Land Management Support

PT-MAPPER PROFESSIONAL™

for
Arboriculture and Forestry

USER MANUAL

Version 5.67 and higher

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1. INTRODUCTION TO PT-MAPPER PRO

PT-Mapper Pro has been designed specifically for those who are not IT specialists and who are unlikely to be working on mapping as their main profession but who nevertheless need a competent, easy to use, robust system to help them in their work.

About PT-Mapper:
PT-Mapper can handle a wide variety of maps and images, but in Great Britain the maps are likely to be based on Ordnance Survey's MasterMap data or on CAD drawings supplied by client companies. The software enables you to:

- Measure distances and areas accurately
- Plot trees, their canopy spread, the root protection area and the tree shadow area either manually or directly from on-site survey data held in a PDA or Tablet PC. Note - PocketGIS required for mobile data capture.
- Add text.
- Colour areas for different categories of planting, land use, ownership etc. and add a Legend
- Automatically add your organisation's name, contact information, logo, scale and date to a map in a Title Block.
- Automatically add a colour key to your map.
- View/print the whole map or parts of a map at any scale on any size paper.
- Email maps to those without Pear software.
- Incorporate maps into reports and other documents.
- Draw utilities, services, special features onto the map.
- Create themes or groups of layers which can be switched on or off at will.
- Open more than one map at a time, making it easy to copy/paste from one map to another.
- Export selected areas of a map to create a new, independent map of the chosen area.
- Export a map and associated data capture schemes in a single step into a mobile data capture device.
- Exchange maps with other mapping/GIS/CAD software.
- Link to Google Earth for aerial imagery. Draw on Google Earth and copy/paste back onto a map.

Demo maps:

For Windows XP computers, demo maps can be found in the My Documents\Pear Technology\PTMapper\Sample Maps folder. For Vista/Windows 7/8 users, the demo maps are found in Documents\Pear Technology\PTMapper\Sample Maps folder. They include:

a) An example of an OS large-scale MasterMap vector map.
b) The Farm Demo map – an example of a finished farm map.
c) An example of Ordnance Survey 1:25K raster maps.
d) An example of a scanned map.
e) Tree demo map
f) Tree survey CSV file

These will appear in the Sample maps folder when you open a map the first time you start PT-Mapper Pro.

Map Units:

Although the PT-Mapper Pro default setting is to show distances in metres and areas in hectares, the units of measure can be changed by selecting Units on the top menu line.

The map coordinates shown on the Status Bar at the bottom of the screen will always be in metres (default setting), but lat/long can also be used by selecting Options from the Options menu on the top menu line.

Jargon:

Throughout this Guide, we have tried to minimise jargon. However, there are some terms which are difficult to escape. Here they are:

Node	Each line section in a vector map is joined at a node and the node point represents a set of easting and northing coordinates stored in the map file. These nodes become visible as black dots on a red line when a map object, such as a line or building is selected. Nodes can be dragged, cut, deleted or inserted using the mapping tools.
Polyline	Any line on the map which can be made up of any number of sections.
Polygon	An enclosed area with any number of sides. Examples would be buildings, ponds, fields. **The area within a boundary can only be measured if the boundary is a closed (i.e. sealed) polygon.**
Layers	Maps are constructed in layers or overlays, analogous to overhead transparencies. Each type of map object can be placed on its own layer, and each layer can be switched on or off independently and given its own colouring system.

Map Types:

Vector	Map is constructed in layers with each type of feature on its own layer. Each line, building, text object is individually selectable and editable. OS Land-Line and MasterMap data are examples and are invariably more expensive but more accurate than raster maps.
Raster	Map is a single image over which vector lines, polygons, text can be added. Just like a digital photograph, individual objects cannot be separated from the rest of the map. OS 1:25000 Mid-scale is a good example, a home-scanned map would be another.

2. INSTALLATION

2.1 PT-Mapper Pro Licence Statement

This software is protected by both United Kingdom copyright law and international copyright treaty provisions. Therefore, you must treat this software just like a book, except that you may copy it onto a computer to be used and you may make archival copies of the software for the sole purpose of back-up and protecting your investment from loss.

By saying "just like a book", Pear Technology Services Ltd. mean that the software may be used by any number of people and may be freely moved from one location to another, so long as there is no possibility of it being used at one location while it is being used at another. Just like a book that cannot be read by two different people in two different places at the same time, the software cannot be used by two different people in two different places at the same time.

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2.2 Ordnance Survey Copyright

The Ordnance Survey digital map data incorporated with this software are protected by Crown Copyright. They can only be used as demonstration/evaluation data with PT-Mapper Pro and may not be copied, resold or distributed in any other form, without the prior written permission of Ordnance Survey.

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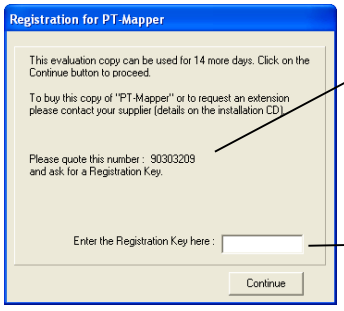
2.3 Installation

Requires Windows XP, Vista, 7 or 8. Will also run under Windows Server 2003 onwards. Will not run on Apple systems unless Windows is also installed.
Insert the CD, wait a few seconds and PT-Mapper Pro will automatically start to install, then follow the on-screen instructions. A short-cut icon will automatically be placed on your Desktop.

2.4 Registration

To enable users to try out PT-Mapper Pro before committing themselves to a purchase, the programme comes with a 14-day timelock on it. Within the 14 day period, you can click on the Continue button (see below) and PT-Mapper will work normally. To continue using PT-Mapper Pro beyond this time, a Registration Unlock Key is required which will be specific to each computer. The Registration Unlock Key can be obtained from your supplier, usually on receipt of payment. Until the programme has been registered, print-outs will have "Unregistered Copy" superimposed on the map.



Telephone, email, fax your supplier with this number. Please allow up to 24 hours for the Registration Unlock Key to be sent back to you.

When you have your Registration Unlock Key, type the number in here. The program will then be opened for indefinite use.

2.5 De-Installation

From the Desktop, click on Start, Settings, Control Panel, Add/Remove Programs. Click on PT-Mapper Pro and then on the Remove button. De-installation will be thorough and will not impact other programmes or your maps.

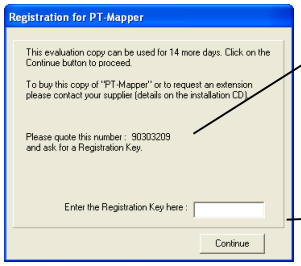
2.6 Updates

In PT-Mapper, click on Help, Check for Updates and your program can be automatically updated via the Internet. Updates from a CD can be installed as for a first time installation – the new programme will simply overwrite the old. This will not affect any maps that have been saved provided that they have not been saved in the same folder as the PT-Mapper Pro programme.

3. STARTING PT-MAPPER PRO

3.1 Timelock

To enable users to try out PT-Mapper Pro before committing themselves to a purchase, the programme comes with a 14-day timelock on it. Within the 14 day period, you can click on the Continue button (see below) and PT-Mapper will work normally. To continue using PT-Mapper Pro beyond this time, a Registration Unlock Key is required which will be specific to each computer. The Registration Unlock Key can be obtained from your supplier, usually on receipt of payment. Until the programme has been registered, print-outs will have "Unregistered Copy" superimposed on the map.

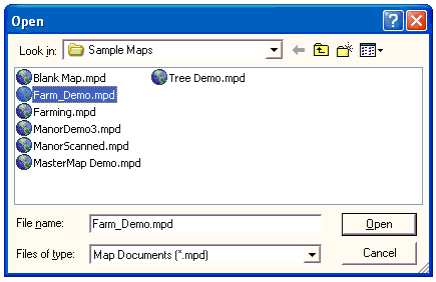


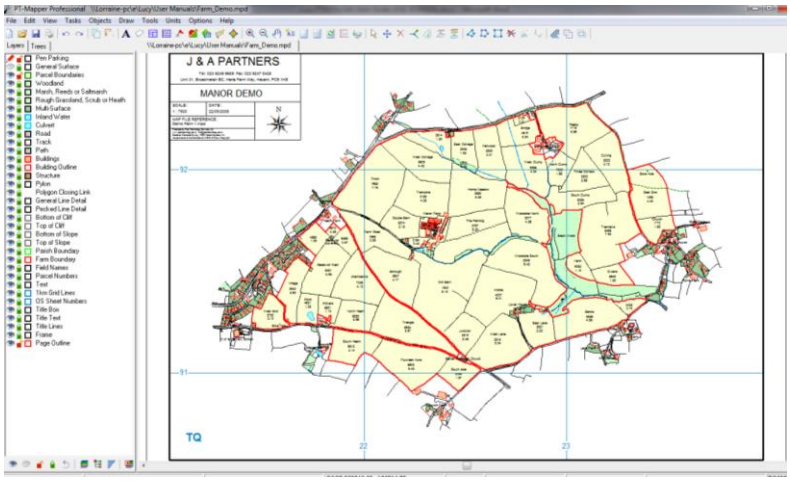
Telephone, email, fax your supplier with this number. Please allow up to 24 hours for the Registration Unlock Key to be sent back to you.

When you have your Registration Unlock Key, type the number in here. The program will then be opened for indefinite use.

3.2 Open an existing map

Click on File, Open and select the Farm Demo map:

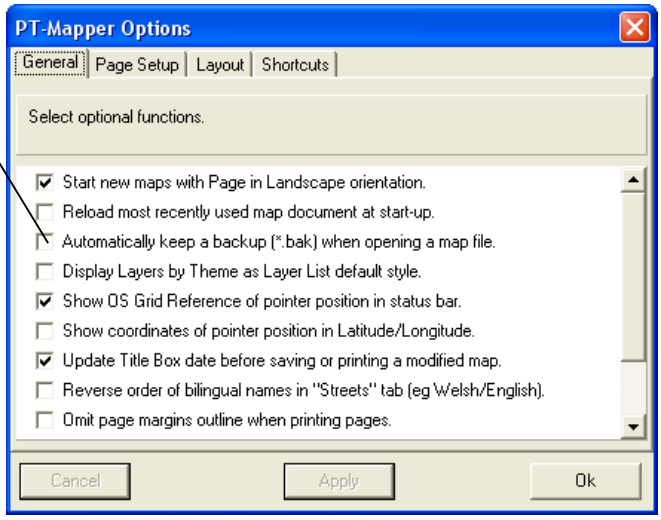




3.3 Options Set Up

Click on Options in the top Menu line to get:

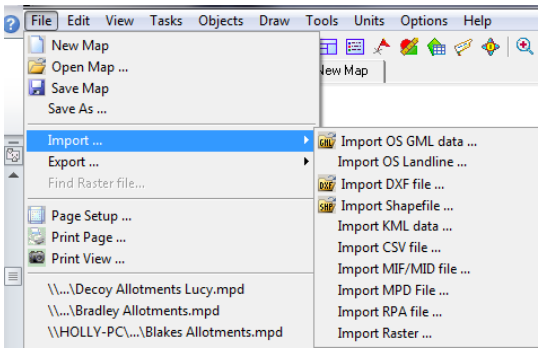
A copy of your map will be saved whenever you first open a map. This enables you to backtrack if things go wrong!



We recommend you start with the Options as shown above.

3.4 Import Formats

Select File, New to create a blank map page.
Click on File, Import and select from one of the following formats:



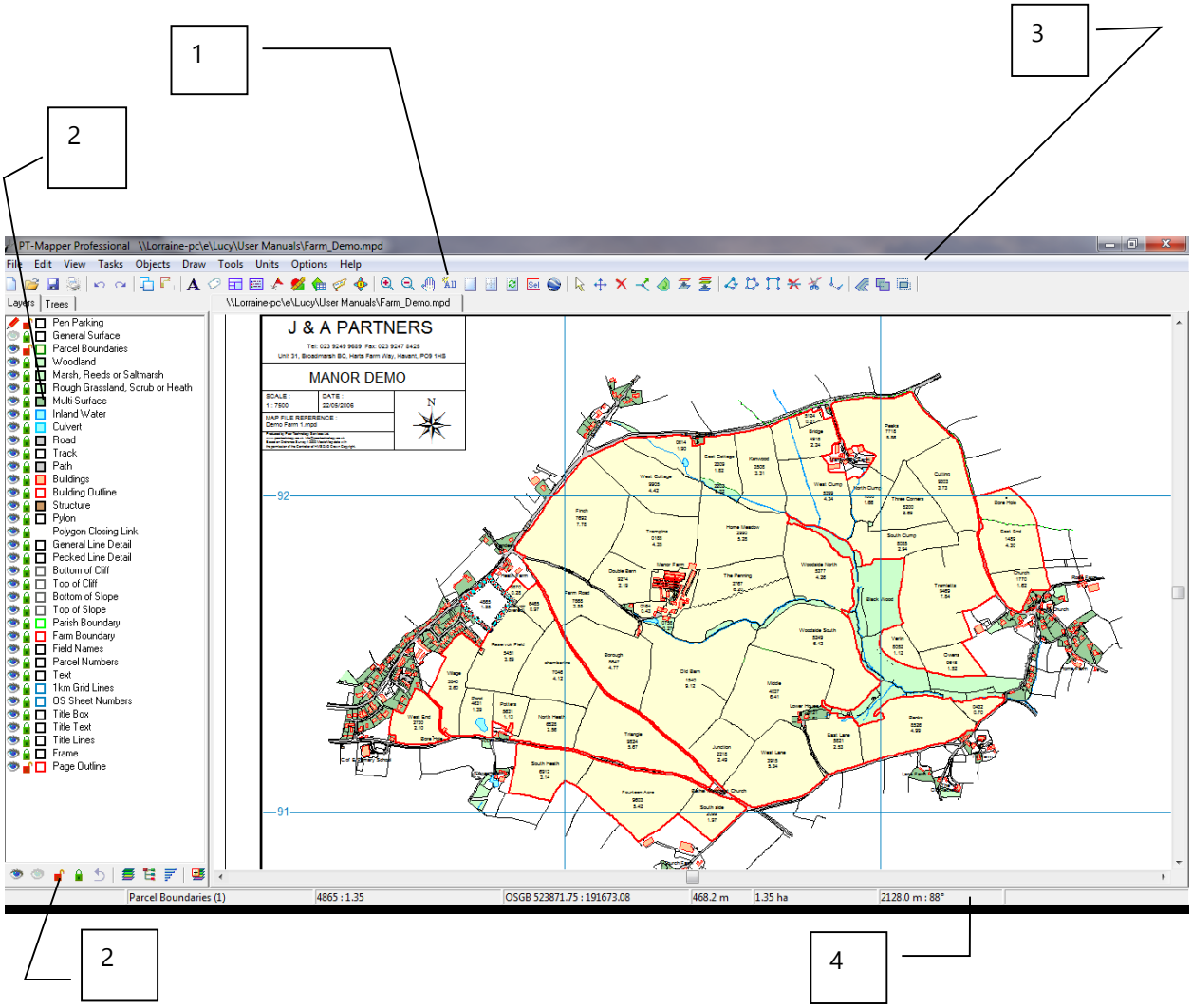
Select Import Raster and browse to Pear Technology\PT-Mapper\Samples folder, then choose SJ53, an example of Ordnance Survey's 1:25000 scale mapping. See Appendix A for more detail.

3.5 Scanned Maps

Refer to Appendix A for information on working with a scanned map. However, a demo scanned map is available in the Documents\Pear Technology\PTMapper\Sample Maps folder.

4. USING PT-MAPPER PRO

4.1 Screen Explanation



4.1.1 Tabbed Maps

Fast switching between maps by clicking on tab. Close a map by clicking on the red cross for that map on the tab label.

4.1.2 Layers

Full details on Layers and Layer Controls are given in Section 5.

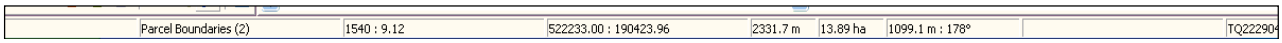
- Double-click on Eye symbol to make that layer active. Highlight a layer, then right click on it to add a new layer or change properties.
- Eye denotes that all features on the map on that layer are visible. Click on Eye to make layer non-visible.
- Padlock denotes that all features on the map that are on that layer are locked – they cannot be edited or deleted. Click on Padlock to change status.

- Change ALL Layers control at bottom of LH panel. Other buttons are for selecting Group/Themes or Visible Scale Range modes.

4.1.3 Customisable Toolbars

Right click on tool bar line to add/remove tool icons. Right click again in Toolbar grey area to complete customisation.

4.1.4 Status Bar

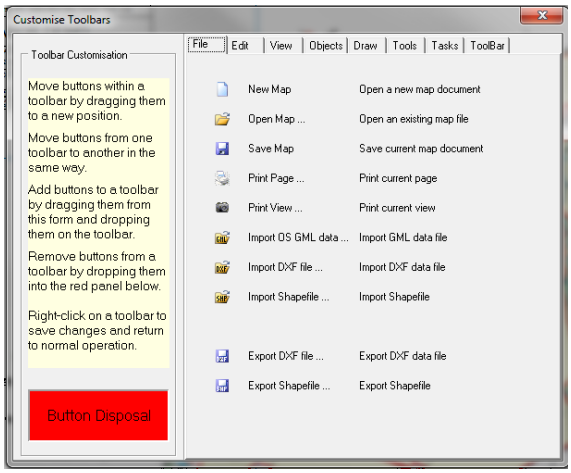


Bottom of screen. From Left to Right, gives information on:

- Layer that the selected object(s) is on and in brackets the number of objects selected.
- The Identifier and Description of selected object if available.
- Full Easting and Northing Ordnance Survey Grid Coordinates in metres.
- Length of selected line(s) in chosen units.
- Area of selected polygons in chosen units.
- Distance and bearing of cursor from last click.
- Ordnance Survey Grid Reference for the cursor position.

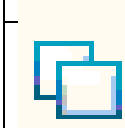
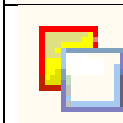
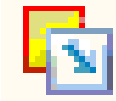
4.2 Menu Lists and Tool Icons

A full set of tools can be viewed by right-clicking anywhere in the grey toolbar area. The tool bars can be fully customised to suit your needs.

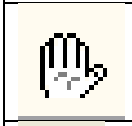
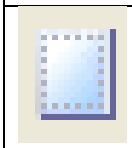


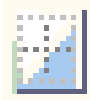
The tool bar icons can be extended into 2 rows if required. Click on View, Options, Layout. The changes will take effect on re-starting PT-Mapper.

4.2.1 Edit

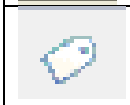
	Undo
	Re-do
	**Copy**
	**Paste**
	**Paste Here** Pastes selected object(s) at cursor position.
	Paste Google KML Pastes onto map lines/areas drawn in Google Earth.

4.2.2 View

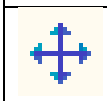
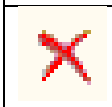
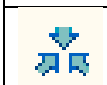
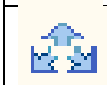
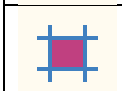
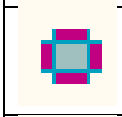
	Zoom In. Select, then click on map. **Right click to switch off**. or Select, then drag a rectangle around area of interest. **Right click to switch off.** **Zoom Out.** As for Zoom In. **Fast Zoom In/Out:** Use the Numerical keypad on the RHS of your keyboard, switch the Num Lock on, then use Ctrl and + or Ctrl and – to zoom in or out.
	**Pan** Left click to select the tool, place the cursor on the map, hold the left mouse button down and drag the map.
	View All. PT-Mapper Pro will fit all map objects to the map window. This is the mode that PT-Mapper Pro uses when opening a map, so the map will fill the available screen area.
	**View Page.** Fills the map window area with the page outline. (**Note**: the page outline is only shown when the Print tab is selected.)
	View Selection Provided that its layeris selectable, each object on a map e.g. line, building, text, can be selected by clicking on it. When it is selected it will appear highlighted in red. If you then click on View Selected Object tool, PT-Mapper Pro will fit the selected object(s) to the map window. (See 5.1 on Selecting Objects)

	**Centre Page** Lets you centre the page around the area of interest. Centre the area of interest on the screen, then click on the Centre Page tool.
	Fit to Page Select an object or objects on the map, click on the Fit to Page tool and the Page Outline will immediately provide best fit around the selected object(s).
	Redraw Map. Particularly when on a high degree of Zoom In, it is necessary to refresh the screen display. This can be done by scrolling, zooming out or clicking on this tool.

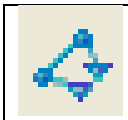
4.2.3 Tasks

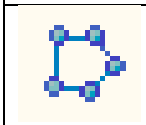
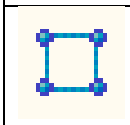
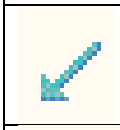
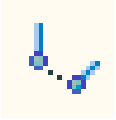
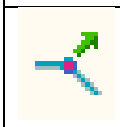
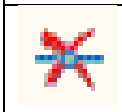
	Text Brings up the Text controls.
	**Identify** Brings up the ID Control Panel. Lets you associate names/numbers to map objects eg field numbers to field boundaries, so that other software can link to the map.
	Legend Tool Lets you add a legend or key to a map simply by selecting the relevant layers.
	Marker Enables you to select a marker design (tree, gate, stop cock etc) and place it on the map.
	Draw Measured Shape Lets you plot a line of specified length and bearing, draw a circle of specified diameter, area or circumference or draw a rectangle of specified dimensions.
	Title Block Lets you select from a range of pre-defined Title Blocks.
	Set Exact Position Lets you specify exact coordinates for a point.
	Schedule Maker Produces a Schedule/list of all parcels on selected layers.
	Street Finder Displays list of all road names. Click on a name and the map is immediately centred at that place.
	PocketGIS Tool Brings up the PocketGIS Link panel that allows maps and associated data capture schemes to be transferred in one go to a mobile device.
	Google Earth Link Select an area or line on the map, then click on the Google Earth tool to launch Google Earth and overlay the selected object(s) on an aerial image. Can also draw on Google Earth and Copy/PasteKML back to the map.

4.2.4 Objects

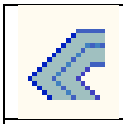
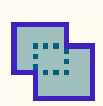
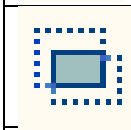
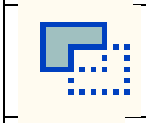
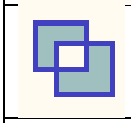
	De-select. De-selects all objects and switches off all tools i.e. puts the map back into "neutral". Also: Single-right click switches off tools. Double-right click de-selects object(s).
	**Move.** Click on this tool to select Move, then drag the selected object to where you want it to be. Switch Off: Right click.
	Nail Locks a node to its current position. Used if you want to rotate a building about a corner.
	Slide. Select the object, then this tool, hold the Shift key down and slide the object to its desired position. Do NOT use the mouse buttons – simply slide the mouse.
	Rotate. Select the object, then this tool, hold the Shift key down and rotate the object. Do NOT use the mouse buttons – simply slide the mouse.
	**Delete Object.** Deletes the selected object(s).
	**Group Objects** Links objects so that they can be treated as one, Often used when trimming a map.
	**Ungroup Objects** Undoes the grouping so that objects are now treated individually.
	**Select Enclosed** Selects all available objects (ie those on selectable layers) within the selected polygon.
	**Select Neighbours** Selects all those selectable objects that touch or cross a selected line or polygon. Often used in connection with trimming a map.
	Move to Layer. Moves the selected object(s) to the selected layer. Useful for when you've drawn objects on the map or added text to the map and then realised that the new objects were on the wrong layer. Switch Off: Single-shot operation, no switch off required.

4.2.5 Draw

	**Draw Polyline.** Select the Draw Polyline tool. As soon as you move the cursor into the map window, it will change to a pencil shape. Single-click to start a line, single-click to change direction, **double-click to terminate** drawing. If you want a line that is exactly parallel to the page edges, hold down the x or the y key of the keyboard while you draw.

