

Map Maker 5

Map Maker is designed to allow a novice user to make professional looking maps while also allowing more advanced users to take advantage of powerful functions. Map Maker is **not** an atlas – that is to say, unlike Google Earth, for instance, it does not come with built-in maps. It is more like a word processor where you, the user, starts with a blank sheet. That said, you can create base maps for your data in a variety of simple ways, such as by buying ready-made digital base maps, scanning your own paper maps, using aerial photography, or using public domain on-line data. Map Maker can import data in a variety of common formats, such as scanned images in TIF, JPG, BMP, and ECW format, and vector data as Shape files (*.SHP), DXF, TAB, GML, KML, OSM, GPX and others.

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Overview

Layers

In Map Maker a map is made up of layers. Each layer consists of one or more files – for instance you might have half a dozen TIF files to make up a layer to act as a base layer. There can be any number of layers. Each layer can only contain one file type and all the files in one layer must be in the same file directory (folder).

The live layer

On top of all the layers there is an additional layer known as the “live layer”. This is where new “objects” are drawn – objects being polygons, lines, points, and text. The live layer is also where the geometry (the shape) of existing objects can be edited and where objects can be deleted.

Attribute data

In Map Maker vector¹ objects (polygons, line, points, and text objects) are stored in Map Maker Drawing files (*.DRA). Each vector object can have “attribute data” associated with it. Attribute data is any kind of non-spatial data such as text and numbers. This data can be stored as part of the DRA file or in an external database or spreadsheet such as Excel XLSX, DBF, or CSV files. Objects can also be linked to documents, images, web sites, or third party programs. Note that bitmap (or raster²) data cannot have attribute data associated with it.

Styles

The appearance of an object, such as a polygon, on the screen or the printed page depends on two things: its geometry (i.e. its shape) and the “style” used to render the object. A “style” is a bundle of graphic specifications such as line thickness and colour, fill pattern, the font for any caption etc which taken together determine how an object drawn with that style will appear.

The style definition used by an object is in a separate style file which is Map Maker links to the DRA file. A style file may also be used to draw a map’s legend (key).

Page layout and printing

In Map Maker you have a choice of two views: “Map” and “Page”. The “Map” view is the one that you will mostly be using when creating or interrogating the map. The “Page” view allows you to determine how the map will look on the printed page (or as an exported bitmap image or PDF file). In the “Page” view you can specify the page size and orientation and add additional “map furniture” such as north points, title panels, scale bars, and the like. The scale of the map and its position within its “frame” can be adjusted in the page view.

¹ Vector data is made up of coordinates, such as the coordinates of vertices along a line. This contrasts with the other common form of map data which is “raster” or “bitmap” data which consists of pixels like a digital photograph.

² “Raster” or “bitmap” data consists of pixels like a digital photograph.

Latitude and longitude data

Each map has a “projection” associated with it. A projection specifies how latitude and longitude coordinates in degrees are converted into X and Y ordinates in metres on a square grid. Many users will only ever use one projection, such as most users in England, Scotland and Wales who will probably only ever use the Ordnance Survey National Grid (the default projection in Map Maker). You can specify the default projection for new projects under “Utilities – Your computer – Preferences”.

If you use data from a GPS device then this data will be in raw latitude and longitude coordinates. If added as a layer then this will be displayed using the projection system for the current map.

The project file

The specification for a map, including the number and type of layers, the files in each layer, the style sets used, the external data tables and attachments referred to, the projection, the live layer, gazetteers, and the page layout is stored in a “project file”, which has a “GEO” file extension. A GEO file is simply a text file that lists the components of the project. When you start a new map you are creating a new project. When you want to open an existing map then you open a project file.

Utilities

The above topics discuss the elements that make up a project. In practice you will probably often have tasks which relate to preparing data prior to its use in a project or in exporting data for use with other programs. Map Maker contains a number of utilities to help with this. These include importing and exporting vector data and calibrating bitmap images.

Resources

The program includes a section called “Resources”. Resources are elements such as style sets which you expect to use in various projects. Resources are, in effect, your personalized library of components.

Layers

There are two types of layer in Map Maker: “passive layers” and the “live layer”. There can be any number of passive layers, while there can only be one live layer. The live layer sits on top of the passive layers and is where new objects are created and existing ones edited.

[Click here to watch a video on layers](#)

Creating a passive layer

A passive layer consists of one or more files of the same type (i.e. same file extension) that are located in the same directory. The most commonly used files types for layers are Map Maker DRA files, which are “vector” files, and JPG and TIF files which are bitmap, or “raster”, files. Where you use a bitmap file it should be calibrated (see Utilities).

Layer properties

For each layer a small panel appears under the layers menu. If you click on this panel the layer properties are displayed. A set of tabs contain different options depending on the layer’s file type. The layer set-up for bitmap files contains just two tabs: “visibility” and “files”. For vector files there are more options.

Visibility tab

A layer can be set to “hidden” in order to temporarily de-activate it, but you can also set “drop-in” and “drop-out” scales so the layer will only be displayed when the current scale denominator³ of the map is equal to greater than the drop-in scale denominator and less than the drop-out scale denominator. This can be useful where you have map detail which is useful at one range of scales but which becomes excessive or irrelevant at other scales.

By default the opacity of a layer is set to 100%. If you set it to a lower level then layers below will become partially visible. If your layer is a vector layer then the opacity only applies to the objects in the layer, not to the space between objects. With bitmap layers the opacity setting applies to the entire image unless the “white as transparent” box is ticked. Note that polygons in vector layers may be drawn with fill styles which themselves have an opacity less than 100%. So, for instance, if the fill style of a polygon has an opacity of 50% then the layer below would be partially visible through the polygon even when the layer’s opacity is set to 100%. If you set the layer’s opacity to 60%, say, then the polygon’s actual opacity would go down to 30% (i.e. 60% of 50%).

With both vector and bitmap layers you can choose the “draw in monochrome” option which converts colours to a tonal representation in a greyscale.

³ Where a map is referred to as, for instance, having “a scale of one to 10,000” this means that the “representative fraction” of the map is one over 10,000. One is the numerator of the fraction (the top number of the fraction), 10,000 is the denominator (the bottom number of the fraction). When one map is said to have a larger scale than another it means that its denominator is smaller than that of the other map – a one to 5,000 map is a larger scale than a one to 10,000 map.

Any layer can have a “mask”. A mask is a DRA file containing one or more polygons. The mask is invisibly laid over the layer and any part of the layer which falls within a masking polygon is said to be inside the mask. Those parts of the layer which are inside the mask are treated in accordance with the layer’s settings for opacity and greyscale. You can specify separate values for the areas outside of the mask. For instance, you could set the opacity to zero percent in which case areas outside of the mask would be invisible.

[Click here to watch a video on using layer masks](#)

Styles tab

The “style” of a vector object determines how it will be rendered. Before an object in a DRA file is drawn a style definition is associated with it which determines its appearance. The style definitions are stored either in the project’s GEO file or else in separate style files (*.styles).

The default style set is the “project style set” (see the section below on “[Styles](#)”). This is a style set which is stored in the project’s GEO file. By using the “Change style set” button you can choose a style set stored in a style file (*.styles). Having selected a style set you have four options:

1. **Use each object’s default style number.** Each object has a default style number which can be used to select a style definition with a corresponding number in a style set. If the referred to style number is not to be found in the layer’s current style set then a global default style definition is used.
2. **Apply one style to each object type in the layer.** You can choose one style from the style set that applies to all of the polygons, and others for all of the lines, points, and text objects. If your DRA file only contains one object type, e.g. polygons, then the choices for the other object types are ignored.
3. **Choose style number by data field.** A style definition in a style set has a “style number” associated with it. You can specify a data field in the DRA file that can contain numbers, so if a particular polygon has the number 4 in that data field then Map Maker will look for the first polygon style in the style set that has 4 as its style number, and then use that style definition to render the polygon. The available data fields for any object always include the “default caption” and the “default id”. In addition, there can be any number of user-defined internal data columns as well as columns in an external database if one has been attached (see below for External data links).
4. **Choose style name by data field.** Style definitions in a style set each have a name. As above, you can specify a data field in the DRA file which can include a name that corresponds to the desired style in the style set.

Labels tab

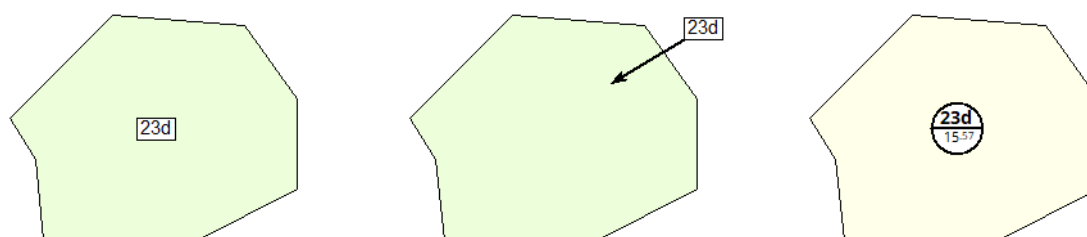
In a vector layer, polygons, lines, and points can have labels. If the “hide labels” box is ticked then all such labels are hidden. This is mainly used where you want to temporarily hide the labels for purposes of clarity. You can specify a “label drop-in scale” and a “label drop-out scale” so that the labels are only displayed for a given range of scales.

The left-hand list displays the available options for labels. These can include the default values of “default caption”, the “default id”, and the “default style number”, as well as various

options for displaying the area and any value in a user-defined data field. If you choose more than one option then the values will be displayed as a multi-line caption. The order in which the lines appear can be edited using the up and down arrow buttons.

The “label X offset” and the “label Y offset” values can be used to move all of the labels to one side. This can be useful if there is a danger of labels obscuring the objects.

By default the label background is that defined by the style. However for the labels of polygons you can choose two additional options: a circular background or a split circle – these are often used for labelling compartments in forestry schemes. In the split circle, as shown on the right below, a short single line caption is shown in the top half while the area in hectares is shown below.



In addition, a label can have an arrow, such as shown in the centre example above. An arrow can be associated with an individual object by editing the object, however you can also specify that all the objects in the layer have arrows. Note that the arrow will only be visible where the label has been moved from its default position.

