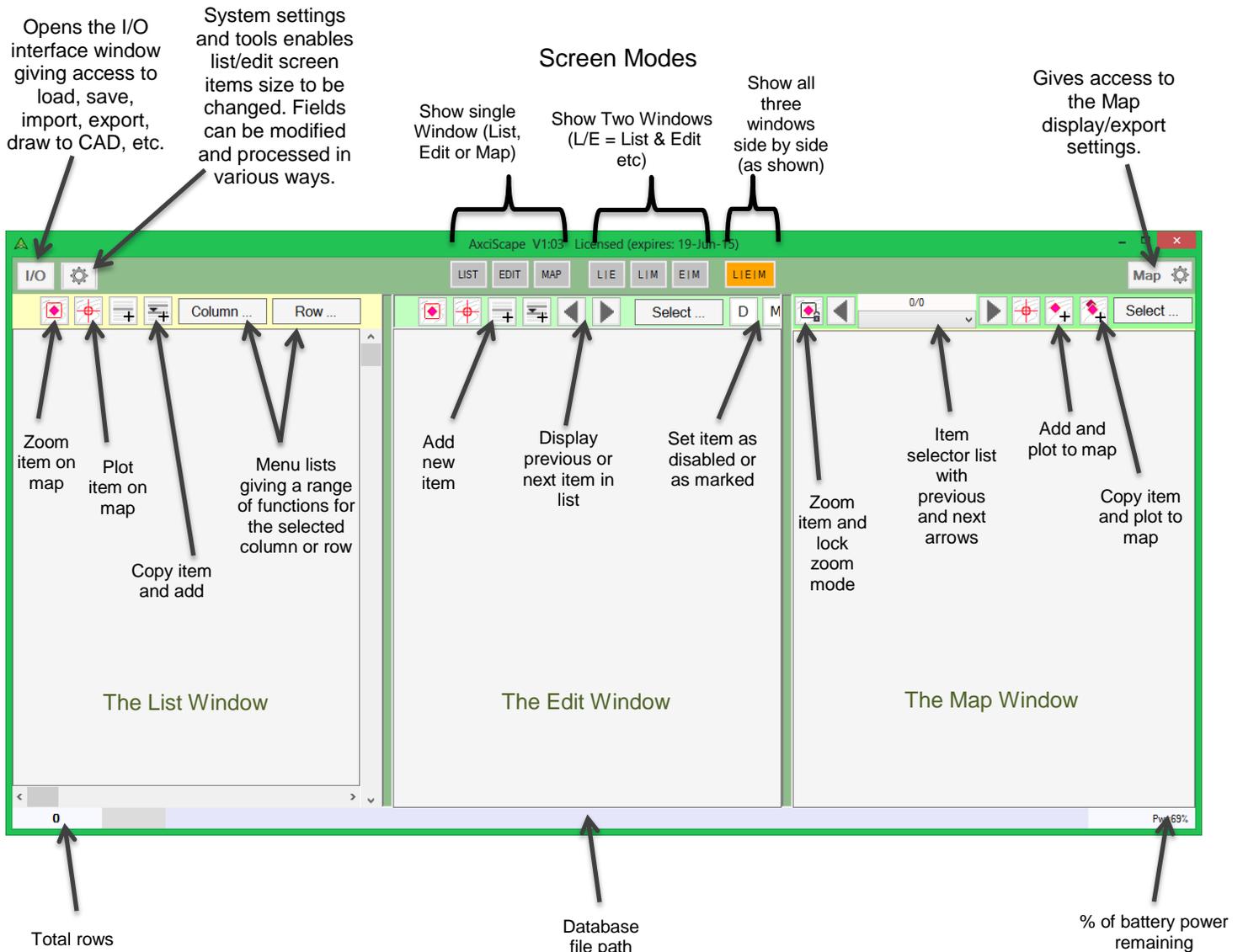AxciScape

Introduction to AxciScape

AxciScape is a windows only utility designed for data collection, processing and production of simple CAD drawings. It essentially replaces my earlier software programs ArborCAD, ArborTrail and its Plan Builder. AxciScape is basically a glorified database with columns and rows to hold its data with a map function tacked on for good measure!