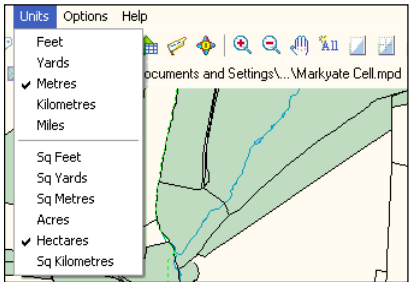
	The Draw Polyline tool also acts as a **Tape Measure**. As you draw, the distance and angle appear on the Status Bar at the bottom of the screen. **Switch Off**: Right click.
	**Draw Polygon.** Select the Draw Polygon tool. As soon as you move the cursor into the map window, it will change to a pencil shape. Single-click to start a shape, single-click to change direction, **double-click to terminate** drawing. **Switch Off**: Right click.
	**Draw Rectangle**. Select the Draw Rectangle tool. As soon as you move the cursor into the map window, it will change to a pencil shape. Single-click to start a rectangle, single-click to change direction. Single-click to terminate drawing. If you want a rectangle that is exactly parallel to the page edges, hold down the x or the y key of the keyboard while you draw. **Switch Off**: Right click. NB Use the Draw a Measured Shape tool to draw a rectangle of specified dimensions.
	**Draw Arrow**. Select the tool, position the cursor where you want the tip of the arrow to be then drag to the end of the shaft. Release the mouse button and your arrow will be drawn, automatically scaled.
	**Join Lines.** Use for joining two or more lines together. The lines must be end-to-end. See Section 6.6.
	**Drag Node** Use for adjusting position of nodes. Select the object to be modified, select the Drag Node tool, apply the cursor to the node which requires re-positioning and when the cursor changes to a cross-hair, drag the node to the required position. Switch Off: Right click.
	**Delete Node** Select the object to be modified. Select Delete Node tool and apply cursor to a node and when it changes to a cross-hair, click to delete the node. Switch-off: Right click.
	Cut Object Used for cutting lines or polygons e.g. splitting off one area from another. Can cut a line with a line, a line with a polygon, a polygon with a line and a polygon with a polygon. Single-shot operation, no switch off required.

4.2.6 Tools

	**Buffer tool** Enables a buffer to be drawn around a line, around the outside or inside of a boundary.
No icon	**ID Dialogue** Displays the old-style MAPS ID dialogue box.
	**Combine Areas** Enables two or more polygons e.g. fields or buildings to be combined into one. Original polygons are retained but can be discarded if required.
	**Overlapped Area**. Enables the common area shared by two areas to be separately identified and measured. Useful in measuring area of water buffer areas in fields in farming applications.
	**Exclude Area**. Enables one area that is contained inside another to be separated.
	**Border Area.** Creates a polygon of the gap between an "island" and an outer polygon. Very useful for creating "Red-Lines" or headlands for fields.
No icon	**Transform** Displays a panel which lets objects be scaled up or down and/or rotated by a specified angle relative to the main map.
	Map Cleaner Performs a diagnostic on current map and enables correction of any problems found.
	Map Expert Displays the MAPS "Map Expert" facility.

4.2.7 Units

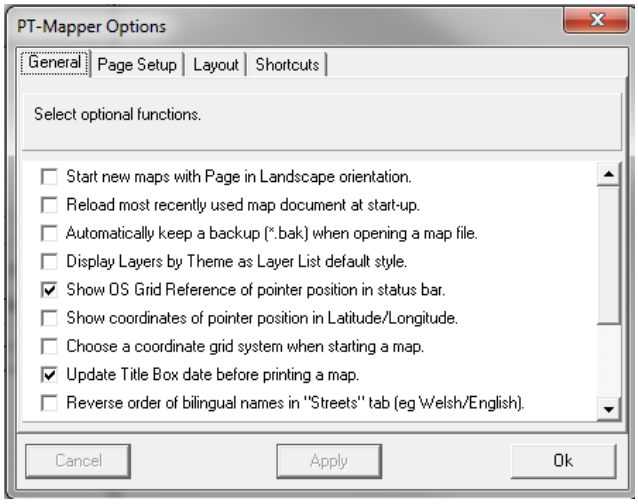
Different units for length and area can be selected:



4.2.8 Options

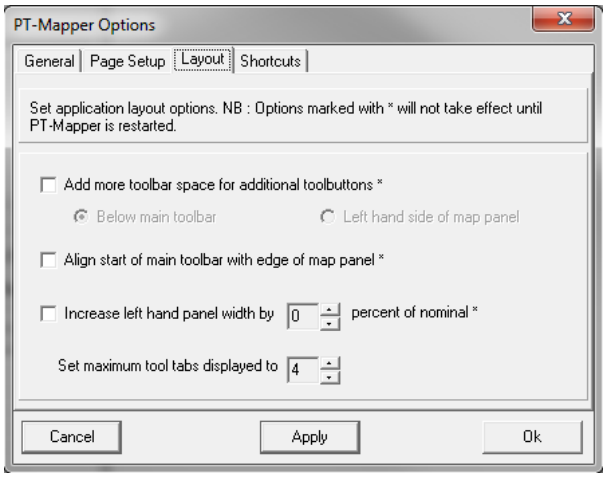
General

Default settings can be changed using the Options menu. Unless you are an experienced user, it is recommended that you stay with the settings as shown:

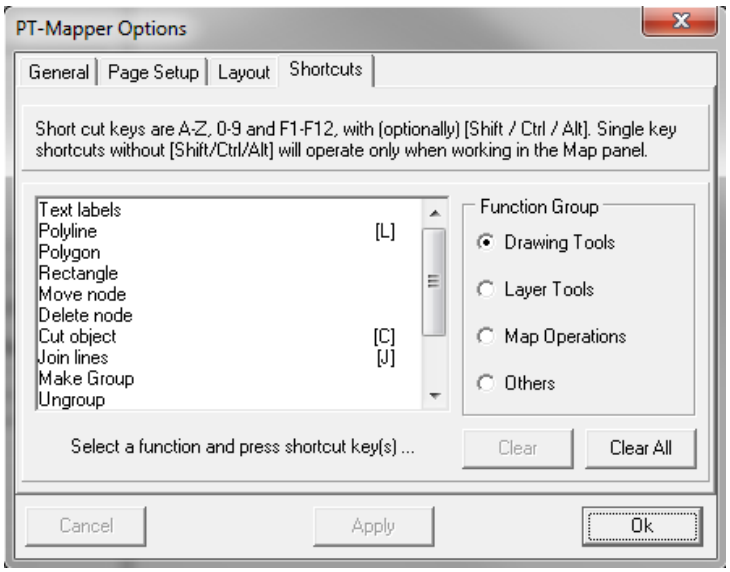


Page Set Up
More normally accessed via File, Page Set Up.

Layout
Enables the Toolbar positioning to be changed and/or extra space made available if more tools are required:



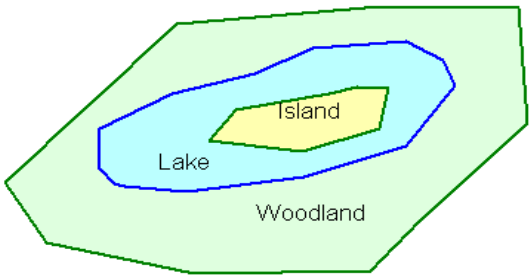
Shortcuts
For practiced users, keyboard shortcuts can speed up map editing work. This panel enables shortcuts to be created or reset:


PT-Mapper Options
General
Page Setup
Layout
Shortcuts
Short cut keys are A-Z, 0-9 and F1-F12, with (optionally) [Shift / Ctrl / Alt]. Single key shortcuts without [Shift/Ctrl/Alt] will operate only when working in the Map panel.
Text labels
Polyline [L]
Polygon
Rectangle
Move node
Delete node
Cut object [C]
Join lines [J]
Make Group
Ungroup
Function Group
Drawing Tools
Layer Tools
Map Operations
Others
Select a function and press shortcut key(s) ...
Clear
Clear All
Cancel
Apply
Ok

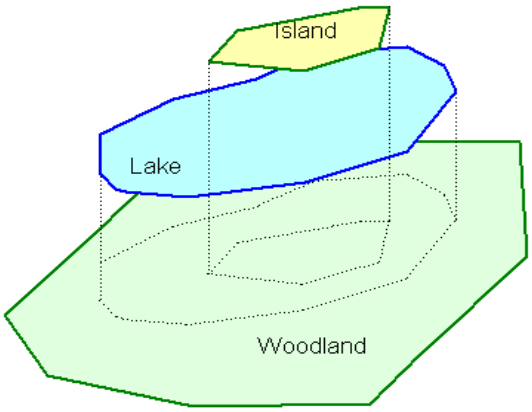
5. LAYERS

5.1 Layer Overview

Maps are constructed in layers of information e.g. a layer for buildings, one for roads, one for field boundaries etc. These layers can be thought of as a book of transparencies where the pages can be brought to the front of the book or placed further back. Looking down through the book, layers at the front may block the view of layers further back, so the sequence of layers is important.

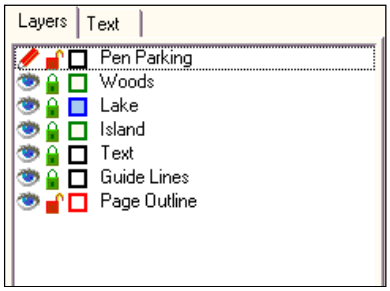


HOW THE MAP APPEARS ON SCREEN AND ON PAPER



HOW THE MAP IS CONSTRUCTED

In PT-Mapper, the list of layers for the above example on the left side of the screen will look like:



Note that:

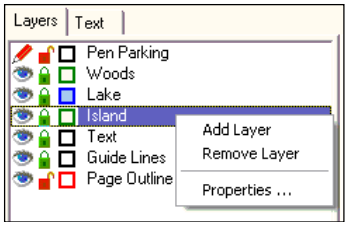
- All map features on the same layer will have the same colour and line style according to the layer settings.
- You can have as many layers as you like. Good practice is to put different types of map object on their own layer.
- Layers can be removed, but note that ALL objects on that layer will then be deleted.
- Objects can be moved from one layer to another.

- Layers can be grouped into "Themes" eg a town council may want to show bus shelters, street lamps, waste bins, seats all on different layers, but these could be grouped into one "Assets" theme. Then if the council want a map that doesn't show assets, this theme can be switched off.

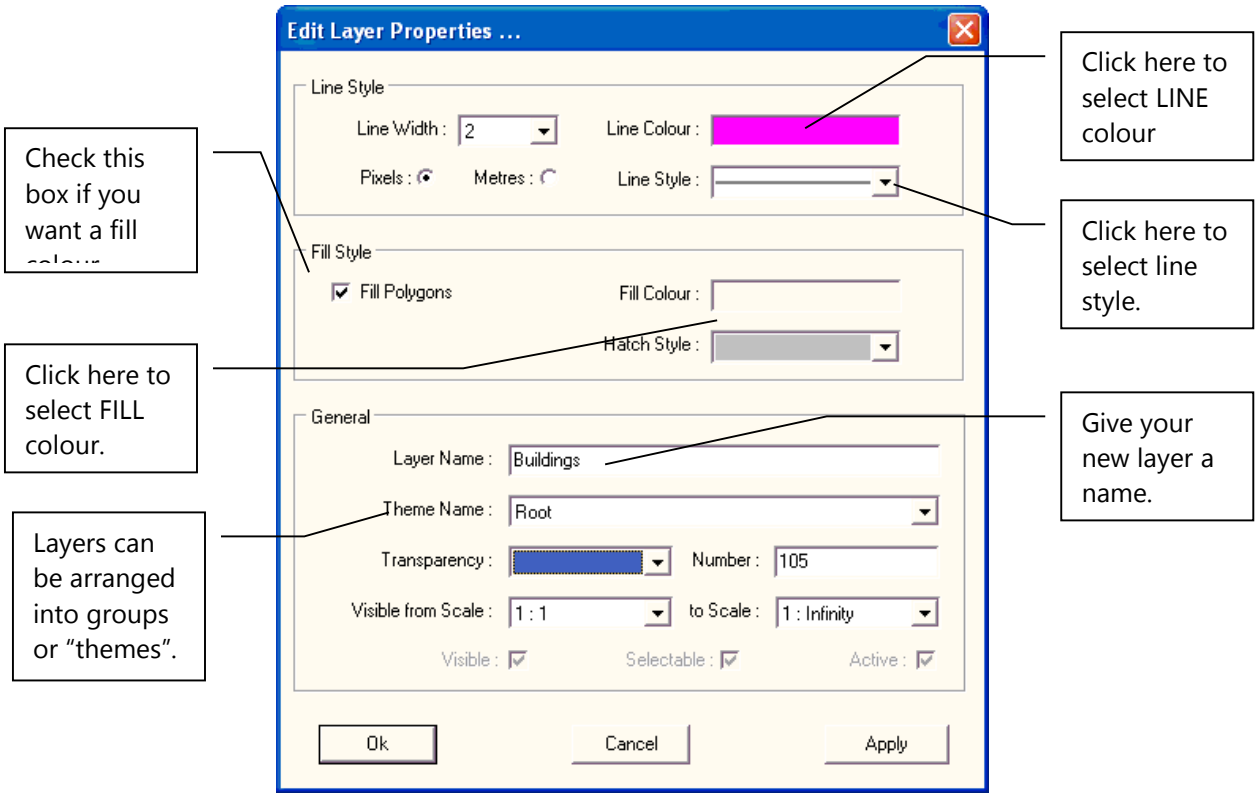
5.2 Setting Up Layers

5.2.1 Add a New Layer

To add a new layer, first decide whereabouts in the list of layers you want the new one to be. The further down the list, the more to the front objects on the new layer will be. Left click on the layer immediately above the desired location to highlight that layer name. Now RIGHT click to get a pop-up menu:

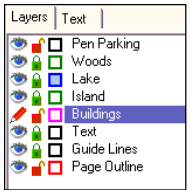


Click on Add layer to get:



Once you have set the properties for your new layer, click on Apply if you wish are adding further layers or click on OK to close the pop-up and return to the main screen.

Your new layer will now be in the list of layers, with a crayon/pen symbol in front of it to denote that anything now drawn or written on the map will go onto this layer.



5.2.2 The "Active" Layer

PT-Mapper needs to know which layer to use if something is added to the map. To do this, one layer is designated the "active" layer. To make a layer the Active layer, double click on the Eye symbol in front of the layer name. The "Eye" will change to a pencil symbol.

The Active layer can also be called the Current layer, the Working layer or the Target layer.

5.2.3 Changing the Layer Order

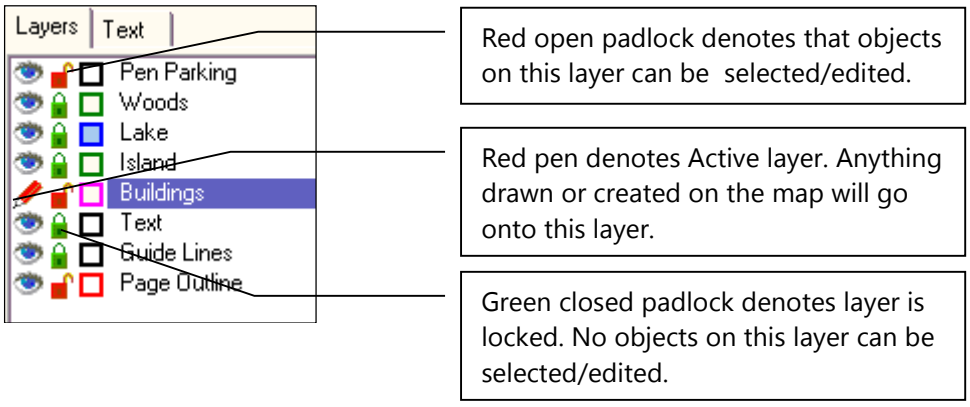
To re-position a layer in the list of layers, for example to ensure that text will be displayed on top of areas that have a fill colour, simply drag and drop the layer name to the desired position.

5.2.4 Making Objects on a Layer Visible or Not

A great benefit of digital mapping is that objects on a map can be temporarily hidden. For example, a farmer may have layers for the various crops and he may have also drawn on his map the location of water pipes and electricity cables. If a cropping plan is required, clutter on the map can be reduced by making the water and electricity layers non-visible. Layers can be made Visible/Non-visible simply by clicking on the Eye symbol to the left of the layer name.

5.2.5 Making Objects on a Layer Selectable or Not

Another great benefit of digital mapping is that maps can be easily modified and updated. However, it can also be easy to do this accidentally so good practice is to lock all those layers whose objects do not need to be edited. Lock a layer by clicking on the Padlock symbol to the left of the layer name.



5.2.6 Pen Parking Layer

It is good practice to set ALL layers to the locked position before saving a map. This prevents moving or deleting objects by accident. Because objects on the Active layer must be both Visible and Selectable, we

need to assign an empty layer as the Active layer – a "parking place" for the pen symbol so that all other layers can be locked.

Try to avoid using the Pen Parking layer for any other purpose.

5.2.7 Set All Layers

PT-Mapper has tools available to facilitate locking all layers in one go. At the bottom of the Layer panel you will see:

Clicking on the appropriate symbol will set all layers to that state EXCEPT the Active layer. You can return to the previous status by clicking on the Return arrow.

5.2.8 Moving an Object/Objects to Another Layer

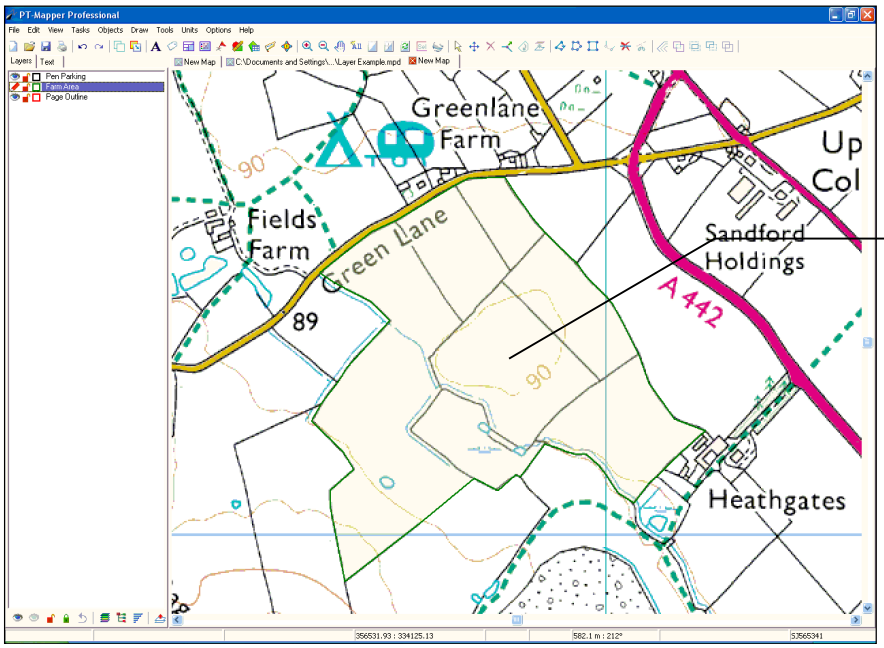
It's inevitable that you will sometimes want to change an object from one layer to another. This is easy. Select the object, make the receiving layer the Current layer by double clicking on the eye symbol, then select the Move to Layer tool . The object will now be on the desired layer.

5.2.9 Edit the Layer Name

Click on the Layer name to highlight the text. Then right click, select Properties and edit the layer name there.

5.2.10 Transparency

If a shape is drawn on a layer that has a solid colour fill, all objects sitting beneath that layer will be obscured. This can be overcome by making the layer with the shape on it translucent. Move the slider bar to the right in the Layer Properties panel to increase the level of transparency.



Transparency set to 70% in Layer Properties.

5.2.11 Layer Number

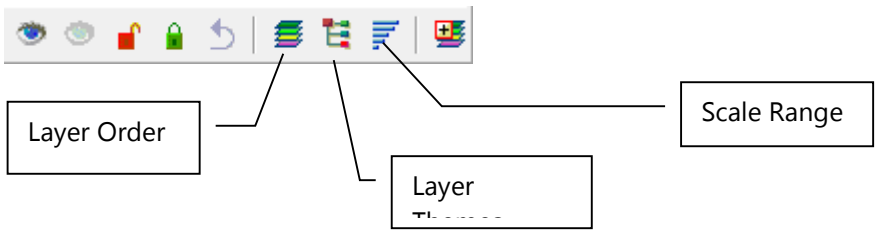
In the Layer Properties pop-up, a Layer Number is given for each layer. These are automatically assigned by the program and they only become important when you want to copy and paste objects from one map to another. Suppose that the Buildings layer on one map has a Layer Number of 30 and that the receiving map already has a Layer Number 30 that has been assigned to Water Courses. Copying and pasting a building to the second map will place the original building on the Water Courses layer.

This can be avoided by ensuring that layers which contain objects for copying/pasting have the same number as the receiving map.

5.3 Layer Themes/Layer Groups

PT-Mapper defaults to showing all the layers in Layer Order mode. However, it is possible to group sets of layers together. For example all tenancy layers could be grouped, wayleaves and easements could make up another group, field cropping another etc. This can make the structure of a map containing a large number of layers much easier to follow. Each group can be treated as a single layer i.e. all the layers within that group can be switched on or off at once.

To switch between modes, click on the Mode Selection icons at the bottom of the Layers panel:

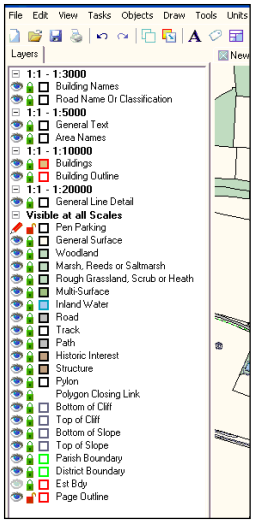


To group a set of layers into a Theme, click on the Themed Layers icon. Then right click on any Theme heading and select Add Theme. Now drag and drop the layers onto that Theme.

5.4 Layer Scale Ranges

On large maps (in file size terms), it is better to set some layers so that they only become visible when you have zoomed in beyond a certain scale. This leads to faster operation because the computer doesn't have to spend time re-drawing map features that can only be seen at the larger scales – features such as text.

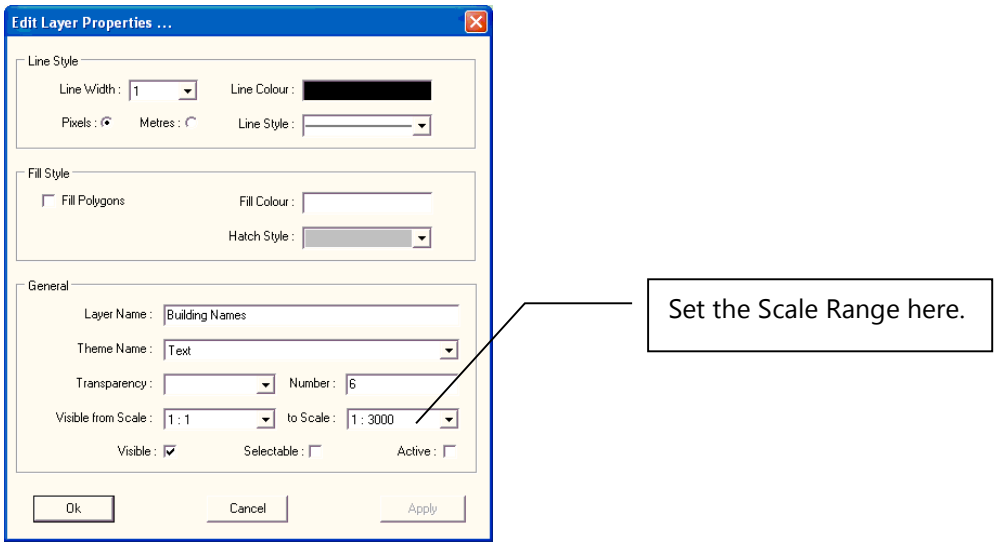
Click on the Scale Ranges icon at the bottom of the Layers panel. A typical OS MasterMap will present this type of display:



In this example, Building and Road Names will only become visible when the zoom in gives an on-screen scale of 1:3000 or greater.