Attributes tab

The attributes page is only displayed when the layer contains just one vector file. It consists of a data table with one row for each object in the vector file. The first seven columns in the table display values which are found in all DRA files: the object type (i.e. polygon, line, point, or text), the area in hectares (polygons only), the length in metres (polygons and lines only), the currently applicable style name (this is dependent on the style set), the default caption, the default id, and the default style number. These are followed by any user-defined attributes.

Placing the cursor over the down-arrow on the top title panel of any of the columns displays a menu. The menu allows you to sort the data by ascending or descending values as well as specify a filter. If you choose the filter menu item then a dialogue box is displayed which allows you to add one or more filters. The filter options available depend on whether the column contains a string, numeric, or Boolean value.

If the column is not a read-only column, such as the “area” column, then the menu includes a “set all values to” option. This displays a dialogue box which allows you to specify up to six different terms. This can be used in a variety of ways, for instance:

Example 1. Set “term 1” to “constant”, then enter a value, such as “123”. Click “apply” and all the values in the column are set to the same value: “123”.

Example 2. Set “term 1” to “serial number”, and then set “starting from” to, say, “5”. Click “apply” and the first row is set to “5”, the second row to “6”, and so on.

Example 3. Set “term 1” to the name of one of your user-defined data fields, such as “Cmpt”. Then set “term 2” to “constant” and set its value to a full stop – “.”. Then set “term 3” to another of your user-defined data fields, such as “subCmpt”. Then click “apply”. Now, if in your first row “Cmpt” is set to “23” and “subCmpt” is set to “b”, then the column you are setting will become “23.b”.

If the column contains “string” values then the menu includes “choose pick list”. If you have defined one or more pick lists (see under [Resources](#)) then these will be listed here. Choose a pick list then when you subsequently attempt to edit a cell a drop-down list appears allowing the user to pick a value rather than type one in.

If the column is a user-defined column, or else the right-most column, then the menu includes “Add new column”. User-defined columns also include “Insert new column”, “Delete column” and “Re-name column”.

The first column contains row numbers. If you open the menu for this column it displays operations which pertain to the whole table rather than just one column.

External data link tab

The “external data link” page allows you to link the records in a DRA file to corresponding records in an external data table, such as a DBF or CSV file, or a sheet in an Excel XLSX spreadsheet. Note that to link to an Excel spreadsheet the sheet must have been designed in a table format with simple columns and rows.

Use the “choose database” button to choose the file. If you choose an Excel XLSX file then you can also choose the sheet from the file. If you know that the records in the database are in the same sequence as the records in the DRA file then you can simply tick the “data in serial order” box. If they are not in the same order, or if you do not know that they are, then you need to select an “internal link field” - that is a data field in the DRA file - that for each record contains a unique value that can be found in a corresponding “external link field” in the external data table.

Click options tab

The “Click options” page determines what happens when you click on an object in the layer using the “select” tool. By default the program will display the attribute data of the object, but other options exist:

- **Display document.** When you click on an object a “document” will be displayed – a document may mean any kind of file that you can display on your computer, such as a PDF file, or an image, an audio file, or a video. The name of the document can include one or more “tokens”. A token is a term which is replaced by an actual value depending on the context. In the document path a token is shown in angle brackets, e.g. “<date>”. For instance, you might specify the documents path as:

C:\maps\crops<my data>.pdf

In this case, the assumption is that your DRA file includes a column called “my data” in which there is a value relevant to each record – there might be a polygon where “my data” was set to “wheat”, so that when you click on the polygon with the “select” tool the document displayed is:

`C:\maps\cropswheat.pdf`

Special tokens are “<root>” and “<root parent>”, where “root” is the directory where the project file is, and “root parent” is the parent directory of the root directory.

- **Display web page.** When you click on an object your browser will display the specified web page. As with “document” the path of the web page can include tokens.
- **Open project.** Clicking on the object closes the current project and opens a new one. Again you can use tokens in the project file name.
- **Execute program.** Clicking on an object executes a program (an EXE file). Both the path of the program and any command line parameters can include tokens.

Files tab

The “files” page simply displays the files that make up the layer. You can use the “change files” button to add or change files but remember that if you use more than one file they must all be in the same directory. Also remember that some features, such as the “attributes” page and “external data link” are only available when the layer only consists of one DRA file.

Layer menu

For each layer a small panel appears under the layers group. If you place the cursor over the small right-pointing arrow head a menu appears. The first option is the layer properties set-up, as described above. Other items allow you to do such things as delete the layer or move the layer up or down the stack of layers. The item “make extract for current view” is a quick and easy way to extract an area from a large file or set of files.

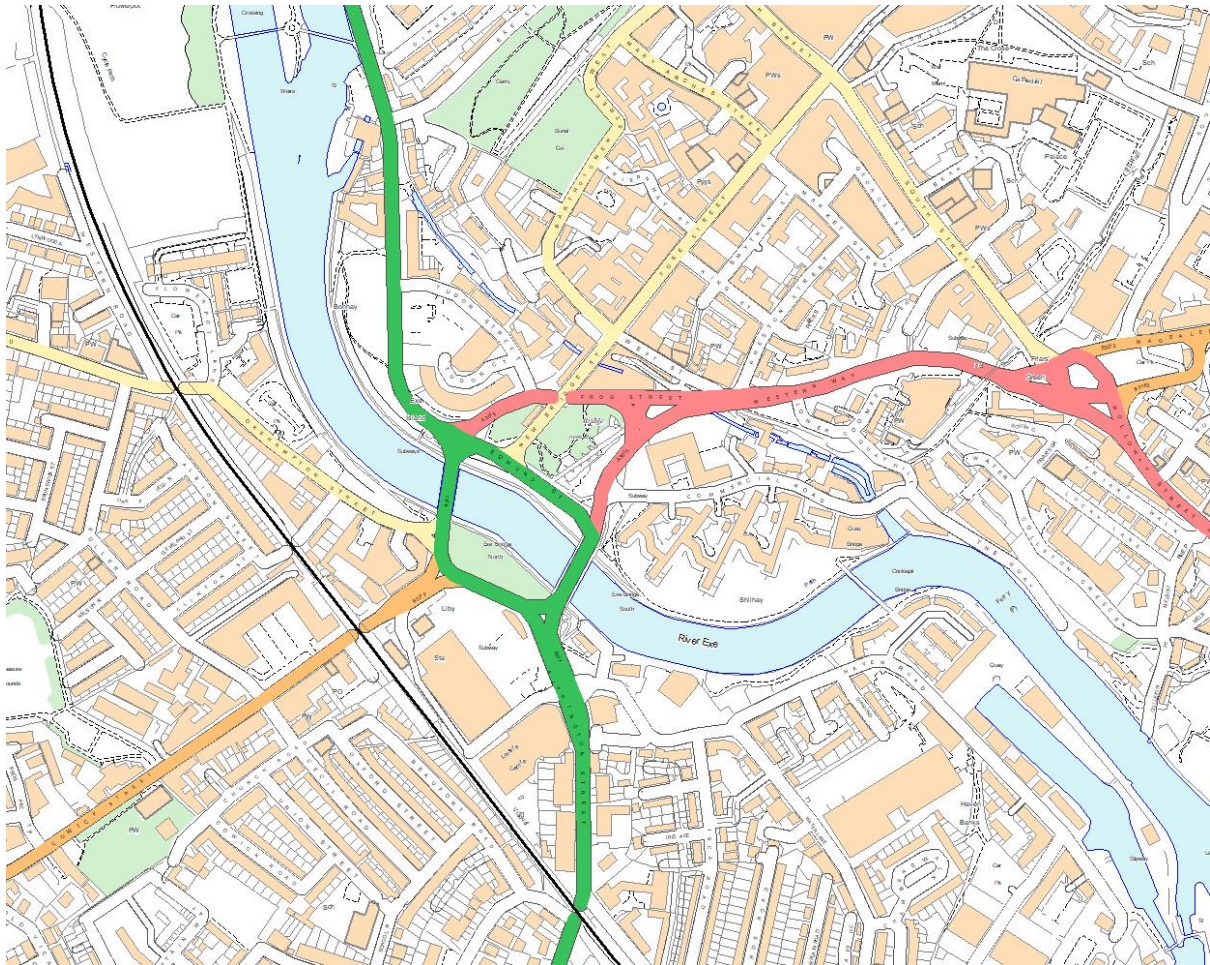
The item “Export the settings for this layer” allows you to save the settings from the layer set up to a separate file (*.MMLayer). Subsequently, when you use “Add file or files as a layer” or “Create a new project” then you have the option to select a “Map Maker layer settings” file. This means if you have a layer that you want to use in many projects you can quickly re-use the layer with consistent settings.

UK basemap library layer

If you are in the UK then you have the additional option of using predefined UK basemaps. The simplest option is to use the “Ordnance Survey online basemap (Open Data)”. This requires internet access to download the tiles which are relevant to your area of interest and your map’s current scale, though once you have downloaded the tiles they are stored locally so you do not need to be permanently on-line. The advantage of using the online maps is that it is a quick and easy way to get a useful raster basemap, however it does mean that you are limited to the styles and content which the Ordnance Survey have chosen. If you want more flexibility and detail then you can download vector data to create your own basemaps.

The easiest option is Ordnance Survey Open Zoomstack , which can be used for free. This involves downloading just one file from the Ordnance Survey [web site](#) . It is a very large file, over 11Gb, but it provides data for all of Great Britain. Make sure that you choose the “GeoPackage” format.

These basemaps are set up from the “[Resources](#)” page. Once you have initialized a UK basemap library you can use it in any project and the styles will be automatically applied to create a professional appearance for the minimum of effort. For instance, here is a basemap using the Ordnance Survey VectorMap Local dataset:



Always note when using these basemaps that though they may be used freely they do use copyright data and so should be accompanied by a suitable copyright acknowledgement.

The live layer

There is only ever one live layer. It is a layer of vector objects (polygons, lines, points, and text objects) that sits on top of all of the other layers. It is always there, even if it is empty. The live layer is where new objects are drawn and existing ones are edited or deleted (see the sections below on [drawing and editing](#)).

