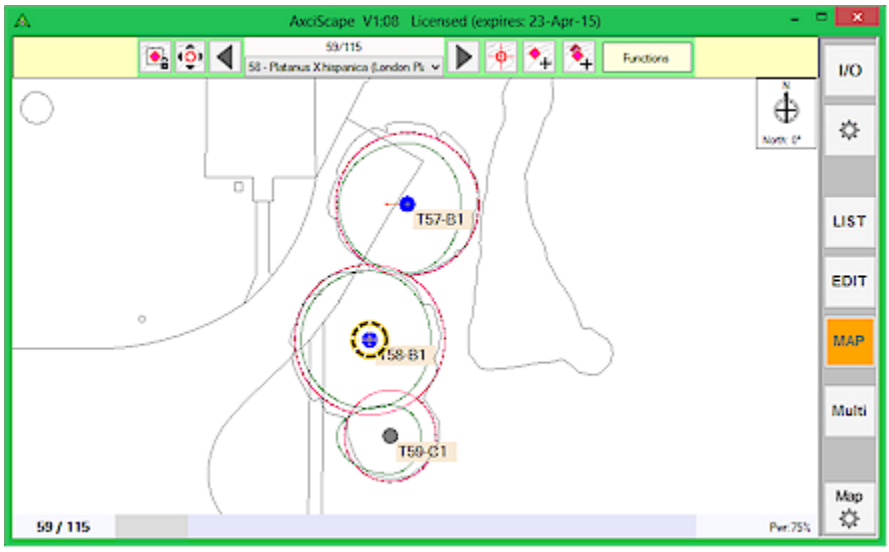
AxciScape Drawing Entities – Part 1

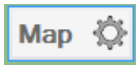
AxciScape supports a number of drawing entity types for display on the map screen (such as circle, donut, line, segment, text etc.) The majority of entities are drawn relative to the database record objects map X/Y position. So for example, a circle will be drawn with its center at the objects X/Y. A line of text will start at the X/Y position but can be offset. AxciScape also includes a number of special entities such as tree canopy, simple 3D tree, pie segment, shadow trace and a function to draw a line around overlapping circles. All entities require certain dimensions to be defined (for example a circle will require a radius or diameter).

AxciScape supports multiple user defined layers. An entity must be assigned to a layer in the same fashion found in any CAD program such as AutoCAD. Once the map data has been exported to CAD the use of layers allows the user to hide part of a drawing by simply switching off a particular layer. The defined layer can be assigned with its own colour and linetype so that all linked entities will use the same colour, unless this is overridden.

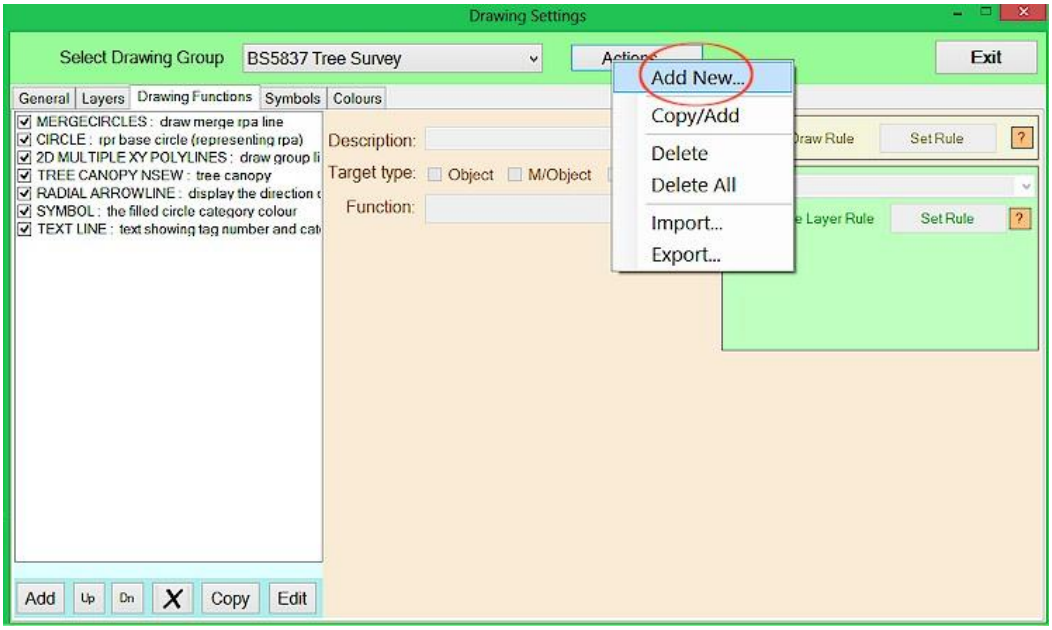
The following section describes the process for adding two entities to the map.

I start this example by loading the demonstration file into AxciScape and zooming into an area displaying three trees.