N.B. The Scale Range settings will also apply when printing. So in the above example, if the map is printed at a scale of 1:5000, Building Names and Road Names will not show.

Scale Ranges have to be set layer-by-layer using the Layer Properties panel:



5.5 Selecting Objects on a Map

For any object to be selected (so that it can be moved, changed, copied), the layer that it is on must be set to Selectable i.e. the padlock symbol must be set on Unlocked.

Good practice is to make ALL layers non-selectable (padlock closed) except the one layer you need to be selectable. This avoids accidental editing of other objects.

5.5.1 Selecting Areas

Make sure its **layer is selectable**, then click inside the area or at a node on the boundary.

Problems?
a) If the cursor is inside one polygon which is inside another e.g. a pond within a field and both layers are selectable, PT-Mapper Pro will select first one, then the other in cyclic rotation. When selected, the nodes will show and the line will be red.
b) If you click inside an area and it doesn't select, first check that its layer is selectable. If the layer is selectable, click at a node on a boundary (you will see a cross-hair when the cursor is over a node). If the boundary line selects, check that an area is given on the Status Bar at the bottom of the screen. If no area is shown, it's probably because the boundary line is not a closed polygon.

5.5.2 Selecting Lines

Make sure its layer is selectable. Lines can only be selected where there is a node, so any corner or bend will do or the extreme ends of the line. To be sure that the cursor sits over a node, move the cursor slowly along the line – it will change to a cross-hair when it is over a node.

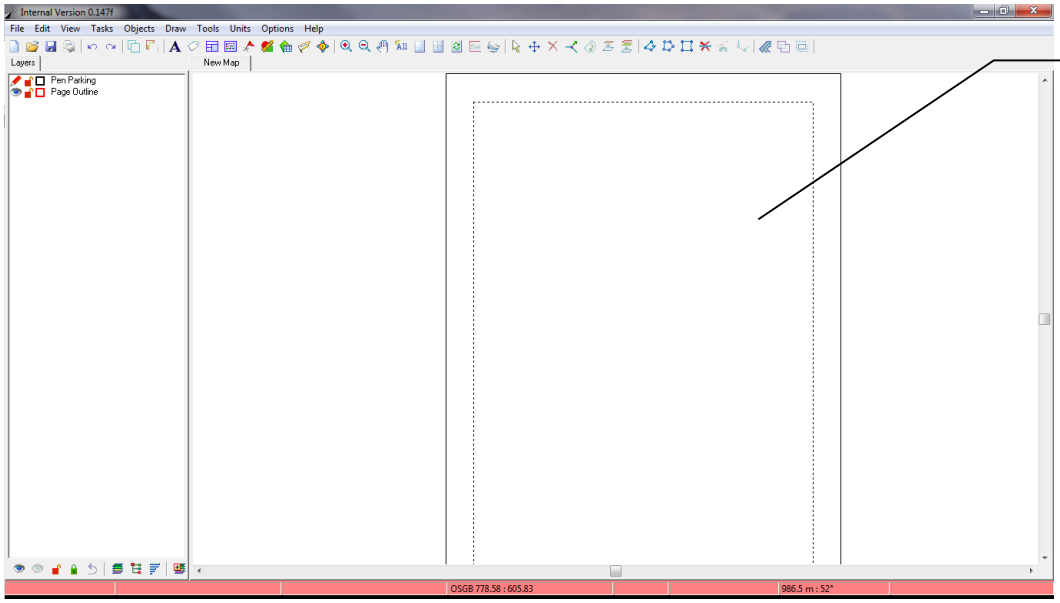
5.5.3 Selecting Text

Make sure the text layer is selectable, then click on it to select it. When selected, a small black square will appear in each corner and the text will be coloured red.

6. BASIC OPERATIONS

6.1 Open a Map

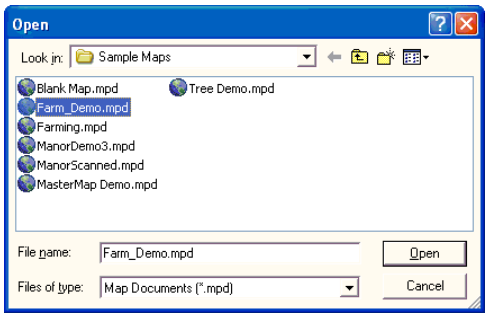
When PT-Mapper first opens up, you will see a blank page.



This rectangle represents your sheet of paper, usually set to A4 by default, but changeable in File, Page Set

Important: PT-Mapper operates a continuous print preview. Whatever sits inside the margin of the page (shown by a dotted line within the page outline) is what will come out on the printer provided that the correct size paper is in the printer. See the section on Printing.

To open a demo map, go to File, Open and browse to My Documents\Pear Technology\PT-Mapper\Sample Maps and choose one of those available:



To open your own map, go to File, Open and browse to where your map has been saved. This map must be in the Pear .mpd format. If it isn't, you will need to Import it – see Section 6.2.

6.2 Import a Map from CAD or Other Software

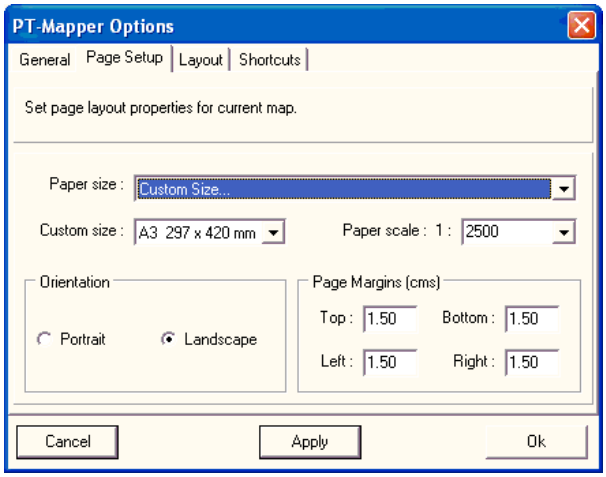
Go to File, New to create a new blank map window.

Go to File, Import and select the format of the map or drawing that you wish to import.

Important: If you wish to import a CAD drawing, it must be in .DXF format, not .DWG. If you only have the latter, you can ask your supplier to re-issue in DXF format.

6.3Page Set Up and Scaling

PT-Mapper allows you to work with any paper size at any scale. It defaults to A4, but if you wish to change to A3 or larger, then go to File, Page Set Up and select the required paper size. If your chosen printer does not have A3 capability, you will have to choose Custome Size and then select from the drop-down list:



Having chosen your paper size, the page outline may still not cover the required area on the map. Therefore, go back to File, Page Set Up and make the scale smaller i.e. a larger number. The drop-down list of scales gives the most commonly used scales, but you can overwrite the value in the scale box with any figure.

Important: If you change the paper size or the scale, the Page Outline will need to be re-centred over the appropriate area of the map. See Centre Page in the next section.

6.4 Navigate around the Map

6.4.1 Zoom

There are several ways to zoom in/out on a map:

Left click on the Zoom tool, or , position the cursor on the map and repeatedly left click to zoom in or out, centred at that point.
Right click to de-select the tool.

Click on the Zoom In tool, then drag a rectangle around the area you wish to zoom in on.
Right click to de-select.

Use the + and – keys on the Numerical Keypad section of the keyboard to quickly zoom in or out.

Use the mouse wheel (depending on the set up for the mouse).

6.4.2 Pan

Left click on the Pan tool , position the cursor on the map and repeatedly drag and drop the map around the screen.

6.4.3 View Page

Click on the View Page tool and the Page Outline will fill the screen.

6.4.4 View All Objects

Click on the View All tool and the whole map will fill the screen.

6.4.5 Scroll

The map can be scrolled left/right or up/down by using the scroll bars in the PT-Mapper screen. Alternatively, if you have a full-sized keyboard, the scroll keys on the number 2,4, 6, 8 keys can also be used.

6.4.6 View Selected Object

If you select a boundary on the map so that it appears red and the "nodes" are visible, the click on View Selected Objects , the selected object, or objects, will fill the available screen area.

6.4.7 Fit Page to Selected Object(s)

Select a boundary or line on the map, click on the Fit to Page tool and the Page Outline will just give a best fit around the selected object(s).

6.4.8 Centre Page

Zoom in around the area of interest on the map so that it is centred on the screen. Click on the Centre Page tool and the Page Outline will automatically centre around on the view. Note that the page outline may not be visible, depending on the scale that has been set in File, Page Set Up.

6.5 Selecting Objects on the Map

IMPORTANT

Good practice is to lock all layers except the few that are needed. This minimises the risk of accidentally moving or deleting map features.

Make sure that the layer(s) for the objects you wish to select are "unlocked" i.e. selectable.

6.5.1 Point Objects

Examples are tree symbols, markers: position the cursor over the object to get a cross-hair and left click. The object will be highlighted and can now be edited using the Text tool , moved or deleted .

6.5.2 Lines

Lines can only by selected where there is a node. Position the cursor at either end of the line, or on a corner, to get a crosshair and left click. The line will be highlighted and can now be edited using the Move Node tool , moved or deleted .

6.5.3 Polygons

Polygons can be selected by left-clicking inside them or by clicking on a boundary node (get the cross-hair).

The polygon will be highlighted and can now be edited using the Move Node tool , moved or deleted .

If you click inside a polygon that sits within a larger polygon (eg the map frame), PT-Mapper will select first the polygon whose layer is higher up the list. If this is not the correct polygon, click again and the next polygon will be selected. To avoid unwanted polygons being selected, make their layers locked (unselectable).

6.5.4 Multi-selection

To select multiple map features, hold down the Ctrl key on the keyboard and left click on each object as above.

Alternatively, make sure that only the layers of the required objects are unlocked. Now drag (drag, not draw) a rectangle that comfortably surrounds all the objects you wish to edit, move or delete. Drag a rectangle by imagining the top left corner of a "box" that surrounds the objects, position the cursor at that point, hold down the left mouse button and drag across and down. You will see a faint rectangle overlaid on the map as you drag. On releasing the button, all selectable objects contained within the dragged area will be selected.

6.6 Draw on the Map

6.6.1 Draw Line

Select the Draw Polyline tool . As soon as you move the cursor into the map window, it will change to a pencil shape. Single-click to start a line, single-click to change direction, **double-click to terminate** drawing. Right click to switch off the Draw.

If you want a line that is exactly parallel to the page edges, hold down the x or the y key of the keyboard while you draw.

The Draw Polyline tool also acts as a **Tape Measure**. As you draw, the distance and angle appear on the Status Bar at the bottom of the screen.

Switch Off: Right click.

6.6.2 Joining Lines

1. Make sure that the required layers are visible and selectable.
2. Position the cursor on the end of one line so that you get a cross-hair, then click to select the line.
3. Select the Join Lines tool , position the cursor on the end of the line you wish to join to, get a cross-hair and left click. The two lines will join.

4. Note that if the two original lines are on the same layer, the joined line will also be on that same layer. If the two original lines were on different layers, the joined line will be placed on the current layer.

6.6.3 Joining Line Segments

Although a line may visually appear to be continuous, it can be made of separate segments. To make two segments a continuous line, hold down the Ctrl key, select both lines by clicking at an end or at a bend (where there is a node), then click on the Join Lines button.

6.6.4 Cutting a Line

Select the line by clicking at an end or at a node, then select the Cut tool and apply the cursor to the node at which you wish to cut. When you get a cross-hair, left click and the line will now be in two segments.

6.6.5 Joining Lines to make a Polygon

This facility is used when a **single** polyline needs to be transformed into a closed polygon.

1. Make the appropriate layer the current layer by clicking on the layer name. Make all other layers non-selectable.
2. Hold down the Ctrl key and select all the lines that make up the boundary.
3. Click on the Join Lines tool .

6.6.6 Draw Polygon

Select the Draw Polygon tool . As soon as you move the cursor into the map window, it will change to a pencil shape. Single-click to start a shape, single-click to change direction, **double-click to terminate** drawing. Note that PT-Mapper always joins the first point to the last point drawn, so that it is always a polygon. The area will be shown on the Status Bar at the bottom of the screen.

Switch Off: Right click.

6.6.7 Draw Rectangle

Select the Draw Rectangle tool . As soon as you move the cursor into the map window, it will change to a pencil shape. Single-click to start a rectangle, single-click to at the next corner, then keeping the mouse button depressed, drag down and click at the third corner.

Single-click to terminate drawing.

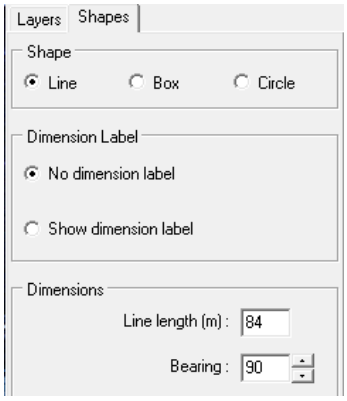
If you want a rectangle that is exactly parallel to the page edges, hold down the x or the y key of the keyboard while you draw.

Switch Off: Right click.

NB Use the Draw a Measured Shape tool to draw a rectangle of specified dimensions.

6.6.8 Draw Measured Shape – Circle, Box, or Line

This tool enables you to draw a line of a specified length and angle, draw a rectangle of specified dimensions or draw a circle of specified dimensions. Click on the Draw Measured Shape tool to get this control panel:



In each case, specify the required dimensions, select the Draw Shape tool and then click at the required start point on the map and PT-Mapper Pro will draw the object you have defined. Note that the object will be drawn on the Current layer.

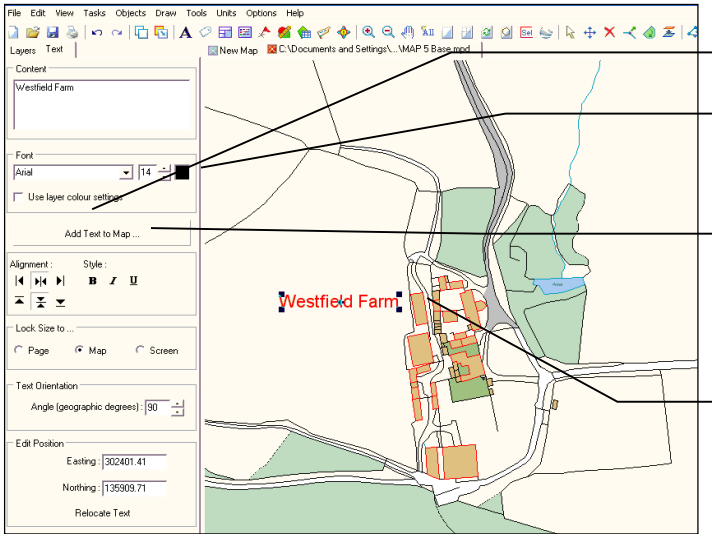
6.6.9 Draw Arrow

Select the Draw Arrow tool , position the cursor where you want the tip of the arrow to be then drag to the end of the shaft. Release the mouse button and your arrow will be drawn, automatically scaled.

6.7 Text

6.71 Adding Text to a Map

Text can be added to the map in any font type that is installed on the computer. Font size and colour can also be chosen, and text can be rotated so that it lines up with a road or stream etc. Selecting the Text tool will give you this control panel:



Type your text in here.

Set Text colour.

Having entered your text, click on the Add\Text button, then click on the map where you want the text to be.

Text appears on map. While it is highlighted (in red), the control panel can be used to edit/adjust the text.

Re-position the text with the Move tool

6.7.2 Edit Text

Set all layers to non-selectable, then make the relevant text layer selectable, select the text by clicking inside it, then select the text tool to make the changes.

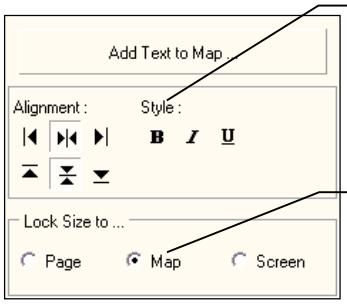
6.7.3 Move Text

Set all layers to non-selectable, then make the relevant text layer selectable, select the text by clicking inside it, then use the Move tool or select the Slide tool , hold down the Shift key on the keyboard and slide the text to its new position by moving the mouse – do NOT use the mouse buttons when using the Slide tool.

6.7.4 Rotate Text

Set all layers to non-selectable, then make the relevant text layer selectable, select the text by clicking inside it, then select the Rotate tool , hold down the **Shift** key on the keyboard, and simply rotate the selected text by moving the mouse – do NOT use the mouse buttons.

6.7.5 Text Alignment



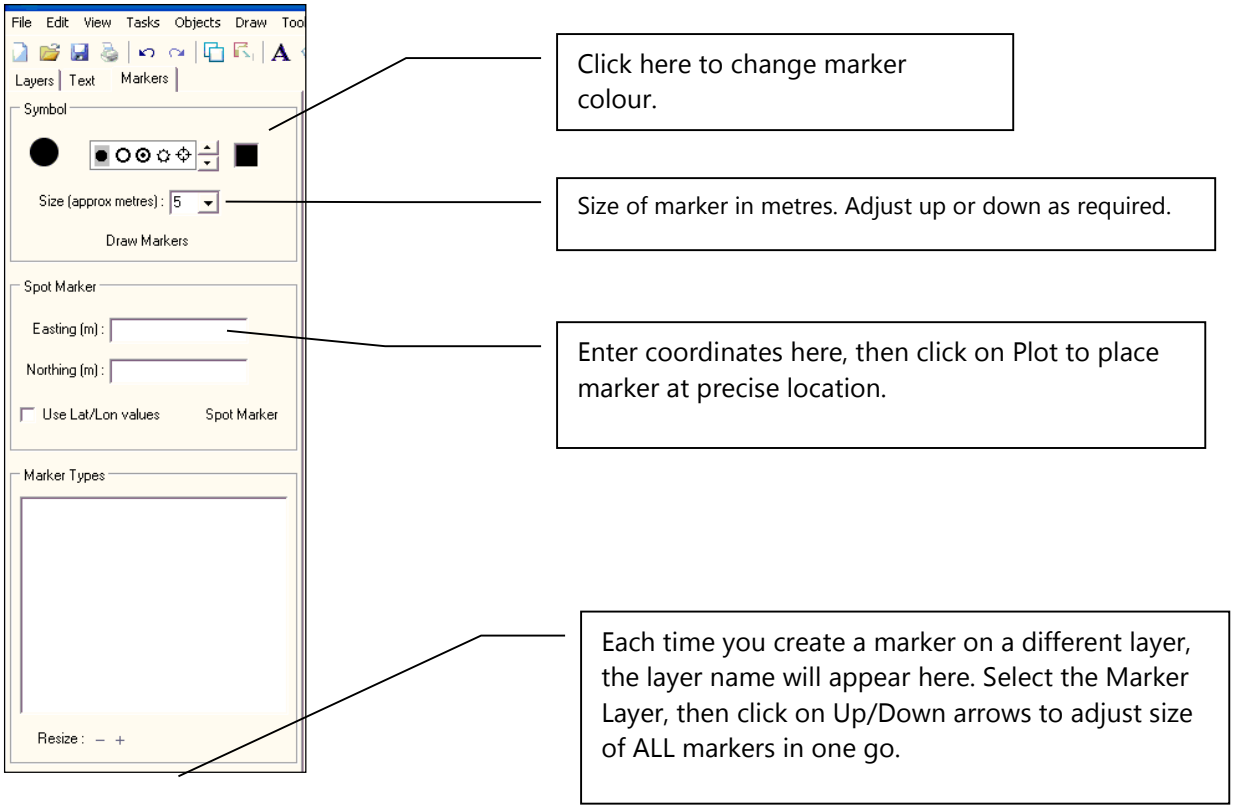
The text will be aligned to the top left, centre/centre, top centre etc. according to these settings.

Text size can be locked to the map, page or screen regardless of scale. EG
Locked to Map means that the text will stay the same size relative to other map features, regardless of scale used.

Locked to Page means the text stays the same size relative to the paper size.

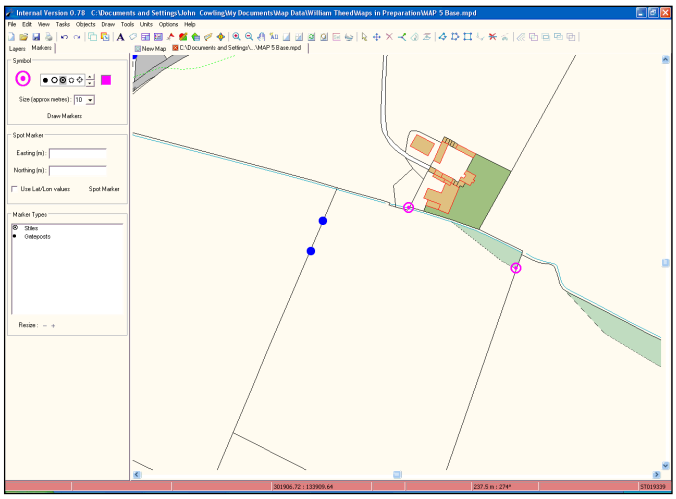
6.8 Markers

The Place Marker tool gives this control panel:



6.8.1 Place a Marker

Make an appropriate layer the Current layer (crayon in front of layer name).
Choose one of the available markers by clicking on it.
Change the colour if necessary.
Set the size (can be adjusted later).
Click on the Draw Markers button and click on the map where you wish the centre point of the marker to be.



By creating markers for different features on separate map layers, PT-Mapper can provide a list of all the marker types on a map (bottom section of panel).

To adjust the size of all markers in a given category, click on the marker name in this box and click on the + or – Adjustment.

Markers can be placed at specified coordinates using the middle section of the panel.

6.9 Identifiers

IMPORTANT! This section is essential if you wish to link your map now or at some stage in the future to a spreadsheet, a database programme or to use your map in conjunction with PT-Maplink.

Objects such as field boundaries, houses, trees, property boundaries etc. can be given a unique identifier that enables your map to be linked to other software such as estate management software and Pear Technology's crop management programme Fieldman Farmer. When you click on an object that has an identifier, the other programme can recognise this and present information on the map about that object. Examples would be cropping history for a field, tenancy details for a property etc.

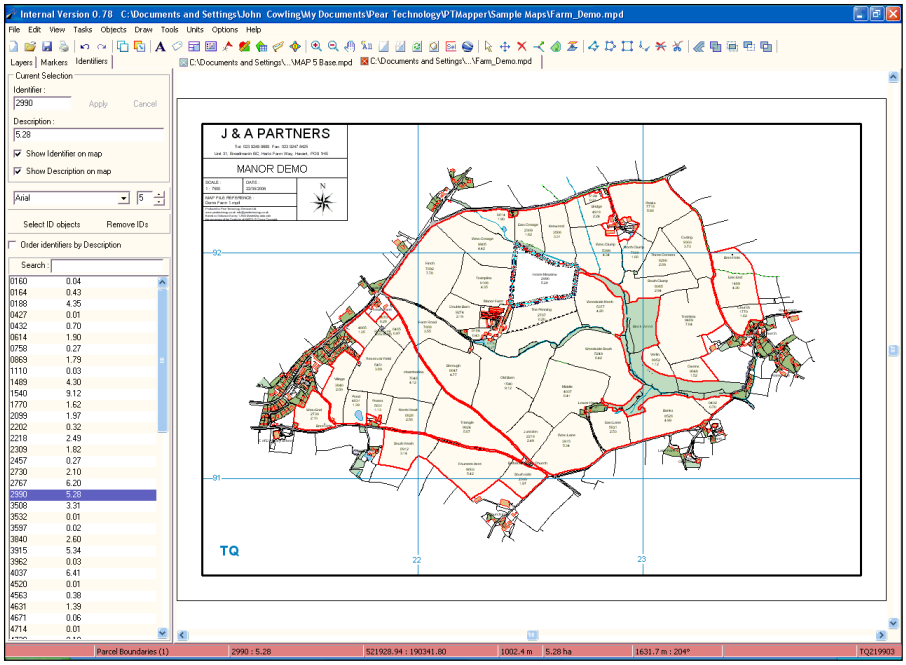
Maps supplied by Pear Technology will already have Identifiers assigned, but they can be added, changed or removed at any time. They are only required if you want to link features on your map to information held in other software.