Typical uses for AxciScape:

- Using AxciScape on a laptop or tablet in the field for survey data collection such as collecting tree, bat, ecological data. The optional map can be used for fixing collected data to coordinates if required.
- In the office as a general purpose data processing tool where lists of data can be imported, manipulated and exported for use in Excel etc.
- As a CAD drawing tool where processed data can be very quickly assigned to CAD entities and drawn straight to AutoCAD or exported as a DXF file.

The main screen

Opens the I/O interface window giving access to load, save, import, export, draw to CAD, etc.

System settings and tools enables list/edit screen items size to be changed. Fields can be modified and processed in various ways.

Screen Modes

Show single Window (List, Edit or Map)

Show Two Windows (L/E = List & Edit etc)

Show all three windows side by side (as shown)

Gives access to the Map display/export settings.

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LIST EDIT MAP L|E L|M E|M L|E|M Map

Zoom item on map

Plot item on map

Copy item and add

Menu lists giving a range of functions for the selected column or row

Add new item

Display previous or next item in list

Set item as disabled or as marked

Zoom item and lock zoom mode

Item selector list with previous and next arrows

Add and plot to map

Copy item and plot to map

The List Window
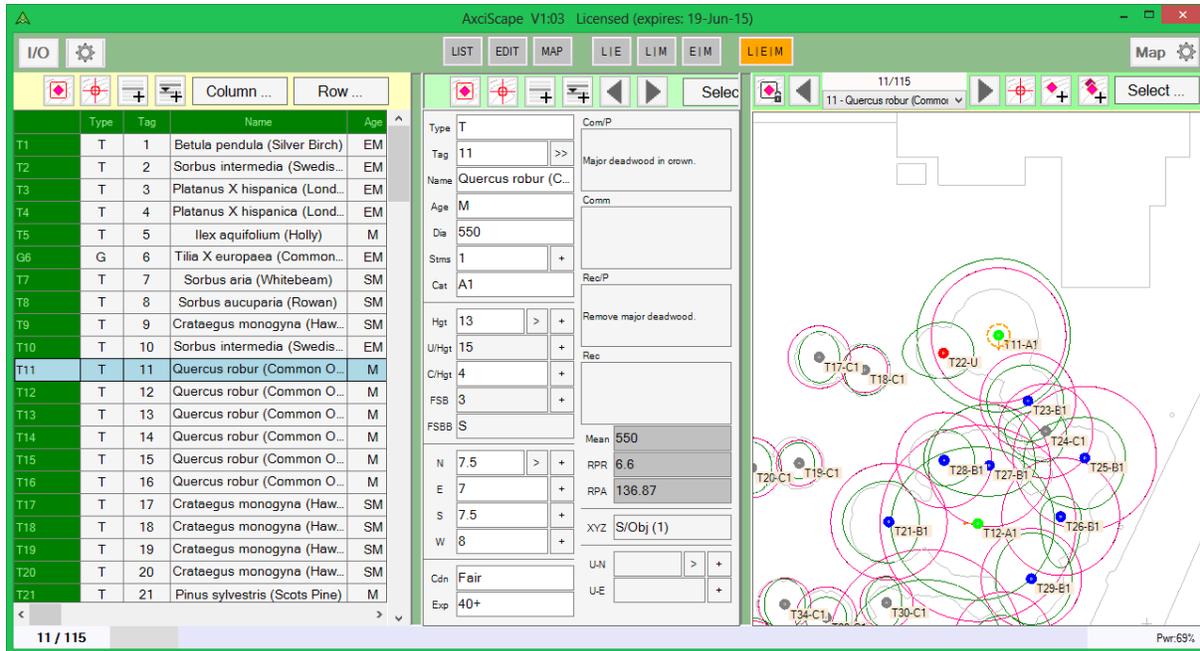
The Edit Window

The Map Window

Total rows

Database file path

% of battery power remaining

The List, Edit & Map Windows

Screen shot showing the three windows in use together displaying a typical arboricultural template. Selecting a row automatically shows its contents in greater detail in the edit screen (middle window); it also become selected on the map (note the orange dashed circle around the green T11-A1 tree).