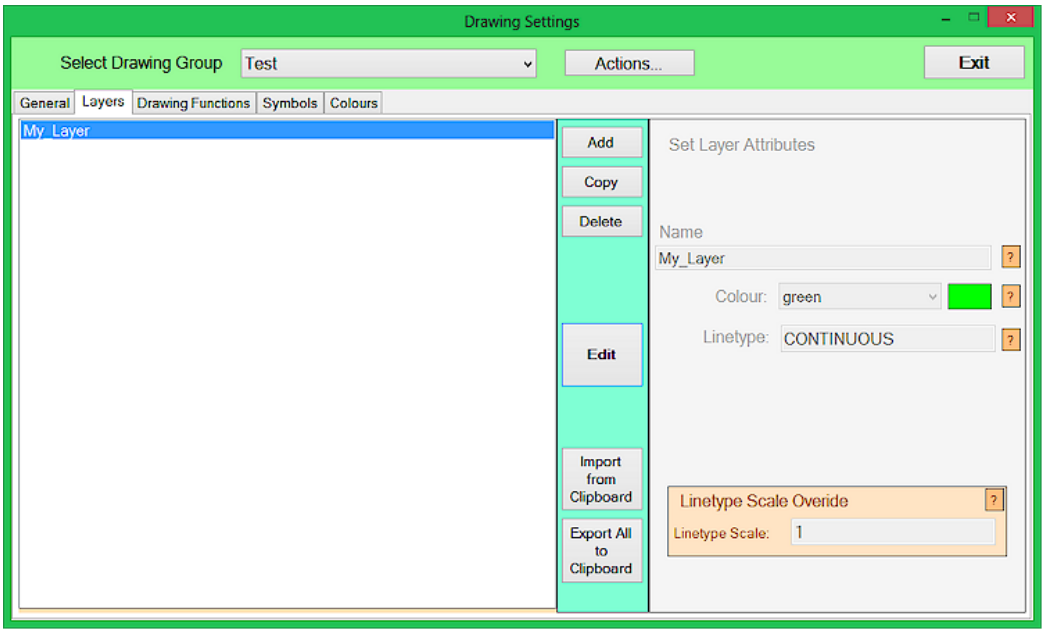


I then select the  icon and click on the “Edit Object Settings” button from the opened map interface window.

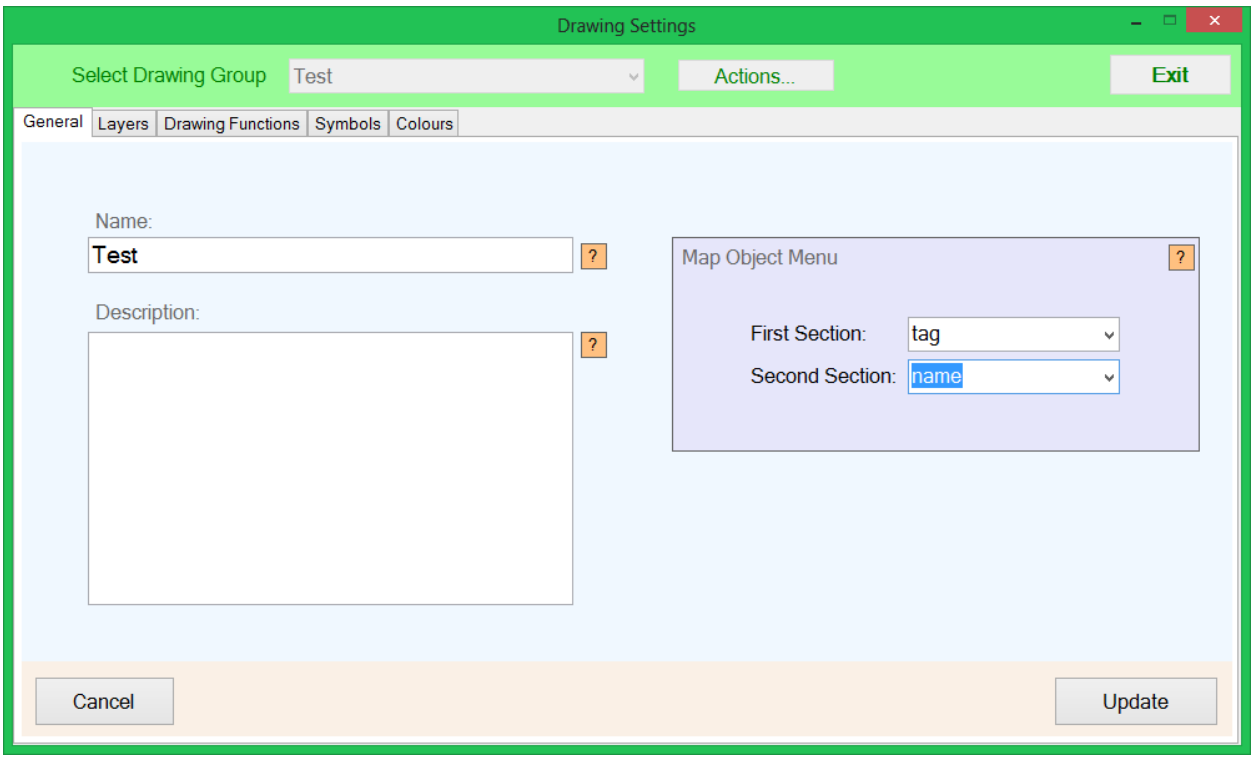
You should be looking at the same window as below where the current demo drawing settings are selected. I wish to start afresh so have selected ‘Add New’ from the top menu button and typed in ‘Test’ as my new settings name.



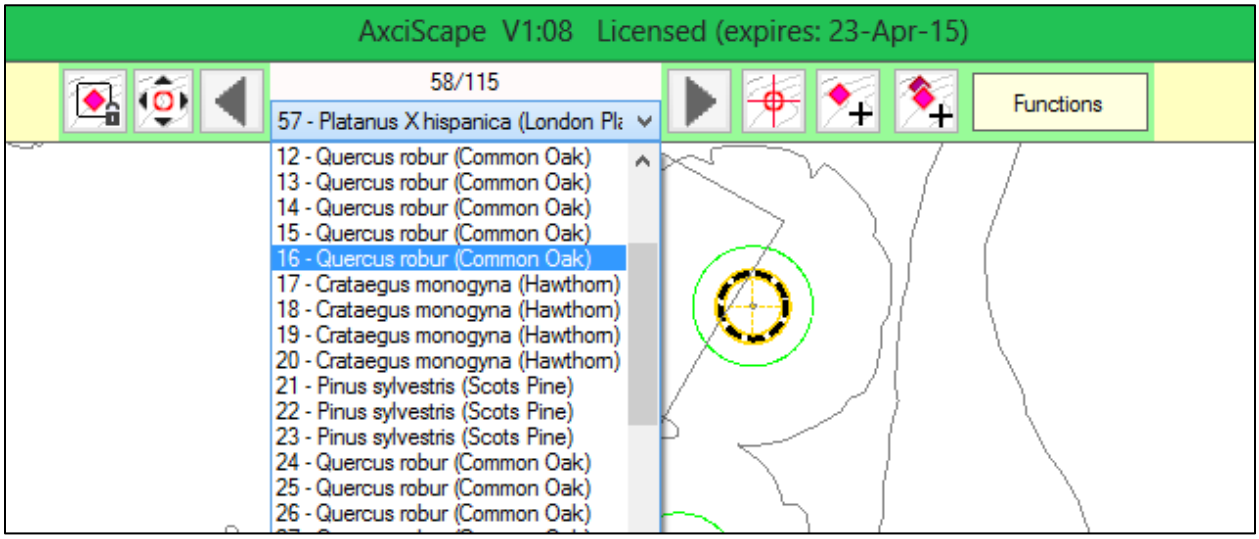
Now select the Layers tab and select ‘Add’ to add a new layer. Adjust its name and colour, I have called my new layer ‘My_Layer’ ! And set its default colour to green.