Company	**Product**
Microsoft Excel and Access	Excel and Access via PT-MapLink
Text .csv files	via PT-MapLink
Pear Technology	Fieldman Farmer, Adviser
Pear Technology	MapLink
Landmark Computer Systems	Key Property, property management
Estate Computer Systems	QUBE Property Management
Country Estateman	Estateman, estate terrier
Sudely Software	Herald, estate terrier
Woodplan	Woodplan forestry and woodland management
Grosvenor Systems	Property Management
RBS	Cemetery Management
Edge Designs	Cemetery Management
APH	Estate Management

This list is likely to grow over time, so please contact Pear Technology if you wish to link to other programs.

6.9.1 View Existing Identifiers

Open the example farm map Farm_demo.mpd found in My Documents\Pear Technology\PTMapper\Sample Maps and click on the Identifier tool to get this screen:



Unlock the Parcel Boundaries layer, click inside any field to select it and that field's ID will be shown in the left hand Identifier panel.

It is possible to associate two "identifiers" with an object on the map. In this case, the main ID is the Parcel Number and the Area is the second, shown under the "Description" label.

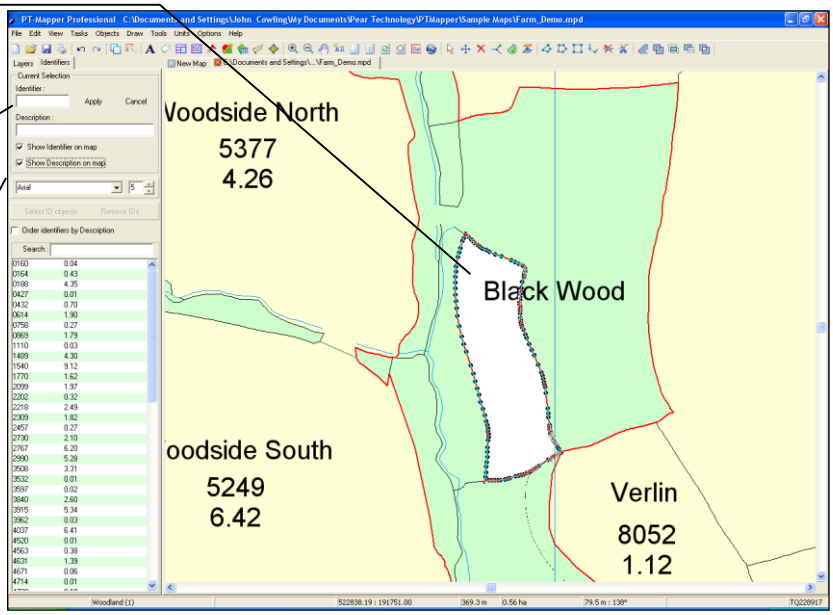
6.9.2 Add an Identifier

Make the layer you wish to have the Identifier and Description added to the Current layer.

Selected object.

Type in the ID of the selected object or edit existing ID.

Check these boxes to show the ID and Description on the map.



Enter the ID and Description (if required) into the appropriate boxes, check the boxes if you wish to have them visible on the map and then click on the Apply button. If displayed on the map, the ID and description will be placed on the current layer.

IMPORTANT
The Identifier can be a maximum of 12 alpha-numeric characters.
The Description can be a maximum of 30 alpha-numeric characters.
Identifiers must be unique on the map.

6.9.3 Edit an Identifier or Description

Select the object on the map, click on the ID tool and the ID will be shown in the list box. Change the ID, click OK and on de-selecting the object, the map will be automatically updated.

6.9.4 Deleting an Identifier

Select the object on the map, switch to **ID's** Mode and the ID will be shown in the list box. Click on the Remove button, and on de-selecting the object, the map will be automatically updated.

6.9.5 Locate

The Identifiers can be used to locate areas or objects on a map. Enter the ID into the search box – as you type, PT-Mapper will display the object with that ID.

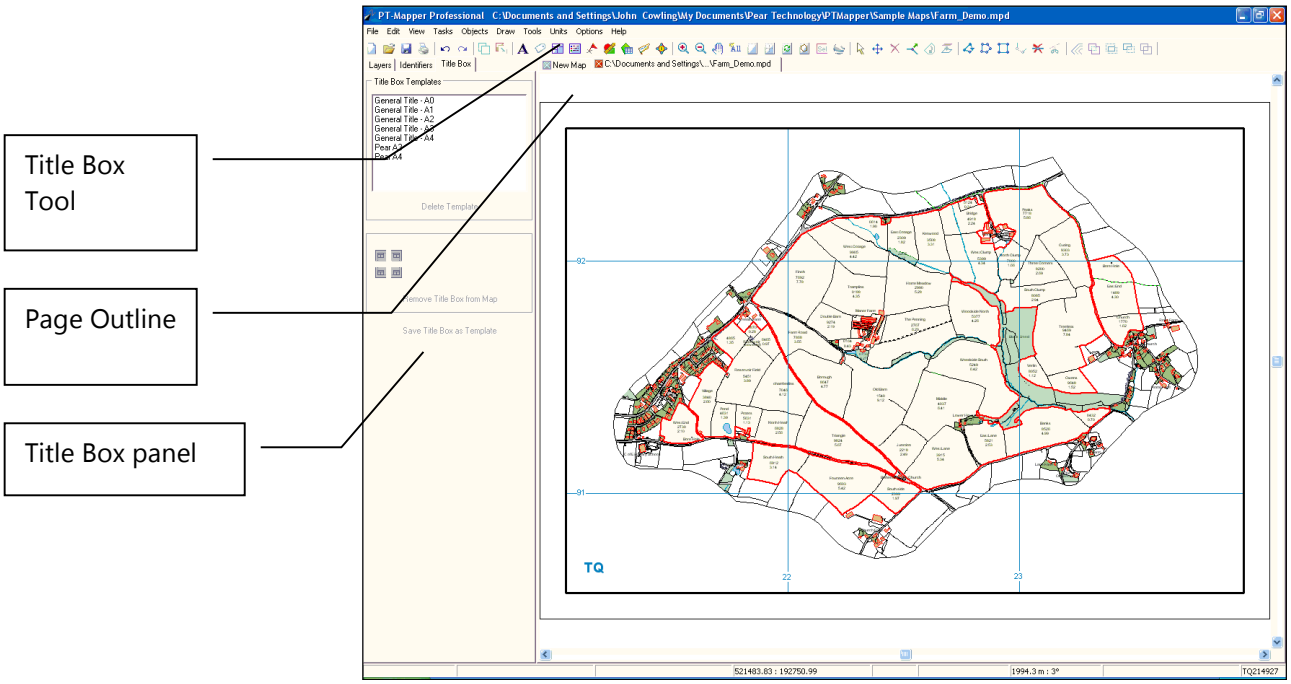
6.9.6 Select a Number of Objects by their ID's

In Identifier mode, multi-select the relevant ID's by either holding down the Ctrl key on the keyboard and clicking on each wanted ID or, if in a block of ID's, click on the top one in the list, hold down the Shift key and click on the bottom.

With the ID's now selected, click on the Select ID Objects button in the Identifier panel.

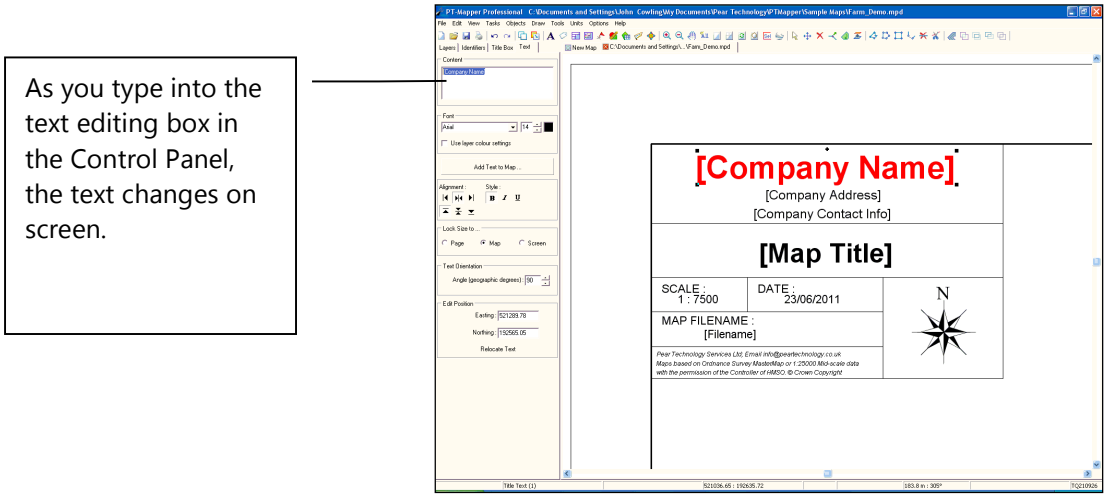
6.10 Title Blocks

This facility automatically places a title block on your map. The scale, date, compass rose and Copyright statement will automatically be included within the title block. Click on the Title Block tool to bring up the Control Panel:



Pre-formatted Title Boxes are set up for A4, A3, A2, A1, A0 paper. Select one of these, then click on the icon beneath to choose the corner of page in which you wish to position it. To re-position it, click on the "Centre Box" button then click on the map where you want its centre to be.

To add your own name, map name etc., first make all other layers except the Title Text layer non-selectable, then select the Text tool to get the Text control panel. Click on the text in the Title Block to be edited. This will appear in the Text editing panel on the left and can be overwritten with the desired wording. Initially, just set the text in the top section to give your company name, address and contact telephone numbers, then switch back to Titles Mode in the LH panel and click on the "Save Title Box as Template" button. You can use coloured text and change the font style if you wish. These settings will be saved as part of the template.



You can give this template a name eg "My Company A4". On saving, this name will be added to the list of title blocks so that you can select this template each time you wish to place a title box onto an A4 map. You will need to save different templates for different sizes of paper.

Logos
You can insert a logo/crest in your title box but they must be in BMP or TIF format.
If your logo is only available as a jpg file, open it in Microsoft Paint and re-save it as a high resolution BMP or TIF file.

Take a map with an existing Title Box.

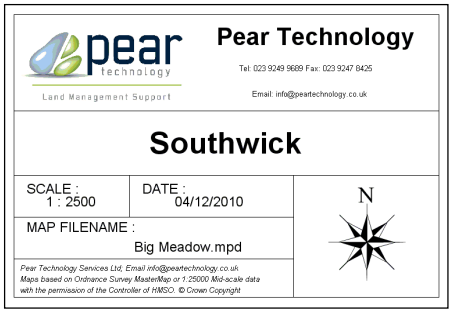
Edit the box to make room for the logo.

Import the logo (File, Import, Raster and browse to your logo). This will appear over the map and may be far too large. Use the Move Node tool to re-size it by dragging the corners in and then make the Title Logo layer the Current layer and move the selected logo to this layer using the Move to Layer tool .

Further adjust the logo size to fit the space available.

Save the Title Box as a template.

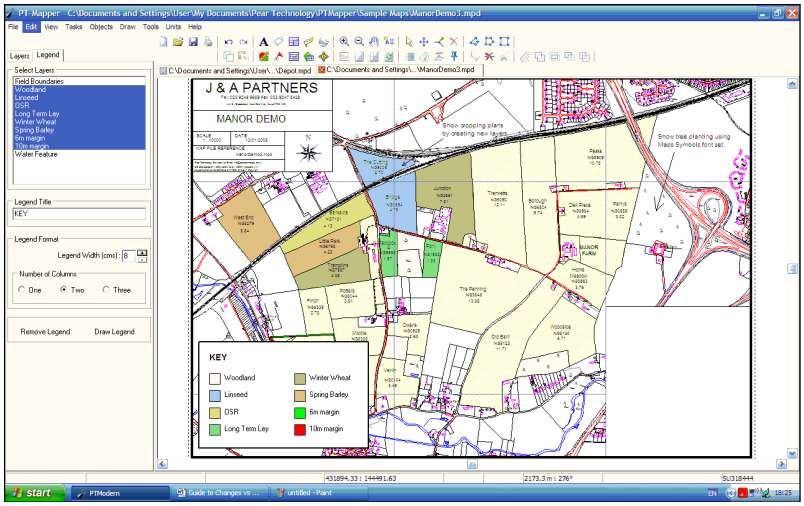
Use the Move Node and Move Tools to size and position the logo within the Title Block. Save as a new template. Example:



6.11 Legend Creation Tool

PT-Mapper includes a tool for automatically creating legends on a map. Click on the tool to bring up the Legend control panel. Multi-select (hold keyboard Ctrl down) to select those layers for which a legend is required.

Note that if a layer has a fill colour then it will be displayed in the legend as a box. Layers without fill colours will appear as lines.



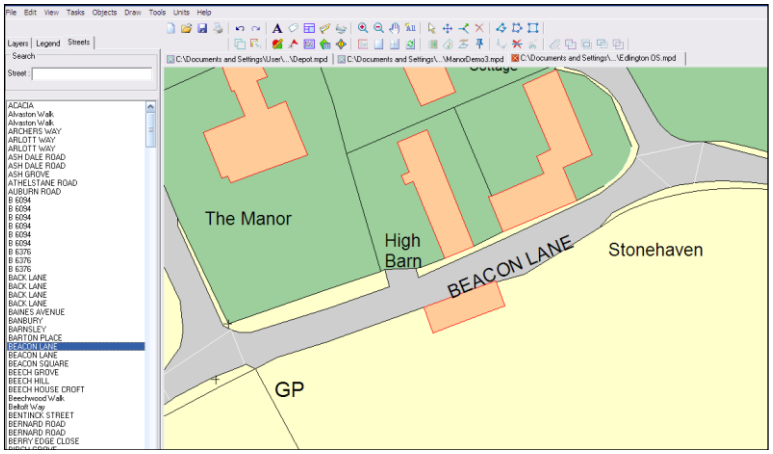
Move Legend box: Switch to the Layers tab and make the Legend layer selectable (unlocked).

Click on a corner of the Legend box to select it, then use the Move tool to drag and drop the legend to its new position.

Legends can be created as 1, 2 or 3 columns and the width adjusted using the up/down counter.

6.12 Street Finder

On maps based on OS MasterMap data (any map supplied by Pear since October 2008 will apply), the Street Gazetteer tool allows you to select a road or street name from the list presented and zoom in to that road:

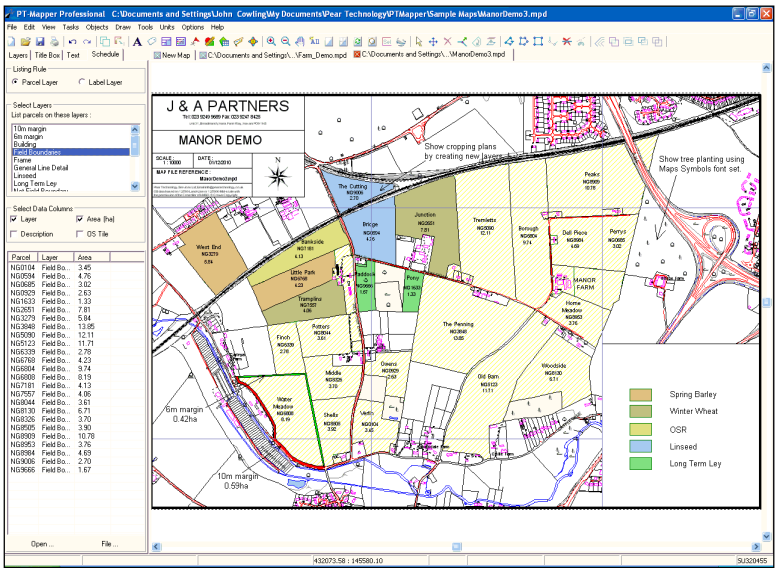


6.13 Schedule Maker

This facility enables you to quickly list all those objects with Identifiers on a particular layer, so if you select TPO Trees, for example, you will see a list of all your TPO Trees. Or if you have managed woodlands with assigned compartment numbers, you can list those compartments, the OS Sheet Number, the area in hectares and the area in acres. The list can be saved as a text file (.csv format) and opened in Excel for further editing.

6.13.1 Display a Schedule

Select the Schedule tool to get this screen:



The layers are listed in alphabetical order. Choose the Field Boundaries layer and it will shift into the right hand box, with all the parcel numbers showing below. Position the cursor over any parcel number or ID in the list and that area will immediately be highlighted and centred on the map.

Now click on the layer name "Field Boundaries" in the right hand box and the layer will be restored to the main list. Select the layer Spring Barley and you should see 2 fields listed.

6.13.2 Save the Schedule

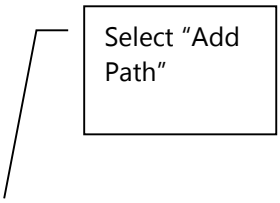
When you have the required list, click on the File button at the bottom of the left hand panel and save the file. You can now switch to Excel and open it – but remember to select Files of Type Text (.csv) in Excel.

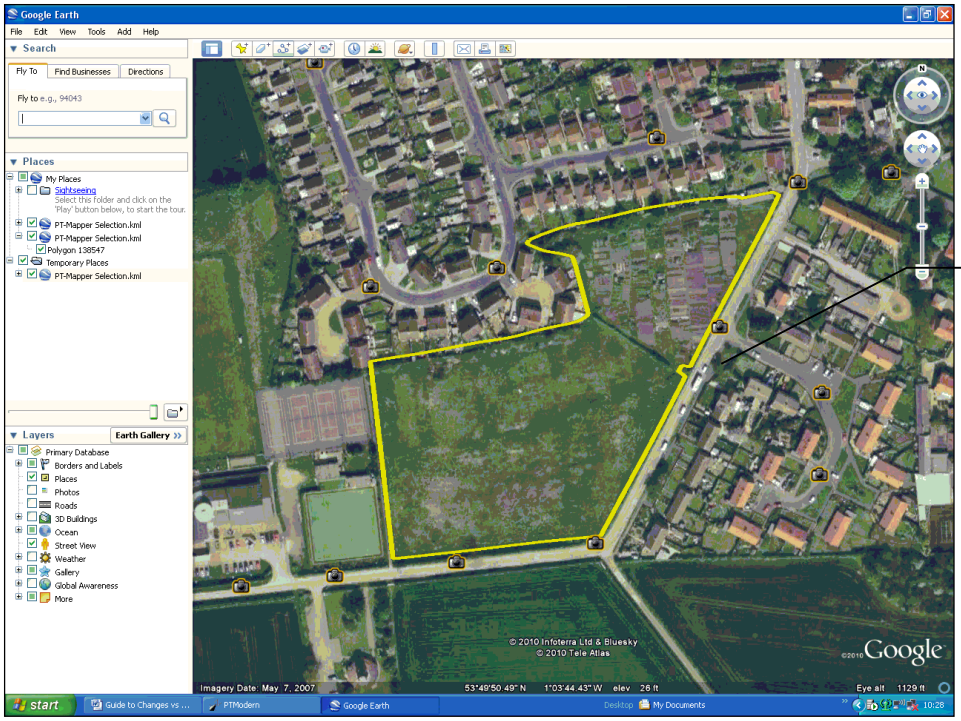
6.14 Google Earth Link

To install Google Earth go to http://www.google.com/earth and select Downloads. Installation is straightforward and only takes 3 - 4 minutes.

In PT-Mapper, select the area, line or object then click on the Google Earth icon above the map. PT-Mapper will launch Google Earth and take you to that very place with the boundary or line that you selected superimposed on the aerial image.

In Google Earth, you can use the Plot Area or Plot Line tools to draw on the aerial image.

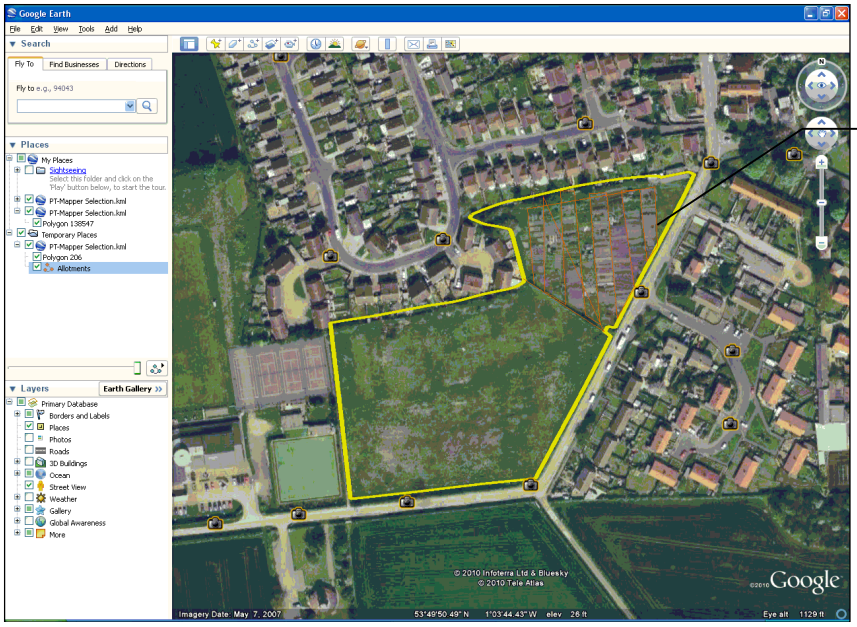




Allotment boundaries can be transferred back to map.

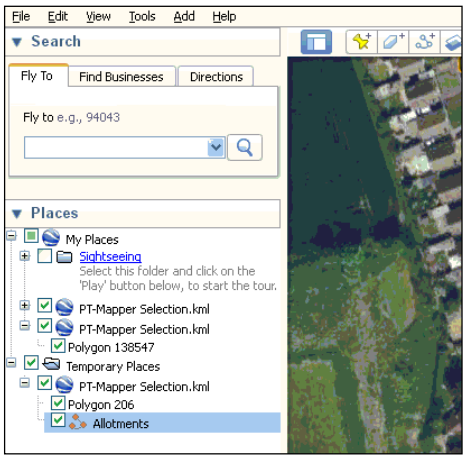
In Google Earth, click on the Add Path tool and a panel will pop-up. Give the path a name and colour:

Leave this pop-up on the screen, move the cursor onto the map and draw your line, clicking at each change in direction. When you have finished drawing, click the OK button on the pop-up.
N.B. Each line requires its own Name, so it may be better to draw a single continuous line, copy it to PT-Mapper and then edit it there. In the example below, we have drawn the allotment boundaries as a single line.

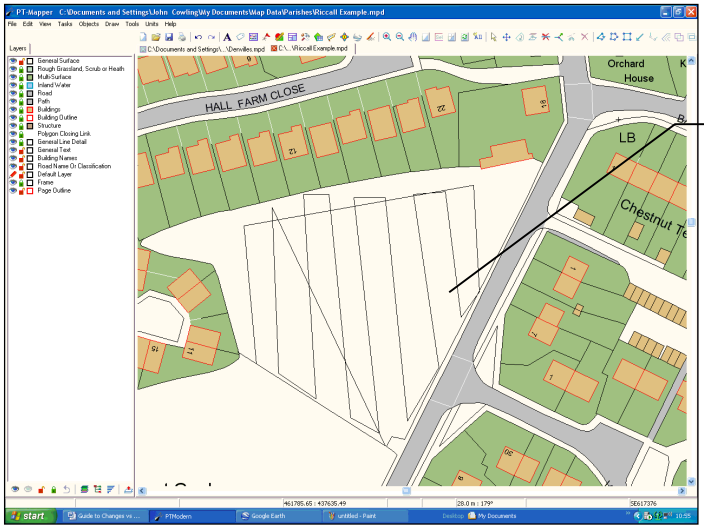


Boundaries drawn as a single, continuous line.

In the LH panel, highlight the name for this feature:



Select Edit, Copy. Now bring PT-Mapper to the screen and click on Edit, Paste KML. The line or boundary you drew will now automatically be placed on the map on the ACTIVE LAYER.



Allotment boundaries transferred, ready for editing.

7. Printing

PT-Mapper Pro enables you to print the whole map or parts of a map at any scale and on any size paper that your printer can handle. There are two ways to print:
1. Print View – prints whatever is on the screen, with a frame surrounding it. Ideal for quick prints when scale doesn't matter.
2. Print Page – prints whatever the Page Outline sits over. You can define whatever paper size and scale you want using File, Page Set Up. If you use the Title Block facility, a title block can be added to the print-out. If you use the Edit, Copy Page facility, a completely separate map of the chosen area can be created first.

