

RadPlotIET Thematic Plotting Application

Description	Page	Description	Page
Background	4	Label Font Colour	4
Background Graphic Using	8	Label Font Size	4
Bad Overlap Level	5	Latitude Format	2
Boundaries with no image	10	Legend Adding to Plot	9
Composite Best Plot	3	Legend generating	9
Composite Receivers	3	Level Colour Setting	6
Copy to Clipboard	2	Level Ranges Setting	6
Copyright	2	Level Size Setting	6
Data File to Plot	9	Longitude Format	2
Data Tag	2	Manually setting Boundary	10
Data Tag Size	5	Move plot image	9
Datum Adjust	7	Odometer	2
Datum Restoring	7	Odometer Interval	4
Default Functions	3	Overlay	4
Degrees.Decimal	2	Overlay Background	4
Draw Line on Plot	9	Plot Data Filename	4
Enhance Plot	6	Plot Data Tag	4
Event Colour	4	Plot Events	4
Event Definition	4	Plot Position Adjusting	7
Event Size	4	Plot with no image	10
Events	4	RadPlotIET Purpose	2
GDA94	2	Record Numbers	5
General Description	2	RF Overlap	5
Generate Thematic Plot	2	Save Plot	3
GPS Data Format	2	Save Plot Settings	5
GPS Position Data	10	Saving Plot	9
Graphics	2	Select Receiver	3
Graphics Editor	9	Setup Select Button	6
Hide Plot Settings	5	Setup Thematic Plot	6
Index	1	Show Odometer Values	4
Label Font Colour	4	Signal Level Colour Setting	6
Label Font Size	4	Signal Level Size Setting	6
Latitude Format	2	Zoom Control	10

RadPlotIET Thematic Plotting Application

General Description.

RadPlotIET is designed as a simple to use RF level plotting application. It is coded by Innovative Electronic Technologies to thematically plot, at high level and geographic resolution, various RF Conditions together with system events, tags and odometer values as required.

It is designed and coded by (IET) after finding that most GIS applications were unsuited to the requirement of plotting thematically, large amounts of data at high geographic resolution.

RadPlotIET is a graphics based application that is designed to operate with graphical backgrounds calibrated using our IETMapCal application or a “zoomable” background generated directly from an “Overlay” data file.

Copyright. Innovative Electronic Technologies retain all rights to the RadPlotIET application without reservation or exception except as bestowed by IET.

It is the **responsibility** of the user, or entity, using RadPlotIET for any purpose, to secure the permission of the copyright owner of any copyrighted material or application used in association with RadPlotIET. IET has no authority to bestow any such permissions in any instance.

RadPlotIET is designed to thematically plot, using GDA94 GPS data :-

1. RF level from a single receiver.
2. Composite receiver levels from up to 8 receivers simultaneously.
3. Overlapping coverage RF Levels from up to 8 receivers simultaneously.
4. Infrastructure using data and overlay files in *Csv format.
5. Recorded data from data files generated by our RssiLog08 application and processed by our RadPolate08 application.
6. Plot RF Level data thematically at single pixel resolution onto maps etc.
7. Plot RF Levels at enhanced sizes to highlight anomalies.
8. Plot RF Levels correlated with system events.
9. Plot RF levels correlated with a user, keyboard generated, “Data Tag”.
10. Plot Odometer generated Km. values at user defined intervals.
11. Produce standard graphics files compatible with most “Word processing” applications.

Note: All GPS data must be in the format of Degrees.Decimal Degrees. eg. -23.123456 “-“ = South Latitude, 119.654321 Longitude.

Basic Functional Description.

Generate a thematic Plot.

1. Select default functions required.
2. Select thematic level ranges for “Good”, OK, Low.
3. Select thematic level colors.
4. Select thematic level plot sizes.
5. Select Base detail.
6. Select Overlay to be applied.
7. Double click on data file/s to be plotted.
8. Add legend to plot.
9. Press “Copy to clipboard.”

