

6 Format Editor

The Format Editor allows the creation and editing of the log presentation or format files. The output of the format editor are files of the type *.prs which are subsequently used to control all aspects of plotting acquired data. The Format Editor may be started in three different ways: From its icon in the Warrior program group, from the **Edit** menu of the Acquisition or Recalculation modules, or from the **Action** menu of Interactive Plot. In addition, double-clicking in the scales area of the Interactive Plot window will also start the Format Editor.

When started from the Warrior program group the Format Editor window will open with no presentation available for edit. Any presentation that is opened from there will be opened in Master Format mode so that any changes that are made will be permanent. If started from the Acquisition or Recalculation the Master copy of the presentation as declared in the current logging service will be opened. For Interactive Plot modules, the log format currently being used will be presented.

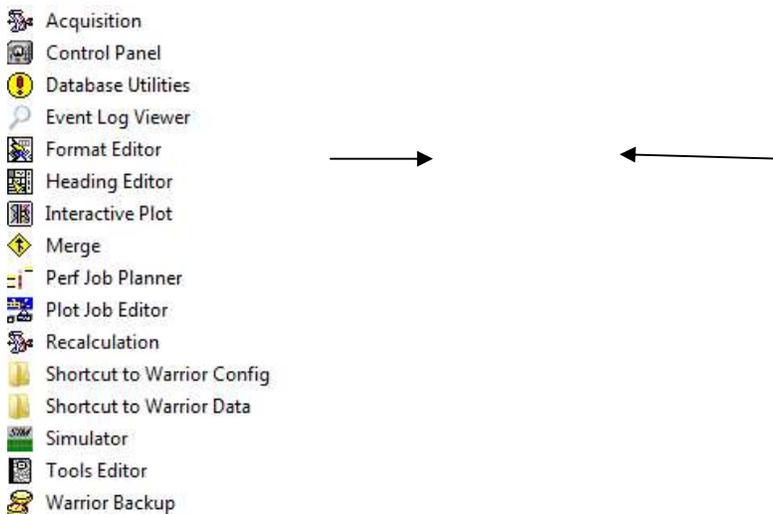


FIG: 6.1 Select Format Editor from Warrior program group

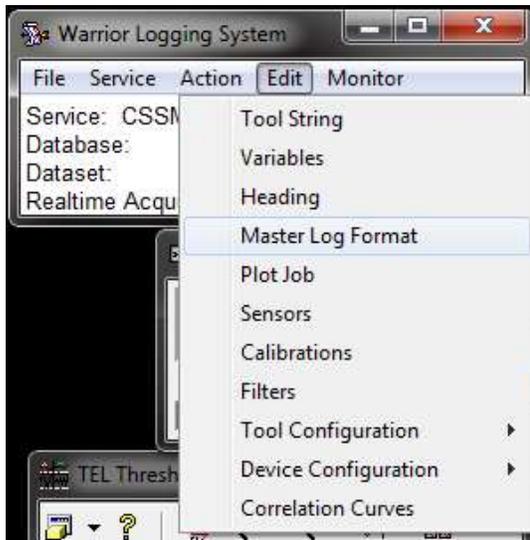


FIG: 6.2 Select Format Editor from the Acquisition window

When the Format Editor is opened from the Acquisition or Recalculation window, the format specified in the current service in the services.ini file is opened in the Master Format mode. Any changes that are made will be permanent to that Master Format. If a private copy of a presentation using that format has been saved to a database, no changes will be made to the private copy.

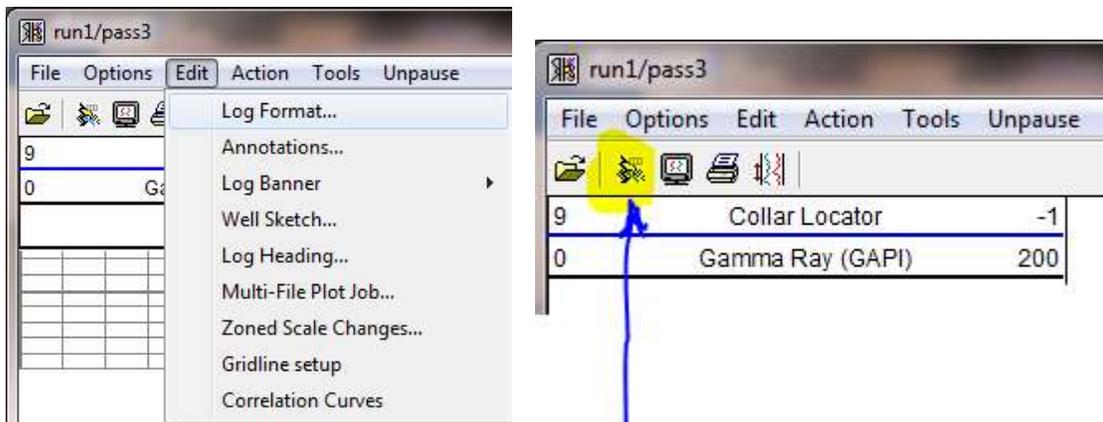


FIG: 6.3 Select Format Editor from the Interactive Plot window

The Format Editor can be opened from three different places in the Interactive Plot window. If you click Edit -> Log Format..., Click on the second icon on the Presentation Plot screen, or double click on the log scales, the Format Editor will open to the current presentation format.

When the Format Editor is invoked from Interactive Plot, changing the log format and saving it causes the active screen plots to be re-plotted with the new format. Note that many screen plots may be overlaid on each other at any one time. If a large number a plots are present, a noticeable delay will occur while all are re-plotted.

Before going any further we should discuss the difference between a Private Copy of a presentation and a Master Copy of a presentation. The Master Copy of a presentation is a file kept in the Warrior\Format folder. When a log pass is started from Acquisition, normally a copy of this file is placed into the Warrior database. This becomes the private copy that will be edited any time the format editor is opened from the interactive plot. Whether the private copy is used in a service or not is controlled by the service. In the Service Editor, there is a box "Use private copy of a presentation for all logs from this service". If this box is

checked then the private copy will be placed in the database. Otherwise, there will be no private copy and the master copy will be used at all times. It is recommended that the "Use private copy of presentation for all logs from this service" box be checked in all services.

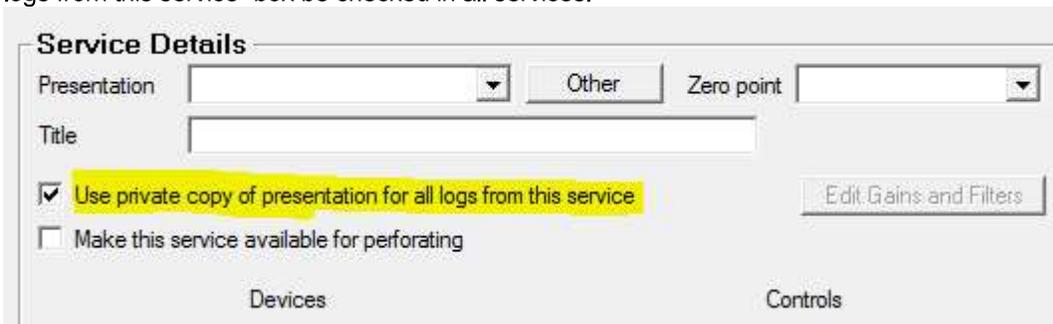


FIG: 6.4 Selecting Private copy of presentation in the Service Editor

When Format Editor is opened from the Warrior Program group, no presentation is shown. To edit a presentation, you must first select a presentation and open it. To do this, click on the [Open] button. Or build a presentation from the beginning, including the grid layout.