7.1 Print View

Zoom in and scroll until the desired map area fills the screen. Then go to File, Print View.

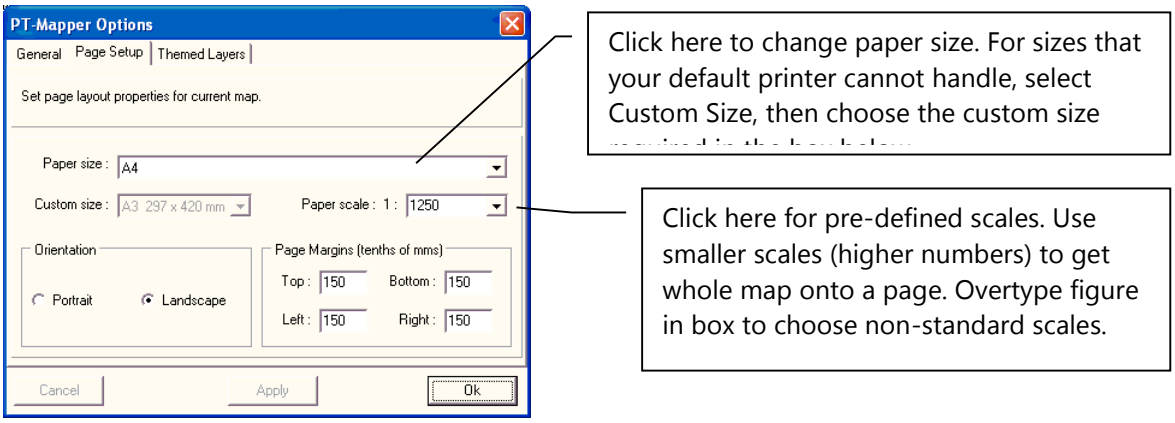
7.2 Print Page

7.2.1 Key points about the page

- What you see is what you get i.e. whatever part of the map sits **within the margin of the page outline** is what will be printed if you select Print Page . The Page Outline gives you a continuous print-preview.
- The inner dotted line represents the margin or limit of printable area (printers cannot print to the edge of a page). Keep the area of interest within this dotted margin.
- The Page Outline is on its own layer and so can be set Visible or not, Selectable or not. The Page Outline can be selected by clicking on any corner of the page outline on the map. (Ensure you get the cross-hair before you click).
- Once selected, the Page Outline can be moved over the map area using the Move tool or the Centre Page tool or the Fit Object to Page tool .
- The corners of the Page Outline can be dragged in or out using the Move Node tool .

7.2.2 Set Paper Size and Map Scale

Select File, Page Set Up to get this screen:



If you change the scale or the paper size, the Page Outline on the map will change in size, but the bottom-left corner always remains in the same position. To move the page over the area of map for which you require a print, use the Centre Page tool or the Move tool .

Remember:

The area of map that sits within the Page Margins is that which will be printed.
Enlarged scale eg changing from 1:10000 to 1:2500 = smaller Page Outline relative to size of map.
Reduced scale eg changing from 1:500 to 1:1250 = larger Page outline relative to size of map.

7.3 Selecting the Printer

When you select File, Print, the standard Windows Printer selection screen will appear. The default printer will normally be selected, but you can change to another printer here if you wish. At the same time a white frame will appear within the Page Outline to mask off unwanted detail.

7.4 How to Print the Whole Map

Click on the View Page tool and check that the map sits centrally within the Page Margin dotted lines. If the Page Outline is large enough but is off-centre, use the Centre Page tool or the Move tool to slide the Page Outline to position. Note that the Page Outline has its own layer and that this layer must be Unlocked (selectable)

If the Page Outline is not large enough to cover the map, you need to either change to a larger size paper or to reduce the scale. Do this by selecting File, Page Set Up.

If the Page Outline is too large for the map, you can change to a smaller size paper (eg A3 to A4) or you can enlarge the scale. Do this by selecting File, Page Set Up.

7.5 Printing Best Fit to Page

If the scale is not too important and you simply want a best fit to page, set the paper size in File, Page Set Up, zoom in on the required area and use the Centre Page tool to centre the page. Make sure that the Page Outline layer is selectable and use the Drag Node tool to drag the corners of the page in or out to give best fit.

Once the Page Outline is set around the map, you can print.

7.6 Making Lines Print Thicker

A common problem is that a line that looks thick on the screen (say, 2 pixels) will still be a thin line when printed. This can be overcome by setting the Layer Properties for the line to be 5 or 6 pixels thick.

An alternative is to set the Line Thickness in Layer Properties to be in metres. However, the thickness you choose will depend on the scale you use when printing, but typically would be in the range 3 – 10 metres. The other disadvantage of this method is that the line will only become visible when you zoom in, since the screen cannot resolve widths of only a few metres except on high zoom in.

7.7 Printing Examples

7.7.1 Paper size currently set to A3. Wish to print whole map on A4.

Assume current scale is 1:5000 on A3. To print a whole map on A4, the scale must be reduced in order to get the map to fit onto the smaller paper size.

- In File, Page Set Up, click on the scale selection box and choose 1:10000.
- Set the Paper Size to A4.
- Check that in Printer properties, your page size is also set to A4.
- Centre the page around the map using the Centre Page or Move tool .
- Now click on File, Print.

7.7.2 Problems?

a) Whole map won't quite fit onto a sheet of A4 at a scale of, say, 1:10,000?
Select File, Page Set Up and overwrite the scale to say, 1:11000.
Or, see 7.5 above.

b) Map prints out on several sheets of A4?
Paper size is still set to A3 but you have A4 paper in the hopper, or your printer is still set up for A3 paper. Check using File, Page Set Up first, the File, Print, Printer Properties.

7.7.3 Map is currently 1:10,000 on A4. You want a map of a small area at, say, 1:1250 on A4.

This is a frequent requirement for printing detailed maps of buildings, single fields etc.

- In File, Page Set Up, click on the scale selection box and choose 1:1250.
- Centre the page around the area of interest using the Centre Page and/or Move tool .
- Now click on File, Print.

8. Emailing Maps

To email a map to somebody who does not have Pear software, there are two possibilities:

8.1 Create a PDF File

For this, it is essential that you have PDF writer software installed on your computer. Pear Technology's help desk can advise on free or low cost packages available on the internet. Assuming that you do have this software installed:

Open the map.

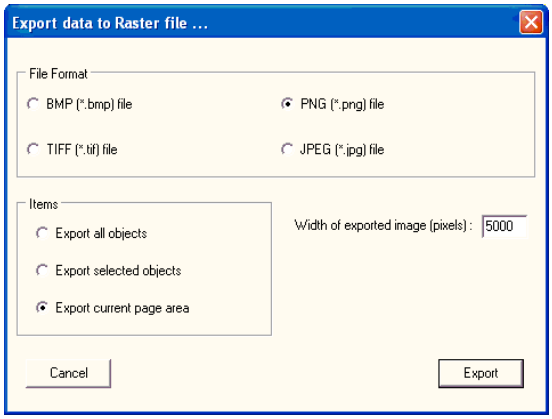
Select File, Print and choose PDF Writer (or similar) as your printer. The PDF software will take over and invite you to save the resultant PDF file in a folder of your choice. This pdf file can then be emailed as an attachment.

8.2 Create a PNG Format Map

PNG is a format that is similar to JPG but gives better quality images. PNG files can be opened with any standard image software such as Microsoft Picture Manager, Paint – or by simply double-clicking on the filename.

Open the map.

Select File, Export, Raster to get this screen:

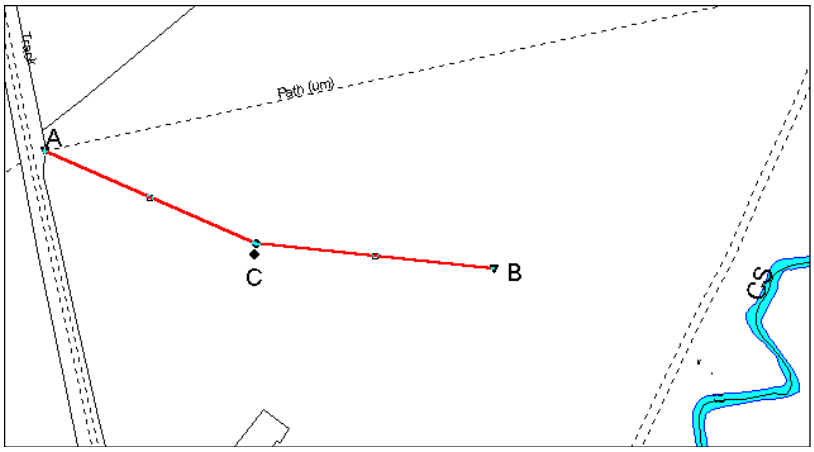


Check the boxes as shown above, set the Width of exported image to 5000 minimum to ensure decent quality, click on the Export button and save the PNG file.

If the resultant image does not have adequate quality, repeat the exercise but increase the "Width of Exported Image" setting to, say 7000. The larger this number, the better the quality but also the larger the resultant file.

9. Typical Tasks

9.1 Draw lines and Measure Distance



Assume that we want to measure the distance from A to B via point C in the above example.

Choose the layer you wish to draw on and make it the Current layer.

1. Select the Draw Polyline tool . When you move back to the map area, a pencil symbol will show.

2. Single click at point A, move the pencil to point C and single click, then continue on to point B, with a clean **double-click** to terminate the line.

3. Right click to switch off the drawing tool.

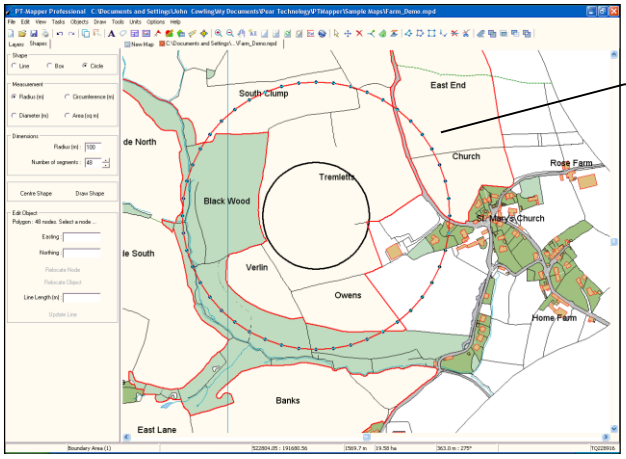
The length of the line will be shown on the Status Bar at the bottom of the screen. Note that the Status Bar also shows the distance and the angle from the last mouse click.

Units can be changed by selecting Units on the Menu line.

9.2 Draw a Circle

Suppose you want to draw a circle of 250m radius:

- In **Layers** mode, create a new layer called Circle. Set as the Current layer and position well down the list so that it sits over other map features.
- Select the Draw Measured Shape tool and in the left hand control panel, chose Circle and set the radius to 250m and number of segments to 48. Click on the Draw Shape button.



Number of segments determines how round the circle will be e.g 8 segments would give an octagon

A circle of 250m radius and 48 segments will be generated (the more segments there are, the rounder the circle will be).

9.2.1 Concentric Circle

To draw another circle of, say, 100m radius, concentric with the first, change the Radius setting to 100m and click on the Centre Shape button in the left hand control panel.

9.3 Split Areas e.g. Woodland Compartments

PT-Mapper Pro makes it very easy to split one area from another and to know what the resultant areas will be after the split. This technique is useful for splitting fields for different cropping, woodland areas into compartments, dividing up building plots, showing problems and areas of treatment etc. or splitting any plot of land.

STEP1: Draw and Position the Split Line

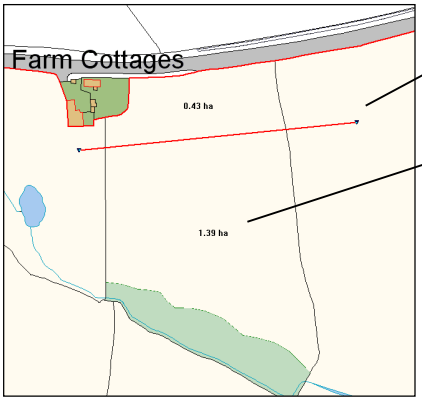
Choose the layer you wish to draw the split line on and make this the Current layer.

Make ALL other layers non-selectable EXCEPT the layer of the area to be split.

It is essential that the area being split is a polygon and not a series of lines, so if necessary first create a boundary for this example. See 9.3). Make sure that the layer the boundary is on is Selectable.

Now select the Draw Polyline tool and draw a line which starts **OUTSIDE the area** and finishes **OUTSIDE the area**. This line can be imagined as a cheese-cutting wire and will be used to cut the area into two.

With this split line selected, take the Move tool (or the Drag Node tool) and move the line slowly up or down. As you do so, the area either side of the line will be shown, so you can adjust the position of the line to give the desired area if you wish.



Start **outside** the area and finish **outside** the area.

Select the Move tool or the Drag Node tool, apply it to one end of the line so that you get a cross-hair. PT-Mapper Pro will immediately show the area on either side.

Once the line is in position, de-select it by clicking on the De-select tool .

STEP 2: Select the boundary to be split by clicking inside it.

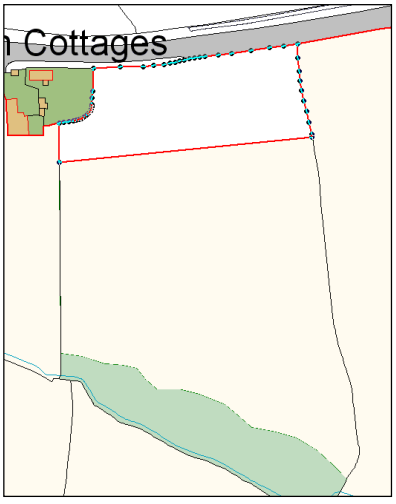
STEP 3: Make the Split

Select the Cut Object tool and apply the cursor to one end of the split line. When, **and only when**, the cursor changes to a cross-hair, left click and the area will split.

Click inside each part and the area and perimeter distance will appear in the Status Bar at the bottom of the screen.

STEP 4: Discard the Split Line

- De-select all objects by clicking on the De-select tool
- Select the split line by clicking on one end of it, then Discard it .



The positions for the boundary line can be easily determined by using the Draw Polyline tool and measuring the distance along each boundary.

You can use the Text tool to write the areas in each part area or use the Identifier tool to assign Compartment Numbers to each area..

9.4 Combine Areas

Supposing that we want to combine two areas into one. This is simple:

1. Make the layer you want the combined boundary to be on the Current layer.

2. Select one area by clicking inside it.

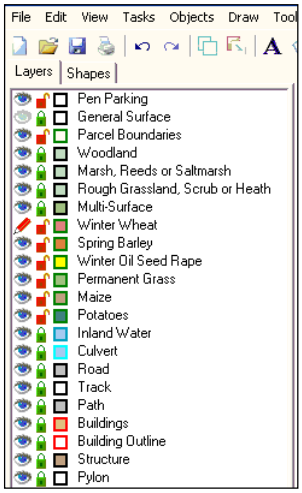
3. Now select the Combine Areas tool and click in the other adjoining area. PT-Mapper Pro will create a new boundary on whichever layer is the Current layer. The original boundaries will still be there but can be discarded by selecting them and using the Discard tool .

9.5 Colouring Areas of a Map

Areas on a map can be coloured differently to represent different categories of area – for example, cropping, woodland species or farm tenancies. The principles apply to any application where areas of the map need to be coloured differently.

In this example, we'll use cropping.

Create a new layer for each crop type, give it a unique colour and position it near the top of the list of layers.



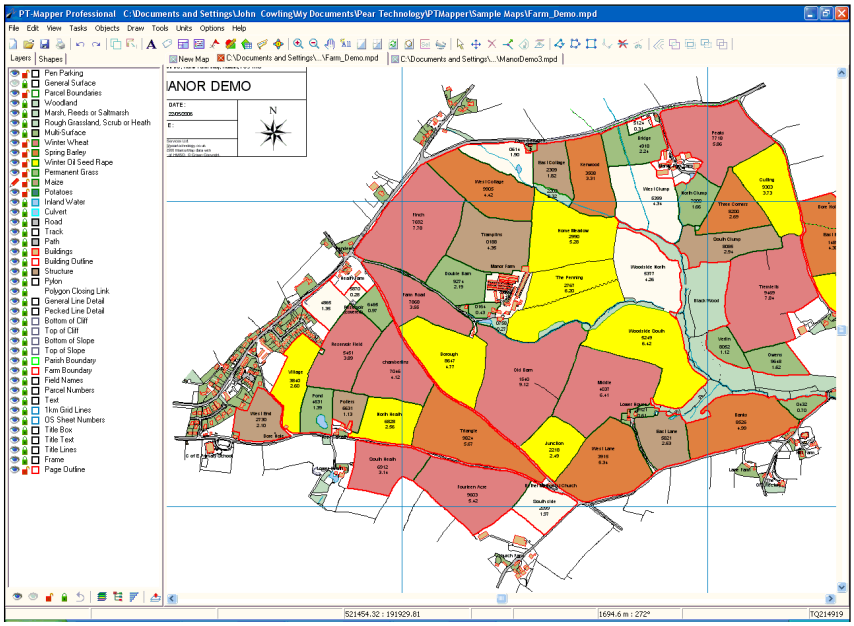
Make the first of the Crop layers e.g. Winter Wheat, the Active layer. Hold down the Ctrl key on the keyboard and click inside each Winter Wheat field until they are all selected.

On the Menu line at the top of the screen, select Edit, Copy, then Edit, Paste. This creates a duplicate of all the selected fields on the Field Boundaries layer. Keep these selected, click on the Move to Active Layer tool , and all the selected field boundaries will now be moved to the Winter Wheat layer and will take up the colour you allocated to the Winter Wheat layer.

Repeat the process for each of the other crop types.

By creating duplicates of the field boundaries and moving these to the appropriate layer, you can switch off the Crop layers and still have the base map intact.

Save the map under a different name so that your master map remains intact.



A Legend can easily be added to the map using the Legend tool . See Section 6.11.

9.6 Change an Object's Layer

Suppose a field now has a different crop or is part of a different farm tenancy, you can easily update your map by moving the field from one layer to another:

Make sure that all layers are un-selectable (locked).

Make the crop or tenancy layer selectable.

Make the receiving layer the current layer by double-clicking on the Eye symbol.

Click inside the field whose crop has changed to select it, click on the Move to Layer tool and the crop layer will be switched to the current layer.

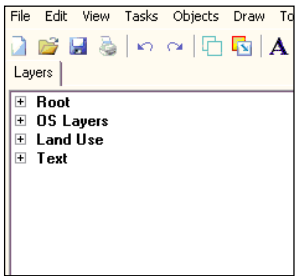
You can do this for multiple areas by multi-selecting (hold down the Ctrl key while you select all the fields or areas you wish to change). The select the Move to Layer tool as before.

9.7 Group Layers into Themes

This feature is useful when a map has a large number of layers, since the layers can be managed as "Themes" rather than as individual layers. For example, all cropping layers could be grouped into a Cropping Theme. All Tenancies could be grouped into a Tenancies Theme.

Once the Themes have been set up, the map structure will have a more logical layout and it will be easier to work with.

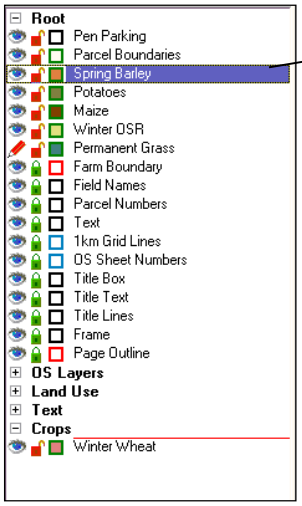
Using the Cropping example in Section9.9, click on the Theme icon at the bottom of the Layers control panel. The Layers Control panel will change to:



Each Theme can be expanded by clicking on the + icon beside the Theme name.

To add a Theme, right click on an existing theme name and select Add Theme from the pop-up menu.

To move existing layers into the Theme group, expand the list of the Root or other groups and drag and drop the layers into the new Theme:



Drag and drop into the Crops Theme.

9.8 Cutting out a Map

Suppose that your master map is set to 1:10000 scale on A4 paper but that you want a map of some buildings at a scale of 1:500 and that you want to save this map as a completely new map, without affecting the master. This is easily done:

- Select File, Page Set Up and set the scale to the chosen value.

- Zoom in so that the area of interest fills the screen and use the Centre Page tool to centre the page around this area. Use the Move tool to fine adjust its position.
- Select Edit, Copy Page.

You may need to delete unwanted text and change font sizes, but the map can now be saved under a new name, given a title block (Section 6.10) etc.

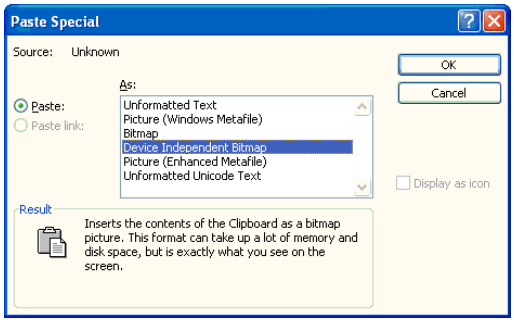
9.9 Copy a Map into a Report or Document

Open the required map in PT-Mapper Pro.

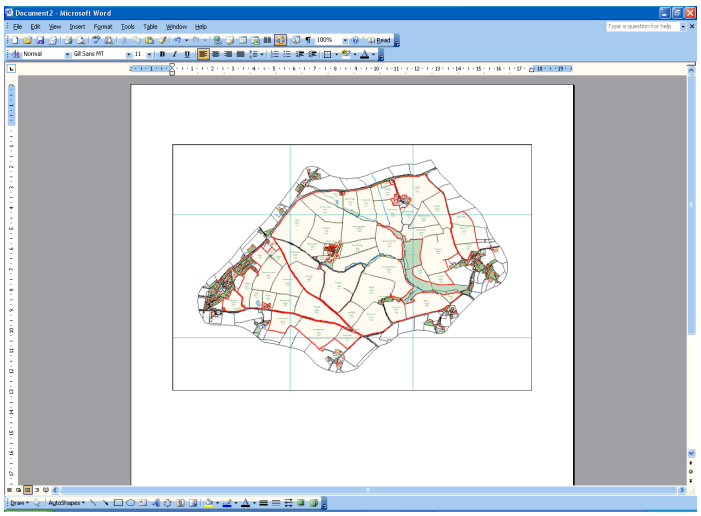
Select Edit, Copy All on the top Menu line.

Switch to the receiving application eg Microsoft Word, Excel, Publisher, Powerpoint and position the cursor at the required location.

Click on Edit, Paste Special and select Device Independent Bitmap:



Click OK and the map will be pasted into your document to give a good quality image.