10. Paste into users graphics editor.
11. Save plot to file as graphic (*.jpg etc.)

RadPlotIET Default Functions

Default Plot Functions

Select Receiver

Selects a single, discrete receiver level to be plotted thematically.

Composite Receivers.

Plot Composite Best.

Plots a composite of the levels from all selected receivers. This function compares the levels from all the selected receivers in a discrete record then plots the highest RF level available.

This function is designed to clearly highlight any area where RF coverage is NOT available from any of the selected receivers / sites.

Use * Receiver in Composite.

Selects the receivers to be included in the Composite Plot. (Minimum 2)

Select Events.

Selects any one of 4 user defined events to be plotted. The events are generated by RssiLog08 during recording.

An Event is “**ON**” when an event input is grounded and “**OFF**” when it is not.

Events can be entered automatically from a system state or manually.

Event Size.

Selects the width of the plot of the selected event when plotted.

Event * Color.

Selects the colour of the selected event when plotted.

Overlay.**Overlay Background.**

Selects the background colour of the displayed plot. Used when **NOT** plotting onto a graphic such as a satellite picture and has no effect if plotting onto a graphic.

Label Font Size.

Selects the font size for the display of odometer values and data file name when selected to be included in the plot. (default font type is Arial).

Label Font Colour.

Selects the font colour for the display of odometer values and data file name when selected, to be included in the plot. (default font is transparent).

Odometer.**Show odo. values.**

When selected, causes odometer values included in the data record to be plotted together with other plotted data.

Km. Odometer Interval.

Sets the interval at which odometer values are included in the plot.

Show Data Filename.**Plot Data File Name.**

When selected, causes the name of the data file used to generate a plot to be shown in the plot at the position where the end of the data file plot occurs. This function is used to determine which file contains an item of interest to be examined graphically.

Select Data Tag.**Plot Data Tag.**

When selected, causes the user generated data tag, included in the recorded data at run time, to be included in the thematic plot.

Data Tag Size,

Selects the font size at which the data tag is plotted. (Font is Arial, transparent).

Data Tag Colour.

Selects the font colour at which the data tag is plotted. (Font is Arial, transparent).

RF Overlap.

RF Overlap function is used to display locations and areas at which the RF signal from two or more discrete sources transmitting on the same frequency, are present at levels which may impact system function. (Acceptable difference is generally 15 dB but more is better.) This function is also suited to the detection and display of areas or locations where multi-path fading may be problematic as well as interaction between multiple repeater sites as well as between mobiles.

Excessive Overlap from 2 or more sites on the same frequency will usually manifest as a heterodyne (Audio Beat Tone) in an analogue receiver with the heterodyne visible in the recorded data as well as in the GUI display during recording.

Plot RF Overlap Areas.

When selected, this function plots areas where the **difference** between RF level received from 2 or more sites, is **less** than that set as “Bad”.

Bad OverLap Level dBm

Sets the RF level below which the difference between any selected receiver levels, is excessive and is plotted as “Bad” colour. If the difference between the selected receiver levels is the same as, or greater than the selected “Bad” level, that level is plotted as “Good” colour.

Show Record Numbers.

Causes individual record numbers to be displayed, at each overlap instance, in the plot to facilitate the easy examination of identified areas graphically.

Save Plot Settings.

Causes the current default settings to be saved and loaded as the default settings next time RadPlotIET is loaded. User is prompted to save defaults if current settings have not been saved when quitting application