Adding new rows can be carried out from any of the three windows. If adding is selected on the map then you will be first requested to plot its position. If adding from the List or Edit window then it's a case of manually selecting one of the plot buttons on any window to fix a map location.

If using a tablet on site I would probably use just a single map window. After clicking on the Add ⬥₊ icon I would then be required to plot it directly on the map. The image below shows the message box and sub-menu offering me to pick such a map position or to select from a choice of multiple objects or multiple vertices for a line.
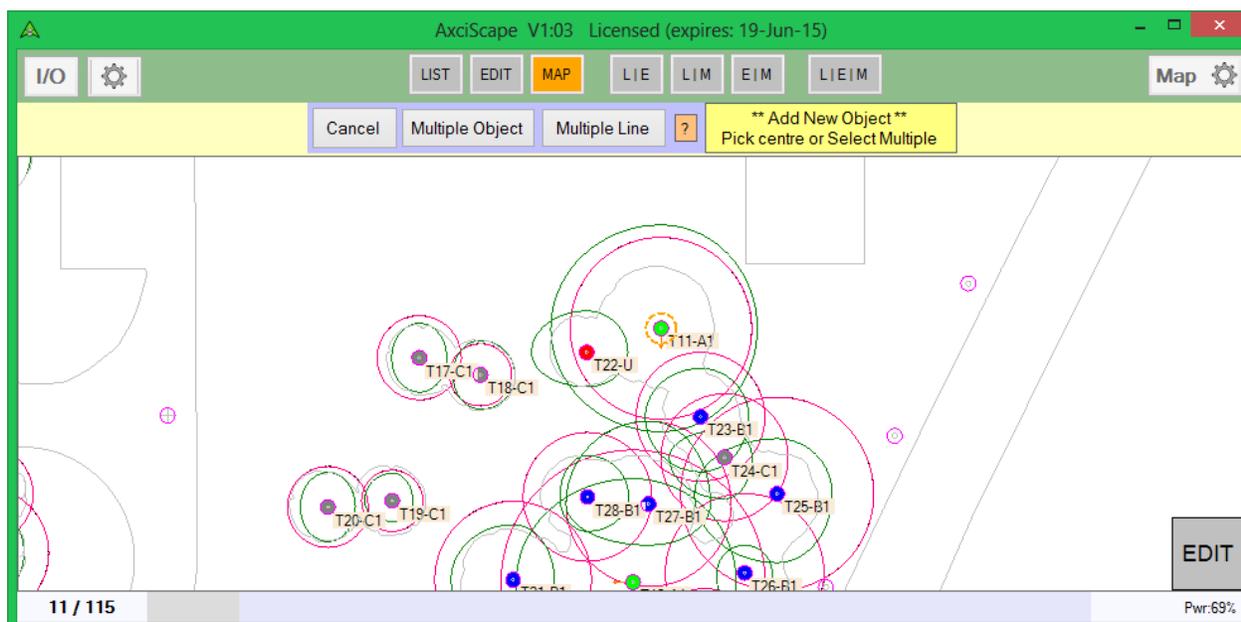
Note: It is not necessary to use a map as AxciScape can just be used for data collection if required.

List Window Options

Clicking a highlighted Field column header opens a menu offering various options which will modify all data held in the column. You can also adjust the column width by holding the mouse button and dragging to the left or right.

Red highlight with 'E' shows an error exists on the line. Click on the E to obtain further error information (for this example the age data is missing).

The 'V' is just to inform you that no map X/Y data is present (the row hasn't been plotted on the map).

The row is Disabled.

The row is Marked.