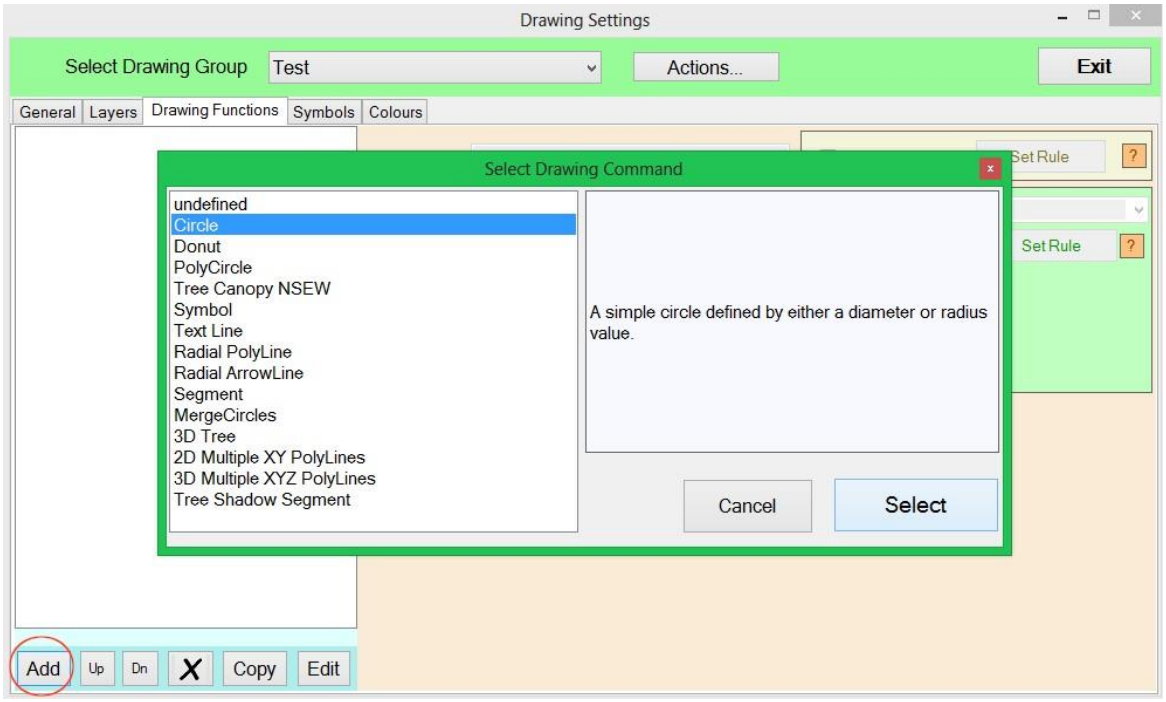
As we have defined a new set of drawing functions we need to setup the map screen object drop down menu settings otherwise this will appear blank.
So first select the 'General' tab from the window and enter the required fields to show in the map menu on the right hand side (as below).



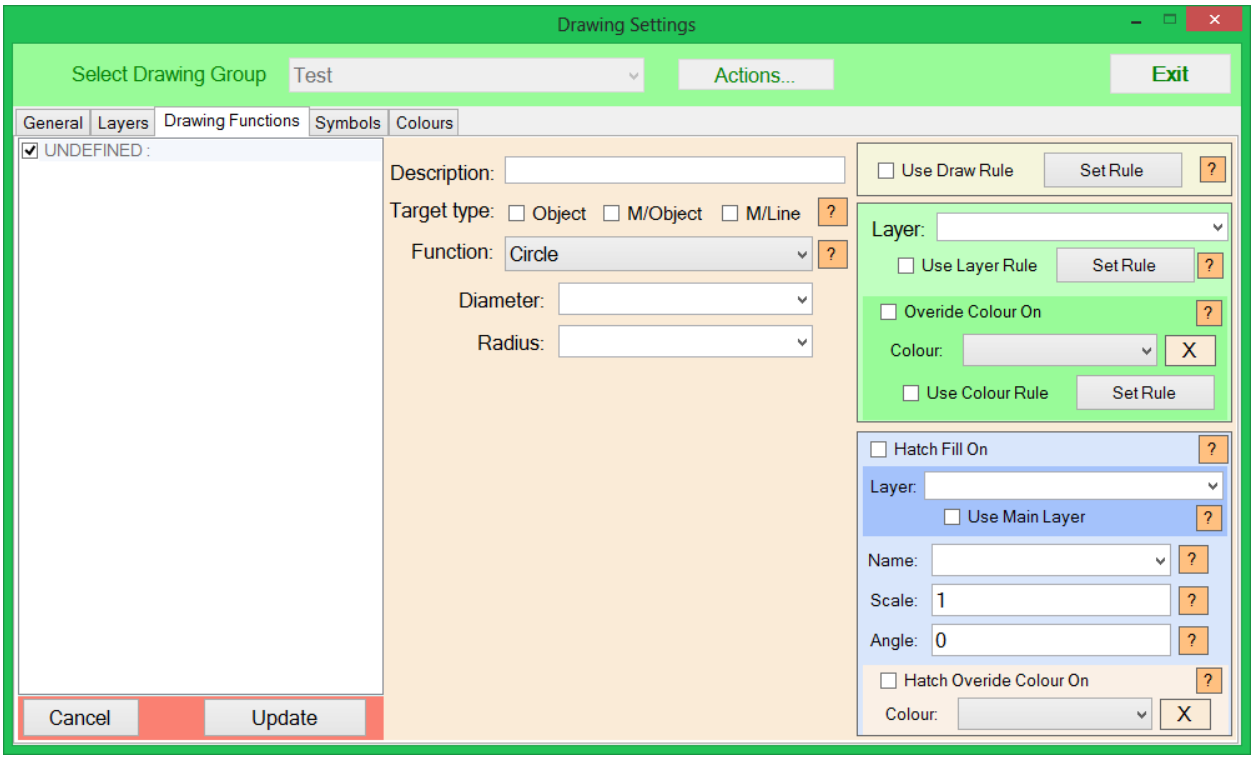
These settings decide which fields are shown in the map menu (see below where the tag number is followed by the name).



