Tableau Geocoding Cheat Sheet

Advanced Data Analytics
COMSM0088
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1 Preamble

Tableau, for whatever reason, does not natively support UK territory geocoding out of the box. As such, if we want to represent our data as a map, there are some steps we must follow before simply dragging data onto the sheet.

There are two ways in which we can gain support for UK geocoding, each with their benefits and drawbacks.

1.1 Geocoding Packs

The simplest way is to make use of a precompiled geocoding pack. These typically overwrite the preexisting geocoding presets offered by Tableau. For this tutorial, we will use the pack offered by Craig Bloodworth of *The Information Lab*, found *here.* Or, go to the URL `https://www.theinformationlab.co.uk/2015/06/01/uk-filled-map-geocoding-pack-for-tableau/` This is referenced in the coursework specification.

NB! The files are no longer available for download from The Information Lab website. Instead, please download them from the Assessment Information tab on the blackboard course page.

1.1.1 Setting up the Geocoding Pack

Follow the steps below in order to correctly set up the geocoding pack after downloading it.

1. Extract the content from the zipped download.
2. Close all running instances of Tableau.
3. Copy the file named "Local Data" from the now extracted download.
4. Navigate to your Tableau Repository. By default, this is located in $\backslash Documents \backslash My\ Tableau\ Repository$

5. Paste the "Local Data" folder into your "My Tableau Repository"folder.

6. Start an instance of Tableau to confirm functionality.

NB! If you are running Tableau in Chinese, you will need to rename the 'local data' folder to 本地数据 otherwise it will not work!

1.1.2 Using the Geocoding Pack

With the geocoding pack successfully installed, any previous existing geographic roles have now been overwritten with those relevant to the United Kingdom. (To change back to the original roles, you need to remove the geopack from your local repository, reversing step 3 above).

The example below details how you might go about using the new geographic roles. The dataset used comes from the 2011 UK Census and details the general health of the population by postcode sector. This specific dataset can be found *here* or at `https://www.nomisweb.co.uk/census/2011/qs302ew`

If you wish to run through this example yourself, be sure to download the data at the correct level of granularity, which in this case is *postcode sectors*.

1. After connecting the data source to your Tableau workbook, you should be able to see several fields available in your data pane.

2. Right click the field that you wish to use as your geographic role and change its geographic role to *GB Postcode Sectors*. In this specific instance, both of the *Geography* and *Geography Code* tables contain the same data, so either of them will be fine. Once complete, you should see that your selected table's icon has changed to a miniature globe.

3. Drag the newly changed table to your visualisation pane and you should see that the entirety of England and Wales have been populated with postcode sector boundaries.

You can now use this completed map of the United Kingdom to create map-based visualisations using the data of your choice.

The above instructions can be applied to all levels of granularity offered by the geocoding pack. Just make sure to download your data at the desired granularity, and specify that level in Tableau using the appropriate geographic role.

1.1.3 Video Tutorial

In case the above information is not clear enough, I have recorded a brief video detailing the process. It can be viewed *here*. (`https://www.youtube.com/watch?v=09JKdczlQNU`)

1.2 Boundaries and Spatial Files

It is possible to achieve functional map views of the United Kingdom without using a separate geocoding pack by instead using Spatial Files. While this is a significantly more involved process, it does allow you to use additional levels of granularity not provided in the geocoding pack, such as Output Areas, which are the lowest geographical level at which the census estimates are provided, and Regions, which are the highest sub-country geographical level.

It is worth noting that if you choose to use this method at a very detailed granularity, I strongly recommend that you limit it to only a sector of the United Kingdom, and not the entire map. Using spatial files and polygon-based boundaries can have a significant impact on Tableau's performance. You have been warned!

1.2.1 Setting up Boundaries and Spatial Files

Setting up the boundaries at your chosen granularity requires the combination of several geographic data files. For the 2011 UK census, I recommend using *The UK Data Service* (`https://borders.ukdataservice.ac.uk/easy_download.html`) as a source for your boundary data.

You will then need to combine this boundary data with further information containing the correlation between each level of granularity desired. *This* (`https://geoportal.statistics.gov.uk/datasets/06938ffe68de49de98709b0c2ea7c21a/about`) provides the references from Output Area to Lower Layer Super Output Area to Middle Layer Super Output Area to Local Authority District, and *this* (`https://geoportal.statistics.gov.uk/datasets/ons::output-area-to-parish-to-local-authority-about`) provides the Output Area to Parish to Local Authority District references.

Region boundaries for England can be found here `https://geoportal.statistics.gov.uk/datasets/regions-december-2015-full-clipped-boundaries-in-england/` as can be seen in Figure 1.

These files, along with any others that you wish to include, need to be combined using something like Tableau Prep Builder in order to provide the correct joins while also removing any duplicate data.

To avoid you having to do all of the above, I have gone ahead and created a single Tableau spatial file that you may use. It is available for download *here* (`https://drive.google.com/file/d/1PQl5DYbuXsw5qBzDTT05jjYkne7L6NNU/view?usp=sharing`). This file contains all levels of granularity used within the 2011 census. It is also available on Blackboard.

As suggested above, you will need to filter the data to include only the areas you wish to investigate. For this, I again recommend using Tableau Prep Builder. Information on filtering can be found here `https://help.tableau.com/current/pro/desktop/en-us/filtering_datasource.htm` For example, Figure 2 contains the output areas for the Bristol City region.

Figure 1: Regions in England.

1.2.2 Using Boundaries and Spatial Files

Using the provided spatial file is a very straightforward process. After adding it as a data source, simply drag the *Geometry* table onto your visualisation pane. More information can be found in this article `https://help.tableau.com/current/pro/desktop/en-us/maps_shapefiles.htm`.

Spatial files often only contain geographic information and you need to combine them with other data files to visualise interesting information. This is best done using joins (which we covered in weeks 4 and 5): see this article `https://help.tableau.com/current/pro/desktop/en-us/maps_spatial_join.htm`

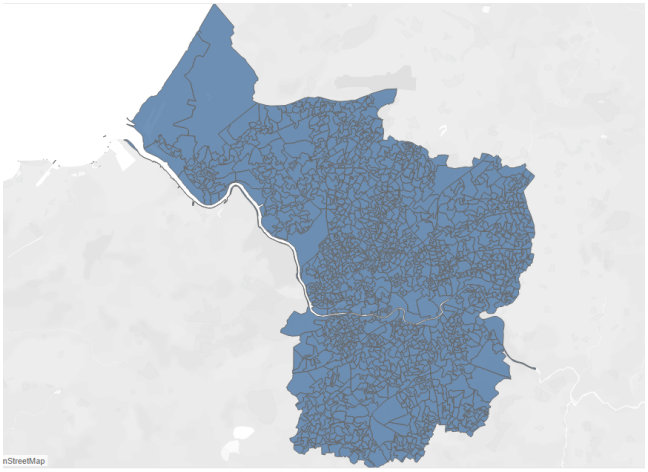

Figure 2: Output areas in Bristol.