A drawing error has occurred due to missing or incompatible data. For example if you are drawing a tree canopy and don't have one or more of the crown spreads present it will show this error.
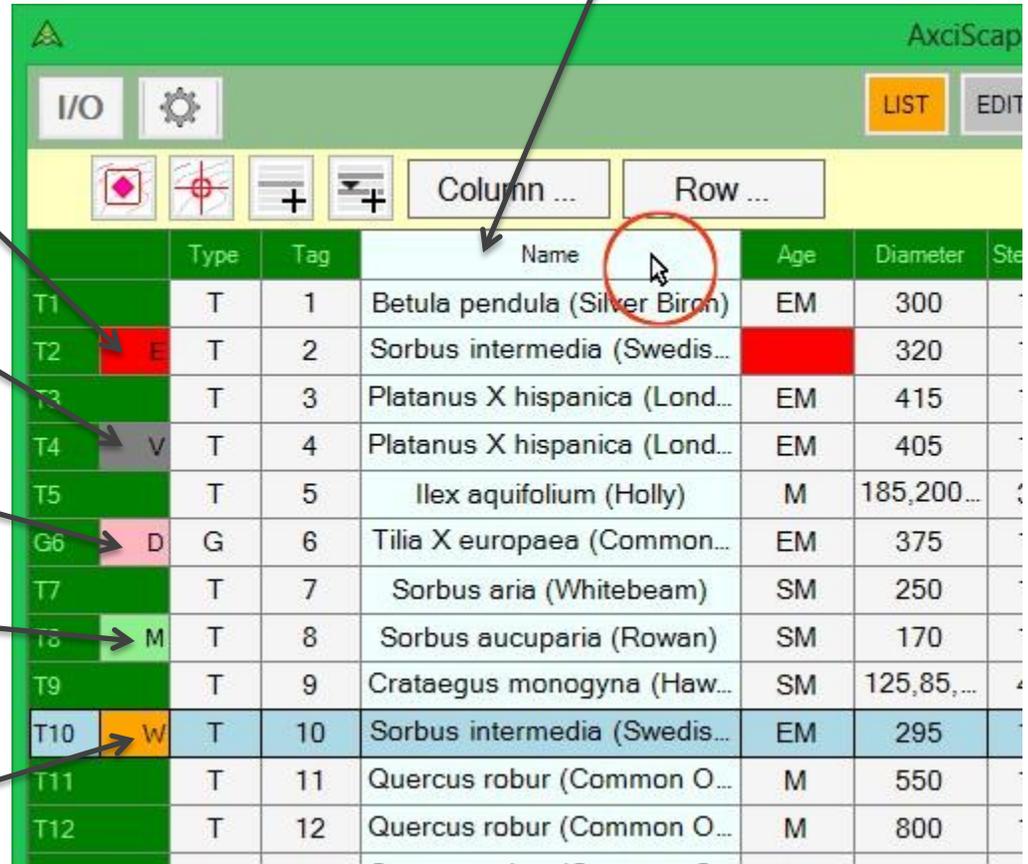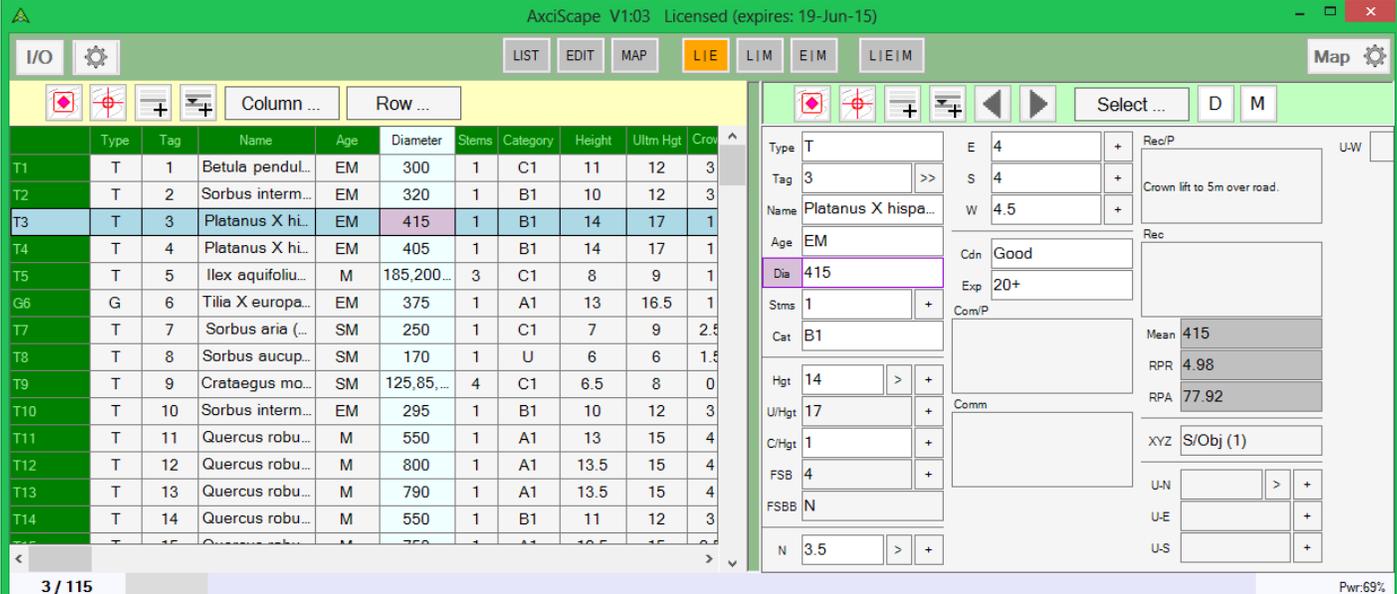