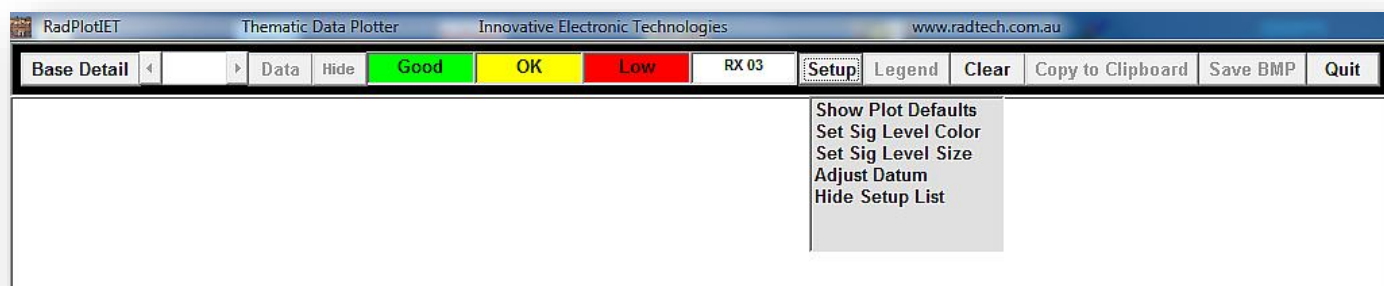
Hide Plot Settings.

Causes the default settings page to be closed and plot screen to be displayed.

Thematic Plot Setup.

Setup Button.

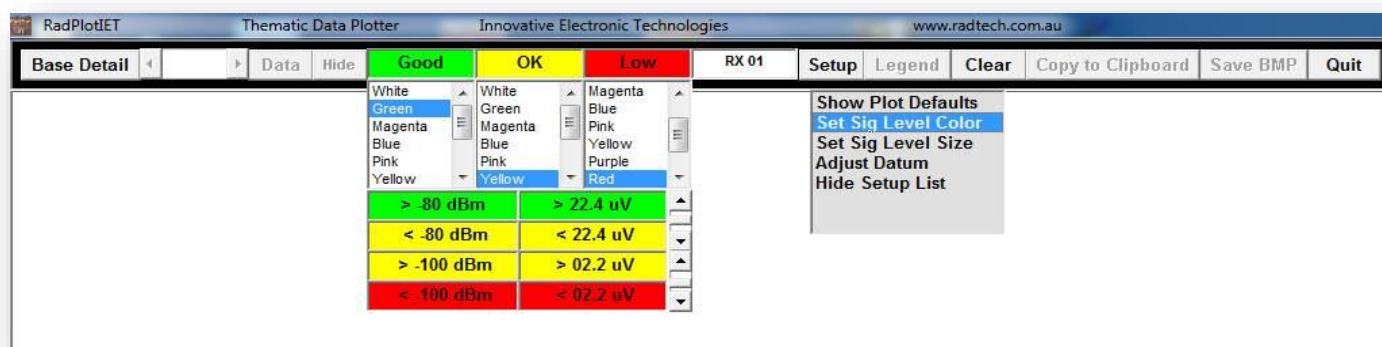
Causes the “Thematic Plot” settings menu to be displayed.



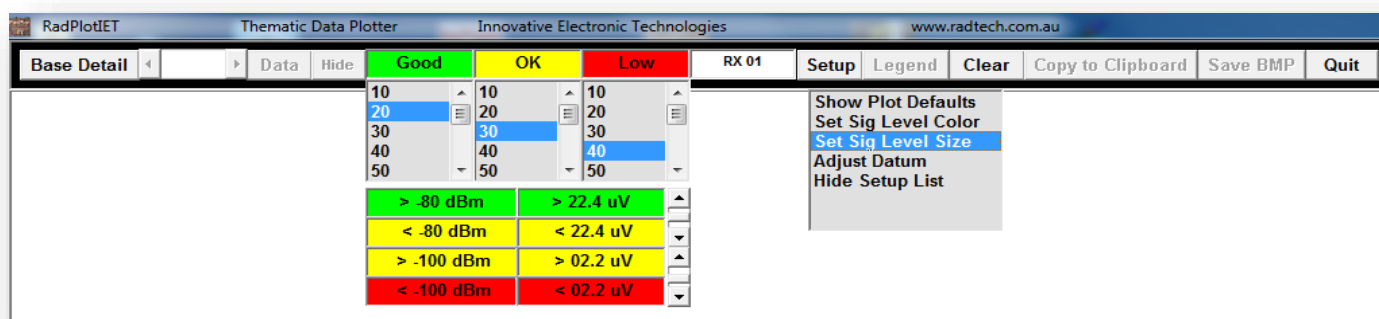
Select

Show Plot Defaults causes the Plot defaults screen to be displayed.

