

ROUGH GUIDES

Free data from the Ordnance  
Survey (Great Britain)

**LSS**<sup>TM</sup>

## Introduction

The National Mapping agency for Great Britain has made available a number of their terrain and raster datasets for free and these should prove of interest to LSS users wanting to produce digital terrain models for planning applications. This guide lists the datasets which should be of interest, including a 50m grid DTM and raster maps.

## Digital Terrain (DTM) data

The Ordnance Survey (OS) has made available some of its mapping and terrain data for free and we'd like to explain how this can be used by LSS users.

The product on offer is called **Land-Form PANORAMA**. This can be used for large scale visualisations (3D view) and may be of use for ZVI and ZTV analyses. The OS supplies this data as either a grid of points at a spacing of 50m, or as 10m interval contours. We strongly recommend that you **do not** use the contour data as it will result in irregular heights when converted into an LSS model. You should use the 'ASCII Grid' data.

*Before downloading and using any of this data please familiarise yourself with the following statements from the OS website:-*

**Land-Form PANORAMA** is a mid-scale product representing the physical three-dimensional shape of the surface of the ground. It is provided as two distinct datasets:

- As a set of contours, spot heights, breaklines, coastlines, lakes, ridges and formlines in vector form ('Contours')
- As a gridded digital terrain model with a 50 metre post spacing ('DTM')

The DTM has been derived from the contours, which were originally generated for 1:50,000 scale mapping. Land-Form PANORAMA is an unmaintained product. In some instances the landscape may have changed since its creation, for example, due to coastal erosion, highway construction or quarrying

### DTM data



A DTM consists of height values at each intersection of a 50-m horizontal grid – the values have been mathematically interpolated from the contours on the Landranger maps. Variations in DTM accuracy are to be expected depending upon the nature of the ground. DTM height accuracy is typically better than one half of the vertical interval of the source contour data. The data has been captured in 20 km by 20 km tiles and is available for the whole country.

### Accuracy

The process of creating DTMs utilises all the height information contained in the contour file to generate the height of each of the points in the DTM. The results achieved will depend upon the density of height data contained in the contour file and on the nature of the terrain. In some flat areas, where there is little height information, contours and spot heights may be a great distance apart; this can cause irregularities in the DTM, which appear as slight terracing of the terrain.

The accuracy of the contours has been found to be of the order of **±3.0 m RMSE**. These refer to the differences between the contour height recorded on the map and the measured height (above mean sea level) at the points on the ground represented by that contour. The measured heights are defined with respect to local control points connected to the Ordnance Survey network of levelled heights, which relate to mean sea level – normally Newlyn datum.

McCarthy Taylor Systems Ltd accepts no responsibility for the accuracy of the information contained in this document. Please call 01452 864244 for advice.

### How do you get this data?

First visit <http://www.ordnancesurvey.co.uk/oswebsite/opensource/> and click 'Supply'. This will take you to the full list of products which can be downloaded for free. Scroll all the way down to 'Land-Form Panorama' and tick the right hand box (to download the data). Then, when you hit 'Next' at the bottom of this page you'll be asked for your email address. The link to download the data will be emailed to you, but beware, the entire dataset is 530Mb in size.

### What do you do with the data?

When you have downloaded the file you'll need to unzip it and browse for the folder containing the ASCII Grid files (these all end with the extension 'ASC'). You can delete all the other files you have downloaded.



The ASCII files are arranged into separate named folders, each one representing a single 100x100km grid square (identified with a two letter name). Within each named folder you'll see up to 25 individual files (some coastal grids will contain fewer than 25 files). Each file contains a 20x20km area.

You might find it useful to create a separate LSS survey for each of the 100x100km squares and each ASCII file inside this grid square loaded into that survey. If your project crosses grid square boundaries then you can merge one survey into the other. But please remember that LSS has a maximum point limit of 4,080,000 per survey.

Each ASCII Grid file should be imported into LSS using the 'Input / Convert from / ESRI ASCII Grid' command. This will create a loadfile which can be imported into LSS in its entirety, or through the 'Input / Load Thin Data' command which will reduce the number of points in the LSS survey by identifying points which can be removed without adversely affecting the quality of the resulting DTM.

This thinning exercise is likely to be necessary for all but the more coastal regions which contain fewer ASCII files (see grids TV and HZ in the diagram on the left). For a tutorial on 'thinning' data please see the LSS tutorial 'Input / Load thinned data' which is available on our website at <https://www.dtmsoftware.com/LSS-Video-Tutorials/LSS-v10-Introduction> or installed from our LSS DVD.

### Raster (mapping) data

Under the OS Open Data Supply scheme LSS users will find two raster mapping datasets of use in their work.



First there's **OS Street View** which is a 1:10,000 scale colour street level mapping dataset which is supplied in 5kmx5km tiles in TIFF format and as with Panorama DTM it is downloaded as an entire 100x100km grid square, which means that some squares might contain up to 400 image tiles.

The images are supplied in TIFF format, so need to be converted to bitmap or jpeg (we prefer bitmap) using a graphics converter, such as Irfanview (search on Google for this free software). It will batch convert files which is more efficient than opening them individually in a graphics program. Each image comes with its own georeferencing file, so when you convert the tiffs you must make sure you don't rename them in the process, otherwise the georeferencing file won't match it anymore.

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An example follows:-

Downloaded image file nt13se.tif  
Converted in Irfanview nt13se.bmp  
Georeference file nt13se.tfw

When you have converted all the images you need and are ready to build the LSS IPF (accessed in Configure DTM Display) the TFW files need to be in the same folder as the bitmaps, otherwise LSS won't know where the images are in the real world. For a tutorial on 'draping' images in LSS please visit our [tutorial](#) on the subject [Draping](#)



The second raster image dataset is **1:250,000 Scale Colour Raster**. This is supplied in 100km squares which are named the same as the 100x100km grid squares. They are in TIFF format, so need to be converted to or jpeg (we prefer bitmap) using a graphics converter, such as Irfanview (search on Google for this free software). It will batch convert files which is more efficient than opening them individually in a graphics program. Each image comes with its own georeferencing file, so when you convert the tiffs you must make sure you don't rename them in the process, otherwise the georeferencing file won't match it anymore.

An example follows:-

Downloaded image file nt.tif  
Converted in Irfanview nt.bmp  
Georeference file nt.tfw

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If you need further Technical Support, or you wish to attend any training courses please contact us...

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