		Type	Tag	Name	Age	Diameter	Ste
T1		T	1	Betula pendula (Silver Birch)	EM	300	
T2	E	T	2	Sorbus intermedia (Swedis…		320	
T3		T	3	Platanus X hispanica (Lond…	EM	415	
T4	V	T	4	Platanus X hispanica (Lond…	EM	405	
T5		T	5	Ilex aquifolium (Holly)	M	185,200…	3
G6	D	G	6	Tilia X europaea (Common…	EM	375	
T7		T	7	Sorbus aria (Whitebeam)	SM	250	
T8	M	T	8	Sorbus aucuparia (Rowan)	SM	170	
T9		T	9	Crataegus monogyna (Haw…	SM	125,85,…	4
T10	W	T	10	Sorbus intermedia (Swedis…	EM	295	
T11		T	11	Quercus robur (Common O…	M	550	
T12		T	12	Quercus robur (Common O…	M	800	

AxciScape

Template Fields

The template consists of a number of 'Fields' (columns) which act as holders for the database data. Each field can be modified to decide what type of data it will allow (text, number, menu-items) and various options to control various aspects of the data. Each field is given a 'system_name' through which it can be referenced from other fields (formulas) or map drawing commands. You also give each field a List grid title and an Edit box title.

The following image shows the fields arranged along the top of the list window grid (Type, Tag, Age etc) and also within the edit window as boxes. If you select a cell on the list grid it highlights and also highlights in the edit window (I have selected the diameter cell for the T3 row below). To enter/change its value just click once more on the highlighted cell and a data entry window pops up.

The greyed out field boxes (see Mean, RPR, RPA above) are Formula fields. These are read only fields and will not allow any data entry. They are programmed to carry out a series of calculations using data from other fields and produce a value. Their values can then be accessed by other formulas or drawing functions. The formulas in the above example calculate various tree related dimensions required for planning purposes. The Mean formula calculates a mean diameter from a possible list of stem diameters. Its result is used by the RPA formula to calculate a tree protective radius and finally the RPA calculates an area based upon the RPR value. If I wanted to draw a circle on the map I could tell the circle drawing function to use the RPR value and thus show the protective distance around the tree.