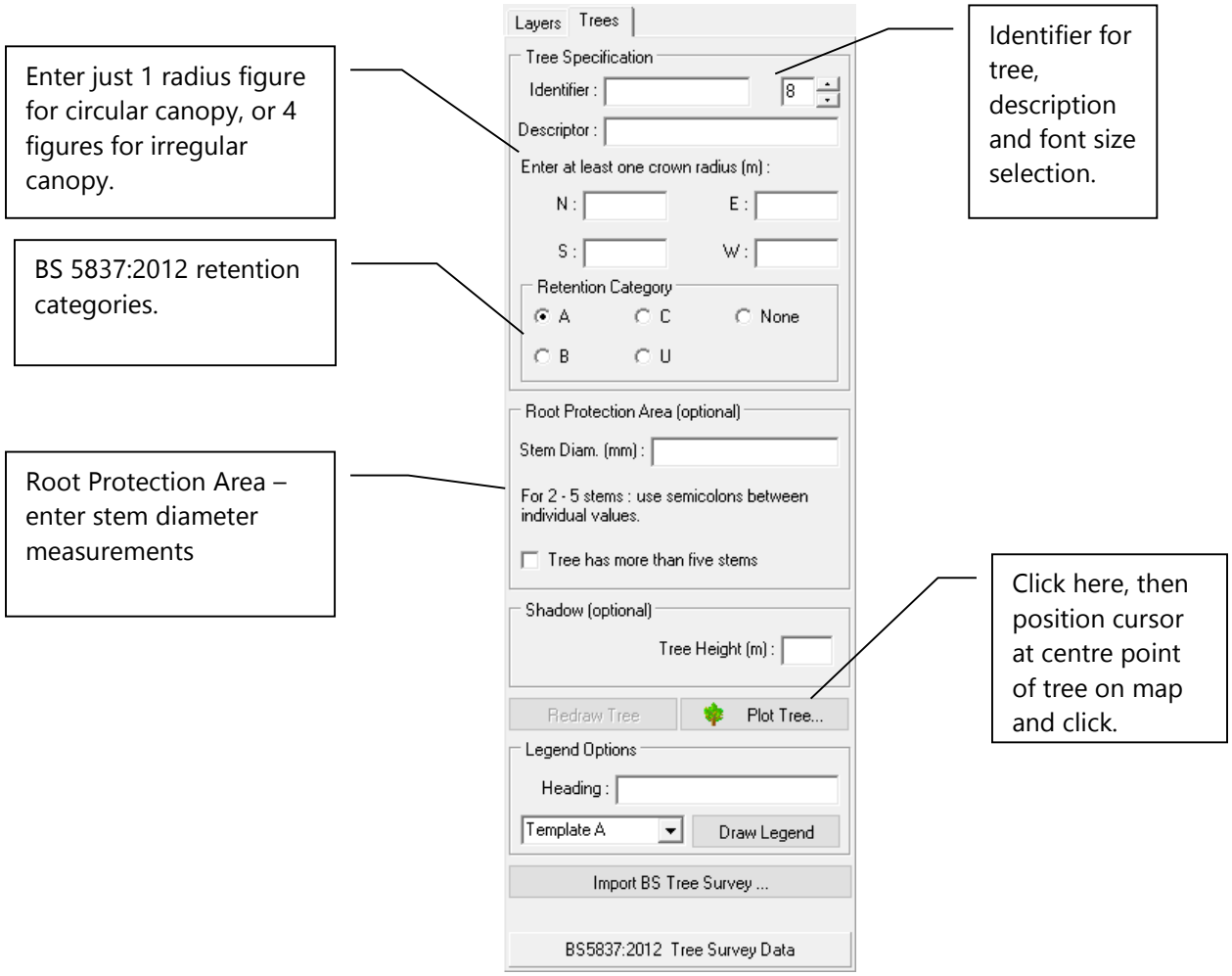
The map image can be re-positioned, re-sized as usual.

9.10 Adding Trees to a Map

Trees or tree symbols can be added in several ways according to requirements. Remember to first make the correct layer the Current or Active layer:

9.10.1 Plot Single Trees according to specified dimensions

Click on the Trees button to bring up the Tree control panel:



As soon as you plot a tree on a map, new layers will be added to the existing list of layers, one for uncategorised, and one for each of the BS5837:2012 retention categories. To facilitate export to CAD in DXF format when layer colours can be lost, the retention category is automatically added as a "Description". If this is not wanted, it can be deleted.

9.10.2 Updating Tree Details

In version 5.63 we have made some significant improvements to the BS5837 tree plotting tools. The changes included are:

1. The tree elements (crown, RPA, stem and shadow) are grouped, so that they can be selected and then repositioned as a single tree entity.

   To select a tree make sure the appropriate layer is selectable, for example the "Tree Stems" layer must be selectable if you are clicking on the stem.

   To select a single element .e.g the RPA, firstly make sure the RPA layer is selectable, next click **twice** inside the RPA or on a node along the boundary. The first click selects all of the elements associated with the tree. The second click will just select the RPA.
   TIP – The only layers that should be selectable are the ones you are working with. For example only the RPA layer should be selectable if you are measuring or adjusting the RPA's.

2. When a tree is selected the tree dimensions appear in the text boxes and the "Redraw Tree" button is enabled. Values in the text boxes can be modified and the tree redrawn using the edited values.

3. The trees now have a "descriptor" - for example you could use Common Name, but any field from the Survey file, or a manual entry, could be used.

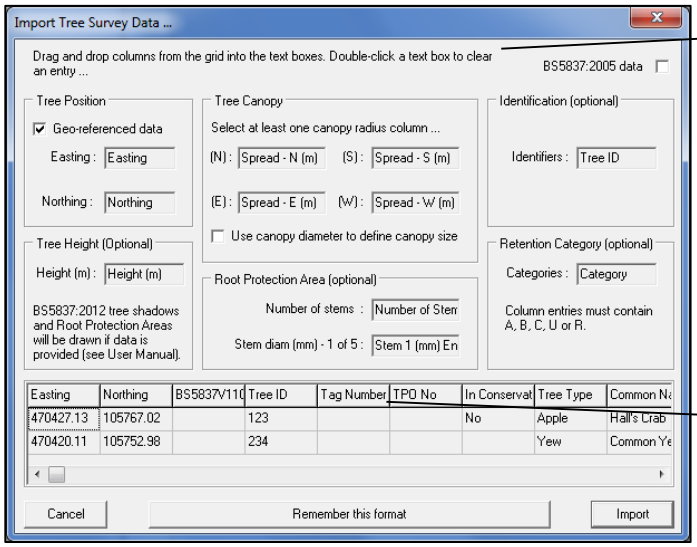
9.10.3 Plot Trees including Canopy Spread directly from Tree Survey Results

Tree surveys carried out with a tablet PC or hand-held device can be used with PT-Mapper to automatically plot trees on a map. For this to function, it is essential that:

a) The survey results are available as a Comma Separated Variable text .csv text file. (Can be created in Excel). The survey data must include easting and northing coordinates.
b) Canopy spread has been recorded.
c) Coordinates from the survey match those of the map.

Surveys carried out using the standard formats supplied by Pear Technology with the PT-Mapper Pro and Tree Minder products will be fine, and other surveys can be accommodated provided they meet the above criteria.

To plot trees from a survey, open the map, select the Trees tab and click on the Import Tree Survey button to get this screen:



If a Pear Technology Scheme has been used with the PocketGIS software, PT-Mapper will automatically recognise the format and structure of the file.

Set the ID font size and click on the Import button to import and plot the

If you wish to import from your own survey, drag the column headers onto the matching box above so that PT-Mapper knows which of your columns are eastings, northings, Tree ID etc.

You can then click on "Remember this Format" to avoid having to

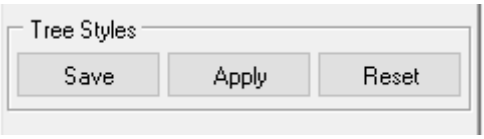
See Appendix D for worked examples.

See Appendix E for information relating to BS 5837:2012.

9.10.4 Customising Tree Styles

Many users choose to customise the style of the BS5837 Tree Survey layers in PT-Mapper, for example change the line thickness or fill colour. These settings can now be saved and then reused in other maps later on.

On the Tree Control Panel, there are the following options:



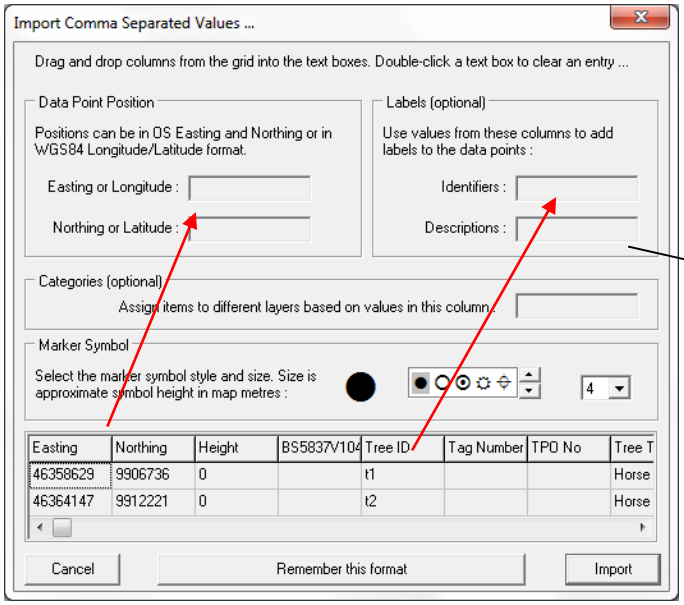
Save – Stores the layer style settings from these layers:

Apply – Can be used to apply style settings to an existing map

Reset – Restores the default style to the trees on the current map and deletes any custom settings that have been saved.

If you have already customised the styling on an existing map and want to re-use it, then open the map, go to the tree control panel and click on the Tree Styles – Save button. The style will then be applied when tree survey data is plotted in the future.

9.10.5 Plot trees as Markers directly from a survey



E.g. drag and drop the Tree ID column header into the Identifiers box.

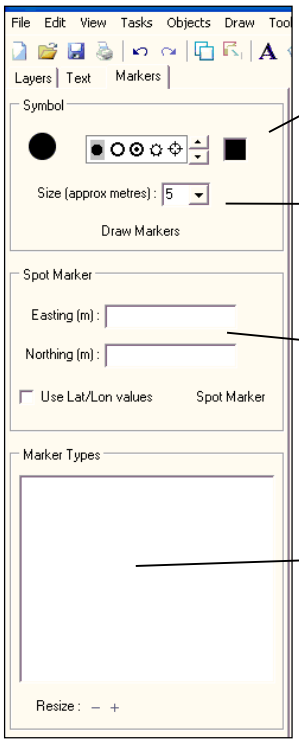
Open the relevant background map. Select File, Import, CSV File and browse for the CSV text file. The above screen will show – drag and drop the column headers into the matching boxes so that PT-Mapper knows what the key columns are. Then choose the font size for the identifiers and the required symbol.

Drop a column header into the Categories box if you want to divide the data into different layers based on the values in that column. The colour of the markers on each layer can then be changed, e.g. highlight poor condition trees in red. To change the colour of all of the markers on a layer, go into the layer properties and adjust the line colour.

If the format being used is a common one for your application click on the "Remember this format" button so that the set up is retained for future use, then click on Import.

9.10.6 Single Trees As Tree Symbols

The Place Marker tool gives this control panel:



Click here to change marker colour.

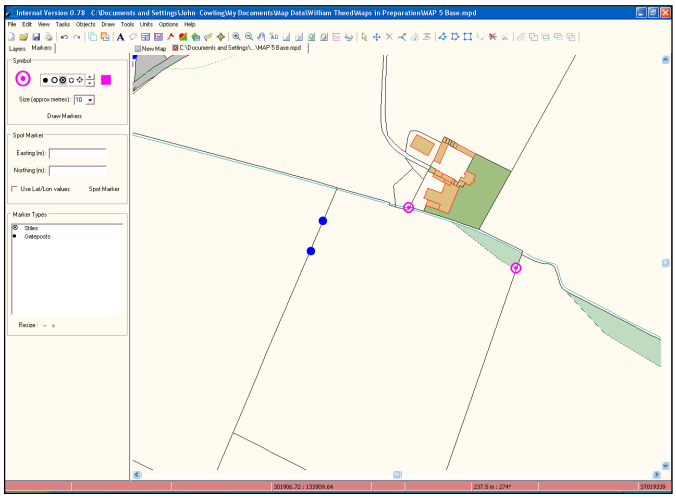
Size of marker in metres. Adjust up or down as required.

Enter coordinates here, then click on Plot to place marker at precise location.

Each time you create a marker on a different layer, the layer name will appear here. Select the Marker Layer, then click on Up/Down arrows to adjust size of ALL markers in one go.

9.10.6 Place a Marker

Make an appropriate layer the Current layer (crayon in front of layer name).
Choose one of the available markers by clicking on it.
Change the colour if necessary.
Set the size (can be adjusted later).
Click on the Draw Markers button and click on the map where you wish the centre point of the marker to be.



By creating markers for different features on separate map layers, PT-Mapper can provide a list of all the marker types on a map (bottom section of panel).

To adjust the size of all markers in a given category, click on the marker name in this box and click on the + or – Adjustment.

Markers can be placed at specified coordinates using the middle section of the panel.

9.11 Buffering Tool

For example, a protection zone around lines or groups of trees.

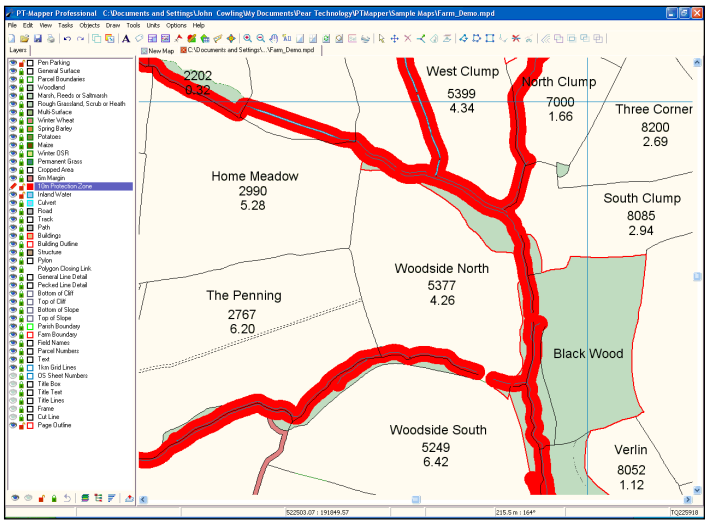
Add a layer called Protection Zone, then select the lines or groups of trees.

Click on the Buffer tool and set the spacing to the required width.

Note – If you only select one object make sure the "Create a closed border area buffer" is ticked.

Click Ok and boundary constructed.

De-select everything. Your map should now look like this:



10. SAVE THE MAP

10.1 General

Saving maps works in the exactly the same way as saving other files.

Maps can be saved on your local hard drive or on a server. Either way, it is essential to maintain effective back-ups, so that if your computer malfunctions, you will be able to recover your maps.

Note that when working with very large file sizes held on a server, maps can take a long time to open and a long time to save, in which case we recommend that you temporarily save your map to a local drive whilst working on it and only save it back to the server when your work has finished.

To save your map, select File, Save or Save As and PT-Mapper Pro will save your file with a file extension of .MPD.

IMPORTANT!

- Using File, Save will save your map under its current name, thereby over-writing the previous level.
- Using File, Save As will enable you to save the map under a new name, thereby retaining the previous level.

If carrying out extensive work on a map, we recommend that you save the map periodically under a different name eg map1a.mpd, then map1b.mpd etc, finally saving the finished version as Farm Demo 2.mpd. In this way you protect your work and can always backtrack to a recent level if anything goes wrong.

10.2 Back-up

- There is no other automatic back-up/save facility in PT-Mapper Pro. Therefore it is important you save your map whenever you have successfully completed changes that you wish to keep.
- PT-Mapper Pro does offer the option to save a copy of a map file on opening the map. This will be saved as Filename.bak. To use this, select Options on the Menu line and then Options again and check the relevant item in the Options list.
- As with any computer records, it is essential to create back-up copies of all your critical maps from time to time.

10.3 Back-Up Option

If you do not want PT-Mapper Pro to automatically save a copy of your map whenever you first open it, you can switch this function off by selecting Options on the Menu line at the top of the screen. The select Options again and choose the General tab. De-select the back-up option here.

11. TROUBLE-SHOOTING

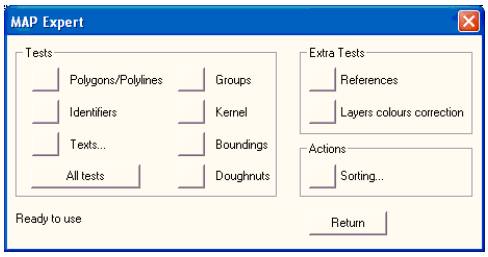
11.1 Map Cleaner

During map creation and editing, digital maps can become degraded due to double mouse clicks creating duplicate nodes, zero length texts being left on the map, or zero length lines being created. The Map Cleaner facility enables PT-Mapper Pro to detect and repair these types of problem, thereby keeping the whole system robust and trouble-free. If you do experience any untoward problems, run the Map Cleaner:

Click on Tools in the Menu line and click on the Map Cleaner tool

11.2 Map Expert

This offers some additional map "cleaning" features and can be used as well as the Map Cleaner. Click on Tasks in the Menu line and click on the Map Expert tool :



Click on All Tests and a diagnostic on the map will run. Click OK and any problems found will be fixed.
If problems are found, they will be listed:

11.3 Other Problems

11.3.1 Can't select an object?

a) Make sure that the layer the object is on is selectable. Tip: if you're not sure which layer the object is on, switch to Layers mode, and click on the All Selectable button to make all layers selectable. Now click on the object at a node and it should select. Once selected, you can see which layer it's on by looking at the Status Bar at the bottom of the screen.

b) If (a) doesn't work, try selecting another object on the map, then returning and trying again.

11.3.2 Slow to print?

Printing the first copy of a map on a laser printer and on some makes of inkjet printer can take 2-3 minutes. Don't be alarmed, just try to be patient!

11.3.3 Area won't divide?

If you are having trouble splitting an area such as a development plot or a field into different parts, it's probably because the area is not a polygon or the "split" line does not meet or cross the area boundaries. To extend the line beyond the boundary to be split, select the line, then use the Move Node tool to drag the end of the line over the boundary.

11.3.4 Printing problems?

a) Map prints on several sheets of A4

This is probably because your Page Size is set to A3 but your printer has A4 paper. Either print onto A3 paper, or go to Print Mode, click on the Page Set Up button and set the Page Size to A4. Note that you might also have to change the scale in order that a sheet of A4 accommodates the map.

b) Only part of a map prints out.

This is probably because the Page Outline does not sit over the desired part of the map. Go to Print Mode, zoom out so that you can see the Page Outline relative to the map and ensure that the outline encloses the area you want. You can select the Move tool , move the cursor to one corner of the Page Outline until you get a cross-hair, then hold the left mouse button down and drag the page to the desired position.

11.4 Help

There is now a direct link to the Pear Technology remote access support service.

First, call the Pear Technology Support line on 023 9249 9689 and if the problem or question can best be resolved by establishing remote access to your computer, the support specialist will ask you to click on Help, then Pear Support. This will give a password and ID which will enable temporary remote access to your computer such that the support specialist can examine the problem on your computer or use the link to demonstrate how best to go about a particular task.

The link is temporary and always under your control – we cannot access your computer at a later date without you first supplying us with your ID and Password.

APPENDIX A: Using Raster Maps

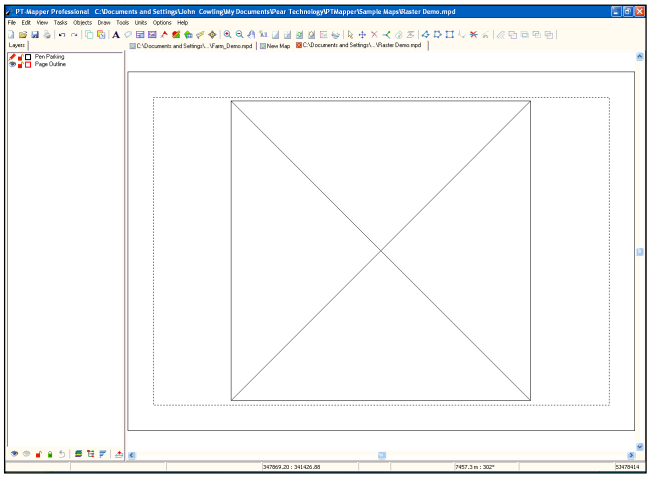
A1. General

In digital mapping, there are two basic types of map – vector and raster. Most farm and estate maps supplied by Pear Technology are based on vector data where maps are constructed in a number of layers and every single feature on the map can be individually selected. Ordnance Survey MasterMap and Land-Line maps are examples of vector products.

Raster maps are analogous to digital photographs – all detail is embedded into one layer, and zooming in results in individual pixels being evident and a very grainy image. Raster maps are generally less suitable for detail mapping work but they do provide a relatively inexpensive backcloth map.

For UK farming, forestry and estate management applications, the Ordnance Survey 1:25000 raster maps (digital equivalent of the Explorer series) provide an inexpensive but good quality background map. A 10km x 10km tile imports straight into PT-Mapper Pro ready scaled and georeferenced and gives a good quality image.

IMPORTANT: Once OS raster maps have been imported, they can be saved as normal. However, PT-Mapper saves where the raster image is saved rather than another copy of the same map. This saves disk drive space by eliminating the need to save multiple copies of the same raster map BUT it does mean that if you delete or move the original raster file, PT-Mapper will not be able to find it. If this happens you will see a screen like this:

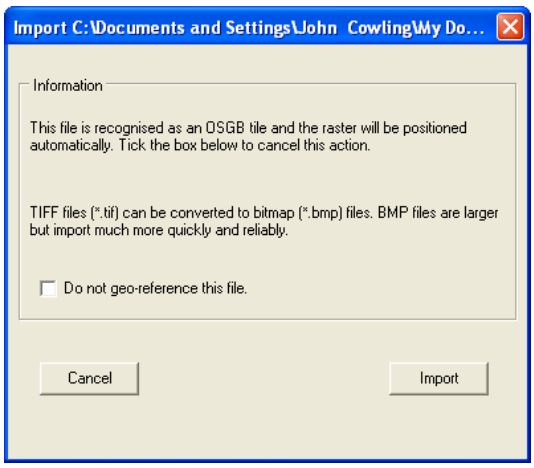


A message will appear inviting you to search/browse for the raster map.

A2. Automatic Scaling and Georeferencing of Raster Data

PT-Mapper will automatically scale and georeference raster data if any of the following are true:

- The file name uses an Ordnance Survey reference e.g. SU25SE or TF21.
- It is a GeoTIFF file. GeoTIFF is a public domain metadata standard which allows georeferencing information to be embedded within a TIFF file.
- Each raster file has a corresponding World file (TFW). A World file is a file used by geographic information systems to georeference raster map images.



To import a raster file:

Select File, Import, Raster and browse to your file

Click on Import and the map will load. You will then have the option to select another file or to Finish the import.

A3. Scanning Your Own Map

For best results:
Use a resolution of 200 – 300 dpi.
Make sure that the map is vertically aligned on the scanner bed.
Try to use original maps where possible, since photo-copies can introduce errors.
Save the file as an un-compressed bitmap (bmp format) or uncompressed TIF.

A4. Opening a Scanned Map

On the top Menu line, select File, New to get a blank page.

Select File, Import, Raster and browse to the required file. To try an example, browse to My Documents\Pear Technology\PTMapper\Samples\ManorScanned.bmp

See Appendix E for details on georeferencing scanned maps.

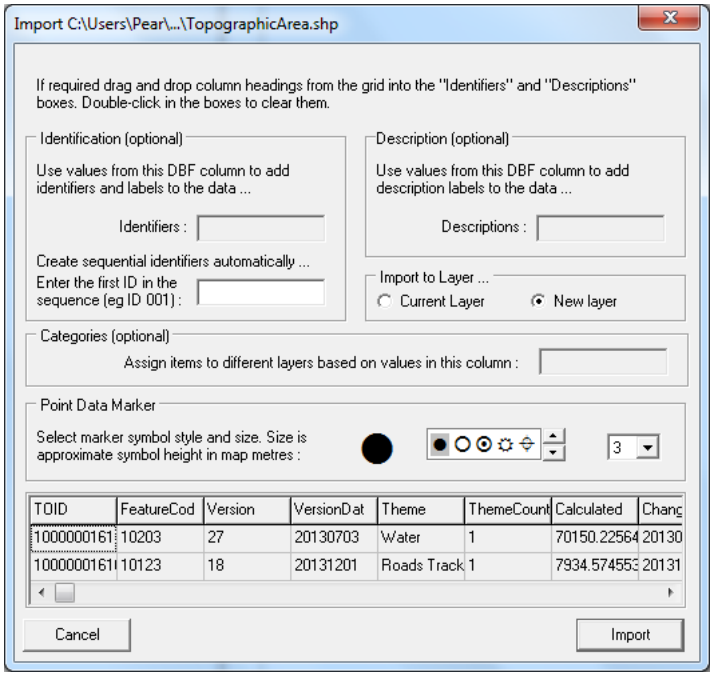
APPENDIX B: WORKING WITH .SHP FILES

The "Shape" (.shp) format is a common data interchange format. Many GPS systems will export their data in .shp format which is likely to be in WGS84 Lat/Long coordinates. To portray this data onto a flat Cartesian coordinate map such as an Ordnance Survey map requires conversion from Lat/Long to, in the case of Great Britain, Ordnance Survey National Grid.