Set Sig Level Colour allows the user to select which colour represents which level range as well as the RF levels defining that range.



Set Sig Level Size allows the user to select the size at which each level range is plotted as well as the RF levels defining that range. To enhance the display of a range, selecting the larger size for that range will cause it to be displayed more prominently than the other ranges.



Level ranges are set using the sliders at the right of the level lists.

Level Colour is selected by clicking on the required colour.

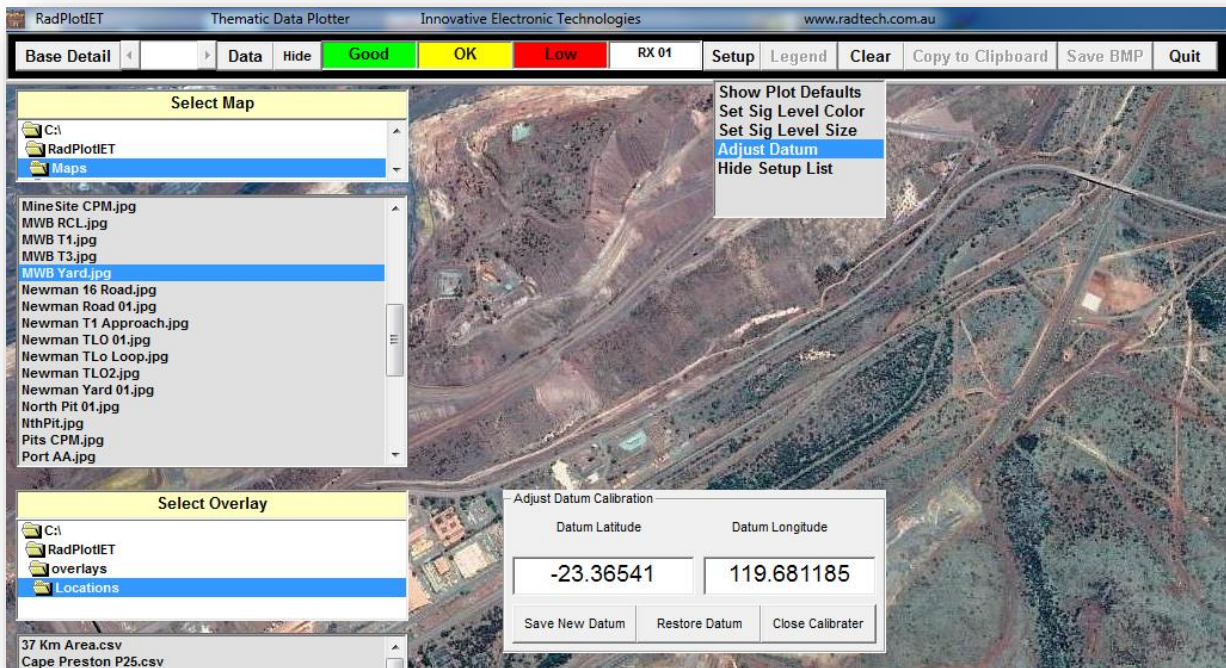
Level Size is selected by clicking on the required size number.

Adjust Datum

When using a calibrated satellite picture to thematically plot data, generally the plotted positions are sufficiently accurate as to be able to accurately plot data levels at their actual locations.

Occasionally however, whether due to inaccuracies in the picture or user calibration error, it may be desired to adjust the plot positions. This is easily achieved using the “Adjust Datum” selection.

Note: - a change of 1 degree of latitude or a change of 1 degree at the equator equals a change of 60 Nautical Miles (111.12 Km) so changes should be made in small increments.