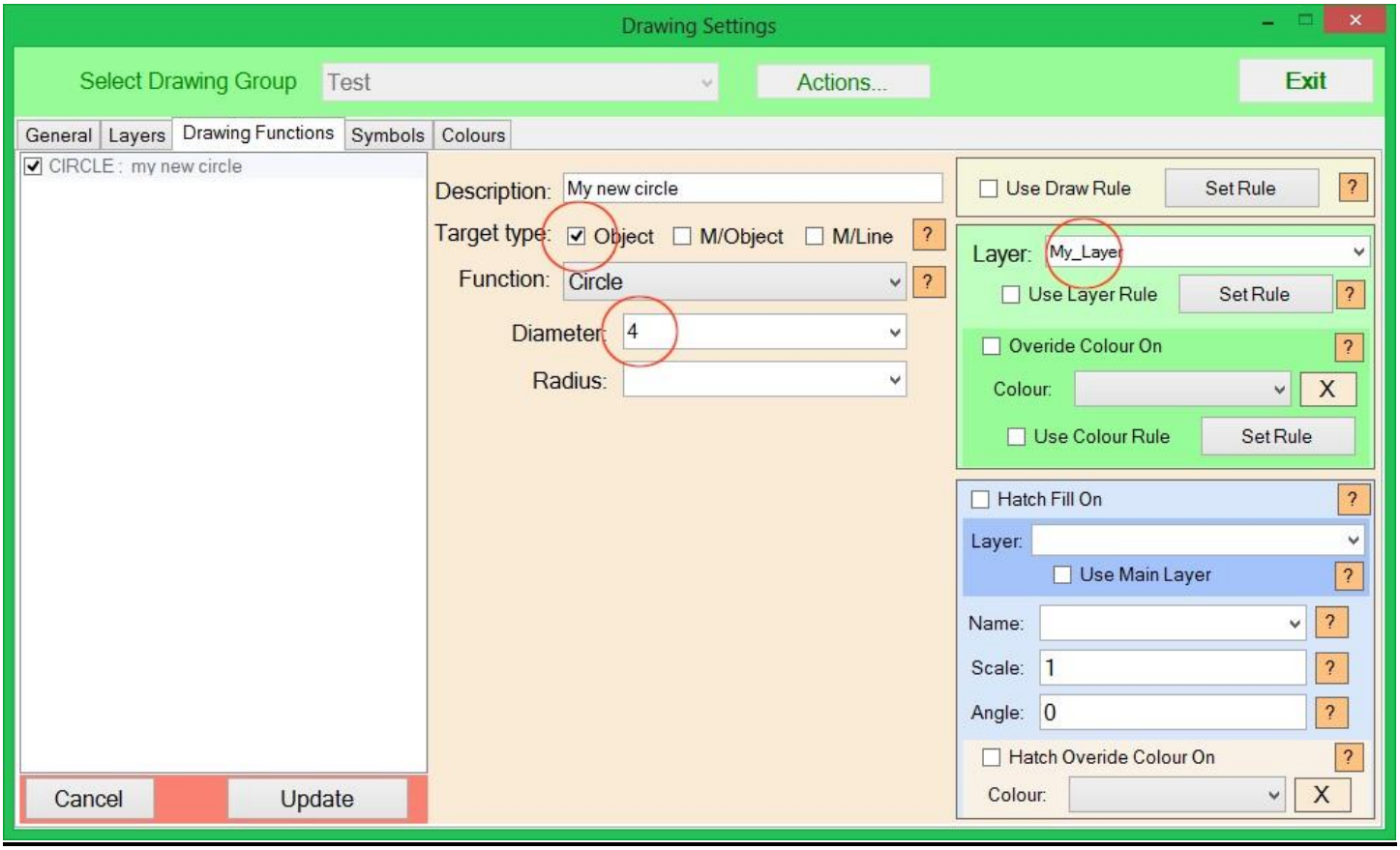
Now select the ‘Drawing Functions’ tab and select ‘Add’ from its bottom left menu bar. A pop up window appears requesting the entity selection. I have clicked on ‘Circle’. Press ‘Select’.



The Circle is added to the function list and is waiting for its mandatory settings to be applied. As a bare minimum we need to give the circle a radius (or diameter value), a layer definition and to set the target type.



