the map as a TopoJSON file

1. Click on **Export**
2. Select the format option **TopoJSON**
3. Click on the **Export** button
4. Check the file **WD_MAY_2023_UK_BSC_V2** has downloaded

The screenshot shows the QGIS interface with the 'Export options' dialog box open. The dialog box is titled 'Export options' and has a close button (X) in the top right corner. It contains the following fields and options:


- Layer name: WD_MAY_2023_UK_BSC
- File format: JSON records, Shapefile, GeoJSON, TopoJSON, CSV, KML, SVG, Snapshot file
- command line options: [text input field]
- Buttons: **Export** (highlighted with a purple arrow), choose style

Three purple arrows point to the 'Export' button, the 'JSON records' radio button, and the 'Export' button in the dialog box. The background shows a map of the UK with a layer named 'WD_MAY_2023_UK_BSC' selected. The top right corner of the QGIS window has an 'Export' button. The bottom status bar shows the file name 'WD_MAY_2023_UK_BSC', the date and time '25/09/2023 15:51', the file type 'JSON File', and the file size '9 KB'.

WD_MAY_2023_UK_BSC 25/09/2023 15:51 JSON File 9 KB



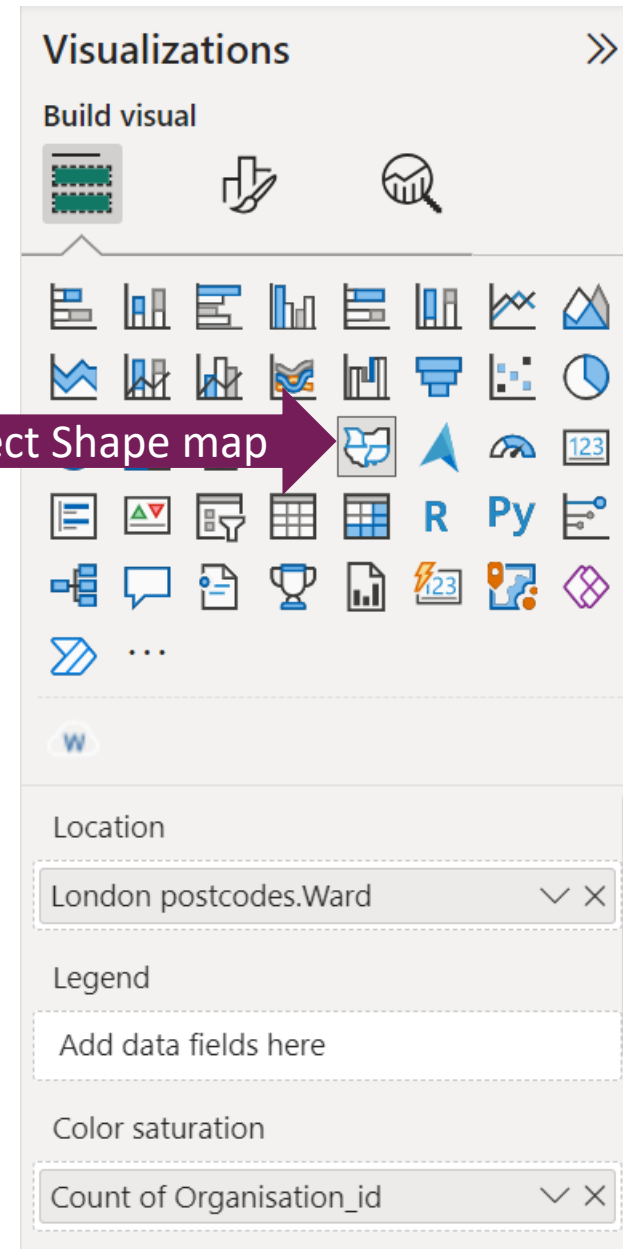
Upload your JSON file to Power BI

1. Open Power BI, create a new report and upload the New User data from the Excel file
2. Create a Shape map visual 
3. In Build visual, add **Ward** to **Location** & the field you're trying to count to **Colour Saturation**

Tip: If the shape map visual isn't showing you'll need to go back to the beginning of this document to where it explains how to enable shape maps in Power BI

Tip: If you don't have ward information for your data but do have postcodes you'll need to follow our guide **How to map postcodes to ONS geo data** which is available on the [Datawise London Power BI Resources page](#)

1. Select Shape map



The screenshot shows the Power BI Visualizations pane. At the top, there are three icons: a grid, a hand, and a magnifying glass. Below these is a grid of visualization icons. A purple arrow points to the 'Shape map' icon, which is a map of the United Kingdom. Below the grid, there is a search bar with the letter 'w'. Underneath, the 'Location' field is set to 'London postcodes.Ward'. The 'Legend' field is empty with the text 'Add data fields here'. The 'Color saturation' field is set to 'Count of Organisation_id'.



Upload steps continued

6. In **Format Visual**, click on downwards arrow next to **Map settings** & under **Map type** select **Custom map**
7. Click into the **Add a map type** field and upload the TopoJSON file

Visualizations >>

Format visual

Search

Visual General ...

Map settings

Map settings

Map type

Custom map

View map type key

Add a map type

WD_MAY_2023_UK_BSC.json

Projection

Mercator

1. Select Custom map

2. Upload your shape map



Common questions & issues

My map is showing areas in grey when I know there is data in that area

The borough or ward names have to be identical to the ones used by the ONS.

The easiest workaround is to make sure your names match. The most common errors occur around the boroughs with “and” in their names e.g. Hammersmith and Fulham (ONS spelling) and Hammersmith & Fulham (a common spelling in data sets). Obviously in an ideal world you would change the spelling in your data source but that’s not always feasible in the short term if your data is coming from a database so a quick fix is to use Find & Replace in a Query so that as data is uploaded with the wrong spelling it will automatically replace the ones with incorrect spelling.

Another workaround is to use the borough or ward code instead of name, but this does require you to have the borough or ward code in your data. If you don’t have the codes in your data but would like to set it up so they are there you can use our resource on [How to map postcodes to ONS Geodata.pptx](#)



Common questions & issues

How do I create a shape map for more than one London borough?

Follow the steps for creating a shape map for a specific London borough and when applying the filter add additional boroughs

Open Geography portalx

Filters
Wards (May 2023) Boundaries UK BSC

Records: Filtering 37 of 8,441

Filters Styling

Filter as map moves

LAD23NM

- Kingston upon Thames 0.23%
- Richmond upon Thames 0.21%

Search 359 more values

Select attribute filters (11)

- WD23CD 2,000 values tT
- WD23NM 2,000 values tT
- WD23NMW 752 values tT
- LAD23CD 361 values tT
- LAD23NM 361 values tT
- BNG_E 10,133 to 654,365 123
- BNG_N 123



Potential next steps

- ✓ Change the title to something a little more user friendly ([Format visual-Title](#))
- ✓ Refine the field names for the Tool tips ([Build visual](#))
- ✓ Change the colours using Themes ([View-Themes](#)) or by changing the fill colours ([Format visual-colours](#))
- ✓ Change the colour gradients ([Format visual – colours](#))
- ✓ Add visual or a slicer to create filters for users
- ✓ Send a visual to the back if it's overlaying another one ([Click on visual, Format menu](#))