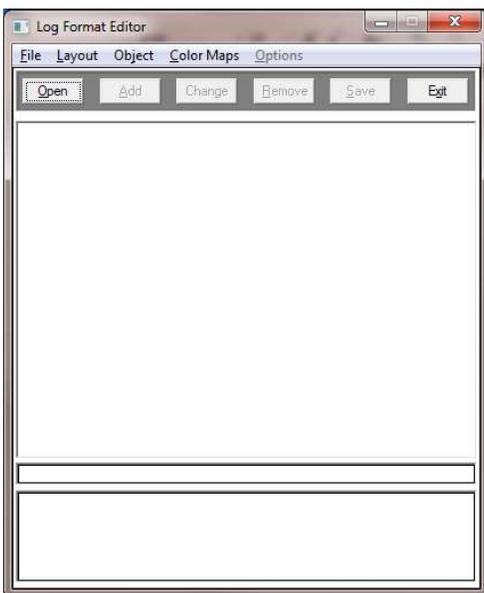


FIG: 6.5 Open Format

This will display a file selection window showing all the presentation files, currently available, within the system. The operator can select the presentation file to be edited. Note that all presentation files are to be found in the \warrior\format directory and have a prs extension.

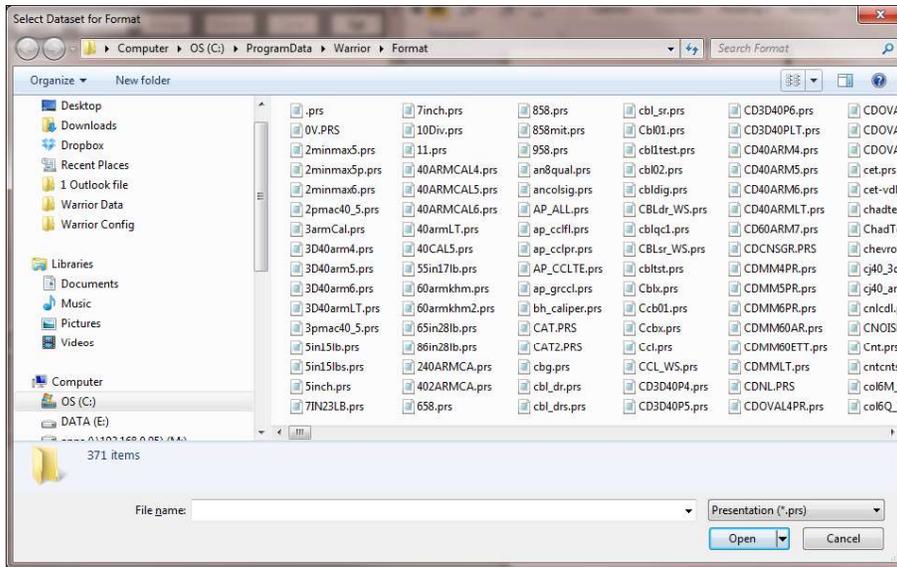


FIG: 6.6 Select Presentation Format to be Edited

From the Acquisition or Recalculation modules select Edit -> Master Log Format. The log format specified in the currently selected service will be presented. Note that when the master presentation is edited, if a private copy of the presentation has been created in the dataset, changes will not be made to the private copy.



FIG: 6.7 Select Master Log Format

6.1 Editing a Log Format

The Format Editor provides the User a means to graphical display data. Any data or variables in a pass, either recorded or imported from external data, can be displayed using one of a number of different layout presentations, or the User can create his own layouts. Fig. 6.8 below shows a sample presentation for a radial bond log.

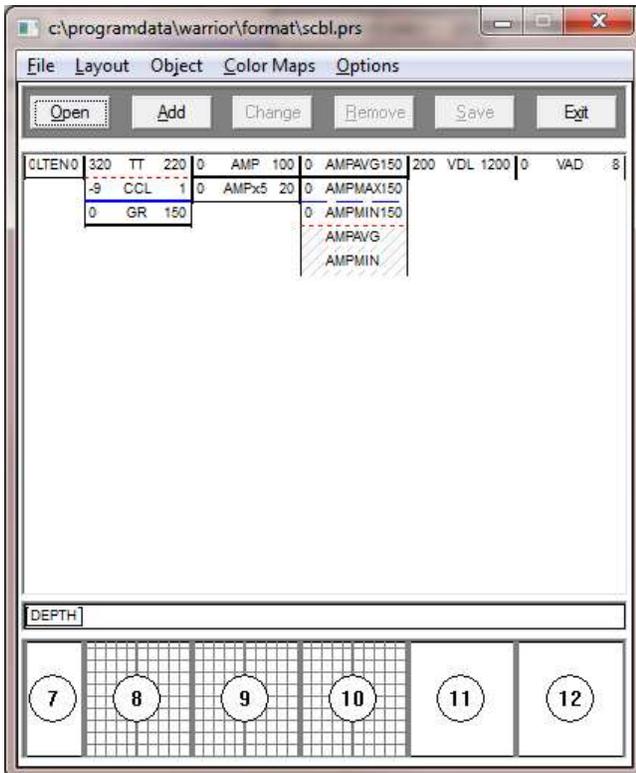


FIG: 6.8 Example presentation

6.1.1 Editing a Data Item

To edit the plotting parameters of an existing curve, click on the curve shown and then click the [Change] button. Optionally, if you double click the curve it will also open the Define Data Item dialog window for curve editing.

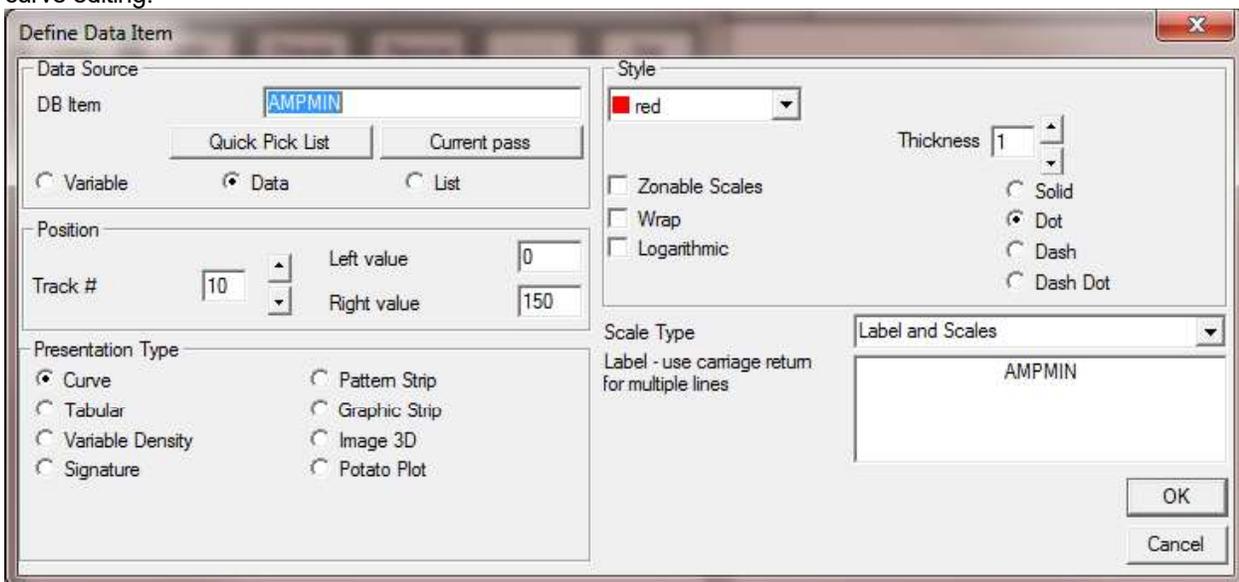


Fig. 6.9 Define Data Item dialog window for curve editing.

The DB Item should be a valid Warrior Data Mnemonic or Warrior Variable but the software does not check to see if the entered DB Item is valid. If the DB Item does not exist in the current pass, the software sets up the DB Item named to be plotted but no curves or curve label are shown in the plot.

If the Format Editor is invoked from a Presentation Plot there will be a [Current Pass] button under the DB Item entry box. Clicking on the [Current Pass] button will show a list of all of the plottable items in the current pass. The [Quick Pick List] provides a list of commonly used DB items, but is by no means a complete list of possible DB items.