Live layer set-up

As with other vector layers there is a “layer properties” dialogue box with tabs for “styles”, “labels”, “attributes”, and an “external data link”. There are three additional tabs:

Report tab

As the live layer is edited you can inspect a summary report on the components of the live layer by a variety of criteria, such as object type, style number, caption etc. This report can be exported to a text or CSV file.

Options tab

- **Show grid.** You can choose to show a grid with a specified interval, or with an automatic spacing where Map Maker chooses a grid spacing appropriate to the current scale.
- **Show centre location.** Showing the current centre of the map can be useful where you are navigating using gazetteers or by entering coordinates.
- **Show vertices.** When editing objects in the live layer it can be useful to see where each vertex is, not simply where lines are.
- **Highlight polygon overlaps in red.** A common mistake on digital maps is polygons which are accidentally duplicated or which overlap. By automatically highlighting the overlaps it makes it easier to spot these situations.

Site mask tab

There are many circumstances where there is a need create and edit objects within a well-defined boundary. For instance in an estate it may well be important not to accidentally create features which cross the property boundary, yet within the boundary there is freedom to design as you wish. The “site mask” option allows you to specify a file containing one or more polygons which will automatically trim your drawing to the boundaries. This mask can be invisible but you can also choose to show it.

Load file into live layer

An existing vector passive layer can be copied into the live layer using the layer’s menu. Alternatively a DRA or SHP file can be loaded directly using the “load a file into the live layer” menu item.

Saving the live layer

By default, when you save the live layer to a DRA file the new (or amended) DRA file is automatically loaded as a passive layer and the live layer is cleared. However, at the bottom of the “save the live layer as” sub-menu there is the option “Load saved file as passive layer”. If you un-tick this then when you save the live layer the new passive layer is not created and the live layers is not cleared.

This can be useful if you want to make a back-up as you go along or if you want to save snapshots of the live layer in different states.

The live layer can also be saved as an ESRI shape file. However, a limitation of shape files is that each one may only contain one object type – polygon, line, or point. So if your live layer contains a mixture of object types, or if it contains text objects, then the option to save to a shape file is not available.

Temporary markers

In Map Maker a temporary marker is a transient point object that you can use as an aid for drawing and measuring more permanent objects. To place a marker on the map, with any tool selected, place the cursor where you want the marker to be, then press the “M” key on the keyboard. The marker appears as a “grocer’s label” with a serial number. Note that using “Utilities – Your computer – preferences” you can also assign an “F-key” to place a marker.

Again, with any tool selected, click on the point of the marker and a dialogue box appears with the marker’s parameters. You can change its coordinates, name, and colour. In addition you can specify a radius - this results in a circle being drawn around the marker.

The “temporary markers” menu allows you to clear the markers as well as save them to a file.

Drawing and editing

Polygons

To draw a polygon with the “polygon” tool simply start clicking. To finish the polygon either click again over the first vertex or else right-click which will automatically close the polygon. If, when you are drawing, you make a mistake you can press the backspace key to delete the last vertex, or else press “Esc” to abandon the new object entirely.

[Click here to watch a video on drawing polygons](#)

[Click here to watch a video on drawing polygons with the brush tools](#)

[Click here to watch a video on editing polygons](#)

Lines

To draw a line with the “line” tool simply start clicking. To finish the line – right click. Or if you want the line to finish where the line started (i.e. to be a loop) then click over the first vertex and the line will finish. If, when you are drawing, you make a mistake you can press the backspace key to delete the last vertex, or else press “Esc” to abandon the new object entirely.

If you hold down the “shift” key then the line tool acts like a pencil in that as you move the cursor vertices are added automatically without the need to click. In this “pencil” mode, if you move the cursor slowly then the vertices are closer together in order to record finer detail.

Points

To place a point object simply select the “point” tool and click where you want the point. The currently selected symbol type will be drawn at that point. To edit or delete a point select the “Edit” tool and click on the point to put it into “edit mode”. The point can be dragged to reposition it or you can edit attributes – such as style and caption – in the left-hand Properties panel.

[Click here to watch a video on labels for polygons, lines, and points](#)

Text

To create a text object select the “Text” tool and click on the location where you want the text to appear. The Properties panel appears on the left where you can edit the text, modify the height and the justification. When a new text object is created Map Maker automatically creates two vertices, one at the point where you clicked and another a little to the right of that point. If you select the Edit tool and click on the text object to put it into “edit mode”, then you can drag the first vertex to move the text object or drag the second vertex to modify the rotation of the text. If the “Fixed height” box is not ticked in the Properties panel you can move the second vertex to increase or decrease the text height.

If you choose “stretched” as the “horizontal justification” then the text is stretched between the two points. Using the Edit tool you can introduce additional vertices between the two ends to create text stretched along a curved line.

[Click here to watch a video on text objects](#)

Styles

How styles work

The way that an object (polygon, line, point or text) appears on the map depends on two things: its geometry (i.e. its coordinates – its shape) and the “style” that is used to render the object. A “style” is a set of definitions for visual characteristics such as line width, fill colour, symbol type etc.

Every project has a project style set which is stored as part of the project file (*.GEO). When a project is first created a copy is made of the “system style set” and this copy becomes the project style set. By editing the “system style set” (see [“Resources – Styles – Edit system style set”](#)) you can determine the default styles for any new project that you create. Note that when you make changes to the system style set those changes will not apply to already existing projects, just subsequent ones.

To edit a project’s style set use “Project manager – Styles – Edit the project style set”. The project style set is the default style set for the live layer and for any passive vector layer that you add. For each layer you can use a different style set by selecting a style file. A style file can be created from the “Styles” section of the “Resources” page.

To choose a different style set for a passive layer open the layer’s “layer properties” dialogue box, either by clicking on the layer item in the list of “passive layers” or by selecting “layer properties” from the drop-down menu associated with each layer item in the list. In the dialogue box the first page is “Styles”. Click on the “change style set” button to choose a style file.

Irrespective of whether you are using the project styles or a separate style file, you have four options for how style definitions are assigned to each object in the layer (an “object” being a polygon, line, point, or text object):

1. **Use each object’s default style number.** Each object has a style number associated with it. By default the number is zero, but it can be any number between zero and 9,999. Similarly, each style definition in a style set has a style number. When an object is drawn Map Maker reads the style number of the object and then searches the style set for a style definition for that object type that has the corresponding style number. If a style is not found then the “global default style” for that object type is used to draw the object. The “global default style” is fixed so that it will appear the same on every computer.
2. **Apply one style to each object type in the layer.** For each of the four object types (polygon, line, point and text) you can choose one style from the style set which will be applied to all objects of that type in the layer.
3. **Choose style number by data field.** DRA objects have a number of pre-defined data fields: “default caption”, “default id”, and “default style number”. In addition the DRA or shape file can have any number of user-defined data fields. You can select a data field that contains numbers that indicate which style number should be used to draw each object.
4. **Choose style name by data field.** Each style has a name. Each object in the DRA or shape file can have a value in a data field that can be used to select a style with the corresponding name.

Editing styles

There are several places in Map Maker where you can edit a style set:

- **The system style set.** Edit from the “Styles” panel of the “Resources” page.
- **The project style set.** Edit from the “Styles” panel of the “Map” page. *Note that right clicking on any of the styles in the style list displayed under the “Styles” panel will open the style editor on that style.*
- **A style file assigned to a layer.** In the layer properties dialogue box, on the Styles page, if a style set other than the project style set has been chosen then clicking on the file name will open the style editor.
- **Create or edit a style file.** Use the “Styles” panel of the “Resources” page.

In each of these cases the style set editor is displayed. On the left hand side select the object type (polygon, line, point, or text) for which you want to create or edit styles. Either select an existing style from the list or click on the “Add style” button. On the right hand side you can edit the style.

[Click here to watch a video on editing styles](#)

Polygon style

There are a variety of options for the polygon fill. If you choose a hatch or symbol fill then the “fill colour” refers to the background colour. Separate pages for “hatch” and “symbols” allow you to set the foreground colours. The fill colour can have a value set for its opacity. Note that the styles opacity is quite independent of the opacity setting of a layer, so if you had a fill where the styles opacity was set to 60% and it was used in a layer with an opacity of 50% then the resulting polygon would have an opacity of 30%.

Irrespective of the fill style chosen you can specify an “edge band”. An edge band is a coloured strip around the interior of the border. If you choose the option “edge band graded” then the colour of the edge band will be at its most intense at the polygon border and then will merge into the fill colour as it gets further away from the edge.

The “Border” page specifies a line style for the polygon border. The available line styles includes “no line” since in some cases it can be useful to have polygons with no delineated borders.

Border styles can be specified with a “background line” – this is a solid line that is drawn before the main line is drawn. Typically, if you have specified a dashed line but you do not want the gaps to be transparent, you can specify a background line which will determine the colour of the gaps. If you make the “extra width” of the background line be greater than zero then the background line’s colour will appear as edges to the main line, such as when drawing a road.

Line style

Styles for line objects include all the features available for polygon borders plus the options to specify symbols along the line, edge effects, and special treatment for each end of the line.

If you tick the “with symbols” box then a “symbol” tab appears. Selecting this allows you to specify a symbol or two alternating symbols. The insertion point for the symbol can be specified by clicking on the large grey preview of the symbol.

The “Edges” tab contains three more tabs for “centre”, “left” and “right”. For each you can specify an additional line style and/or an “effect”. An effect is something like lines perpendicular to the main line such as might be used to indicate an embankment or cutting.

Point style

The style editor for point styles allows you to choose a symbol type, a colour, and a size. When choosing the symbol type there are effectively three options available: a set of predefined common symbols, a font character, or a custom symbol. If you choose a font character you can choose a character from any font. Custom symbols are defined using the symbol editor in the style editor.

[Click here to watch a video on custom symbols](#)

Text style

Where style definitions for polygons, lines, and points contain dimensions, such as line thickness, symbol size, etc, these are generally specified as millimetres on the screen or on paper. So irrespective of the scale of the map the sizes remain visually the same. However, for text objects, the size of the text is always defined as metres on the ground, so if you have text showing a street name its size on the screen is bigger or smaller depending on the scale of the map – as you zoom in the text grows in size.

If you choose the option “automatic height for new text objects” then when you add a new text object a text height will be assigned which the program considers appropriate for the current scale of the map. If the option is not selected then you need to specify an initial height for the text. In either case you can change the size of text object after it has been created.