PT-Mapper does this for you, and lets you export your data in .shp format so that it can be used by other applications.

B.1 Importing a Shp File

On starting PT-Mapper, click on File, New to get a blank map page. Then select File, Import, Shapefile. PT-Mapper will automatically determine the conversion required and convert the data into Cartesian coordinates. Once opened, all the usual PT-Mapper operations can be carried out.



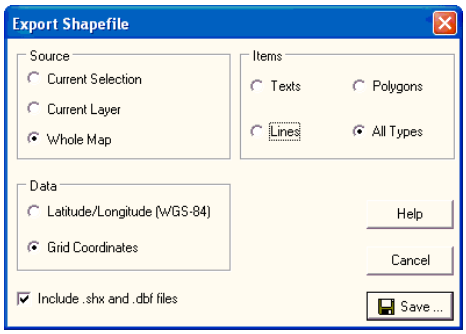
If the .shp file has an associated .dbf file with attribute information eg tree identification numbers, check the "Use *.dbf column" and select the appropriate column from the drop-down list. PT-Mapper will automatically create an identifier for each object from the selected column. Similarly, a second column can be selected which will be assigned as the "Description" part of the ID. Alternatively, the column headers can be dragged and dropped into the matching box.

If the categories box is left blank, then all of the features imported from the file will be added to a single map layer. Identifiers and descriptions will be added to a separate layer.

It is often useful to divide the data into separate layers on a map. This can be done automatically when the data is imported, simply drag a column header into the Categories box. PT-Mapper will assign the features to different layers according to values in the column. A typical example of when this might be used is when tree survey data is imported into a map, the areas could be divided into layers based on overall condition.

B.2 Exporting a Shp File

Select File, Export to get a selection screen:



Choose the desired options and click on Save.

APPENDIX C: TRANSFERRING MAPS TO A MOBILE DEVICE RUNNING POCKETGIS

Important! For PT-Mapper Pro to be able to transfer a map and associated survey schemes to a mobile device, it is essential that:

a) Microsoft ActiveSync (Windows XP) or Windows Mobile Device Centre (Vista, Windows 7) is installed on your computer. These are freely available from the Microsoft Downloads web site.
b) It is also essential that PocketGIS software is installed both on your office PC and on the mobile device.
c) Survey schemes need to be previously set up and saved in the Surveys folder in My Documents\Pear Technology\PTMapper\Surveys.

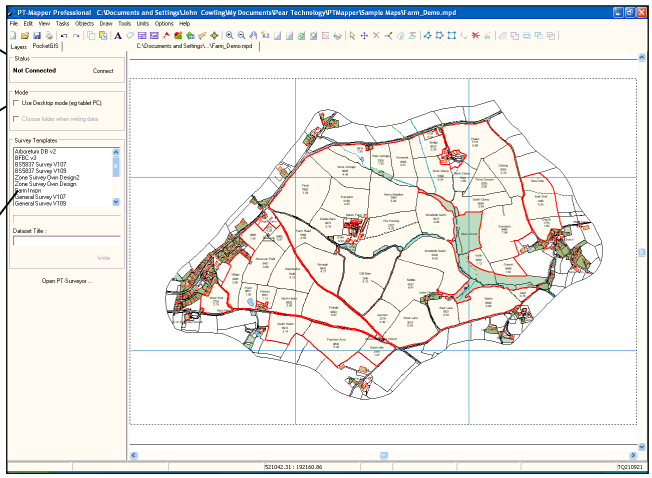
Open the map you wish to use for your survey. If this is a large map, you may wish to create a map of just the area to be surveyed using the Copy Page tool, since this will make the map much faster to transfer to and operate on a mobile device.

Select the PocketGIS tool and the left hand control panel will change:

Ensure that your mobile device is connected.

Only check this box if using a tablet or laptop PC for the survey.

List of survey schemes saved in My Documents\Pear Technology\PTMapper\Surveys



Select the survey or survey schemes that you may require when on-site from the list shown. Give the survey a brief title that will help identify it in future and click on the Write button.

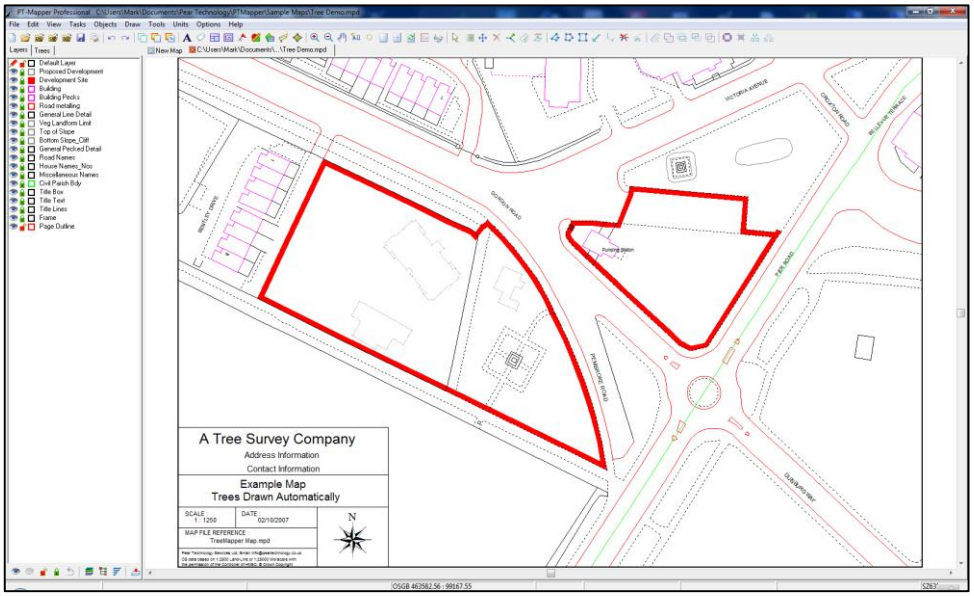
The map and associated surveys will be transferred to the mobile device.

PT-Surveyor is a separate program that enables you to modify and/or create your own survey schemes.

APPENDIX D: TREE PLOTTING EXERCISES

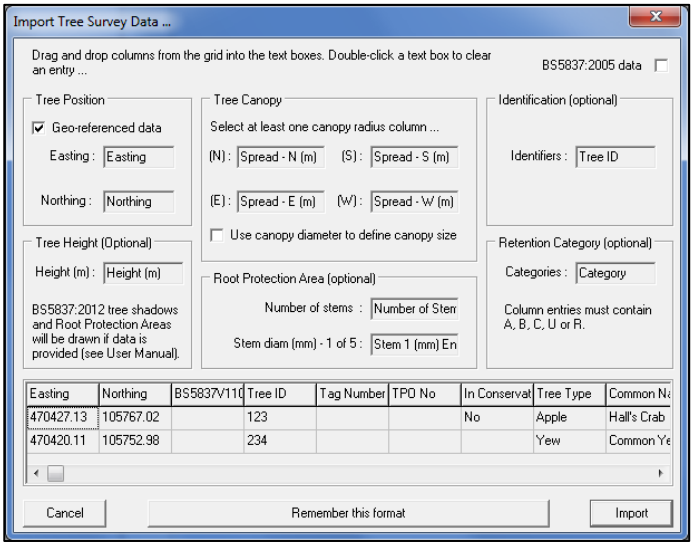
D.1 Open a Map

Open the map Tree Demo.mpd which is found in My Documents\Pear Technology\PT-Mapper\Sample Maps:



D.2 Import a Survey

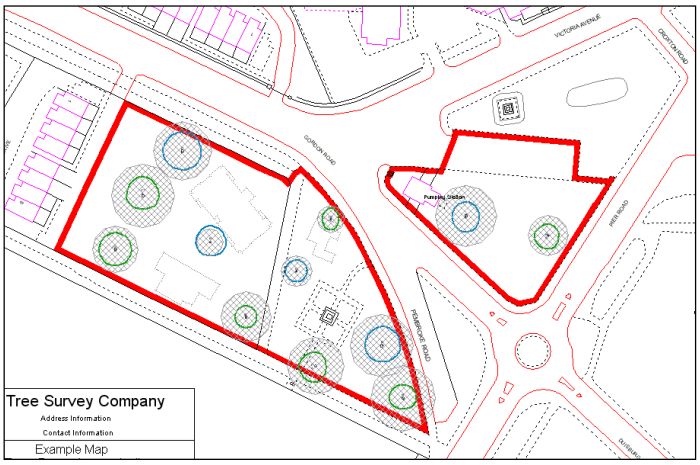
Select File, Import, Tree Survey and browse for the file Tree Survey Demo.csv found in My Documents\Pear Technology\PT-Mapper\Sample Maps. Open the file to get this screen:



If a survey is carried out using the Pear Technology data capture schemes in a mobile device, PT-Mapper will recognise the file structure and you can click on Import to plot the trees on the map. The trees will be plotted

with canopy spread determined by the 4 compass point measurements, the stem diameter and the root protection area will be automatically calculated and plotted from the stem diameter figure. Each tree will be coloured and labelled according to its tree retention category as defined in BS5837.

Click on the Import button. A pop-up box will appear with the message "12 records read from the file. No errors detected". Click OK and the trees will be on the map:



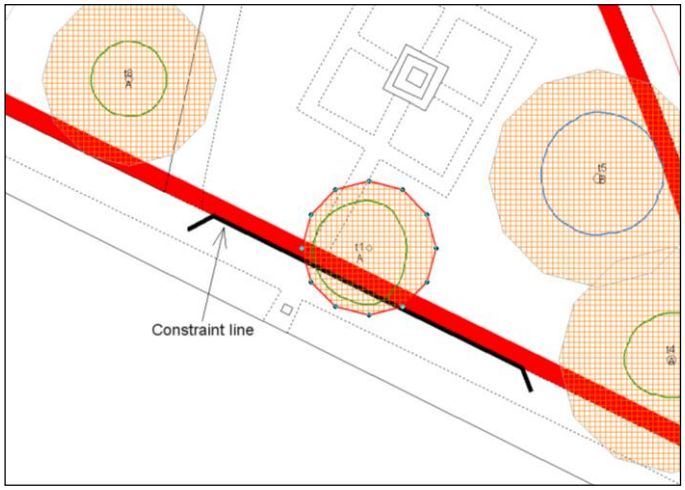
D.3 Change Colours

Suppose you want to change the colour of the Root Protection Area from diagonally-hatched grey to square-hatched orange.

In the list of layers, highlight the Root Protection Area layer, right click and select properties, tick the Filled box and a White rectangle will appear. Click on this to get the standard Windows colour palette and change the fill colour to orange and the hatching to square.

D.4 Adjust the Root Protection Area (RPA)

Zoom in on this tree using the tool:



Right click to de-select the Zoom tool or click on the De-select tool .

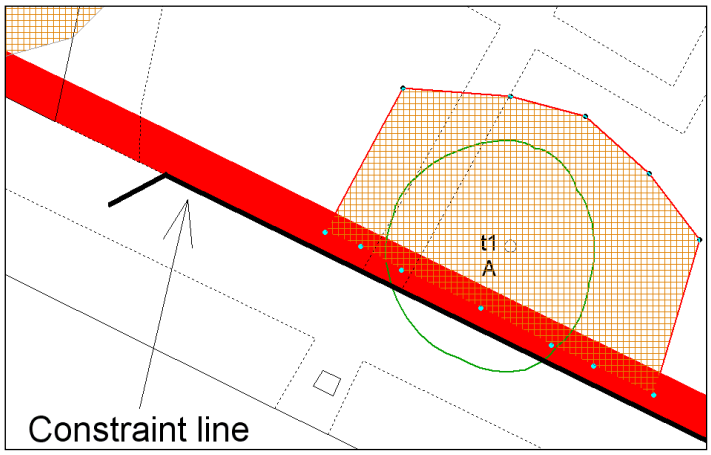
Let's assume that there is a constraint of some kind along the line shown above and we need to move the Root Protection Area (RPA) zone back behind this constraint but then re-adjust the RPA shape to get back to about the same area.

First, change the units of Area to Sq Metres - Units on the top Menu line.

Make sure that only the RPA layer is selectable

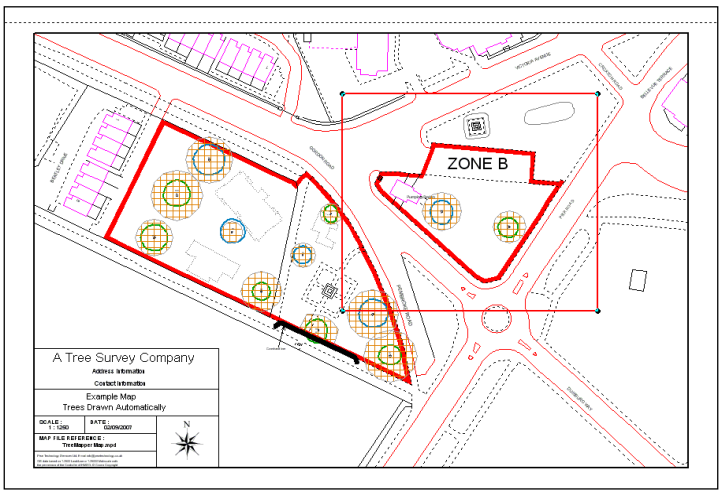
Click **twice** inside the RPA to select it and note its area on the Status Bar at the bottom of the screen. In this example it should read 152.18 sq.metres.

Now select the Drag Node tool and apply the cursor to one node outside the constraint line, get a cross-hair, hold the left mouse button down and drag the node in. Repeat for the other nodes. Now the area has to be reset to its original figure (152 sq.m. in this case) by dragging other nodes out. You could end up with a shape something like this:



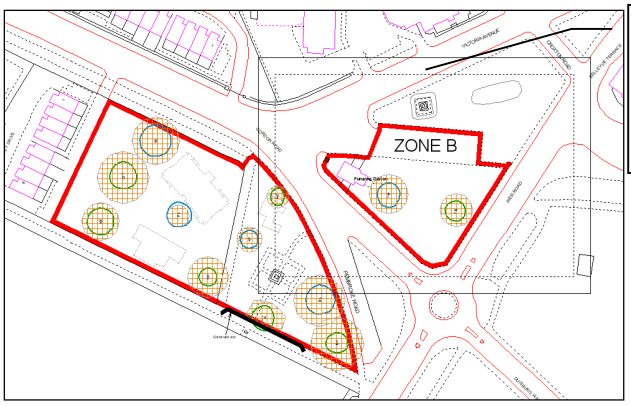
D.5 Printing part of the map

Suppose we want a print at 1:500 of the area Zone B on A4 paper:



Select File, Page Set Up and you will see that the map is set for A4 paper and a scale of 1:1250. Leave the Paper Size at A4 and set the scale to 1:500, then click OK to return to the map.

Check that the Page Outline layer is Selectable (green tick).
Zoom in around the area of interest so that Zone B is centred on the screen and then click on the Centre Page tool . The Page Outline will appear around the area of interest. Click on View Page tool to check that the desired area will show on the page when printed. If not, use the Move tool to fine adjust the page position over the map – remember that the Page Outline can only be selected at a corner. You should have something like this:



Page outline represents a sheet of A4 at a scale of

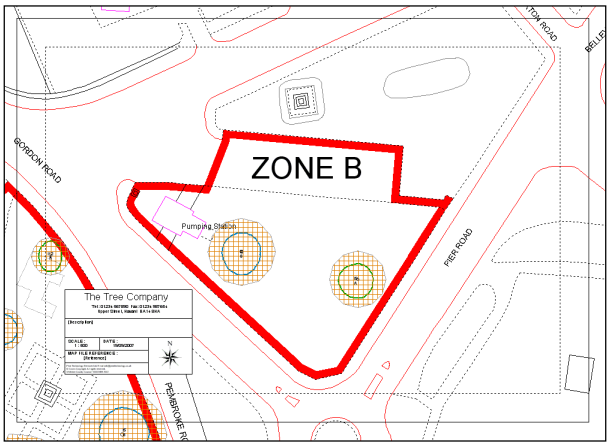
PT-Mapper operates a "what you see is what you get" format for printing i.e. whatever sits within the Page Outline margins is what will print out. So the Page Outline gives a continuous "Print Preview".

Clicking on File, Print or on the Print tool will now print out this part of the map at precisely 1:500 on A4, automatically adding a border and screening out the adjacent area.

D.6 Adding a Title Block

Now let's add a title block:

Click on the Title Block tool to get the Title Box control panel. Choose A4, select which corner of the page in which you wish to have the title block by clicking on the appropriate block in the Title Block Control Panel. You will be asked if you want to replace the existing Title Block – say Yes. The Title Box will appear in whichever corner of the Page Outline you chose.



In the list of layers, make the Title Text layer selectable by clicking on the hand for that layer. Now click on the text within the Title Block that you want to change. Edit this using the Text Control Panel on the left to overwrite with your own text. Add a map title under Description and enter the map filename under Map Reference if you wish to save this particular view for future reference. Click on the De-select tool when finished.

The Title Box can be re-positioned by using the Centre Title button in the Title Box control panel. Or you can fine adjust its position as follows:

Click on the Default/Pen Parking Layer name to make this the active layer (crayon symbol in front of layer name).
In Layers tab, click on the Red Cross in "Set All Layers" at the bottom of the Control Panel.
Now click on each red cross for the 3 Title Block layers, changing them to Green Ticks. By doing this, you have arranged it so that the only selectable layers are these 3 Title Block layers.
Now drag – yes, drag, not draw a rectangle that comfortably encloses the whole Title Block to select it.

Use the Move tool to slide the Title Block to the required position.

De-select using .

D.7 Add a legend

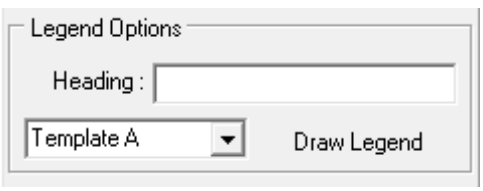
To add a legend to BS 5837 tree survey plans open the Trees tab, select a template from the drop down list, add a title (optional) and click on Draw legend. The legend will be added to the bottom left corner of the plan, or if snap to the side of title box if one is on the map.

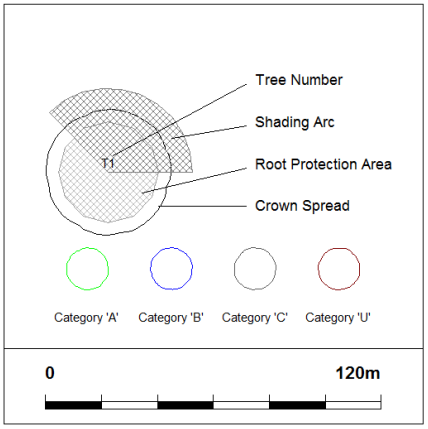
To change the title enter a new title and click on Add legend again.

To move the legend make sure the Tree Legend layer is selectable, click inside the legend, select the move tool and then drag the legend to the new position.

If you have changed the appearance of some of the Tree layers, e.g. changed the line colour on the RPA layer and want this shown in the legend then simply click on the Add Legend button again, the changes will be applied to the legend.

At this time it is not possible to alter the contents of the legend.





D.8 Export this area as a new map

With the Page Outline set up as above, you can easily print off selected areas of your main map but sometimes it is useful to create a completely independent map of the desired area. In PT-Mapper Pro this is easy:

Scale and position the page as outlined above.

Select Edit, Copy Page on the top Menu line.

The new map will appear. Use File, Save As to save this new map under its own name. The original map remains unchanged.
Note that any text crossing the map threshold will either need to be moved onto the map or deleted. You may also want to re-size the text.

D.9 Export Map as a CAD or GIS File

Having created your map in PT-Mapper, you may need to supply it to a client in a format that can be used in their system. This is straightforward – let's take AutoCad as an example, where DXF is the standard exchange file format.

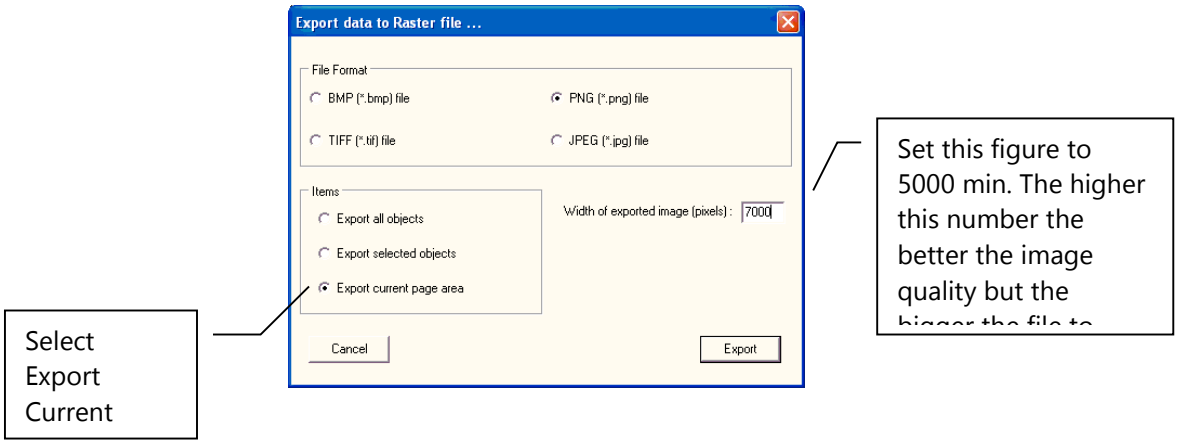
With the required map open, select File, Export and select DXF File from the list.

For other GIS products select Shape file (for ESRI ArcView products) or MIF for MapInfo.

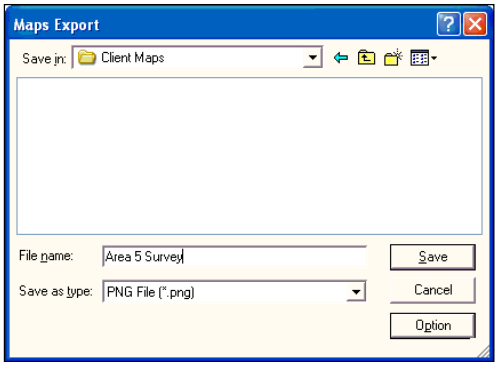
D.10 Email a Map

There are two ways to email a map where the recipient does not have PT-Mapper:

a) As a PDF file. This requires that you have a PDF Creation program on your computer. (PrimoPDF, DeskPDF, Scansoft are suitable products – search on the web using Google.)
b) PNG format image. This format is similar to JPG but is better quality. To use this in PT-Mapper, select File, Export, Raster and PNG to get this screen:



Click on the Export button and you will be prompted to select where you wish to save the PNG file.



Once saved, the file can be emailed as an attachment. The recipient can open it using the standard Windows Media viewer – no special software is required.

D.11 Other Operations

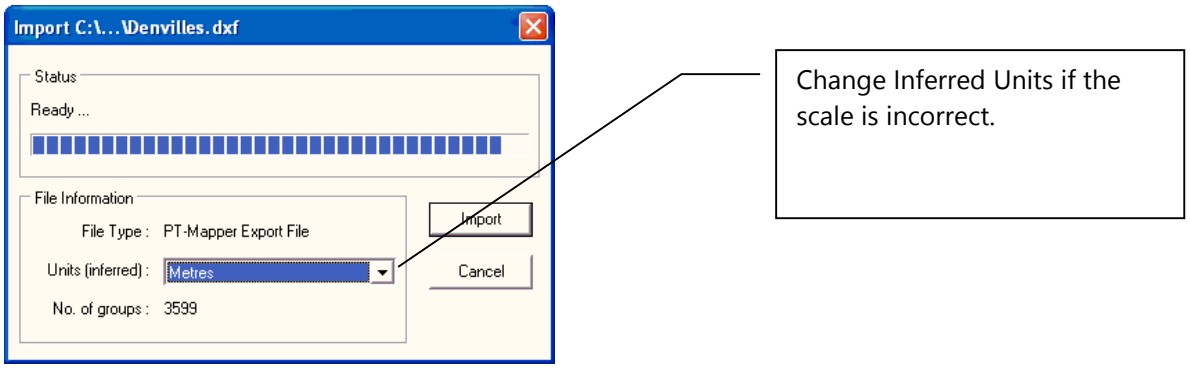
D.11.1 Open a Map supplied by Pear Technology

Start PT-Mapper, select File, Open, browse for the map which will have a file extension .MPD, click on Open and your map will be displayed.