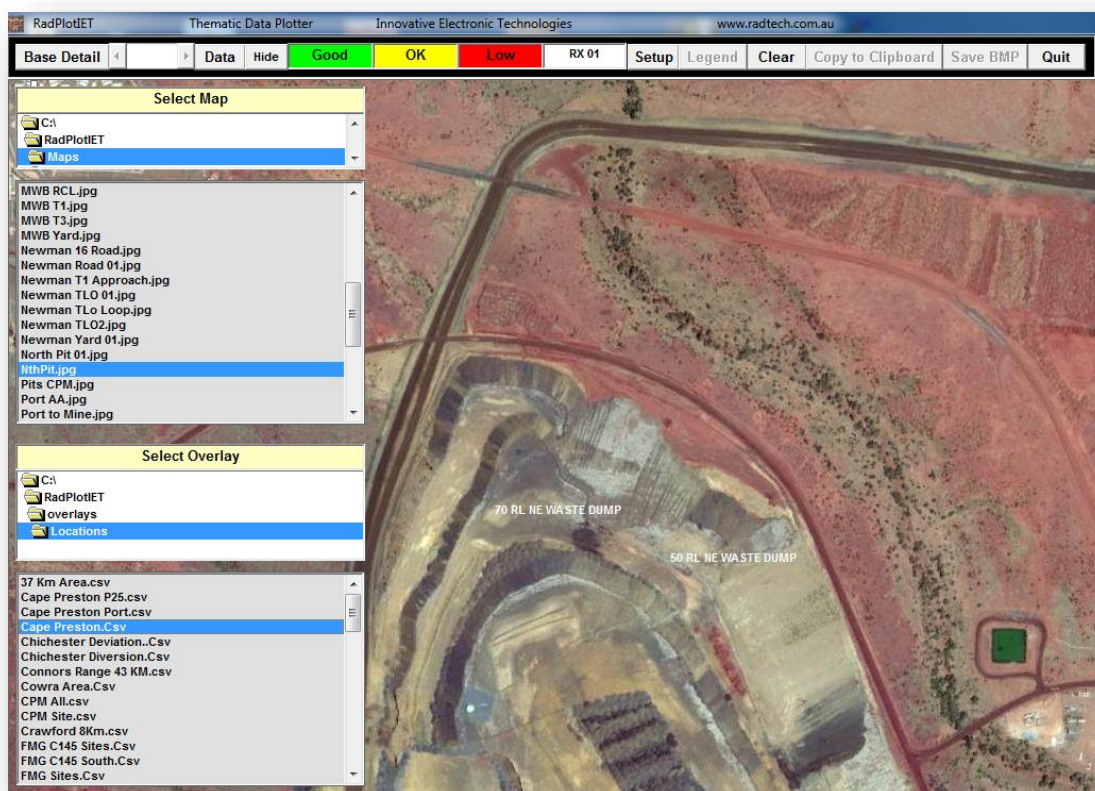


1. Set plot size to minimum (or appropriate size) at all levels.
2. Plot the data by double clicking on the appropriate data file.
3. Observe any error (at a corner is best).
4. If plot is displaced laterally (Longitude) replace one of the decimal digits in the Datum Longitude box and replot.
5. Goto 4. And repeat until error is minimised.
6. Press “Save New Datum” button.
7. If plot is displaced vertically (Latitude) replace one of the decimal digits in the Datum Latitude box and replot.
8. Goto 7. And repeat until error is minimised.
9. Press “Save New Datum” button.
10. Press “Close Calibrator” button.