If the option “with text halo” is selected then each character of the text is surrounded by an opaque white border. This enables black text, for instance, to still be legible when placed on a dark background, such as happens with aerial photography.

Attributes

Style definitions for polygons, line, points, and text objects all contain a tab for “attributes”. The “style description for legend” and “label for legend” are used if the style is used in a legend.

The “optional user defined categories” box allows you to add key words or phrases as lines of text. These can subsequently be used to filter a large style set.

The “drawing order” determines which objects in a file are drawn first. By default all styles are set to a drawing order of zero. In that default case all polygons in the current view are drawn first, then all lines, then text objects, then points, and finally object labels. However, if you set a style’s drawing order to some value above zero then all objects with that style would be drawn after the objects of drawing order zero. The higher the drawing order number the later in the drawing process is the object rendered – objects with high drawing order numbers sit on top of those with lower drawing order numbers.

The option “dimensions as metres on the ground” allows you to define a style’s dimensions, such as line width, symbol size etc, in metres. This means that the map behaves more like a paper map where the greater you magnify it the larger the stylistic elements (line width etc).

Style numbers

The “Style numbers” tab can be useful for managing a large style set. You can specify a range of styles of one object type (polygon, line, point, or text) by entering a “start serial number” and a “finish serial number”, and then specifying a “start style number”. If, for instance, you set the start serial number to “2” and the finish serial number to “6”, and the start style number to “20”, then clicking on “renumber range” will set the style numbers of that range to 20, 21, 22, 23, and 24.

You can also use then “Reorder styles by style number” to rearrange the style list so that the lowest style number is first.

Import styles

The “Import styles” tab allows you to select one or more styles from another style file and drag them over to the style list where they are inserted below the currently selected style.

Page design

In Map Maker the “Page” may refer to a printed page or to a digital image.

The page is considered as a set of boxes, where the page itself is the containing box. Other boxes include maps, title panel, north points, scale bars, etc. A box can contain other boxes. When a box is moved any boxes that it contains are moved with it.

Each project (GEO file) contains the definition for a page design. When you save the project the current page design is saved with it. A page design definition can also be saved separately as a “page template” file – with a “.template” file extension. Page templates can be created from the “Page” tab or from the “Page templates” section of the “Resources” tab.

New page design

When you create a new page design, by default, the page has the size of your printer’s current paper. Typically, as a minimum, you will want the page to include a “map box” – i.e. the area where the map is displayed. The menu item “New page design” includes options for “Page with default map collar” and “Page with default map box”. The “default map box” has a thin black line as a border, while the “default map collar” has a calibrated and numbered frame.

In addition there is the option for a blank page – this might be used when rather than creating a map you were creating a template for a title panel which could subsequently be used in a map project.

Adding a new box

To add a new box select an item from the “add new box” menu. The options are:

- North point
- Scale bar
- Image – *display an image file, jpg, tif, bmp, emf*
- Text – *for multi-line formatted text*
- Document – *for a single-page documents file (doc, docx, or rtf)*
- Legend
- Map
- Plain panel – *to act as a group container for other boxes*
- Template – *to place another template, such as a title panel, within the page template*

The new box is placed in the centre of the page. The box can then be dragged and resized. The content of the box can be edited in the “current box” panel on the left-hand side. To select any box simply click on it or else select it from the “select box” menu.

The new box can be dragged around the page and its size changed. If you place the box within the boundaries of another box then it will become anchored to the larger box. If you subsequently move the bigger box then the boxes contained within it are moved with it.

[Click here to watch a video on page layout](#)

Anchors

Each box, other than the page itself, is anchored to one or more of the corners of the box which contains it. If, for instance, a box is anchored by its top right and bottom right corners, it means that if you increase the height of the containing box then the contained box will increase its height by the same amount. If you increase the width of the containing box then the contained box keeps its original width and its original distance from the right edge of the containing box.

To add or remove an anchor click on the corners of the white “anchors” square under the “panel” tab of the “current box” properties panel.

Box types

The page can contain several different box types:

Plain panel

A plain panel is typically used as a container for other items. You might, for instance, make a title panel containing one or more text boxes, a logo, a north point, and a scale bar. You can specify the background colour and opacity of the panel, also a border colour and border width. To remove the border set the border colour to “no colour”.

North point

You can choose from a range of pre-defined styles of north point. In addition you can choose “font symbol” which allows you to choose a symbol from any Windows TrueType font file. With north points that contain letters (e.g. N, E, S, and W) you can specify the font and whether to use bold or italic.

Scale bar

You can choose from five different styles of scale bar. The “default step” is the distance between major divisions along the scale bar. If, in practice, this is too large for the current scale then a smaller division is automatically assigned. The “maximum” value specifies the maximum length of the scale bar in metres on the ground.

The tick box “show numerical scale” is included since there are some circumstances, such as putting a map on a web site, where you do not know what the actual scale will be since the user could be viewing on anything from a large projection screen to a phone.

Image

An image box enables you to place an image on the page. The image can be a JPG, TIFF, BMP, or EMF (Enhanced Metafile) file. This can be useful for adding a logo to a title panel.

Note that the image does not become part of the template – the template simply records the name of the file, so if you move the template to another computer you will need to also copy across any files referred to by the template. If the image file is in the same directory as the template, or in a sub-directory of the template’s directory, then the template will correctly find the image file even if both the template and the image file have been moved to a new location.

Text

The “text” box allows you to add a block of text with basic formatting. You can also import a text File (*.txt, *.rtf, *.doc, *.docx) file so long as it simple – i.e. no graphics or complex formatting. The text can include project and system tokens (see below). To import doc, or docx files Microsoft Word must be on your computer.

Document

If you have Microsoft Word on your computer then you can include a small Word document (*.doc, *.docx) or Rich text file (*.rtf). Unlike the text box described above the Document box can display a file with images and complex formatting. The document you choose should not be large and certainly not more than one page. As with the Text box the Document can include project and system tokens (see below).

Using a Document box has the disadvantage that every time it is used it must start up and communicate with Microsoft Word to render an image of the document. This can slow the program down and eat up memory. For this reason there is the option to save the image of the document to a Windows Enhanced Metafile (*.emf). This in turn may be used in an “image” box which is much less time and memory consuming.

Legend

The legend box is used to display a legend file (*.legend). Legend files are created from the [Resources page – Legends panel](#).

Map

A map box usually contains the project’s map but other map boxes can be added to display such things as location maps or zoomed in details. These maps can use the main project map but at a different scale or you can choose a separate project. If you tick the “As location map” option then a red rectangle is shown on the map which indicates the extent of main project map.

Template

A template box contains another template. Typically this may be used for something like a title panel or other element that you use repeatedly on different maps. Unlike using the document box, when you add a template box you can edit the individual elements within the template box, so if it were a title panel you could amend it to suit the needs of the current project.

Project tokens

A token is a placeholder for piece of text that is dependent on some item of data. The token is placed in angle brackets, for instance:

“map drawn to scale <scale>”

If your template included this text then when the map was at a scale of 1:10,000 then the term “<scale>” will be replaced with “1:10,000”.

Some tokens, such as “<scale>”, are “system tokens”, meaning that they are reserved terms that can be used in any project. The system tokens are listed on the “Resources” page under the “system tokens” panel.

In addition you can specify “project tokens” which are unique to the current project. These might include things like a client name, or a project location. By creating tokens for these terms it makes it easy to re-use templates in multiple projects since you just need to change the value of a token then every time that it is used in the template it is updated accordingly.

In the project tokens panel the system tokens are listed but shown in grey, indicating that they are available for use but cannot be deleted or altered. You can use the “add token” button to add a project token. A new “token-value” pair is created. The “value” determines the current text indicated by the token.

Save as an image

An image of the page can be saved to a raster (bitmap) file. The file can be in BMP, TIF, or JPG formats. In addition it can be saved to a PDF.

The size and hence the resolution of the image is determined by specifying the width of the image in pixels or by specifying the d.p.i. (dots per inch). The height of the image in pixels is calculated automatically.

While a TIF or JPG file can be, and usually are, in a compressed format the process of generating the image, prior to saving it, demands creating an uncompressed bitmap in memory – this requires 3 bytes per pixel (allowing over 16 million colours). The size of this memory bitmap is computed and displayed. When specifying the size of the image care should be taken that the memory used is not excessive for your computer.

Printing

As with saving an image, when printing Map Maker has to create an uncompressed bitmap in memory large enough to render an image of the page which can then be sent to the printer. If you have a large format printer you should not specify the d.p.i. to be too high since it will result in a very large memory bitmap.

If the page that you want to print is larger than the current paper size of your printer then the page will be printed as a poster print on multiple sheets. A preview of the sheets is displayed. By default all of the sheets are selected for printing but by clicking on each sheet on the preview you can de-select or re-select sheets.

Resources

Resources are those elements which are used by all new projects or which you expect to use in more than one project.

Styles

The Resources page – Styles panel contains resources for maintaining your style sets.

System style set

There is always one system style set that is used as the initial project style set for any new project. Note that editing the system style set has no impact on existing projects. The process for editing the system style set is as described in the section above on [styles](#).

The system style set can be exported to a style file by selecting “Edit the system style set” and then clicking on “Save as” which allows you to name a new style file.

Clicking on “Replace the system style set” allows you to select a style file and import it into the program for use as the system style set – this will overwrite the existing system style set.

“Revert to original system style set” replaces the current system style set with the “factory default” style set that is built into Map Maker.

Style files

You can edit a style file or create a new blank style set from the “Create or edit a style file” menu. Editing a style file is as described in the section above on styles. A style file that you are editing can be copied to another filename using the “Save as” item.

Colours

There are numerous places in Map Maker where you can choose a colour – such as a line or fill colour. In the colour picker you can choose from a range of standard colours or specify a custom colour in terms of red, blue, and green components and by its intensity.

In addition, you can choose from user specified pre-defined colours. These are named colours that you may want to use repeatedly in different situations and different projects. In the Resources – Colour panel you can create, edit, and delete this set of colours.

The right-hand preview panel under “Manage colours” shows how a chosen colour will appear at different levels of opacity over a selection of strong colours. This can help you to judge the appropriateness of colours when used as non-opaque polygons fills.