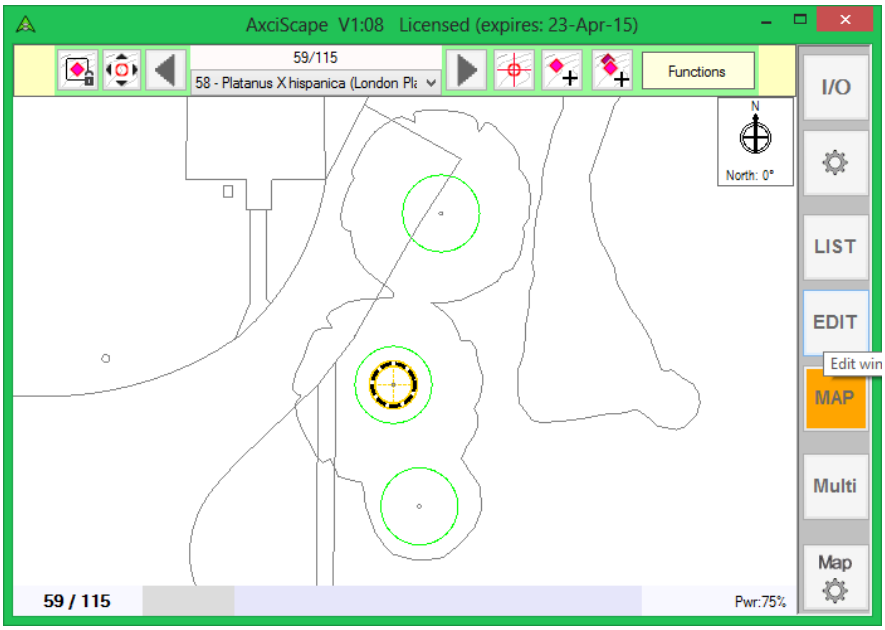
In the image below I have set the circle diameter to 4, selected the layer I wish to use and set the target type to 'Object'. I have also added a little description (this is optional and acts as a reminder as to what the entity does).



The Target Type: A database record (object) can have more than one X/Y vertice so that the same data is duplicated in several places. Objects can be plotted as a single map object, as multiple map objects or as a multiple vertice line.

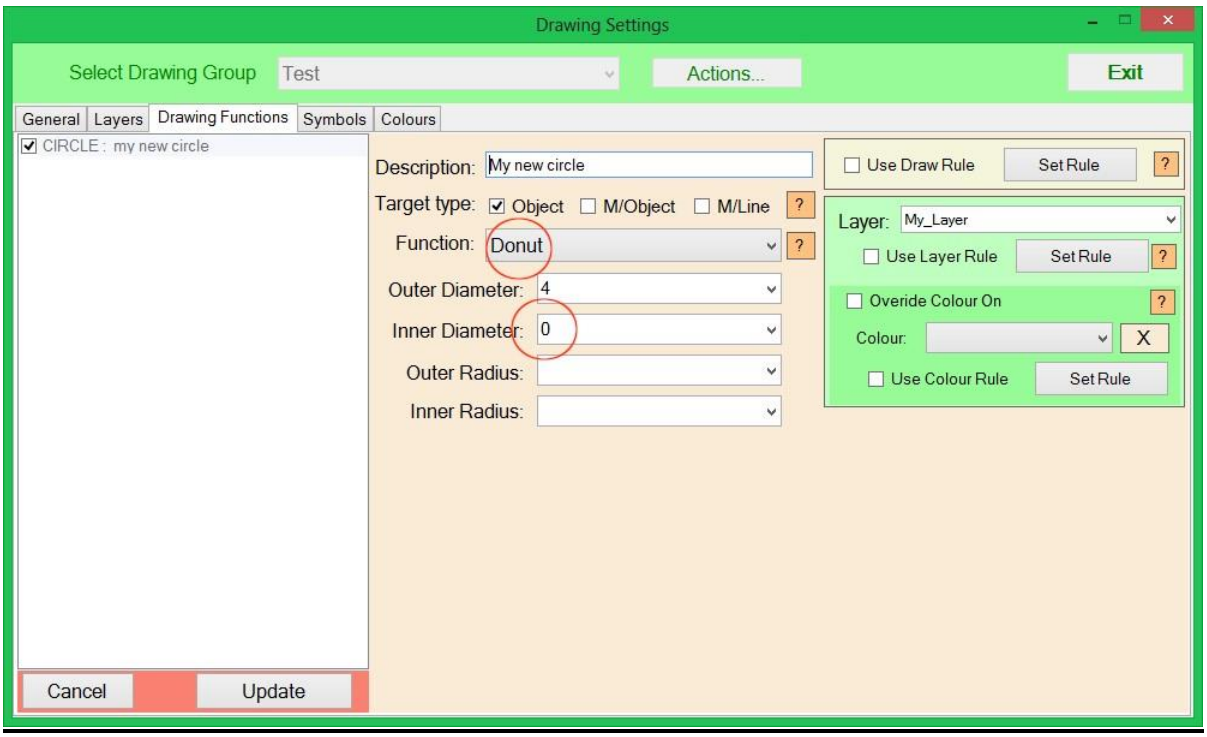
You can decide which object type the entity is to apply too. If you only want it to be drawn to records which have only one X/Y vertice then tick the Object. If you want it to apply to every vertice of a record which has multiple vertices and which has been defined as 'multiple objects' then tick the M/Object box. If a record with multiple vertices is designated as a line then the entity would be drawn to every vertice of the line (which may look a little strange)! Normally for tree based surveys you would tick both the Object and M/Object boxes.

If you now click the EXIT button and close the interface window so that you return to the AxciScape map screen you should see the following image, which shows a 4m diameter circle plotted against each object. Its colour is green because the layer colour is green.