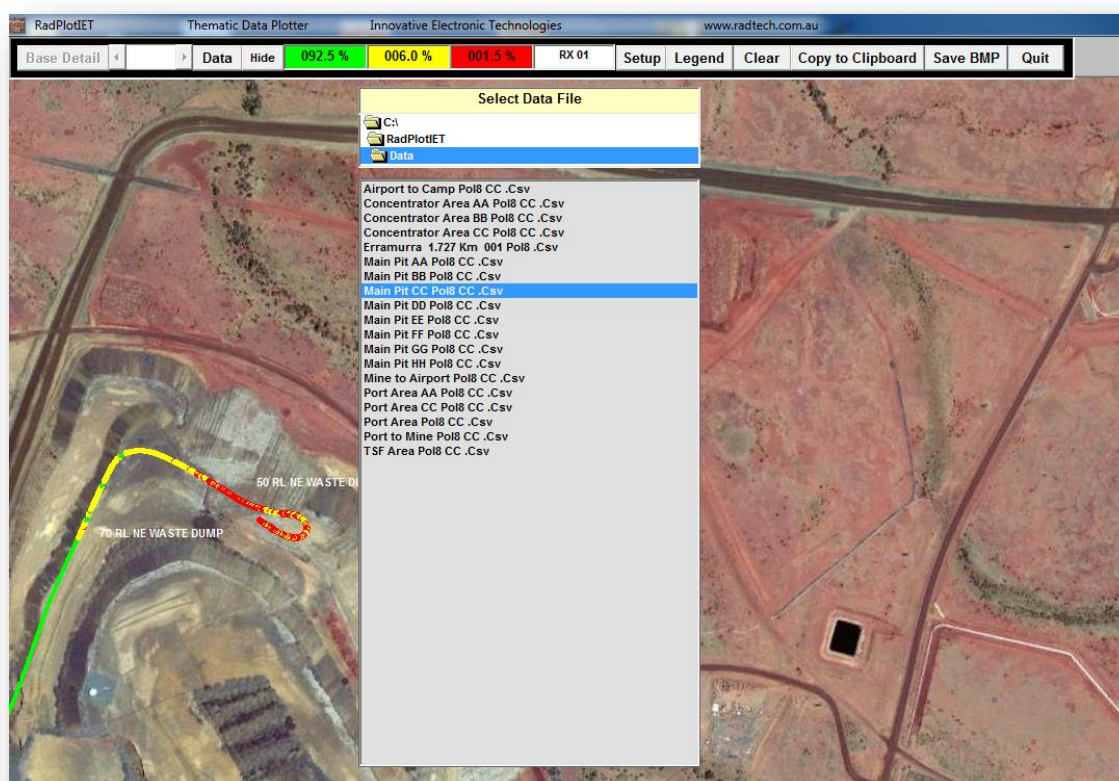
Note. Pressing the “restore Datum” button will cause the original (or last saved) datum values to be displayed & used unless new datum values have been saved which will then become “original”.

Quit RadPlotIET, reload, load base detail map and confirm accurate data plot. The adjusted datum values are now stored with that map and will be loaded as the default whenever that map is loaded. Re-set plot settings to desired values and proceed as desired.

Thematic Plot using background graphic.