The Import and Export colours functions facilitate sharing colour sets between computers.

Legends

The “Legends” section of the Resources page is used to create legend files. A legend file can then be loaded into a legend box when designing the page layout under the “Page” page.

Each legend file consists of one or more entries each determined by a style definition. One legend file can contain entries from more than one style set. This means that if, for instance, your map has two layers each using a different style set then you can create a single legend file made up of styles from both style sets.

On the right-hand side you choose a style set. This can be the “system styles”, the current “project styles”, or any “style file”. You then choose the object type: polygon, line, point, or text. Choose one or more styles from the right-hand style list and then drag these styles and drop them onto the left-hand list.

Once you have styles in the left hand list you can use the delete button and the up and down arrow buttons to reorganize the list.

The “column width” slider determines the width of the legend in millimetres. The “patch width” slider determines the width of the preview of the style – the “patch” - the space to the right of the patch is used for the name of the style and any descriptive text, which is specified in the style definition.

The “vertical gap” slider specifies the default gap between items in the legend.

If, in the left-hand list, you select one or more items in the legend then settings are displayed for those items:

- **Minimum item height.** If a style has descriptive text associated with it then the height required to display it may exceed the minimum height, in which case the item’s height is automatically increased.
- **Extra gap above.** Particular items may look better with a little extra space between itself and the previous item, for instance a large symbol, so you can use this setting to adjust the space.
- **Polygon border.** Where the item is showing a polygon style by default the polygon border style will be used for the edge of the patch. Since the patch is small this can be distracting so you can choose options to have no border or else to show a thin or dotted black border.
- **Horizontal line above.** This allows you to introduce lines to break the legend up into groups.
- **Label.** Where a style is specified to include a label, the style definition will also include a default text to use for the label in a legend. You can use this field to override the default label – including setting it to be blank.
- **Automatically update from style set if available.** When you create a legend the complete style definition is copied from the style set to the legend file. This means that if you subsequently alter the style definition in the style set then the alterations are not automatically reflected in the legend. However, if you tick this option then if the relevant style file is present and in its original location then any changes in the style will be reflected in the legend.

The “Export as an image” function allows you to save the legend as a high resolution raster image (bmp, tif, or jpg). This is useful if you want to put the legend in a document next to a map rather than place the legend directly on a map.

Pick lists

Pick lists may be used in data tables so that, for a specified data field, the user can only select from a pre-determined list of values.

In the “Resources – Pick lists” section you can create, edit, and delete pick lists. When you click on the “Create new pick list” function the pick list editor is displayed. Change the “Pick list title” to something meaningful. Then click on the “Add item” button and enter a value for the item.

The arrow buttons can be used to re-order the list, or you can use the “Sort list” button to put the list into alphabetical order.

The Paste button can be used to paste lines of text copied from a document into the list.

The import and export functions facilitate sharing pick lists with other computers.

Page templates

The “Page templates” section of the “Resources” page functions in the same way as the “Page” page, except that rather than designing the page layout for the current project you are designing page templates which can be used by subsequent projects.

See the section above on “[Page design](#)”.

System tokens

A token is a placeholder for piece of text that is dependent on some item of data. The token is placed in angle brackets, for instance:

“map drawn to scale <scale>”

If a page template included this text then when the map was at a scale of 1:10,000 then the term “<scale>” will be replaced with “1:10,000”.

Some tokens, such as “<scale>”, are “system tokens”, meaning that they are reserved terms that can be used in any project. System tokens can include both global tokens that are always available and custom tokens that are available on the current computer.

Available global tokens are:

- **<project title>** The current project’s title as specified under the “Map – Project” panel.
- **<notes>** The current project’s “notes” as specified under the “Map – Project” panel.
- **<scale>** The scale of the current view.
- **<centre x>** The X ordinate of the centre of the current view.
- **<centre y>** The Y ordinate of the centre of the current view.
- **<long date>** The current data with the full month name (e.g. 17 April 2019)
- **<short date>** The current data with a shortened month name (e.g. 17 Apr 2019)
- **<projection>** The name of the map projection of the current project’s map.
- **<OS6>** UK grid reference to nearest 100 metres, e.g. NT123123

- **<OS8>** UK grid reference to nearest 10 metres, e.g. NT12341234
- **<OS10>** UK grid reference to nearest metres, e.g. NT1234512345

Custom tokens can be added using the “Add token” button. The custom tokens can be shared with other computers by using the Import and Export functions.

Gazetteers

A gazetteer is a list of named locations. In Map Maker each gazetteer entry also includes a recommended scale to view the location. A project can have its own project gazetteer. Entries can be added to the project gazetteer from the navigation menu next to the scale bar on the main “Map” page. But in addition to the project gazetteer you can have any number of “system gazetteers”. These are locations that you might want to use in various projects and so are permanently available.

To create a gazetteer manually, click on “create new system gazetteer” which opens the gazetteer editor. Give the gazetteer a meaningful name and then use the “Add item” button to add locations. However, in most cases you will create a gazetteer by importing a file. The file might be a Map Maker gazetteer file (*.gaz) that has been previously exported, but it can also be a vector file (*.shp or *.dra) containing geographical features. Where you import a shape file (*.shp) or a Map Maker drawing (*.dra) you will be prompted to select a data field to provide a name for each of the gazetteer entries. You can also import comma separated text (*.csv) if it is in the correct format, which is where the first line of the file defines the columns: “item,x,y,scale”.

Similarly, a gazetteer can be exported as a set of points in a shape file (*.shp) or a Map Maker drawing file (*.dra) as well as a gazetteer file (*.gaz) or as a CSV file.

UK basemap library

If you are using Map Maker in the United Kingdom then there are various datasets that you can use for basemaps. Most of these are free while some are commercial products. In all cases, including the free products, it is important to respect the various requirements for displaying copyright messages when using the data.

For each of the following data types, when you click on the corresponding function under “Resources – UK basemap library” the dialogue box will give you the opportunity to specify a directory for the library – you can just use the default.

Having loaded a library, back in the main Map window you then have the option to add that library as a layer. If your library contains data relevant to the current extent of your project then it will be displayed using a pre-determined set of styles.

OS Open Map Local

Open Map Local is a free data set from the Ordnance Survey showing street-level data. Go to the Ordnance Survey Open Data web site:

<https://www.ordnancesurvey.co.uk/opendatadownload/products.html>

Find “OS Open Map – Local, vector format”. Set the “supply format” to “GML 3” and then select and download the tiles that you want. Each tile is delivered as a zip file which you need to unzip. Within the zip file is a directory called “data” which contains the GML file.

In Map Maker click on the button “Add one or more OS Open Map Local GML files” and select the newly unzipped GML file. The file will be imported and saved to the library directory.

OS Open Map legacy features

The current version of OS Open Map omits some features which were found in earlier OS open data. These include “settlement areas” and “ornament”. Settlement areas includes areas like gardens and farmyards – areas around buildings, while “ornament” contains lines to signify rocks and scree slopes, which can be particularly useful for rural maps.

This data has been extracted from the earlier data and can be downloaded from:

<http://mapmaker.com/data/extras.htm>

OS Vector Map Local

OS Vector Map Local offers more detail than OS Open map but it is not available for free. When ordering OS Vector Map Local data you should specify either GML or GeoPackage format – by preference choose GeoPackage.

The data can be ordered from:

<https://www.ordnancesurvey.co.uk/business-and-government/products/vectormap-local.html>

When you have the data, click on the button in the dialogue box to add the tile to the library.

OS MasterMap topography

OS MasterMap is the Ordnance Survey’s most detailed data. The data can be ordered from:

<https://www.ordnancesurvey.co.uk/business-and-government/products/topography-layer.html>

Be sure to order the data in GML format. When you have the data click on the button in the dialogue box to add the GML file to the library.

OS Terrain 50 Digital Terrain Model

The Ordnance Survey “Terrain 50” data describes the three-dimensional form of the landscape in terms of spot heights on a 50 metre grid. It can be used to generate contours and bitmap representations of altitude and slope.

There are three options for installing the data. The recommended option is to download a single file, called GBterrain.db, from the Map Maker web site. This is a large file (450Mb) but it only needs to be downloaded once and then you will have terrain data for the entire UK (minus Northern Ireland). Also, once installed, it is the fastest performing option.

The second option is to use the data supplied by the Ordnance Survey which is in the form of ESRI Grid files (*.asc) which Map Maker can import. The third option is to download the data already converted to Map Maker's terrain format (*.ter) from:

<http://mapmaker.com/data/terrain.htm>

Water bodies

One of the elements of the OS Open Map data is water bodies, such as inland lakes and coastlines. It may be that you do not need all of Open Map but that the water bodies are useful to you, so we have extracted the water bodies and saved them to Map Maker DRA files which can be downloaded from:

<http://mapmaker.com/data/water.htm>

Land Registry

The Land Registry for England and Wales, and the Registers of Scotland, both provide "INSPIRE index polygons" that describe the boundaries of land holdings. The data for England and Wales is in the form of GML files while those for Scotland are Shape files. The England and Wales data can be downloaded from:

<https://www.gov.uk/guidance/inspire-index-polygons-spatial-data>

The data for Scotland:

<https://ros.locationcentre.co.uk/inspire/>

Forestry Commission's National Forest Inventory

The Forestry Commission maintains an inventory of forest and woodland across Britain. It is in the form of shape files (*.shp) that contain polygons for every area of woodland greater than 0.5 hectares. Each polygon has a basic woodland category: e.g. broadleaf, conifer, mostly conifer, etc.

In addition, there are shape files containing forest tracks on Forestry Commission land. Both sets of files can be downloaded from:

<https://data-forestry.opendata.arcgis.com/>

Northern Ireland base map tiles

The Ordnance Survey data for Northern Ireland is different to that of the UK. We have collated the different open data sets provided by Ordnance Survey Northern Ireland and created a set of base map tiles in the form of TIF files projected to the Irish Grid. These can be downloaded from:

<http://mapmaker.com/downloads/ni.tif.zip>

Northern Ireland 50m Digital Terrain Model

Similarly, the 3D digital terrain data for Northern Ireland has been converted into a set of Map Maker terrain files (*.ter) which can be downloaded from:

http://mapmaker.com/downloads/NI_ter.zip

Utilities

Utilities are for operations not directly related to creating projects. They relate to preparing and manipulating data.