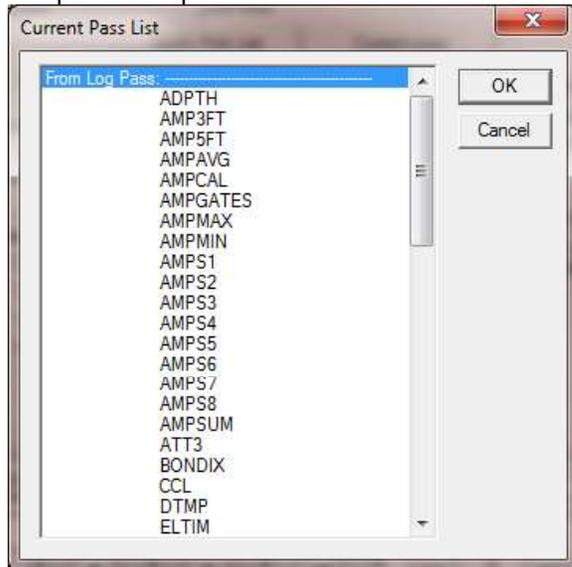


Fig. 6.10 Partial list of Data Items from a log pass

There are three basic types of DB items that can be plotted. The most common is a data item that is usually an output. Any of the log variables may be plotted as a variable. The list type would be an array of curves or the same type such as caliper arms or sector amplitudes.

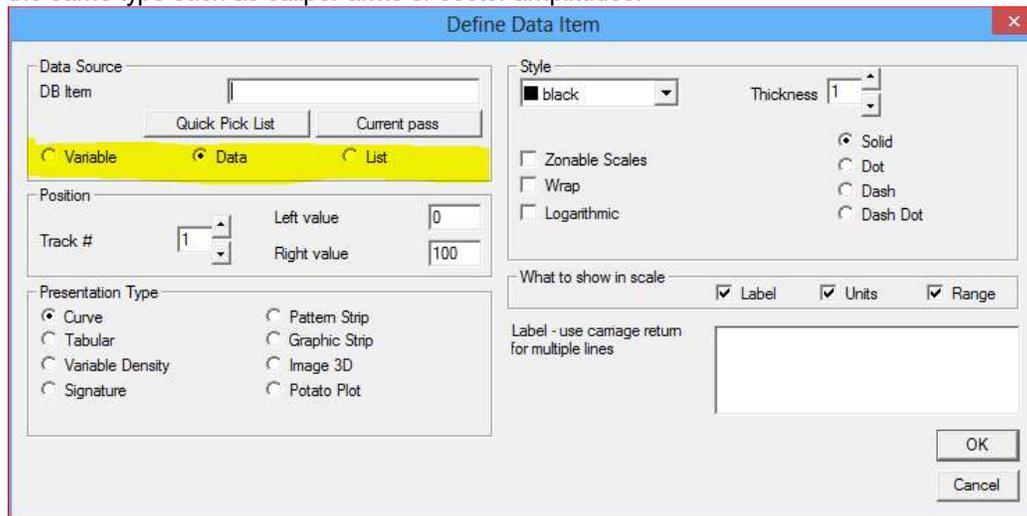


Fig. 6.11 DB Item Types

The curve may be put into any track that is defined in the current grid layout as shown at the bottom of the window. Note that the track numbers do not necessarily conform to any API standard. The track number can be changed by typing in the track# window or by using the scroll bar buttons next to the window. The presentation may use any of the predefined layouts or the User may edit or build his own layouts, as will be discussed later.

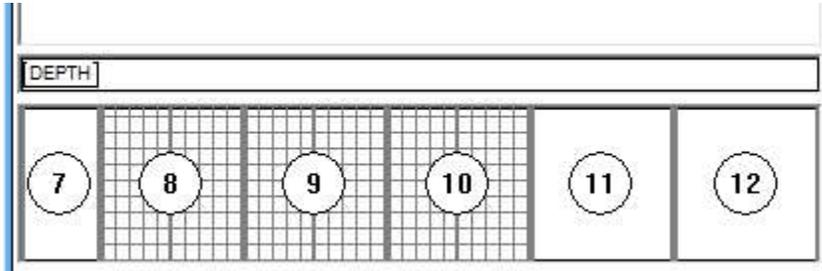
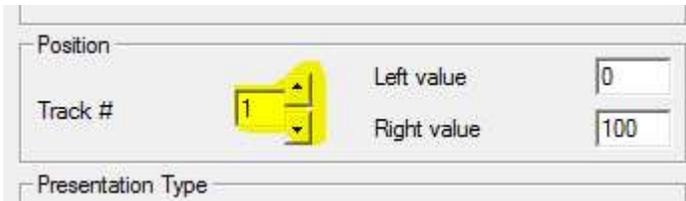


Fig. 6.12 Assigning curves to a track

The presentation type to be plotted will depend upon the data that has been selected. Most data and variables will be plotted using a curve or a Tabular list of the data. Waveform data will normally be presented using a Variable Density or Signature.

Pattern strips represent the values using a color pattern. Certain items such as Well Objects are plotted as a graphic strip. Caliper arrays can be plotted as a 3D image. Caliper cross sections and other items would be plotted as potato plots.

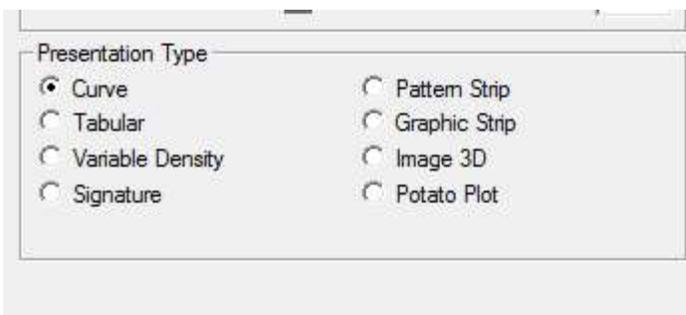


Fig. 6.13 Presentation types

6.1.1.1 Plotting Data Item as a curve

When a data item or variable is plotted as a curve, there are several other options besides the track and the scale values. These options include the color of the line, the thickness, and the dash pattern.

The curve may also be plotted logarithmically between the scale values (Note that curves are plotted regardless of the grid layout that is in that track).

The Wrap option allows a curve to re-enter the track from the opposite side if it has exceeded the scale value.

Zonable scales allows the user to set the scales to different values through different depth intervals on the log pass. The values and depths are entered through the "Edit -> Zoned Scale Changes ..." option in Interactive Plot.

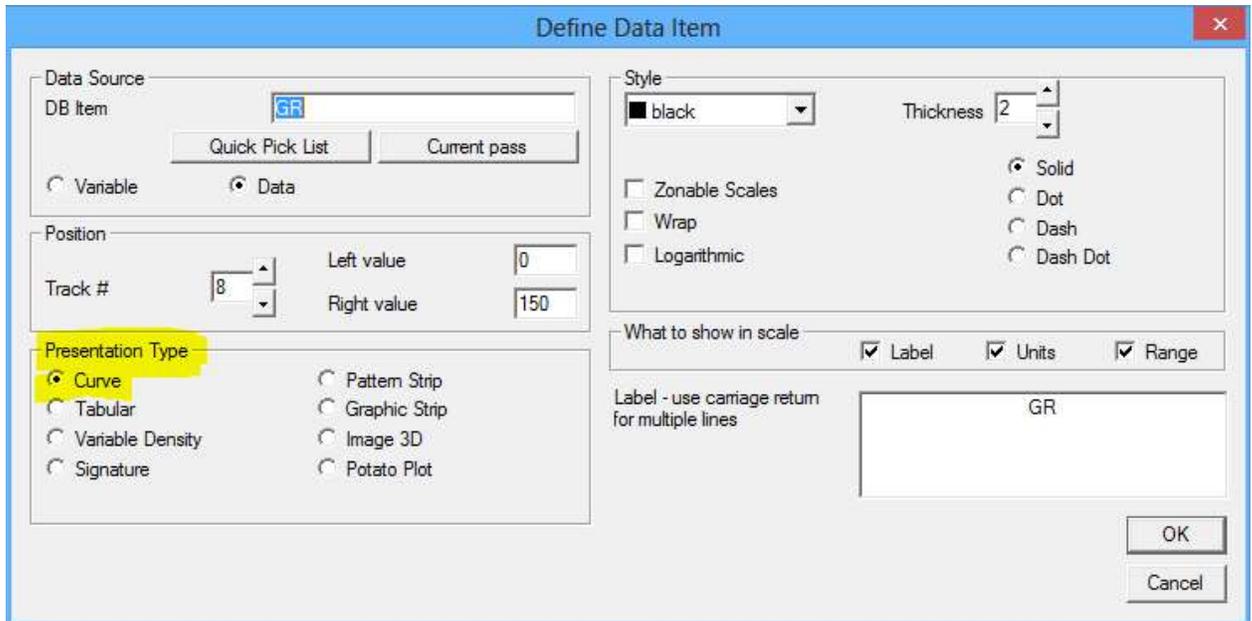


Fig. 6.14 Curve Style Options

6.1.1.2 Plotting Data Item as a Tabular Value

Scalar database items and variables may also be plotted as tabular data. The track is selected from the Grid Layout as before, but in this case the scales are not used. The color chosen will be the color that the tabular text is printed. The tabular data can be plotted in the left, middle, or right position of the selected track. The number of decimal places to be shown can be selected. If the data is plotted by interval, the interval between samples shown on the log can be selected. If the data is plotted by data, the delta change of the data can be selected, with the data being displayed whenever the amount of change has been reached. As with plotting a curve, the label may be changed from the Warrior mnemonic and whether the label and units are shown on the scale inserts can be selected. The Range, like the scales, is not used in this instance.