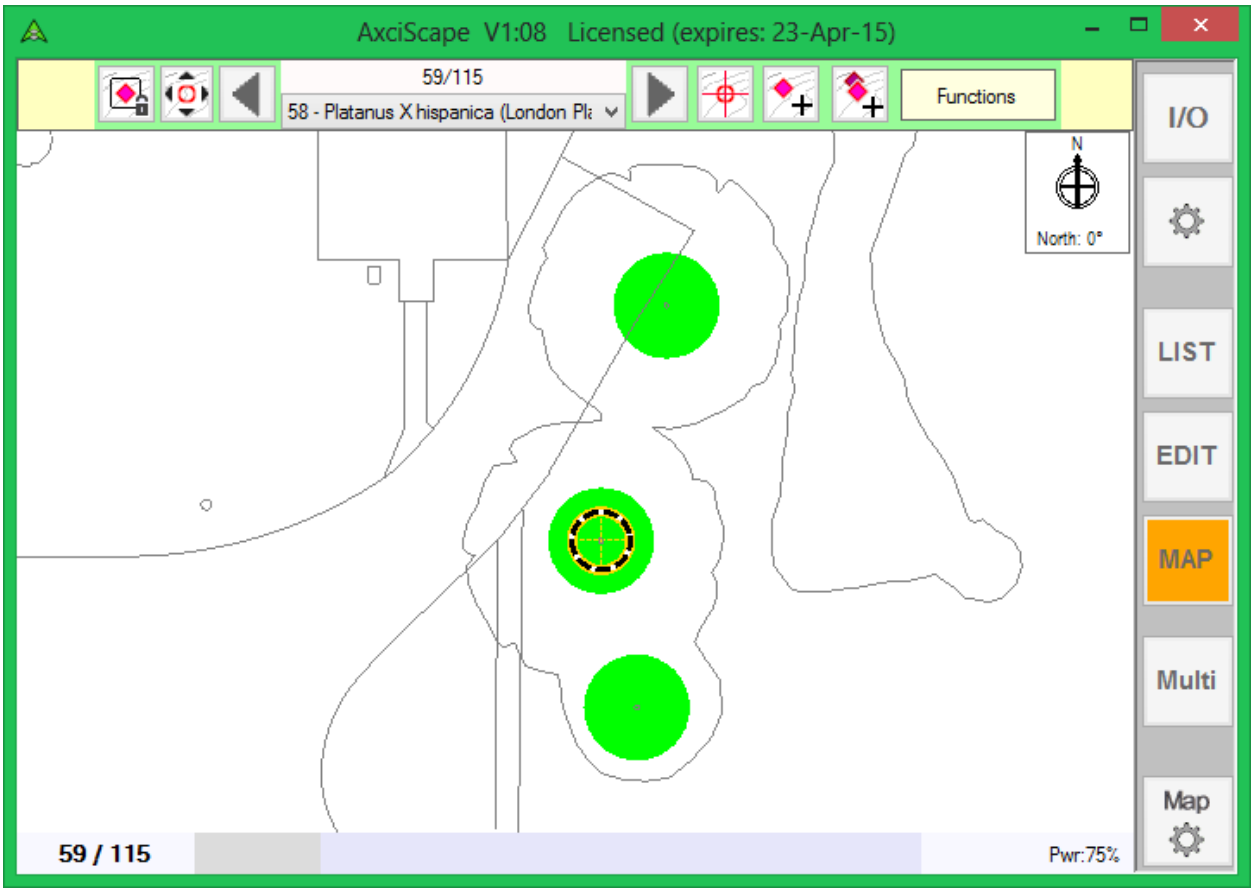


If you were to now select 'Measure between 2 Points' from the map drop down function menu and select the first measure point as a center of one of the green circles and click the second point close to the circle edge you should get a result of around 2 meters (it won't be precise unless you pick the edge perfectly). Remember we set the circle diameter to 4 so measuring the radius on the map gives 2.

For a little fun, I will now change the circle into a Donut (a Donut is an AutoCAD term which describes a modified Polyline to look like a circle/disc). The AxciScape Donut function requires an outer and inner radius/diameter value. If the inner value is set to 0 then it will simply appear as a filled circle. Otherwise it will actually appear as a donut (where the center hole is defined by the inner value).
In the following image, I have changed the function name from circle to donut and set the inner value to zero.

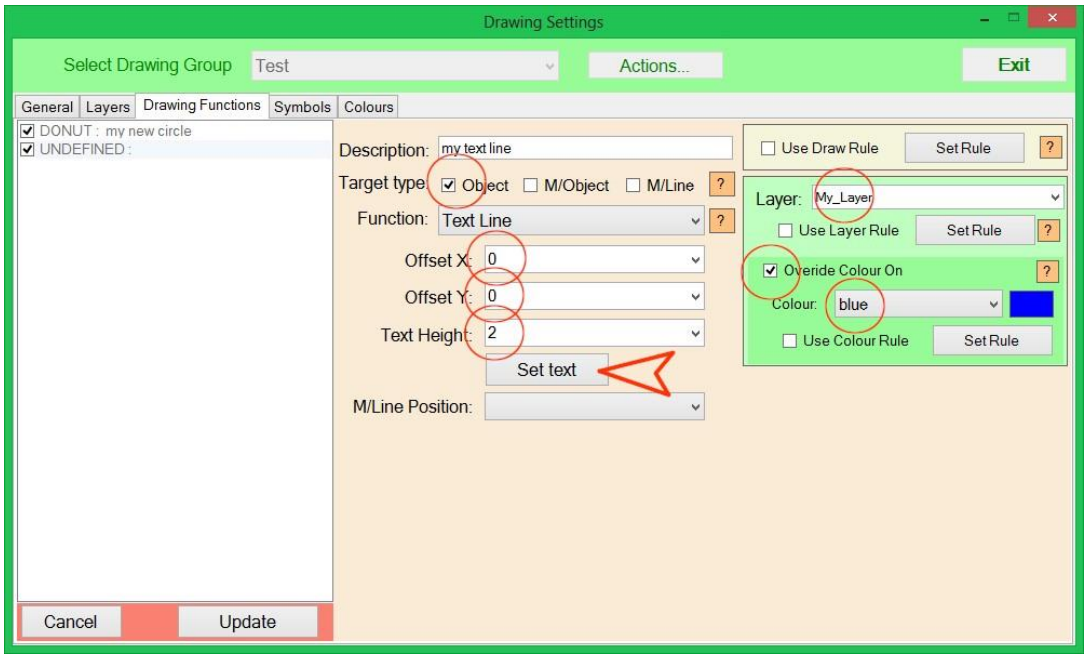


Going back to the map screen, we now have filled circles, still coloured to match the layer. Using a Donut is a quick and easy method for creating a simple symbol.