Vector utilities

The vector utilities allow you to create or manipulate Map Maker drawing files (*.dra).

Import vector file

Geographic vector data comes in a range of different formats, each with their strengths, weaknesses, and idiosyncrasies. When converting from one format to another there may be some loss since the original format may contain characteristics which are not supported in the second format. For this reason, it is important to have some understanding of how formats differ.

- **ArcView shape files (*.shp)**

Shape files are the most commonly used format for geographic vector data. Two features of shape files are:

- Each shape file can only contain one object type: polygon, line, or point. There are no text objects. Occasionally Shape files can contain so-called multi-polygon, multi-line, and multi-point objects but these are not imported by Map Maker.
- “A shape file” is not really one file but rather a set of files all with the same prefix. As a minimum there are three files SHP, SHX, and DBF but there can be several others, the most common being a PRJ file. If there is a PRJ file present Map Maker will read it to determine what map projection has been used.

The DBF file contains the data attributes associated with the objects. Map Maker reads these attributes and includes them as attributes in the new DRA file.

- **MapInfo Interchange File (*.mif) and MapInfo TAB files (*.tab)**

A MapInfo MIF file is accompanied by an attribute file (*.mid). MIF and TAB file may contain a mixture of polygons, lines, and points. When imported into Map Maker the attributes from the MID file become attributes in the DRA file.

Confusingly, TAB file can contain vector data or raster data (not both at once). Map Maker only imports vector TAB files.

- **AutoCAD Data Exchange Files (*.dxf)**

As the name suggests these files are intended for CAD (Computer Aided Design) rather than for geographical applications. The majority of DXF files are not located on a geographical grid – a map projection, but rather are related to a site specific datum. However, DXF files can be used for geographic data and if you know that your DXF files contain geographic data then they can be imported into Map Maker. DXF files are generated by a wide variety of programs and not all of them truly comply with the format. DXF files may contain a wide range of different esoteric object types.

Map Maker will only import two-dimensional polygons, lines, and points . Unlike Shape or MapInfo files there is no attribute data. Where possible we advise not using DXF files.

- **Geographic Mark-up Language files (*.gml)**

In theory GML files are of a standard internationally recognised format. In practice, this is not the case. The strength of GML is that it provides a structure that enables data providers to introduce their own data types, but this means that many GML files consist almost entirely of non-standard data types, thus in most cases to import GML files we need to know which variety of GML is involved. The principal provider of GML files is the UK Ordnance Survey who produce a range of sub-varieties of GML file. Map Maker will import OS Open Map, OS Vector Map Local, and OS MasterMap Topography in GML format. In addition it will import the “INSPIRE” polygon files from the England and Wales Land Registry and generic GML files – “generic GML” files contain coordinates but no attributes.

- **GeoPackage files (*.gpkg)**

The UK Ordnance Survey is now also adopting another format called GeoPackage (*.gpkg). Map Maker will import OS Vector Map Local in GeoPackage format as well as generic GeoPackage files.

- **GPS Exchange format (*.gpx)**

GPX files are widely used by GPS devices. Objects in a GPX file (points and lines) may have a feature code. If they do then you can choose to only import those objects with specified codes.

Coordinates in GPX files are always in raw latitude and longitude. When you import a GPX file you need to select the map projection that you want for the imported file.

- **Google Earth (*.kml)**

KML files are used by Google Earth for creating vector layers. Like GPX files the coordinates are in latitude and longitude so when you import a KML file you need to choose the map projection.

- **Open Street Map (*.osm)**

A feature of Open Street Map files is that there is no limit to the attributes that may be attached to objects. Different objects within the same file may have totally different sets of attributes. When the file is imported the total number of attribute fields may be large. The coordinates are in latitude and longitude so when you import a KML file you need to choose the map projection. OSM maps are also of widely differing quality.

- **Comma Separated Variables (*.csv)**

Text files can be converted to a DRA file of point objects if correctly formatted. The text file must contain one line of comma separated values for each object and the first line must contain the names of each value. When you choose the comma separated file (*.csv) you are invited to select which data field corresponds to each of the desired fields. The two essential fields are for the X and Y ordinates. Fields which are not selected are included in the DRA file as data attributes.

- **Excel spreadsheets *.xlsx)**

As with CSV files, Excel files (*.xlsx) can be imported if they contain appropriate fields, in particular two columns giving the X and Y ordinates. Care should be taken to only attempt to import sheets that have a simple data table format – i.e. a grid of columns and rows.

Export vector file

Map Maker DRA files can be exported to a variety of formats. There are a few points to remember:

- **ArcView shape files (*.shp)**

A DRA file can contain a mixture of object types (polygon, lines, points, and text objects) while a shape files can only contain one object type (polygon, line, or point). So when you export a DRA file the type of the first object encountered will determine what objects are exported to the shape file.

- **AutoCAD Data Exchange Files (*.dxf)**

When exporting to a DXF file only the geometry is exported – styles, captions, and attribute data is ignored. Also DXF files do not support text objects.

- **GPX, KML, and OSM files**

These file types all contain latitude and longitude coordinates, so when you export a DRA file to any of these formats you need to specify which map projection system has been used.

Extract objects

The extract objects functions allows you to save to a new DRA file or files selected objects from an existing DRA file.

- **Extract objects by criteria**

After selecting a source DRA file a dialogue box lets you add one or more criteria so that only the objects that satisfy all of the criteria are saved. Or, if you tick the “invert” box then only the objects that do not satisfy the criteria are saved.

- **Extract and separate all objects by value**

This function saves all of the objects in the original DRA file but it saves them to different files depending on an attribute value. For instance, you might choose the “default style number” as the attribute. It may be that the DRA file contains objects with style numbers 1,3,5, and 6. When you use the “Save as” button to choose a name for a new file you might choose to call the file “test.dra”, but the program will actually create four files called “test-1.dra”, “test-3.dra”, “test-5.dra”, and “test-6.dra”.

Polygon topology

Where you have a set of adjacent non-overlapping polygons, such as plots of land with common boundaries, then the polygon topology tools can be used.

- **Eliminate overlaps and slivers**

Where the polygons have been imprecisely drawn there can be small overlaps or gaps between polygons which are meant to share a common boundary. It is also not uncommon to find files where polygons are duplicated so that one lays completely on top of another. This function can be used to attempt to automatically tidy up the files. Having selected a file there are four values you can set:

- **Maximum snap.** If the boundaries of two nearly adjacent polygons are within the maximum snap range then they are snapped together.
- **Minimum sliver area.** Polygons with an area below the minimum sliver area are deleted.
- **Maximum sliver area.** A polygon with an area less than the maximum sliver area is deleted if its “narrowness”, as defined below, is at or above the value specified.

- **Narrowness.** The narrowness of a polygon is defined here as its boundary length divided by the square root of its area. A typical useful value is between 5 and 10.

○ Hierarchy

Some sets of adjacent polygons are organized in hierarchies, such as regions within a country, districts within a region. Or, woodlands divided into compartments and sub-compartments. Such a hierarchy can be implied by the names of the polygons. For instance, a woodland polygon may have the default caption “11b”, which will be interpreted as sub-compartment “b” of compartment “11”. Equally the polygon may have data attributes for compartment and sub-compartment containing “11” and “b” respectively, in which case you can choose those two columns to specify the polygon name.

Having specified what attribute or combination of attributes to use for the name then you can save the result. When you click on the “Save result as” button you are offered options:

- **Save boundaries.** The boundaries between polygons and the outer boundaries are saved as lines each with a style number to indicate the “level” of the boundary.
- **Save level 0 polygons (the outline).** Saves the contiguous group of polygons as one large polygon, so the fields of a farm would be saved as one polygon showing the entire area of the farm.
- **Save level 1 polygons.** The polygons at the top level of the hierarchy are saved, so in the example of a woodland the compartments would be saved.
- **Save level N polygons.** Similarly, for each level of the hierarchy you can save the corresponding set of polygons – e.g. woodland sub-compartments would be level 2 polygons.

[Click here to watch video on polygon hierarchies](#)

○ Merge polygons by criteria

Adjacent polygons will be merged if the values of a specified attribute, or attributes, are the same. So, if you had woodland polygons that had an attribute for “species” you might choose to merge all of the polygons that had the same species specified.

○ Outside boundary of polygons

The outside boundary of a set of polygons can be saved as one or more lines.

Transform

The transform functions convert one set of objects in a DRA file into another set of objects:

- **Polygons to seed points.** For each polygon a “seed point” is identified – i.e. a point guaranteed to be inside the polygon – and the seed point inherits the attributes of the polygon.
- **Polygons and line vertices to points.** Polygon boundaries and line objects are “exploded” so that each vertex becomes a point object.
- **Polygons and lines to points.** The lines and polygon boundaries are re-sampled so that the gap between consecutive vertices does not exceed a specified maximum value, and then the objects are exploded so that each of the new vertices becomes a point object.

- **Points to a line.** A file consisting entirely of points will be converted into one line object where the order of the points in the file becomes the order of the vertices along the line. Typically, this might be used to convert GPS waypoints into a route.
- **Points to text objects.** Particularly when importing objects from another format which do not support text objects, things like place names may be recorded as points, where the text is the caption of the point. This function allows you to convert such points into text objects.
- **Text objects to points.** Similarly, when exporting data to other programs you may first want to convert text objects into points.
- **Lines to polygons.** Where you have a set of lines that indicate boundaries between polygons, or the outer edge of a set of polygons, then this function will attempt to generate a set of polygons from those lines.
- **Stitch lines together.** Where you have a file of lines where lines often start where another line ends, such as a road map made up of line segments, then this function will stitch lines together to try and minimize the total number of lines.
- **Spaghetti.** If you have a file of polygons and/or lines that cut across each other then this function identifies the intersections and breaks up the lines and polygon boundaries and then attempts to convert the newly formed lines into a coherent set of contiguous polygons.
- **Merge adjacent polygons.** The boundaries between the polygons need to be well-formed.
- **Polygons to lines – well formed polygons to lines.** If the polygons are well formed – that is to say you know that the boundaries between polygons are precise – then you can use this to generate a network of lines representing the polygon boundaries.
- **Polygons to lines – bad or uncertain polygons to lines.** If you cannot be sure that the polygons are well formed then use this option which will first attempt to repair the polygons, eliminating overlaps, before generating the lines.
- **Shift coordinates.** There can be circumstances where you simply need to shift the contents of a DRA file. This may be where features have been mapped relative to an arbitrary origin and you now want to place the features relative to map coordinates.
- **Stretch or rotate coordinates.** Similarly, there can be circumstances where you need to rotate coordinates, or stretch dimensions because maybe the file is in the wrong units – i.e. feet rather than metres.
- **Make polygons square.** Typically this is used where building outlines have been traced from aerial photography. Inevitably, the corners of the buildings will not be perfect right angles. This function attempts to rectify this by adjusting almost rectilinear polygons so that they become rectilinear.