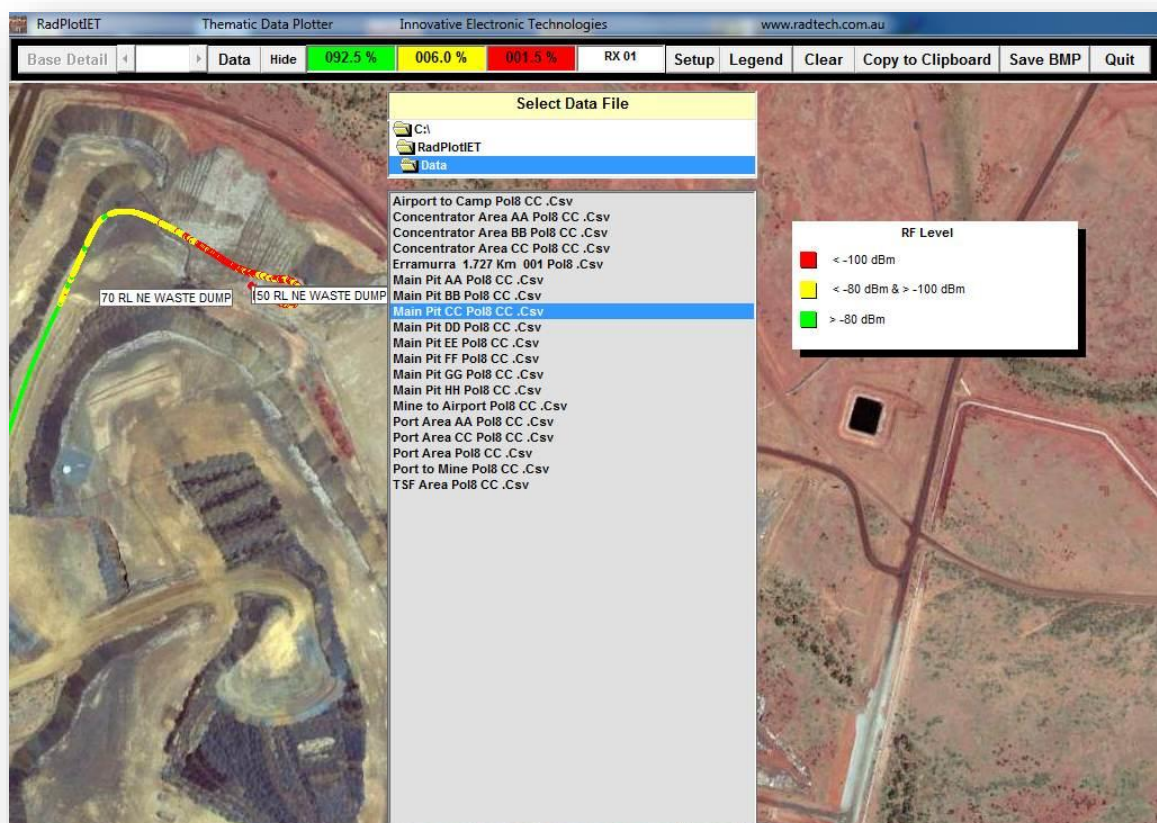
1. Press **base detail**
2. Double click on required Map.
3. **Add Overlay Data if required.**
4. Double click on required overlay or not as required.



5. If required, Drag overlay labels to required location on plot graphic.
6. Double click on Overlay label to fix location and add to plot.
7. Double click on the **data file** to plot.
8. If required, double click on the next data file to plot until all required files are plotted.
9. **Generate legend Graphic** to add to plot.
10. Click on **Legend** button to generate legend graphic.

Add Legend.

11. To add legend, place mouse at top left corner of location where it is desired to insert the legend & double click to fix it there.



Save plot as graphic file Jpg etc.

Click on "Copy to Clipboard"

Paste into desired graphics editor, edit and save as desired.

Note. Saving the plot as a BMP file produces a very large file but saving it as a Jpg using the Irfanview™ application produces a much smaller file with no apparent loss of definition.

Note. The background image can be moved by **Left** clicking on the image then dragging it as desired.

A line can be drawn directly onto the background image by **Right** Clicking where the line is to start and dragging: release the right button to stop drawing the line.

Thematic Plot with NO background graphic, Overlay only.



1. Select background color.
2. Select Label color & size.
3. Double click on appropriate overlay.
4. Zoom to plot size required.
5. Double click on data file/s to plot.
6. Add Legend.
7. Drag labels to required position.
8. Double click on label to fix and add to plot.
9. Copy to clipboard.
10. Save as required.

Note.

The boundaries of the plot area are defined by the plotted overlay object positions. This can mean that the thematic plot is drawn outside of the defined/desired plot area.

This can be obviated by manually adding position coordinates defining the Left, Bottom, Top and Right boundaries as required. (NB positions are only valid in Deg.Decimal Degree format)

Manually assigned boundary coordinates can be obtained using various mapping & Gis Applications as required and either edited directly as an overlay entry into the relevant **Location Overlay (Csv) file** or via the overlay recorder application.

GPS position data must use the **GDA94 (WGS84)** datum.