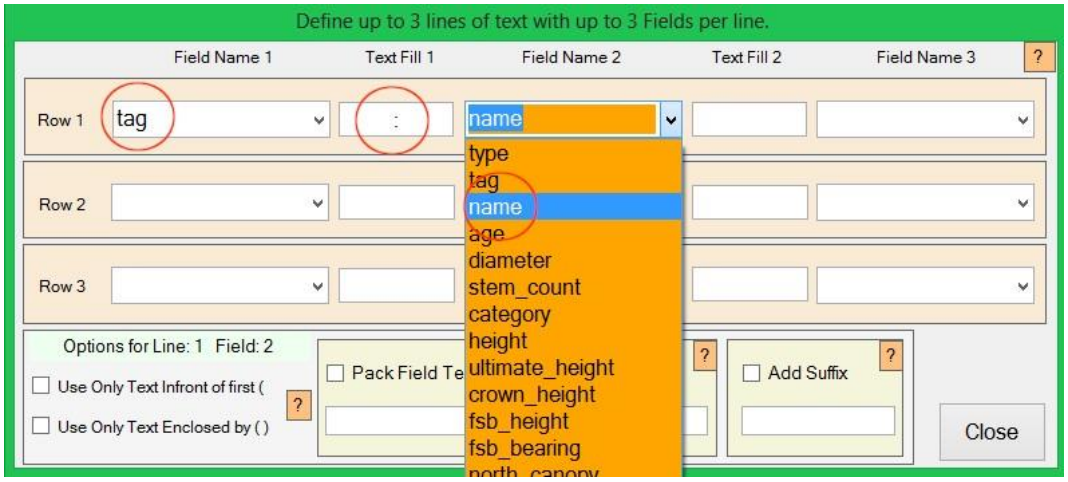


I will now show how to add a line of text to the map display. Go back to the Map Settings window and select ‘Add’. Scroll down to the ‘Text Line’ function and select. Enter the necessary dimensions.

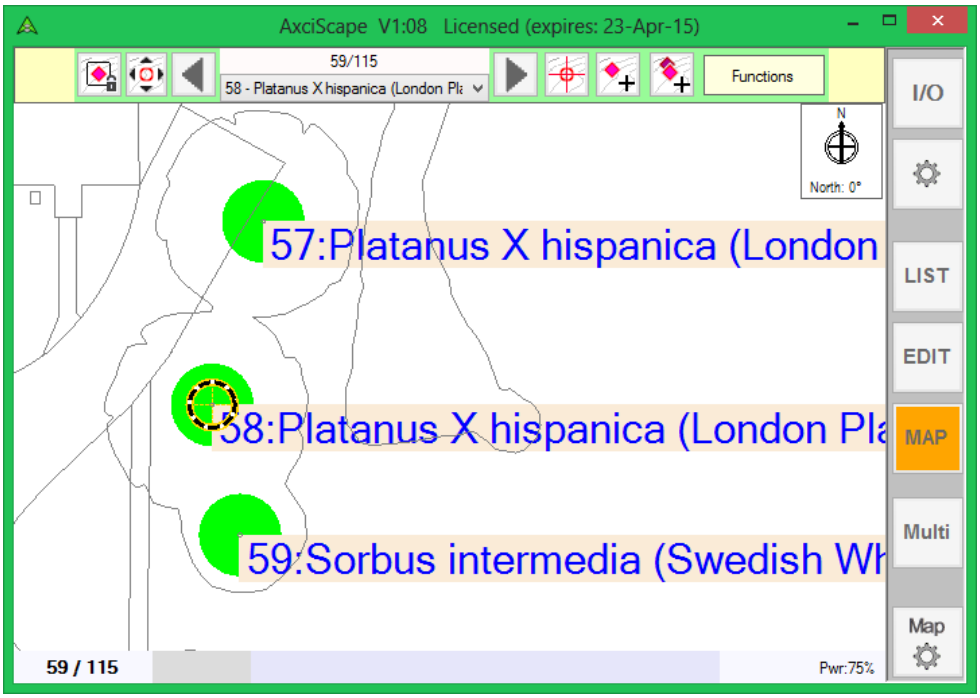
The image below shows the settings I have added. The text height has been set to 2m. I am using the same layer as for the Donut but this time I have chosen to use an override colour of Blue. The entity will therefore remain on the same layer but will display blue text instead of the layer colour of green.
The X/Y offset values enable the text to be set away from the objects position. I have set these to zero for now.
Finally we must tell the function which text to show. Select the ‘Set Text’ button.