Clip

The clip functions are used to clip the contents of a DRA file so that objects, or parts of objects, that fall outside a defined area are discarded.

○ Clip to box

After you select a file the clip box can be set either by entering numeric ordinates or else by dragging the red edges of a box on the preview.

- **Clip to polygons**

After you select the file to be clipped choose a second file containing one or more polygons. The original file is then clipped to the boundaries of the second set of polygons.

Intersect files

Two files of polygons can be superimposed in order to create a new set of polygons. Where polygons cut across each other they are automatically cut. You can then choose which of the new polygons to save, such as to only save the polygons which fall inside the polygons of the first file. You can also choose whether to inherit attributes from the first file, the second file, or both.

Inherit attributes

The objects in one DRA file can inherit attributes from those in another. There are two options:

- **From polygons.** If the file containing the attributes, the “source” file, has polygons then an object in the other file – the “target file” – will inherit attributes from the polygon which its seed point is over.
- **From points.** If the source file consists of points then a polygon in the target file will inherit attributes from the first point it encounters in the source file that falls within the polygon.

Choose your option then select the file that you want to inherit attributes – the “target” DRA file. Then, in the dialogue box that appears, choose the DRA file containing the attributes. This could be a file with polygons or a file with points depending on which option you selected.

The attributes contained in the source file are then listed – by default they are all selected. You can choose to de-select those that you do not need. Finally click on “Save result as” and name a new DRA file, or the original target file if you do not mind over-writing it.

Buffer zones

Buffer zones of a specified width can be generated around lines and points, inside polygons, or outside polygons. When generating zones inside polygons then you can choose the option “retain residual areas”, meaning that if you create a buffer zone around the boundaries of a field the area remaining in the centre of the field will also be retained as a separate polygon.

Amend labels

These functions can modify the characteristics of all the object labels in a DRA file:

- **Set all default captions.** Sets the default caption of all the objects to a single value – which can be a blank.
- **Rotate labels.**
- **Shift labels.** Shifting all the labels can be useful where the labels of one layer clash with those of a related layer.
- **Set justification of labels.** The same applies to setting the justification of labels.
- **Thin default captions.** Where you have many closely spaced objects, such as a large number of points, it can be useful to delete a proportion of the captions.

- **Ensure polygon labels are inside.** Where labels have been edited it can occur that some polygon labels are located outside of the polygons. Use this function to place the labels' insertion point inside the polygons.

Merge two DRA files

A DRA file may be added to another DRA file. Select the two files and then in the dialogue box options are given for how to handle duplicate objects:

- **Allow duplicates.**
- **Do not allow duplicates – keep first instance.**
- **Do not allow duplicates – keep second instance.**

For the second and third options you need to specify which attribute of the objects to test to determine if it is a duplicate.

Eliminate duplicate records in a DRA file

Where an attribute of two or more records in a DRA file share the same value then this function can eliminate the duplicate record or records.

Resample lines

Lines and polygon boundaries are re-sampled to give a more even distribution of vertices. Two methods can be used:

- **Uniform spacing.** Vertices are placed at a uniform spacing along the line. Existing vertices are discarded.
- **Preserve existing vertices.** Existing vertices are kept while new vertices are introduced where the distance between two consecutive original vertices exceeds a specified maximum distance.

Generate cells

A new DRA file can be created as a set of evenly spaced identical cells. The cells can be rectangles, triangles, or hexagons. In addition, you can specify a gap between cells.

Bitmap utilities

The bitmap utilities enable you to manipulate bitmap (raster) images.

Calibrate bitmap

Not all bitmap images need to be calibrated before they can be used in Map Maker. For instance, ECW and GeoTIFF files are always pre-calibrated. Note that GeoTIFF files have the same file extension as regular TIFF files (*.tif). Bitmap tiles from the Ordnance Survey are often named using the naming convention of the British National Grid (e.g. "NR45.tif"). In such cases Map Maker recognises the name and automatically applies the appropriate calibration and so such files do not need to be calibrated.

Other bitmaps (bmp, jpg, and tif) need to be calibrated. Sometimes bitmap images are supplied with calibration information in the form of a “world” file. A world file has the same prefix as the bitmap file but a different suffix:

- The world file for “test.bmp” will be called “test.bpw”.
- The world file for “test.jpg” will be called “test.jgw”.
- The world file for “test.tif” will be called “test.tfw”.

If you have such a world file then it must be kept in the same directory as the bitmap file. If you do not have a world file then the image needs to be calibrated. There are four techniques available:

○ Known point and known distance

This is the most commonly used technique and applies to maps that are orientated with north at the top and is particularly suited to maps that already have a grid on them. Choose the image file (*.bmp, *.jpg, or *.tif) . The image is shown superimposed with two reference points, A and B. Drag reference point A to a point with a known coordinate, an intersection of grid lines is ideal, enter the X and Y ordinates of the point. Then drag reference point B to a point a known distance away from reference point A – again an intersection of grid lines is ideal – and enter the distance in metres.

The best result is achieved when the distance between A and B is as large as possible, so it is good to choose a location for point A close to the left edge and a location for point B close to the right, or vice versa.

When you click on the “Finish calibration” button the image will be calibrated and a “world file” will be generated that needs to accompany the original image; if your original file is called test.tif then the world file is test.tfw. Similarly, test.bmp results in test.bpw, and test.jpg results in test.jgw.

○ Two known points

The two known points technique is usually used when north is not guaranteed to be at the top – for instance, this is often the case with raw aerial photography. Choose the image file and again two reference points, A and B, are shown. Try and find two known locations that are as far apart from each other as possible. Drag A to the first known point and enter its coordinates. Drag B to the second point and enter its coordinates.

When you click on “Finish calibration” you will be asked to name a new file. Map Maker will rotate the original image such that, given the two defined points, north will be at the top of the image. Again a “world file” will be generated along with the new image.

○ Four known points near corners

There are circumstances where the original image will not fit on the map grid however it is rotated. This may be because it is a scan of an inaccurate historic map, or because it is on a different and unknown map projection, or because it is a relatively crude aerial photograph. In such cases you need to stretch the image so that it makes a best fit with the true grid.

Choose your file, then drag and specify the coordinates of the four reference points A, B, C and D. The four points should be as near the four corners as you can get. Then click on “Finish calibration” and name a new filename.

- **Fit to reference vector file**

Often the image that you want to calibrate will be intended as a backdrop for already existing vector files (DRA files). In such cases the easiest way to calibrate the image is by aligning it with an existing DRA file. Choose this option and then select the reference vector file (DRA or SHP file). Then choose the image that you wish to calibrate. The image will be placed over the vector file in an arbitrary position. Identify a point on the vector file that you can also identify in the image – the “point” can either be a point object or a point on a line or polygon boundary. Click on the point on the vector file – it is now placed in the centre of the view.

Place the cursor over the “drag” box, then drag the image so that the reference point corresponds with the same point on the image.

Now place the cursor anywhere over the red circle to rotate and stretch the image so that it fits the vector file.

Finally click on “Save calibrated image as”, to create a new calibrated file.

- **Known extent of image**

If the image has north at the top and you already know precisely the area covered – i.e. you know the coordinates of the corners – then you can simply enter the values for the left X, right X, and bottom Y.

Convert format

The convert format functions enable you to convert between bmp, jpg, and tif formats. You can also invert monochrome images.

Make extract

Use this to make a calibrated extract from a calibrated bitmap. Choose the bitmap file then in the dialogue box you can either define the extract area by dragging the edges of the red box or else by specifying numeric values. If the latter then *either* enter the left and right X ordinates, and the top and bottom Y ordinates, or enter the coordinates of the centre of the desired area along with the width and height in metres.

Reduce size of image

This function can be used to reduce the size of an image file or of a group of image files. Select a file or files. The ensuing dialogue box lets you choose a file format for the resulting file or files (*.bmp, *.jpg, or *.tif) and to specify a multiplication factor, which should be less than one.

If you choose a group of files then you are asked to choose a directory where the result files will be saved. Each result file will have the same file prefix as the corresponding original file.

Raster to vector

Calibrated monochrome bitmaps can be converted to vector files. Note that large files will take a long time to process. There are three options:

- **Monochrome edges to vector**

This function creates a vector line at every junction between a white and a black pixel. This ensures that no detail is lost but has the disadvantage that all the lines are stepped just like the pixels.

In the dialogue box there is the option “save as polygons”. If this is not ticked then the result is saved as lines.

- **Thinned monochrome to vector**

Black lines and areas are eroded so that they are no more than one pixel wide and then vector lines are generated that run along these lines. Small groups of pixels are discarded. If the “delete dangles” option is ticked then only lines that enclose areas are preserved.

- **Flood-fill to vector**

The flood-fill option allows you to just pick the areas that you need. As you move the cursor over the image a red area indicates what area would be flooded if you “poured” from the current cursor position. If you then click, a polygon is generated corresponding to that area. A potential problem with flood-filling is that a small gap in the bitmap lines can result in the flood escaping into areas that you do not want. For this reason, in the bottom left of the screen, you can choose a “Line” tool. This permits you to draw temporary lines. When you go back to the Flood-fill tool the flood does not cross the temporary lines.

Create zoomable tile set

A “zoomable tile set” is a raster image which is optimised for rapid display at different scales. You can create a zoomable tile set, with an “MMtiles” file extension, in two ways:

- **From a single large file**

Select a calibrated image (TIF, JPG, or BMP).