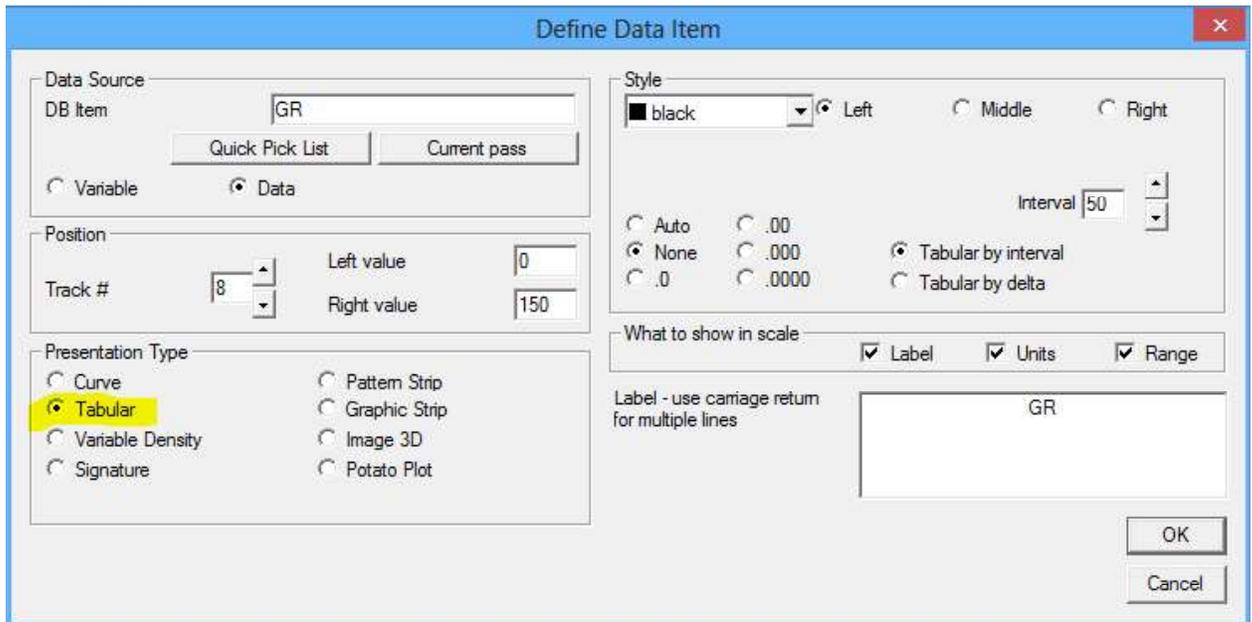


Fig. 6.15 Tabular Listing Style Options

6.1.1.3 Plotting Waveform Data Item as a Variable Density

Database items that are digitized waveforms can be plotted as either a Variable Density or as a Signature. The track is selected from the grid layout in the normal manner. The left and right scales are the sample times in microseconds. If scale values are selected that are out of the digitized range of the data item, then the maximum digitized value is used.

When waveforms are plotted as a variable density, normally the Percentage of the waveform windows maximum size is used. The Percentage of Black level and White Level set the levels to change to the last shades of the color map. As an example, if the color map had black, white, and three shades of gray between them, and the percentages were both set to 40%, then when the signal height gets greater than 40% or 1.0 volts positive the signal will be black, between 40% and 20% the first shade of gray, between 20% and -20% the second shade of gray, between -20% and -40% the third shade of gray, and at greater than -40%, or 1 volt negative signal, will be white. The percentages should be kept approximately equal if a small number of different shades are in the color map to keep the baseline in the middle shade. Note that by lowering the percentages, this in effect increases the contrast of the signal, making very small signals visible.

Constructed waveforms made from array of data, such as sector maps made from the individual sector amplitude data, may also be plotted as a variable density. In this case, if Specific Values is chosen, then the calibrated output value of the data is used to set the upper and lower limits. If we use limits of 10MV and 60MV and a map with black and white and three grays, then when a sector amplitude is less than 10MV, that section of the map will be black. When a sector amplitude is between 10 and 23.3, the first shade of gray will be shown. When a sector amplitude is between 23.3 and 36.6, the second shade of gray will be shown. When a sector amplitude is between 36.6 and 60, the third shade of gray will be shown. And when a sector amplitude is greater than 60MV, that section of the map will be white.

In addition to the options for labeling the scale insert as before, the User has the option to show the mapping in the insert or not.

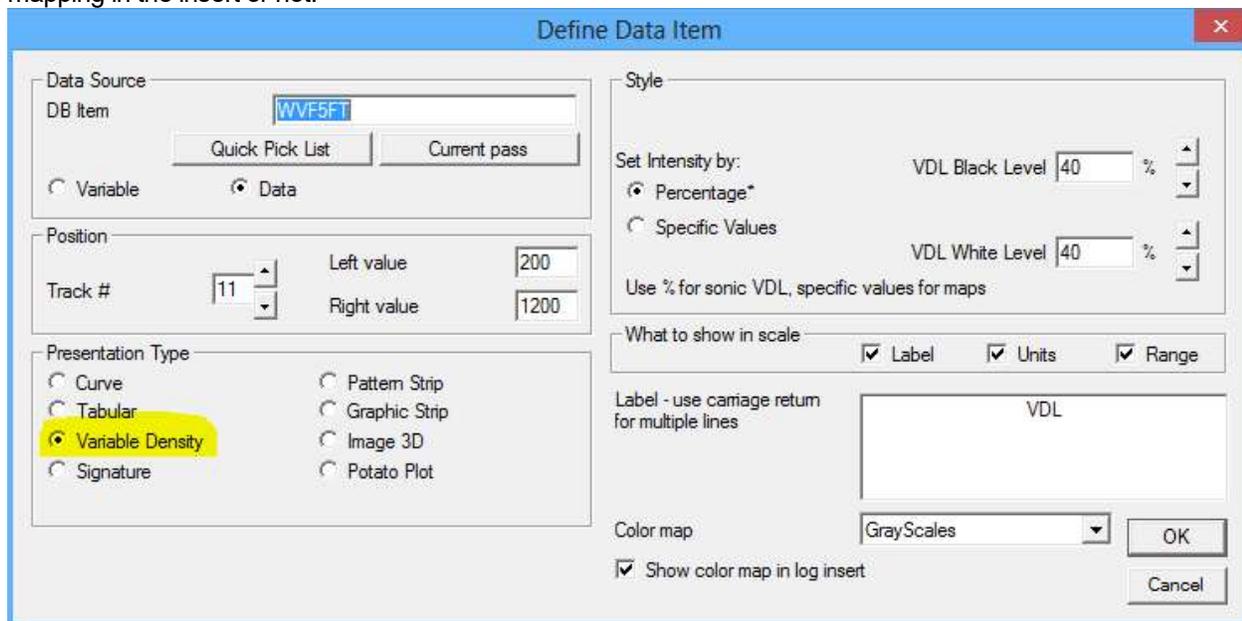


Fig. 6.16 Waveform Variable Density Style Options

6.1.1.4 Plotting Waveform Data Item as a Signature

Waveform data can also be plotted as a signature. The scales are the time in microseconds of the waveform capture as with a variable density, and are limited by the actual time of the capture.