Mandatory Field Data

Every field (except for formulas) can be set to Mandatory. This setting will cause an error to display if no data is present on each database row. If you are on site carrying out a survey it is essential to collect some minimal dimensions and this option ensures you do so.
The Mandatory template settings can be temporally changed for the current database if required.

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Entering Data

Clicking on a highlighted List cell or Edit Box will open a data entry interface. The type of interface will be dependent upon the type of field so a number field (such as diameter) will open the number interface where only values can be entered.

Field types:

- Number Field (single or multiple values).
- Editable Text Line (with preset list and multiple selection option).
- Editable Text Block.
- Drop down menu.
- Selectable Fixed Comments.

The Number Field

As with all the data entry pop-up windows they are geared towards speed and ease of use. They are designed with large chunky buttons making life easier when being used on site with a touch screen tablet.

Single pre-set value click and exit panel

If the field has been set to permit multiple numbers then these are listed here
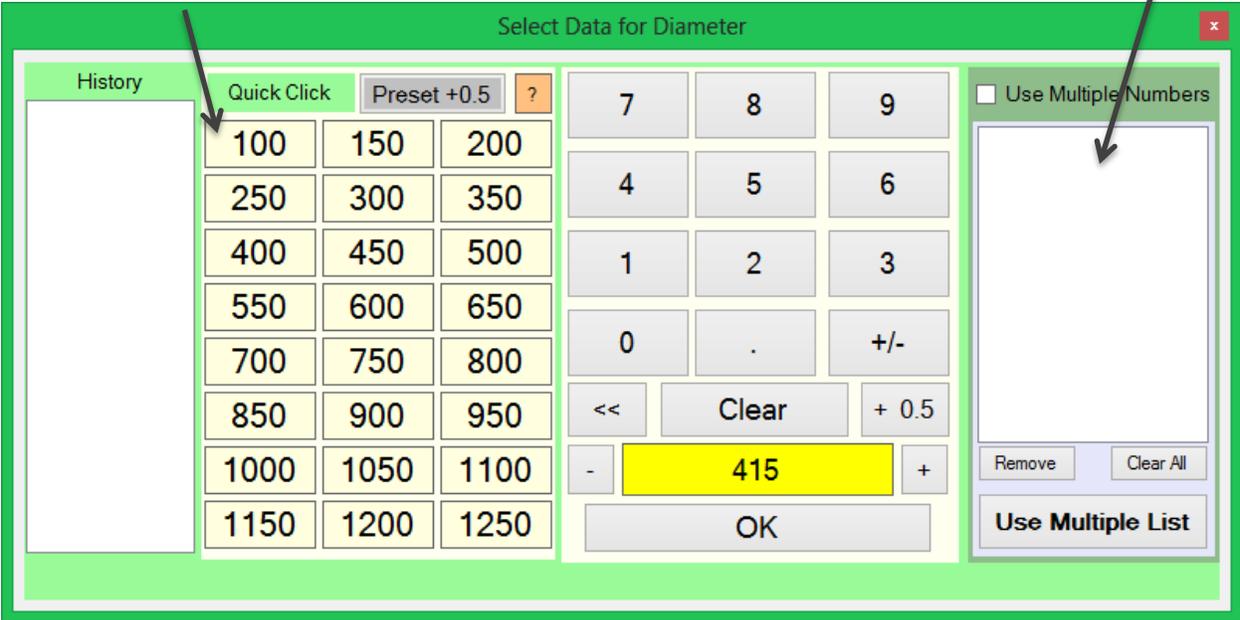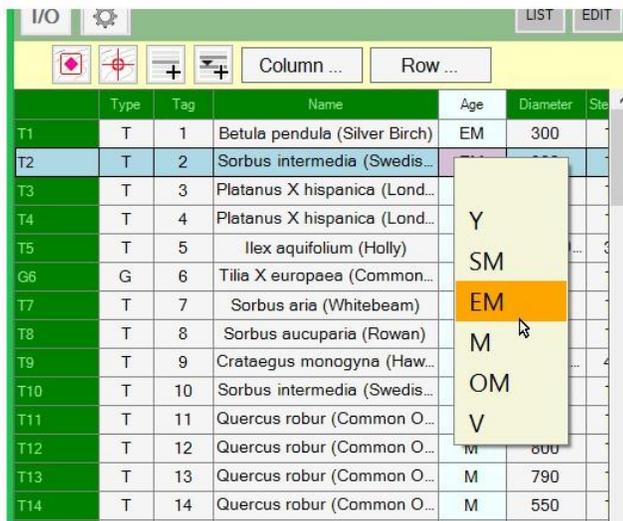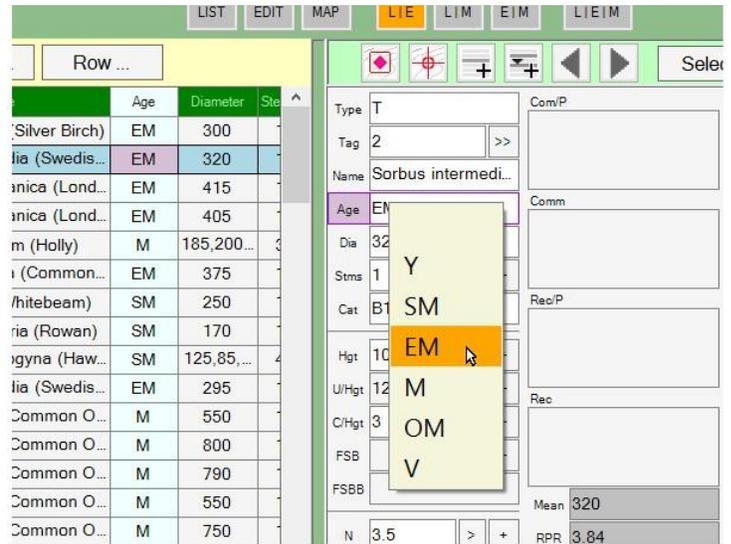