- **From a directory of tiles**

If you have a set of calibrated raster tiles (TIF, JPG, or BMP), such as ortho-rectified aerial photography, you can process this set to create one file. It is important that all of the files are calibrated, square, and of the same size.

Web Map Services utilities

Web Map Services (WMS) are an internet protocol for sharing geo-referenced images over the internet. In Map Maker you can use WMS to provide the data for a layer. In order to do this you first need to create a Map Maker WMS file (*.wms) that specifies the internet connection and any options.

Click on “new Web Map Service file” and in the URL field enter the full address of the server. An example is:

https://map.bgs.ac.uk/arcgis/services/BGS_Detailed_Geology/MapServer/WMSServer?

If the address is valid, and you are connected to the internet, then a list of one or more “available layers” will appear below. Click on the layer that you want to use, then click on “save as” to create the *.wms file. This file can now be selected as a layer file in the main map window.

Database utilities

Map Maker DRA files can contain data attributes and so can be treated as data tables. In addition, Map Maker can use DBF, CSV, and XLSX files.

Edit data table

○ Edit DRA attributes

Some attributes are common to all DRA files, such as "default caption", "default id" and "default style number". Some cannot be edited, such as the area and the object type. These attributes cannot be deleted or moved, though they can be hidden. In addition, there can be user defined attributes which are fully editable.

By clicking on the beginning of a row you can view the row menu which allows you to delete a record or move it up or down but you cannot create new records since each record needs to be associated with a polygon, line, point or text object.

Placing the cursor on the downward arrow at the top of a column displays the column menu. Amongst other things, this allows you to filter the data or set the data to one value. Both of these functions behave differently depending on the data type of the column. For instance, if the column holds numeric values then the "set all values to" function allows you to generate values by combining two existing values with a choice of basic arithmetic operators.

Note that when you use filters, or use the "sort ascending" or "sort descending" functions, you are not changing the structure of the file just how it is currently displayed. The results of any filtering or sorting are not saved if and when you update the file.

If the column contains "string" values then the column menu will include the option to use a pick list – assuming that you have already created one or more pick lists under the "Resources" page.

Click on the "update file" menu item to save any changes.

○ Edit DBF or CSV

When editing a DBF or CSV file, all of the columns are editable and you can add new records. To add a record click in one of the data fields in the last row labelled "new".

Other features are as for editing a DRA file.

Export DRA attributes

The attributes of a DRA file can be exported to a DBF or CSV file.

Import attributes to a DRA file

Attribute data can be imported into a DRA file from a DBF, CSV, or XLSX file. First select your DRA file and then the data file. In the dialogue box that appears you can opt for the data files records to be linked to the DRA objects on the basis of their serial order – i.e. the first data record is imported into the first object in the DRA file and so on. Or, you can select an existing attribute of the DRA file, such as the ID, that should be used to select a data record based on a link field in the data table.

Update external data field from a DRA attribute

A typical use for this function may be where you have a data file which includes a column for polygon areas. If you edit the polygons in the DRA file the polygon areas may change, so you can use this function to copy the updated areas into the external data table.

Latitude and longitude utilities

Generate world map

Map Maker includes a vector world map showing country boundaries and coastlines. Using the “generate world map” function the map can be exported in a variety of forms. In each case you have the option to save the country outlines, the background sea area, and the latitude and longitude grid, with grid lines every 15 degrees. The result can then be saved as a DRA file. The projections available are:

- Unprojected lat/long.
- Mercator
- Times
- Orthographic
- Gall equal area (aka Peters)
- Dudley equal area

WGS84 lat/long to projected XY

If you have a file in latitude and longitude coordinates you can convert it to an appropriate map projection. The file can be a vector file (DRA, GPX, KML) or a calibrated bitmap file (BMP, JPG, TIF). Choose the file then choose a map projection. The projection should be appropriate for the coordinates of the file – for instance if your file is of an area of North America, selecting the British national grid as the projection will result in unexpected and unsatisfactory results.

Projected XY to WGS84 lat/long

Similarly, a map in projected XY coordinates can be converted to latitude and longitude. The file can be a vector file (DRA) or a calibrated bitmap file (BMP, JPG, TIF). Again you need to select an appropriate map projection.

Import EPSG specification

The map projection specifications maintained by the European Petroleum Survey Group (EPSG) are widely used. Map Maker includes a library of over 1300 EPSG definitions. Occasionally new EPSG definitions are produced as PRJ files. You can use this function to import such a file into Map Makers library.

Note that Map Maker only supports EPSG definitions which use “transverse Mercator” projections and “Lamberts conformal conic” projections. This covers around 98% of the available EPSG definitions.

3D terrain utilities

Import ESRI ASC grid file or files

The most common form of recording altitude data is in ESRI ASC files. These are text files containing spot heights on a rectilinear grid. As such they are simple to generate and interpret but, being text files of variable size, are far slower to read than binary files. For this reason Map Maker converts ARC files to Map Maker TER files.

Import spot heights

Altitude data may be provided as spot heights that are not on a grid. The raw data can be in the form of an XYZ or CSV file. Both are text files with a line for each record. Each line of an XYZ file contains the X, Y, and Z ordinates of a point separated by spaces, and no other data. A CSV file may contain many fields. The first line contains the names of the fields. When you import a CSV file a dialogue box invites you to identify which columns to use for the X, Y, and Z ordinates.

After the file has been read, XYZ or CSV, the program generates a surface of triangular facets and then imposes a rectilinear grid over the surface. A dialogue box suggests a suitable grid spacing. Once you have settled on a grid spacing the triangular surface is sampled to assign Z values to the intersections of the rectilinear grid and the grid is saved to a Map Maker TER file.

*Make extract from SRTM *.hgt file or files*

The “Shuttle Radar Topography Mission” was a NASA project that recorded a three dimensional surface model for the world. The model uses heights on a latitude and longitude grid. In order for it to be useful in Map Maker the data needs to be converted to your local projection. Before using this function you need to download the relevant tiles from:

[https://search.earthdata.nasa.gov/search/granules?p=C1000000240-LPDAAAC_ECS&pg\[0\]\[gsk\]=-start_date&q=srtm%20v003&tl=1592218161!4!!](https://search.earthdata.nasa.gov/search/granules?p=C1000000240-LPDAAAC_ECS&pg[0][gsk]=-start_date&q=srtm%20v003&tl=1592218161!4!!)

Store the unzipped tiles in a single directory then use this utility to extract a rectangular area using coordinates in your chosen projection. The extract is stored as a Map Maker terrain file (*.ter).

Make extract

The “make extract” function is used to copy an area of an existing surface to create a new TER file. You can make an extract from a TER file or if you are in the UK and, from the Resource page, you have loaded the GB OS Terrain 50 Digital Terrain Model then you are given the option to make an extract from the GB model. In either case you can specify the extract area in three ways:

- By dragging the red box to define the edges of the extract area.
- Numerically specifying the minimum and maximum X and Y values.
- Numerically specifying the centre of the area and then the width and height of the area.

Generate contours

The generate contours function works like the “make extract” function described above but with an additional setting for the contours vertical spacing. The results are vector contours saved to a DRA file.

Generate bitmap

The generate bitmap function creates a bitmap representation of a 3D surface. It works like the “make extract” function but has additional options. Having defined an area you should specify the desired width of the bitmap in pixels and then select which rendering options you want to use.

- **Altitude.** Use a range of colours to indicate altitudes.
- **Slope.** Use grey shading to indicate the amount of slope. If you tick the “with direction” box then the intensity of grey is also dependent on the compass bearing that the slope faces – slopes facing south east will be paler, slopes facing north west will be darker.
- **Contour.** Contours will be generated at the vertical spacing that you specify. Every fifth contour is drawn slightly thicker to make the image easier to read.
- **Catchment.** The catchment option displays lines that show the paths that rain will run off the slope, all else being equal.
- **Ridges.** Ridges are shown in red, valley bottoms are shown in green. The smaller the “sample spacing” the more points are used to compute the ridge lines and so more subtle “ridges” are detected. However, the smaller that you make the sample spacing the more that the image becomes crowded with ridge lines. The greater the “fineness” setting the greater the precision but the visual impact is reduced.

Terraform bitmap

“Terraforming”, in this context, means taking an existing calibrated bitmap tile, such as an Ordnance Survey map, and modifying it using the options described above when generating a bitmap in order to create a more three-dimensional impression.

Map Maker versions 3 & 4 utilities

These utilities are to help to deal with legacy data from earlier versions of Map Maker. Most Map Maker data, such as DRA files, reads into version 5 without any need to make changes.

Import project

Like version 5, both version 3 and 4 used GEO files to specify projects. However, since version 5 has new options the project file contains small differences. Project files from versions 3 and 4 can be opened directly on the map page but when you open these a message is displayed warning that the project file was created using an earlier version. This utility can be used to create a version 5 project file from an earlier version. Note that a version 5 project file will not open in either version 3 or 4.

Import styles

Version 5 has introduced many more options for styles and as a result the format for storing style definitions has had to be updated. As in version 4 styles can be stored either in a separate style file (*.styles) or as part of a project file (*.geo). Version 3 styles can be imported from version 3 style files (*.stl), while version 4 styles can be imported from version 4 style files (*.MMstyles) or from project files.

Import symbols

In version 3 each custom symbol was stored in a separate file (*.syb). In version 4 symbol definitions were stored as part of style sets. In version 5 symbols definitions are stored either in a system

symbol library or else as part of a project file. The symbol definitions are then referred to by style definitions. The import symbols function permits import from version 3 SYB files and Map Maker 4 MMstyle files and project files.

Import page templates

Version 5 page layouts offer more options in terms of anchoring and grouping page elements. As in earlier versions the page layout can be stored in the project file or in a separate template file. Version 3 template files (*.ptp) and version 4 page templates (*.MMpage) as well as page layouts in project files (*.geo) can be imported into the version 5 page templates (*.template).

Import shortcut buttons

In versions 3 and 4 one element of “map furniture” available as an option in page templates was “button controls”. These allow such things as loading a different project or displaying a document or image. However, as button controls are not relevant to a printed page they have now been removed from page templates and replaced by project “shortcut buttons” that, when used, appear in the top left of a map.

The import shortcut buttons function lets you import button controls from version 3 and 4 project files and save them to a shortcuts file (*.shortcuts).