The User has the options of scaling the relative height of the waveform in the presentation and the interval of how often the curve is plotted. The interval is in the units of the log, feet or meters. The positive portion or the negative portion of the waveform can be selected for shading. The waveforms can also be presented using a logarithmic gain and / or with waveform maximum readings all normalized to the same value. The position of the waveform in the track can be shifted by entering a Vertical Skew value in the depth units.

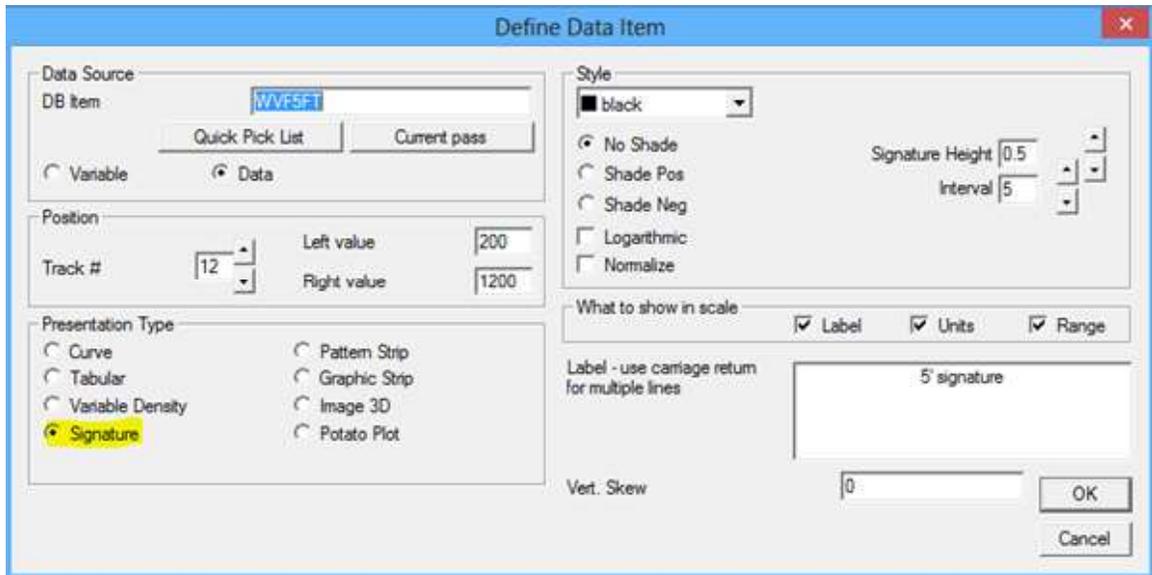


Fig. 6.17 Waveform Signature Style Options

6.1.1.5 Plotting Data Item as a Pattern Strip

Data item may also be plotted as a pattern strip. Rather than plotting a curve, the data is shown as a band, or strip that changes shades or colors to indicate relative value across the whole width of the track that it is plotted in. The left and right values are the maximum extents of the color map used for shading. The last colors of the color map are used if the scale values are exceeded. An example of a bond amplitude curve used to indicate good bonding or poor bonding is shown in the figure below.

It is possible for the shading to be composed of one of the 25 different shading patterns that Warrior Software uses for the shading of logs. However, at the present time this requires hand editing of the color map in the Warrior.INI file. If this should be needed, contact Scientific Data Systems for further instructions.

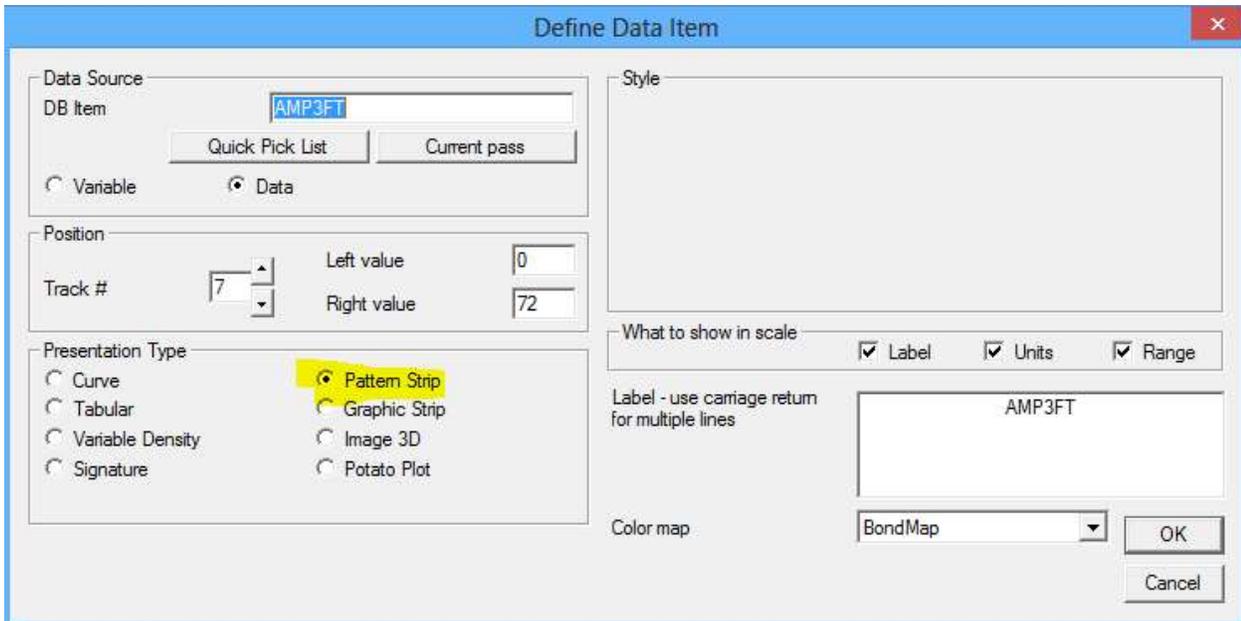


Fig. 6.18 Plotting Pattern Strip

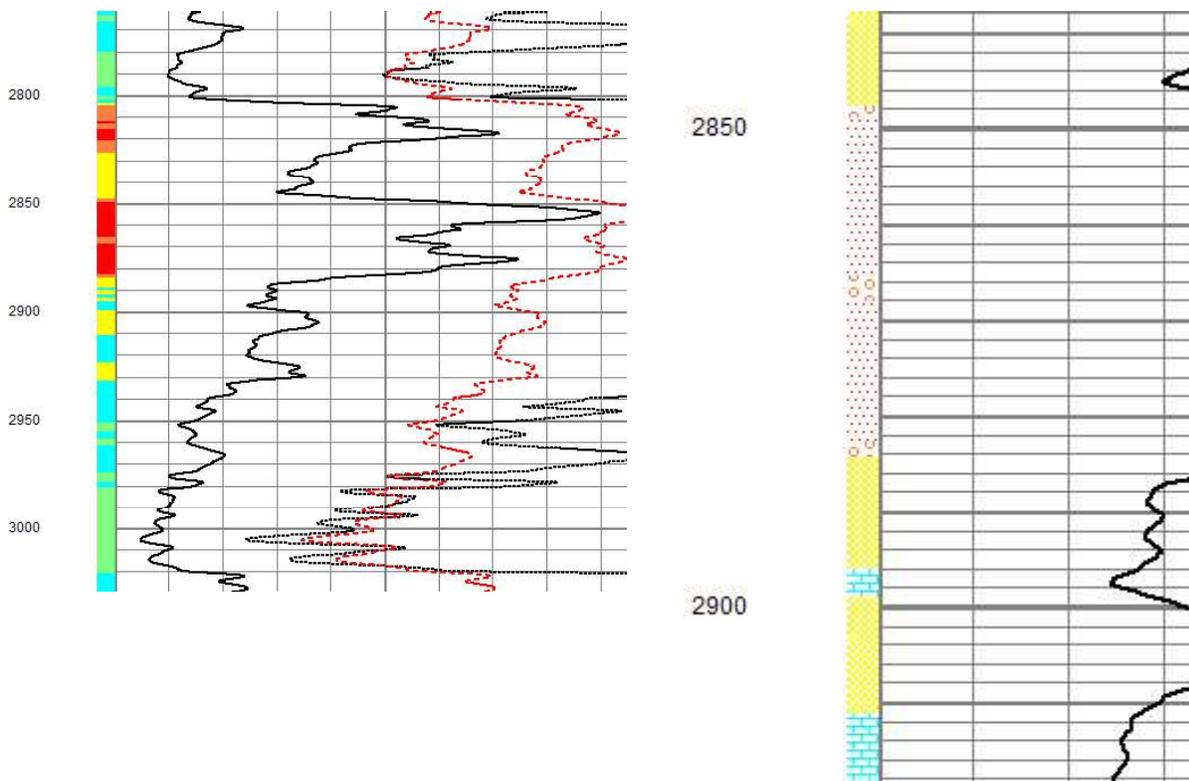


Fig. 6.19 Example Plotted Pattern Strips for Amplitude data

6.1.1.6 Plotting a Graphic Strip

Graphic strips are used to plot well objects created by the Well Object Editor. These are normally created by using Edit -> Well Sketch. This allows the User to create a Well Sketch containing perforations, plug,