Select Data for Diameter

History	Quick Click	Preset +0.5	?		7	8	9	☐ Use Multiple Numbers
	100	150	200		4	5	6	
	250	300	350		1	2	3	
	400	450	500		0	.	+/-	
	550	600	650		<<	Clear	+ 0.5	
	700	750	800		-	415	+	Remove Clear All
	850	900	950			OK		Use Multiple List
	1000	1050	1100					
	1150	1200	1250					

The Drop Down Menu Field

This field type is intended for short lists of data where selection is made with a single click. As with all items the field can be accessed from either the list or edit screen by selecting a cell or box as shown below.

Edit Text Line with Preset List and Multiple Pick option

This field type allows the user to pick an item from a preset list and also to enter text and add new items. It could be typically used to select a species name (as below where it also shows three species already selected for use in a group entry).

Selectable Fixed Comments Field

Preset comments can be selected. The resulting text is merged together and shown in the List or Edit Windows. The actual comments are defined within the Field Modification screen and can be imported as a simple text file.
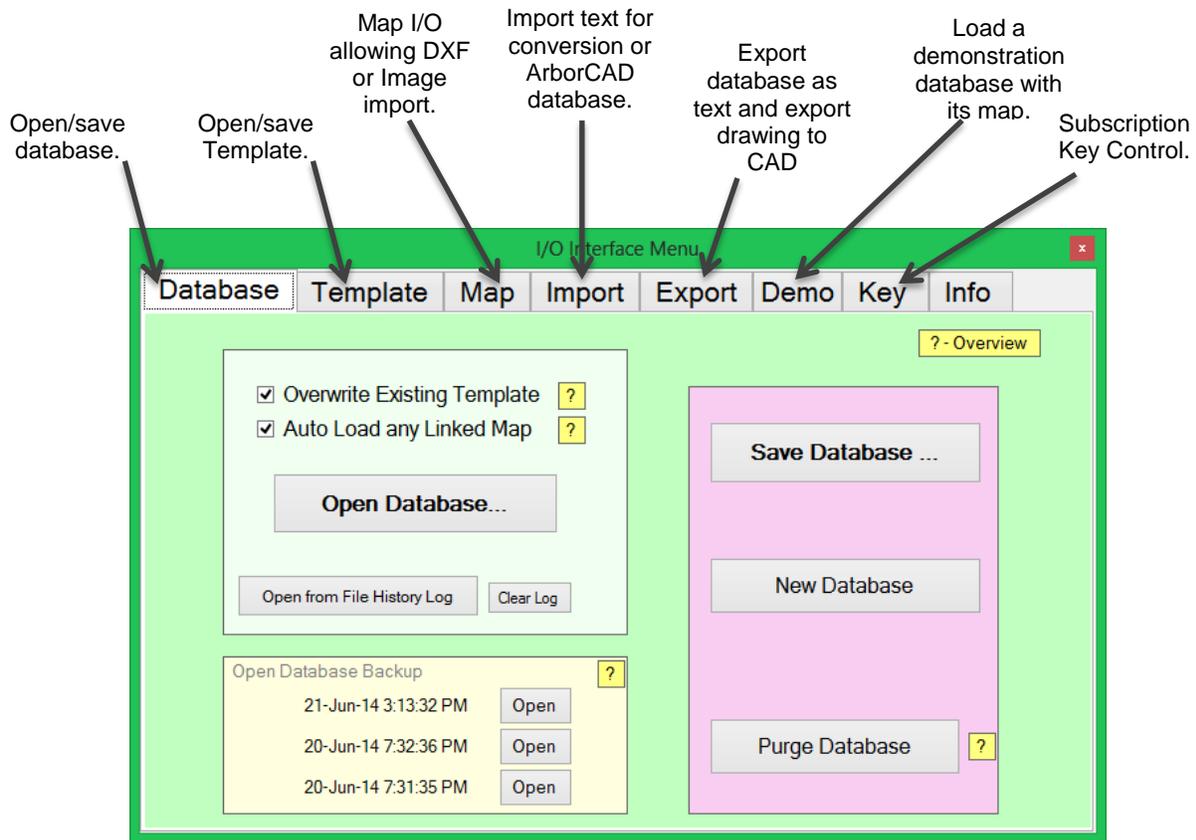
AxciScape

The I/O Interface

Clicking on the I/O button (located at the top left corner of the AxciScape window) opens the main Input/Output menu window.

Map I/O allowing DXF or Image import.

Import text for conversion or ArborCAD database.

Export database as text and export drawing to CAD

Load a demonstration database with its map.

Open/save database.

Open/save Template.

Subscription Key Control.

I/O Interface Menu

| Database | Template | Map | Import | Export | Demo | Key | Info |

? - Overview

☑ Overwrite Existing Template [?]
☑ Auto Load any Linked Map [?]

Open Database...

Open from File History Log   Clear Log

Open Database Backup [?]

21-Jun-14 3:13:32 PM   Open
20-Jun-14 7:32:36 PM   Open
20-Jun-14 7:31:35 PM   Open

Save Database ...

New Database

Purge Database [?]

Database & Templates

A database file (.axd) contains a copy of the current template and the complete database listing. It also includes specific database settings such as mandatory overrides, field display order etc. If a map is used it will hold links to the map file and associated settings.

The template file (.axt) holds the current field definitions and also the map display settings but not any links to map files (see database).

Over time it is likely that your template will become modified with additional comments, names etc. It is not necessary to save the template every time a change is made as it will always be saved as part of the database. Upon commencing a new job, one would normally just load in the last database used, delete the rows and then start the new job knowing that you are using the most up-to-date field/map settings.

Additionally, if revisiting an old database file which may have an out of date template, you can simply use an option to load this database without overwriting your latest template. This way you can update old database files as and when required.