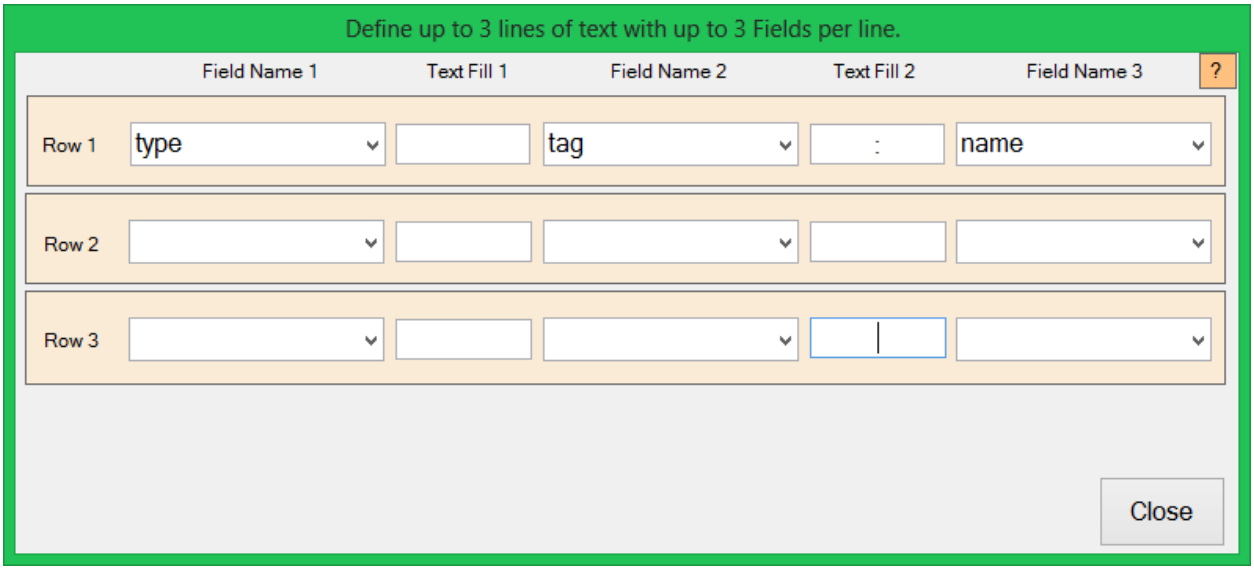
The text define window allows up to 3 lines of text with 3 fields of data per line. I have selected the tag field to be followed by a ‘:’ spacer character, followed by the name.



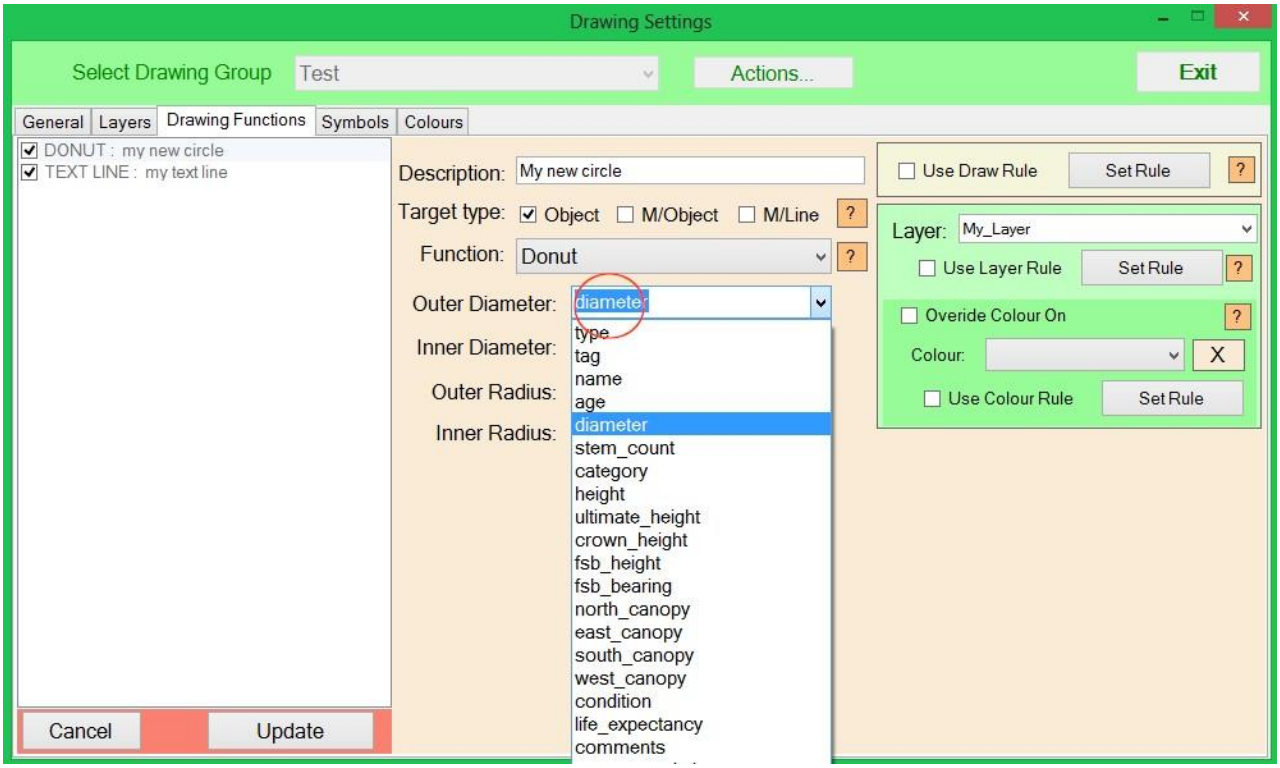
The image below shows the resulting display on the map screen. Note the blue text colour and the text height of 2m matches the radius of our 4m diameter donut. This could be refined by making the height smaller, adding offsets to push the text away from the donut center slightly and maybe adding the Type field in front of the Tag number.



To do this go back to the Text Line settings, change the height to 1, and enter 0.5 for the X/Y offsets.
Change the text definition so type is followed by tag, then the fill ':' character with the name field at the end.
I have set the fill option between type and tag to blank.



I have also changed the outer diameter value of the Donut to a field value. I have selected the field (tree diameter) as the donut diameter (see below).



The resulting display now shows the donuts as very small true representations of the trees diameter. The text is also smaller, is offset and has the type in front of the tag number.