packers, tubing, etc. and placing them in any defined track in the grid layout. The DB Item selected to be plotted is WELLOBJ.

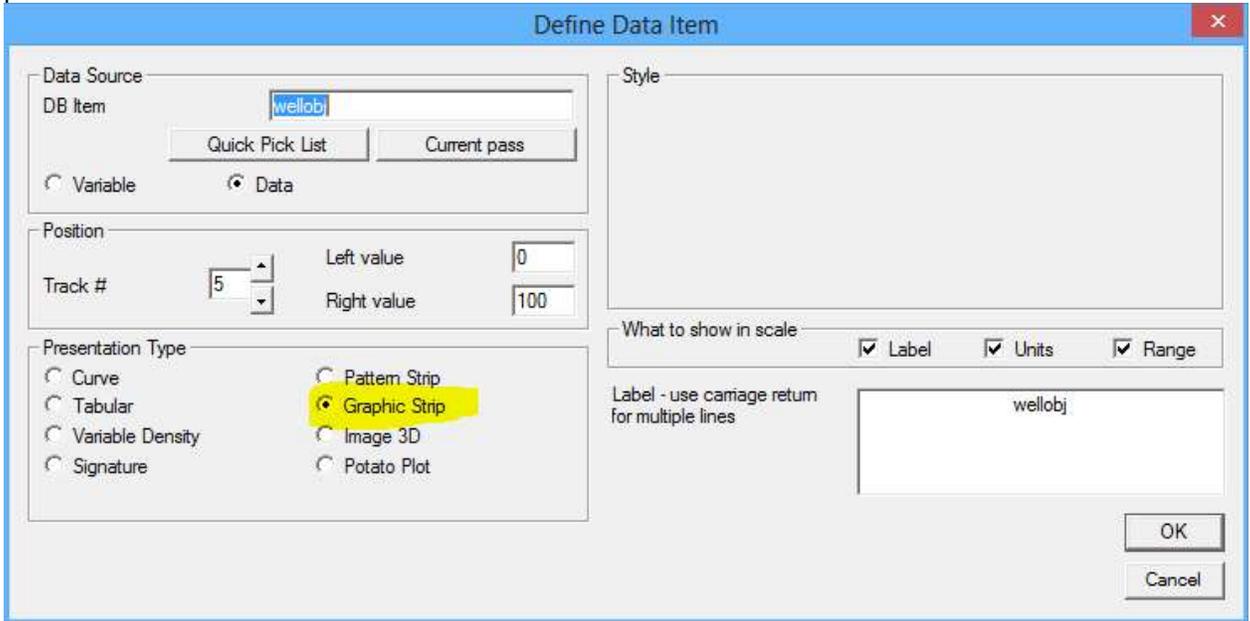


Fig. 6.20 Plotting a Graphic Strip

6.1.1.7 Plotting a Image 3D

A graphical 3-dimensional image can be plotted in the specified track. This is usually a representation of something like the casing taken from the readings of a multi-fingered caliper log. The left and right scale values are not used in this instance, the scale values shown are taken from the image properties. Click on the [Image Properties] button to open the image properties dialog.

By clicking on the [Edit Variables] button, the Casing O.D. and Casing I.D. will be updated. These variables are what set the shown left and right scale values of the presentation.

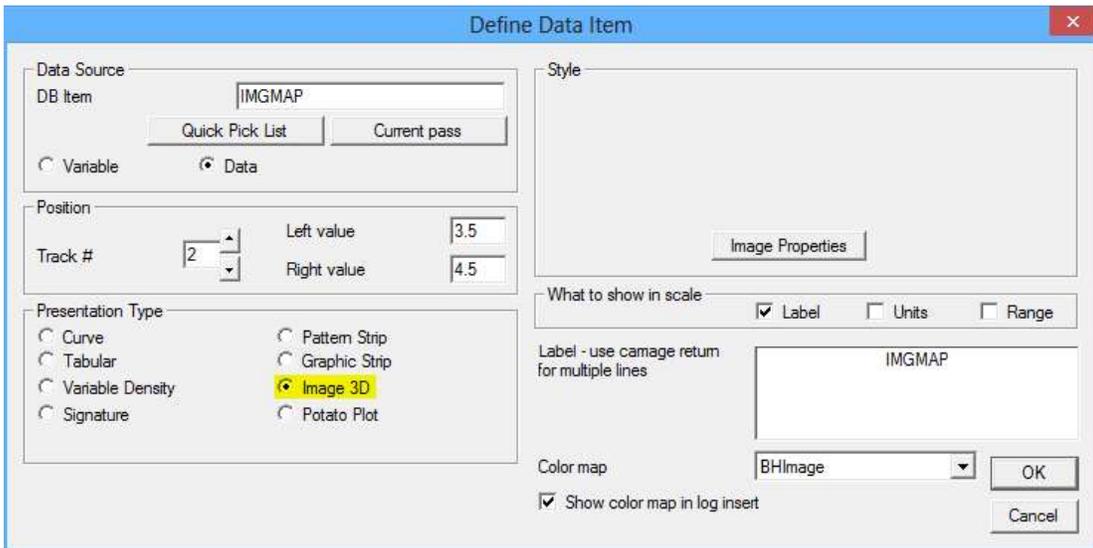


Fig. 6.21 Plotting a 3D Image

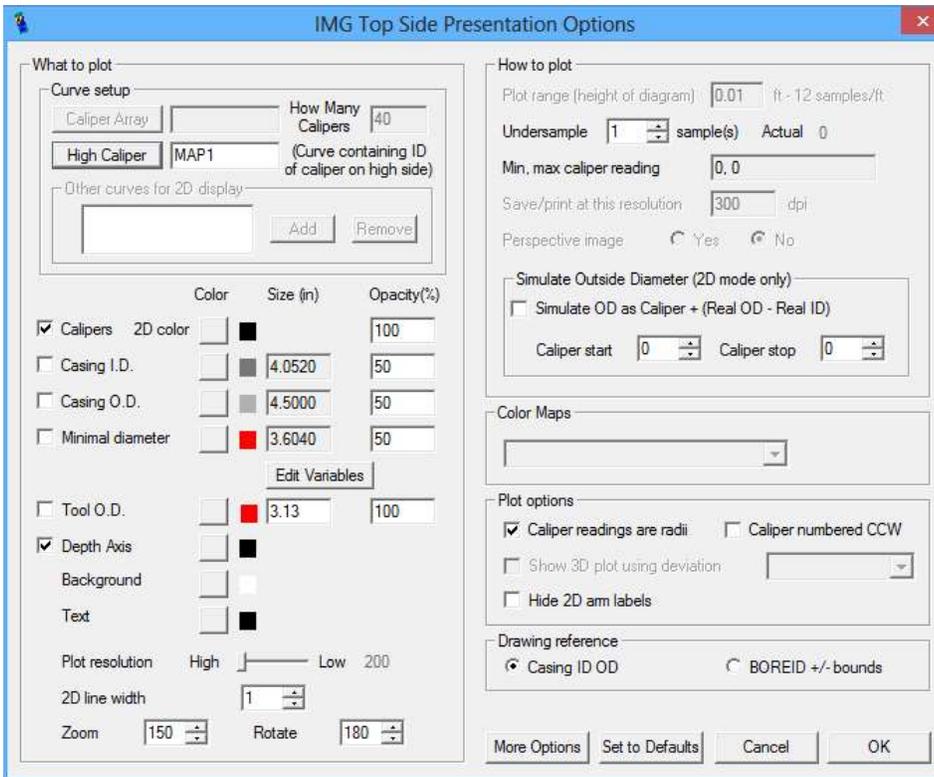


Fig. 6.22 Plotting a 3D Image – Image Properties

6.1.1.8 Plotting a Potato Plot

A potato plot is used to plot a graphical image such as a cross-section diagram from a multi-fingered caliper or a dipmeter histogram. As with a 3-D image the image is placed in the appropriate track, but the scales have no relevance.