D.11.2 Map supplied from a CAD source

If you are using maps supplied by a client, it is probable that the map will have been created using a CAD package. If so, it is essential that you are supplied with a map file in .DXF format, not .DWG which is native to AutoCAD only. Ask your supplier to save the map as a georeferenced file. If you are having difficulties importing a DXF file, ask your supplier to explode all blocks then try importing it again.

Start PT-Mapper, select File, New to open a blank map page.
Select File, Import and then DXF File. PT-Mapper will look at the coordinates in your file and make an assumption on whether they are mm, cms or metres.



Your map should appear on the screen. Check the scale by selecting the Draw Line tool , and measuring the length of a building (single-click to start drawing and then read off the distance on the Status Bar at the bottom of the screen). If the scale is wrong, it is likely to be out by a factor 10, 100 or 1000 in which case re-import the DXF file but change the Inferred Units to match the original.

Problems?

a) CAD files can contain spurious points along way from the main map.

To test for this, zoom out one level. Now drag a rectangle around the right half of the screen and click on the View Selected Objects tool . If there is any map detail it should now fill the available screen space. Click on View All Objects , now repeat the process for the left side of the screen. If there are map objects here, try deleting them, and then View All Objects again – this time only the right hand objects should show. If this is the correct map area, the Page can be centred around the map and the file saved as a .MPD file.

b) If the map appears OK but the scaling is wrong, it is probably because the wrong units were selected on Import. Check with the supplier what units they used, then import the file again.

If you have these or other problems, please contact Pear Technology and we will do our best to help.

D.12 Plotting Trees

Trees can be plotted in any of 3 ways:

a) Using the Tree tab control panel

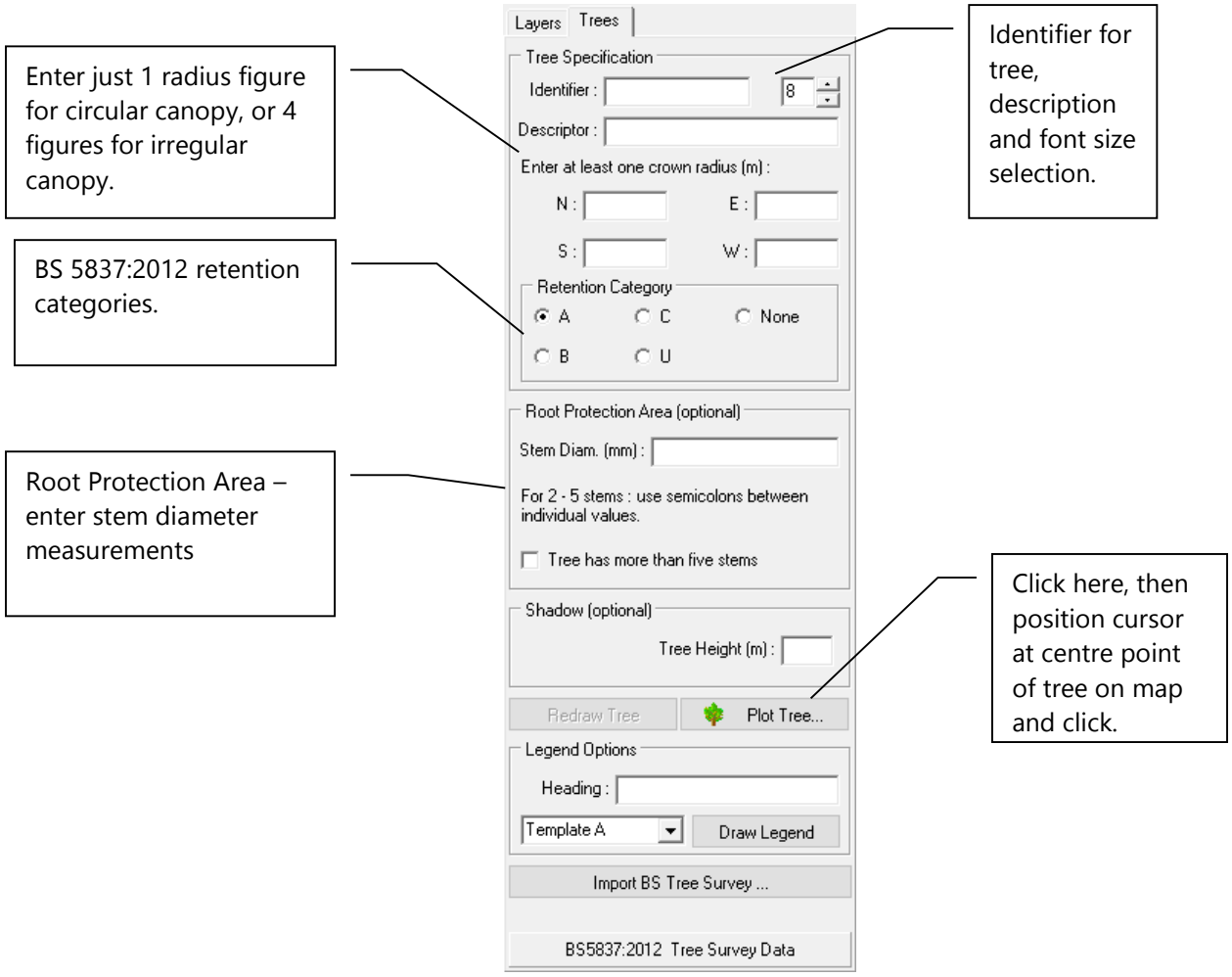
b) Using the Markers tool to add a marker on the map showing the tree position.

c) Importing from a tree survey file and plotting either as symbols or as tree canopies with root protection areas and tree shadow also shown.

D.12.1 Plot Single Trees according to specified dimensions

Click on the Trees button to bring up the Tree control panel:

Click on the Trees button to bring up the Tree control panel:



As soon as you plot a tree on a map, new layers will be added to the existing list of layers, one for uncategorised, and one for each of the BS5837 retention categories. To facilitate export to CAD in DXF format when layer colours can be lost, the retention category is automatically added as a "Description". If this is not wanted, it can be removed in the Identifiers section.

D.12.2 Updating Tree Details

In version 5.63 we have made some significant improvements to the BS5837 tree plotting tools. The changes included are:

1. The tree elements (crown, RPA, stem and shadow) are grouped, so that they can be selected and then repositioned as a single tree entity.

   To select a tree make sure the appropriate layer is selectable, for example the "Tree Stems" layer must be selectable if you are clicking on the stem.

   To select a single element .e.g the RPA, firstly make sure the RPA layer is selectable, next click **twice** inside the RPA or on a node along the boundary. The first click selects all of the elements associated with the tree. The second click will just select the RPA.
   TIP – The only layers that should be selectable are the ones you are working with. For example only the RPA layer should be selectable if you are measuring or adjusting the RPA's.

2. When a tree is selected the tree dimensions appear in the text boxes and the "Redraw Tree" button is enabled. Values in the text boxes can be modified and the tree redrawn using the edited values.

3. The trees now have a "descriptor" - for example you could use Common Name, but any field from the Survey file, or a manual entry, could be used.

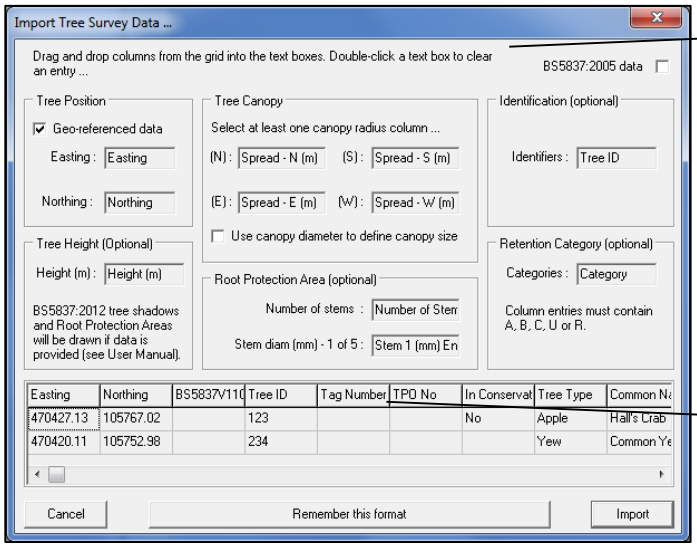
D.12.3 Plot Trees directly from Tree Survey Results

Tree surveys carried out with a tablet PC or hand-held device can be used with PT-Mapper to automatically plot trees on a map. For this to function, it is essential that:

a) The survey results are available as a Comma Separated Variable text .csv text file. (Can be created in Excel). The survey data must include easting and northing coordinates (to match the map).
b) Canopy spread has been recorded.
c) Coordinates from the survey match those of the map – usually metres.

Surveys carried out using the formats supplied by Pear Technology with the Tree Minder product will be fine, and other surveys can be accommodated provided they meet the above criteria.

To plot trees from a survey, open the map, select the Trees tab and click on the Import Tree Survey button to get this screen:



If a Pear Technology Scheme has been used with the PocketGIS software, PT-Mapper will automatically recognise the format and structure of the file.

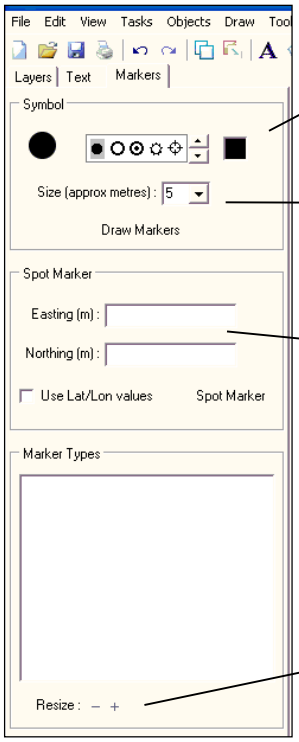
Set the ID font size and click on the Import button to import and plot the

If you wish to import from your own survey, drag the column headers onto the matching box above so that PT-Mapper knows which of your columns are eastings, northings, Tree ID etc.

You can then click on "Remember this Format" to avoid having to

D.12.4 Single Trees As Tree Symbols

The Place Marker tool gives this control panel:



Click here to change marker colour.

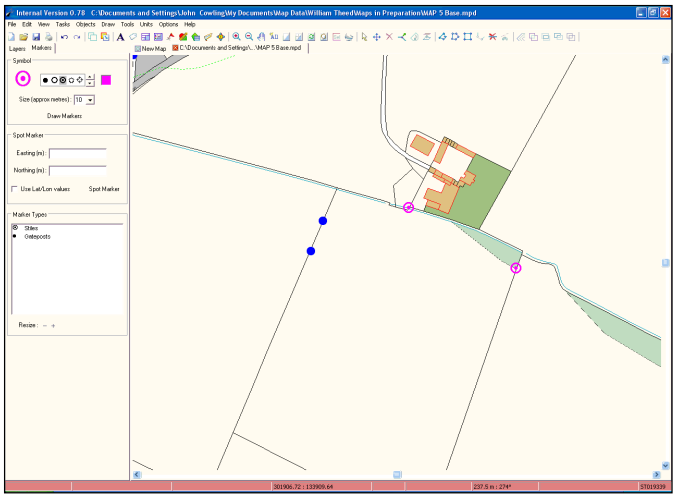
Size of marker in metres. Adjust up or down as required.

Enter coordinates here, then click on Plot to place marker at precise location.

Each time you create a marker on a different layer, the layer name will appear here. Select the Marker Layer, then click on Up/Down arrows to adjust size of ALL markers in one go.

D.12.5 Plot trees as symbols directly from a survey

Make an appropriate layer the Current layer (crayon in front of layer name).
Choose one of the available markers by clicking on it.
Change the colour if necessary.
Set the size (can be adjusted later).
Click on the Draw Markers button and click on the map where you wish the centre point of the marker to be.



By creating markers for different features on separate map layers, PT-Mapper can provide a list of all the marker types on a map (bottom section of panel).

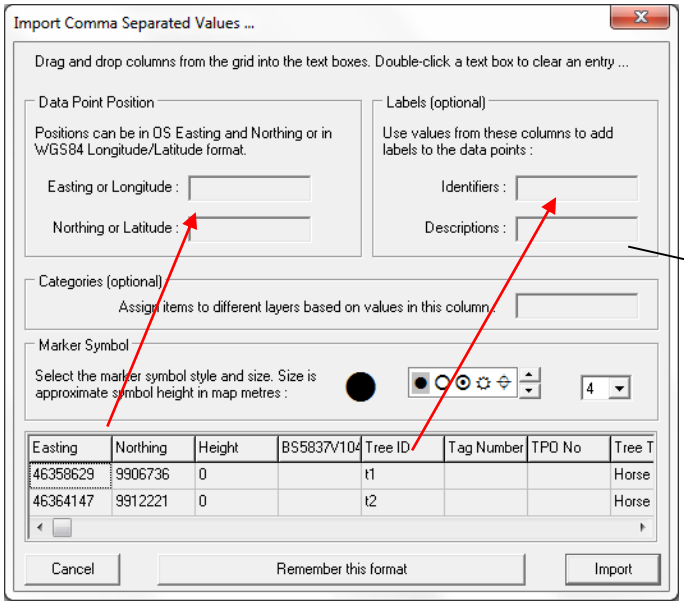
To adjust the size of all markers in a given category, click on the marker name in this box and click on the + or – Adjustment.

Markers can be placed at specified coordinates using the middle section of the panel.

If you wish to link the trees on the map to Excel or Access records, it is important that each tree is given a unique identifier on the map and that this same identifier is used in the data source.

If you have a set of layers specifically for tree mapping, rather than add these layers to each new map, you can set up a group of Themed layers. See Section 10.12 for details.

D.12.6 Plot trees as symbols directly from a survey



E.g. drag and drop the Tree ID column header into the Identifiers box.

Open the relevant background map. Select File, Import, CSV File and browse for the CSV text file. The above screen will show – drag and drop the column headers into the matching boxes so that PT-Mapper knows what the key columns are. Then choose the font size for the identifiers and the required symbol.

Drop a column header into the Categories box if you want to divide the data into different layers based on the values in that column. The colour of the markers on each layer can then be changed, e.g. highlight poor condition trees in red. To change the colour of all of the markers on a layer, go into the layer properties and adjust the line colour.

If the format being used is a common one for your application click on the "Remember this format" button so that the set up is retained for future use, then click on Import.

APPENDIX E: BS 5837:2012 Surveys

PT-Mapper Pro has been updated to reflect the changes in the latest BS 5837 publication. There are 3 areas we have modified:

- **Retention Categories** – Options are A, B, C and U. The layer for each category uses the colours described in section 4.5 of the publication.
- **Root Protection Area Calculation** – Updated to use the method shown in section 4.6, see details below.
- **Survey Template** – Updates include additional stem diameter input boxes, retention category list and new input boxes for "Estimated measurement" and "Height of first significant branch and direction of growth". The new survey template is installed with the latest release and is labelled "BS5837 Survey V110".

Root Protection Areas

Single Stem Trees – There is no change in the latest release, the area is equivalent to a circle with a radius 12 times the stem diameter.

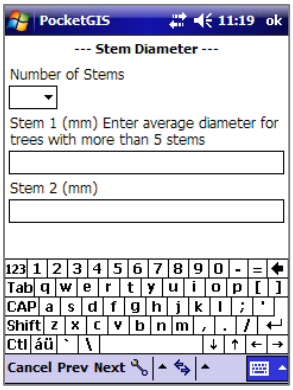
Multiple Stem Trees – A new method has been provided, the area is equivalent to a circle with a radius 12 times the combined stem diameter. Where a tree has 2 to 5 stems, the combined stem diameter is calculated as follows:

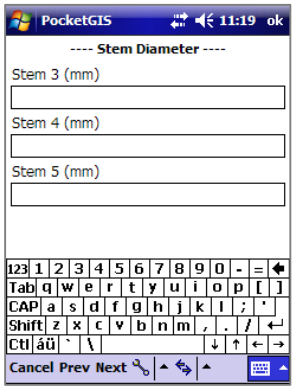
$$Combined\ Stem\ Diameter = \sqrt{(stem\ diameter\ 1)^2 + (stem\ diameter\ 2)^2 \ldots + (stem\ diameter\ 5)^2}$$

The new survey template includes 5 stem diameter input boxes. The plotting tool on the Trees tab in PT-Mapper Pro also allows multiple stem diameters to be entered.
Where a tree has more than 5 stems, the combined stem diameter is calculated as follows:

$$Combined\ Stem\ Diameter = \sqrt{(mean\ stem\ diameter)^2 \times number\ of\ stems}$$

Only a single average diameter value is expected in the first stem diameter box. Below are screenshots of the new survey form:





Custom Surveys

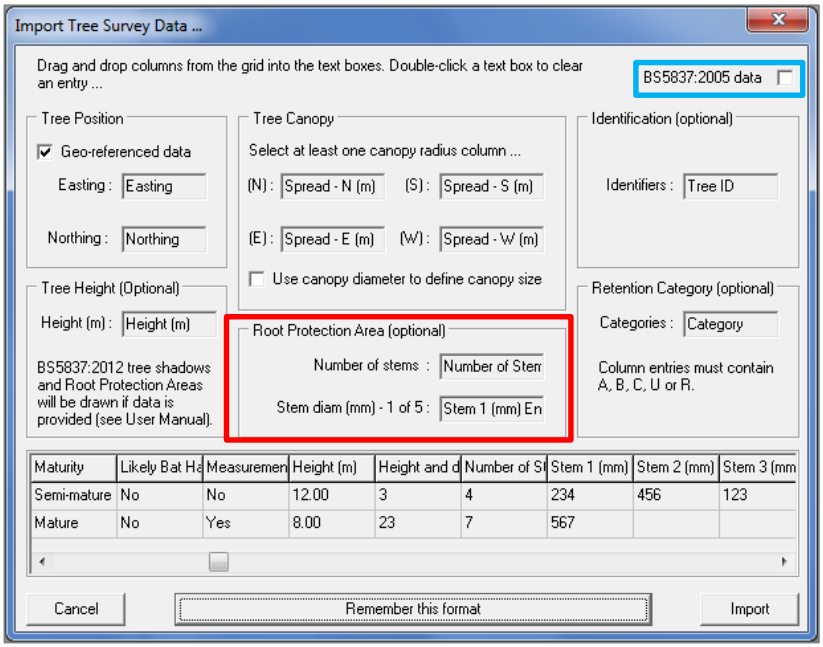
If you design your own version of the BS 5837 survey form using Survey Designer then it should be set out in the following format:

- The survey must include 5 individual stem diameter items which run consecutively. All stem diameter measurements must be in millimetres.

- Do not include more than one measurement in a single input box, they will not be recognised by PT-Mapper when the survey is imported.
- The first stem diameter box should be used to enter an average stem diameter if the tree has more than 5 stems.
- The number of stems should also be included as a separate item.

Importing Tree Survey Data

To import a tree survey click on the Trees button, select "Import Tree Survey" then open your CSV file.
If you use the standard BS5837 survey template the format will be recognised automatically and you can import the survey as normal.
When you import a customised survey the items won't be recognised automatically. A preview of your survey data will be shown, drag and drop columns from your data into the text boxes to identify the survey items.
A customised survey must match the format above i.e. contain an item for the number of stems and 5 consecutive stem diameter measurements. To identify the stem diameter columns it is only necessary to pick the first diameter, as shown in the screenshot below.



Importing BS 5837:2005 Surveys

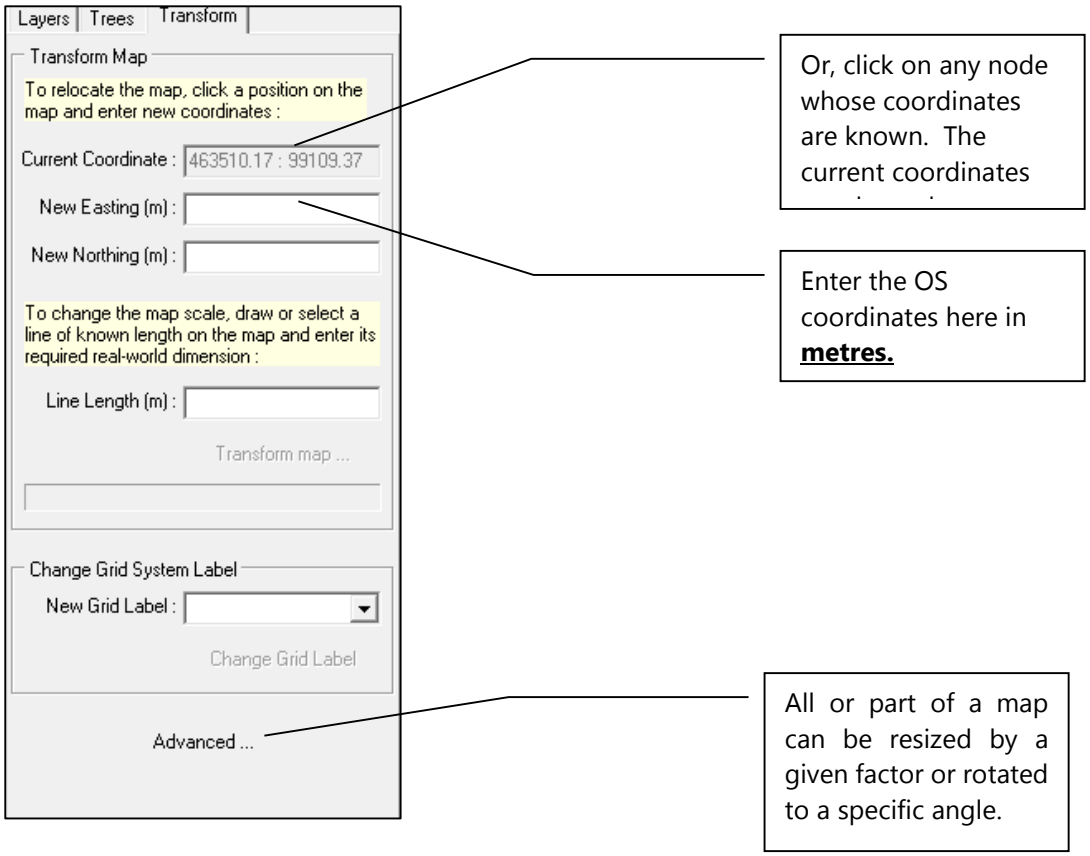
Surveys carried out using the previous standard can still be imported into PT-Mapper. Check the "BS 5837:2005" box (highlighted blue above). The RPA will be calculated using the 2005 method.

APPENDIX F: GEOREFERENCING A MAP OR DRAWING

Frequently our customers (particularly in the arboricultural industry) will be asked to work with maps provided by their clients that are not georeferenced i.e. their coordinates do not match those of the Ordnance Survey grid system. If a GPS is to be used for on-site surveys, it is vital that the map is correctly scaled and correctly referenced against the OS grid system. This tool will help you to do this quickly and easily.

The method does require that the true OS coordinates can be established for at least one point on the map. Ideally, this would be a cross-over point for OS grid lines, or for example, the corner of a building. You may have to ask your client to place a marker on the map whose coordinates are known.

On the top Menu line, select Tools > Transform > Georeference Map to get this control panel:



The ideal is if there are OS grid-lines on the map. If so, establish the Easting (across) position is and the Northing position (up), in this order. Usually the OS grid references can be read from the plan.

Enter the target coordinates for this point and click on the Transform Map button. The whole map will be moved to its correct location.

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