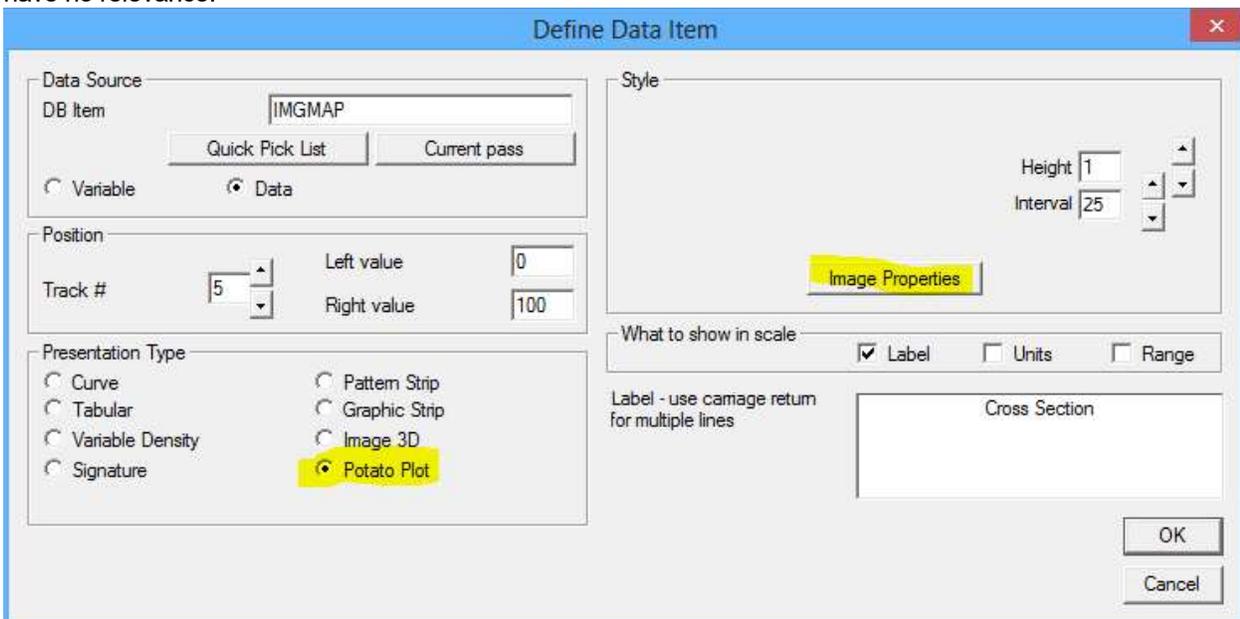


Fig. 6.23 Plotting a Potato Plot

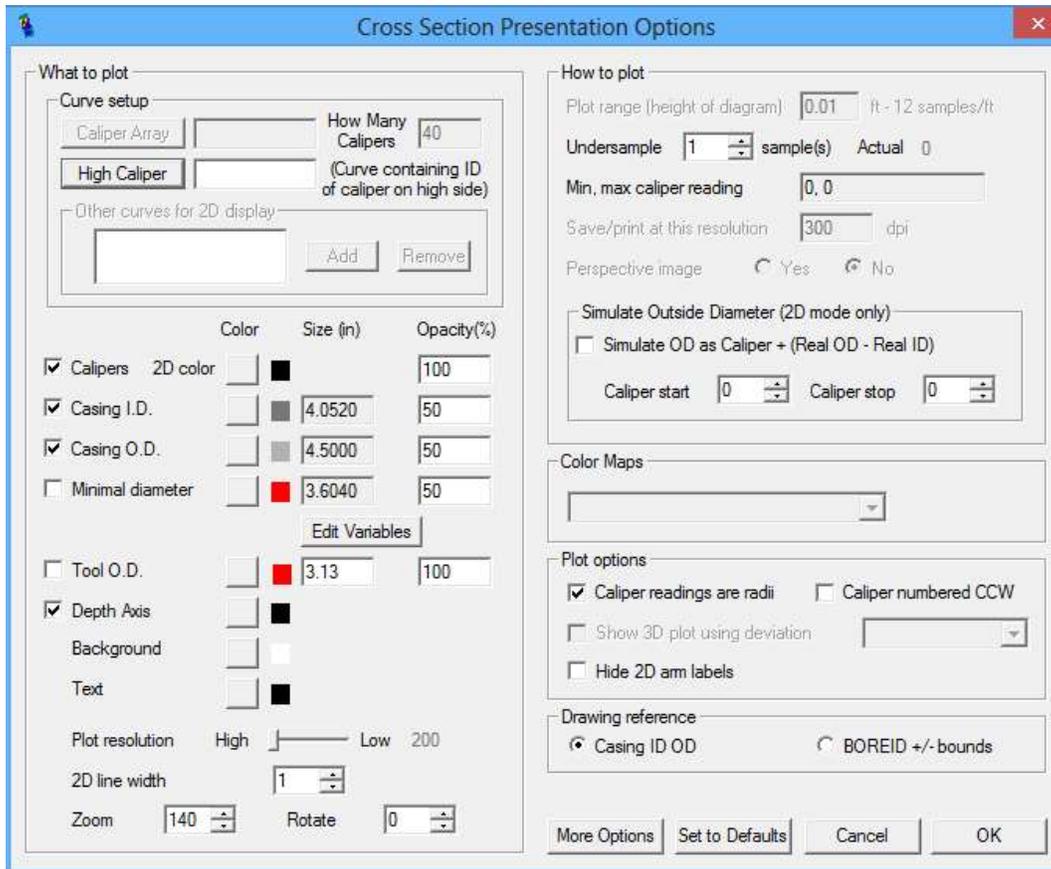


Fig. 6.24 Potato Plot Presentation options

6.1.1.9 Plotting a List Item

By selecting the List data type, the user may plot a list of curve that are sequentially numbered and have the same prefix (caliper arms – R0, R1, . . . and Sector Amplitudes – AMPS1, AMPS2, . . . as examples) as a single presentation entry.

The track # needs to be a valid grid track as before. The scales values should be selected as if a single curve were to be plotted in the track.

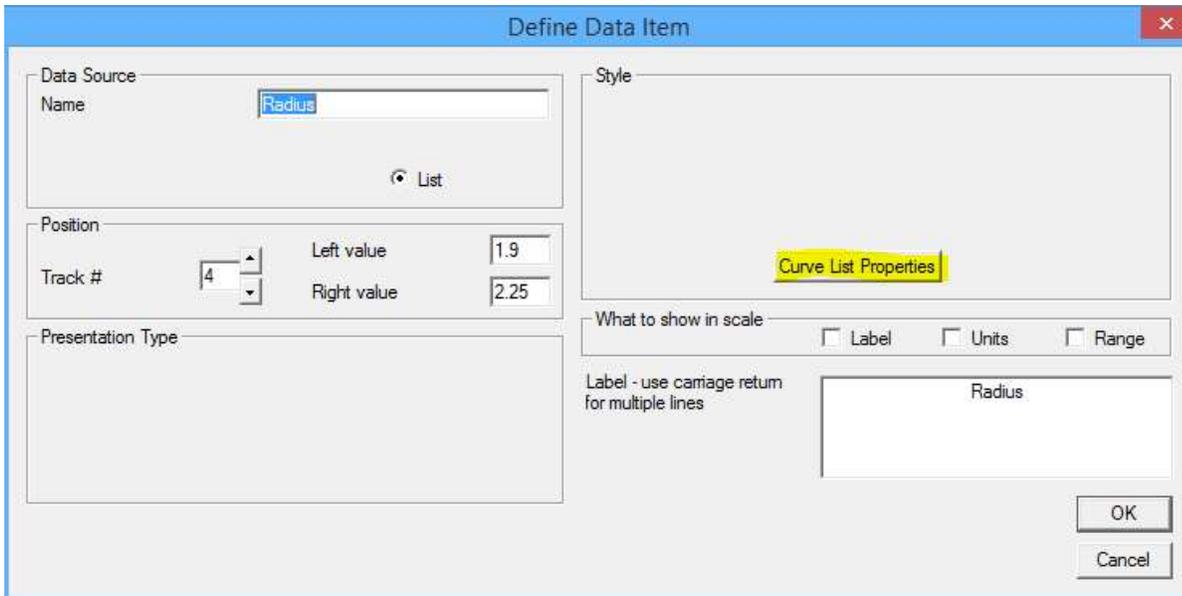


Fig. 6.25 Plot a List of Curves

When you click on the [Curve List Properties] button the Curve List Editor dialog window will come up.

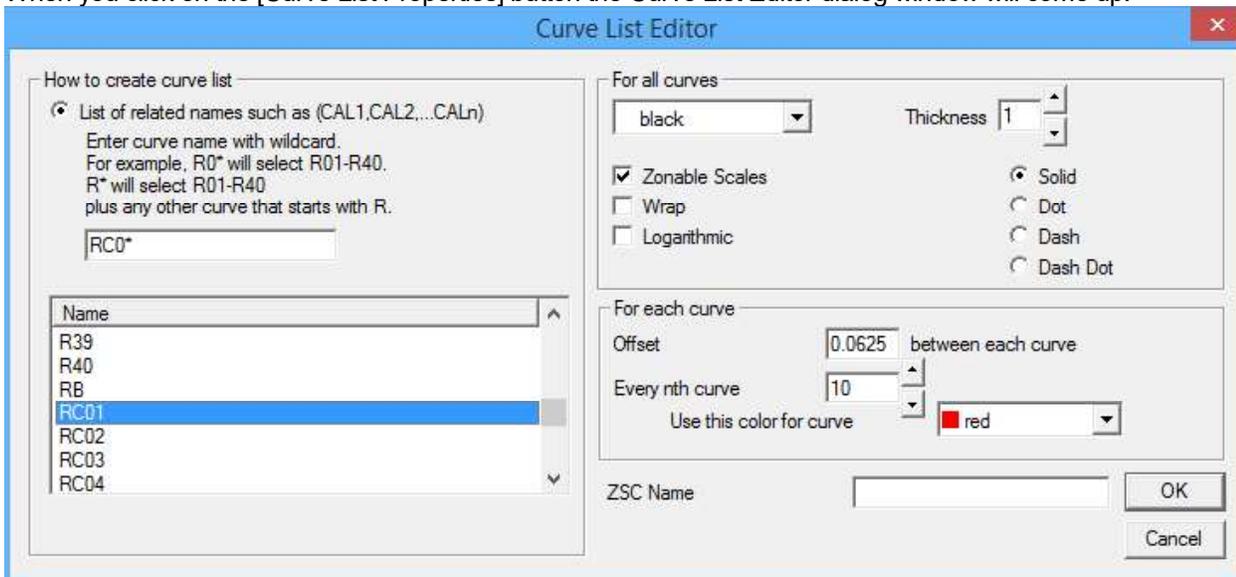


Fig. 6.26 Plot a List of Curves Properties

By clicking on a curve name or mnemonic, the list of related curve names will be shown with the * appended as a wild card character(s). The style for thickness, dash pattern, color, and other selections are chosen as normal with the expectation that the selected style (except for color) applies to all of the curves. Every nth curve may be selected to have a different color other than the base color selected in the style. The offset between each curve can be entered to separate the curves in the presentation. The offset has several effects. As an example, let us say that the original left and right scale values are 0.0 and 10.0, and we use an offset of 1.0. Each time an additional curve is picked up the presentation changes by the amount of the offset. When the first curve is added, the overall track scaling changes to 0.0 to 11.0, with the first curve plotted from 0.0 to 10.0, while the second curve is moved or by the offset of 1.0 and then plotted from 1.0 to 10.0 making the total track width of 11. When the second curve is picked up, the effective grid scale changes to 0.0 to 12.0 to accommodate the additional 1.0 offset of that curve. This continues until all of the curves that are chosen are picked up by the presentation. Although each curve is

plotted to the left and right scal values specified, the overall scales of the grid itself are the scale width plus the number of curves minus one times the curve offset.

6.2 Format Editor - Grid Layout

The grids or mattes that are used in the Warrior Software are extremely flexible. 20 different styles of tracks may be placed anywhere on the page. The layout is not a fixed width so that when the plot is printed it will fit on whatever width paper is used in the plotter from narrow 1 track plotters up to 17" or wider plotters. To choose a different layout, click on "Layout" and the available list of grid layouts will drop down. Click on any of the layouts available, and that layout will then be shown at the bottom of the Format Editor window. When the new layout is chosen, the track numbers as shown in the format editor may change significantly. This may cause many of the data items plotted as curves to lose their assigned tracks. It is a good idea to check at least one curve as this will show where all of the curves would be plotted.

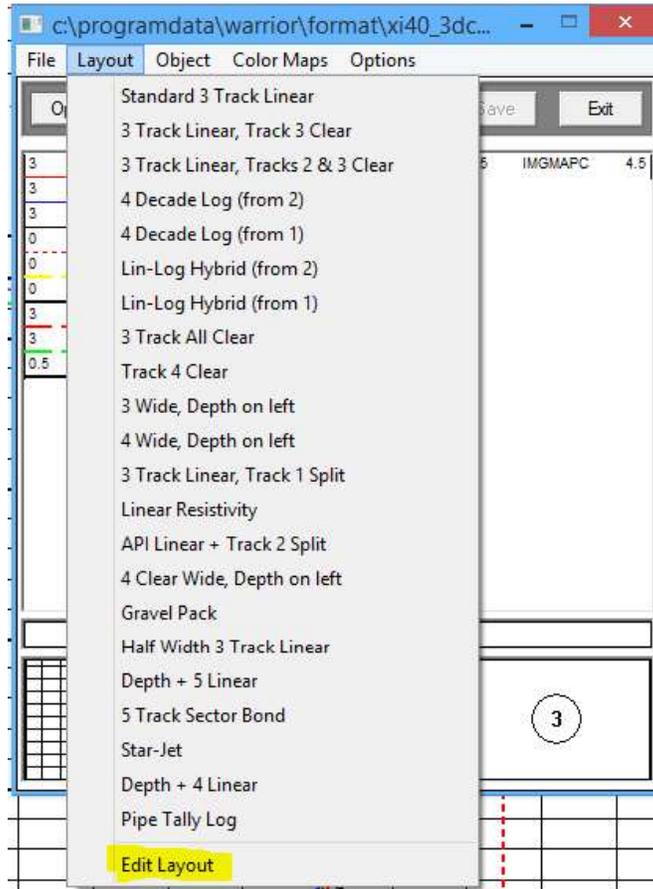


Fig. 6.27 List of grid layouts available

6.2.1 Format Editor - Grid Layout Editor

Even with the supplied list of grid layouts, it would be impossible to have a list long enough to accommodate all of the possibilities of layouts, the might be desired. To this end, the User has the ability to create and save his own grid layouts. At the bottom of the layouts list is the Edit Layout option. Click on Edit Layout to bring up the Layout Grid Editor.

There are two modes that the Layout Grid Editor can be entered. The first is a custom mode that allows the grid layout in the existing presentation to be edited. This mode is entered by as soon as the Format Editor

is opened clicking on "Layout -> Edit Layout". The second mode allows you to edit the Master Layouts list that shows all of the available layouts. This allow the User to Rename layouts, Delete layouts, change the order of the list by moving the layouts, and to copy an existing layout and giving the copy a name thereby creating a new layout.

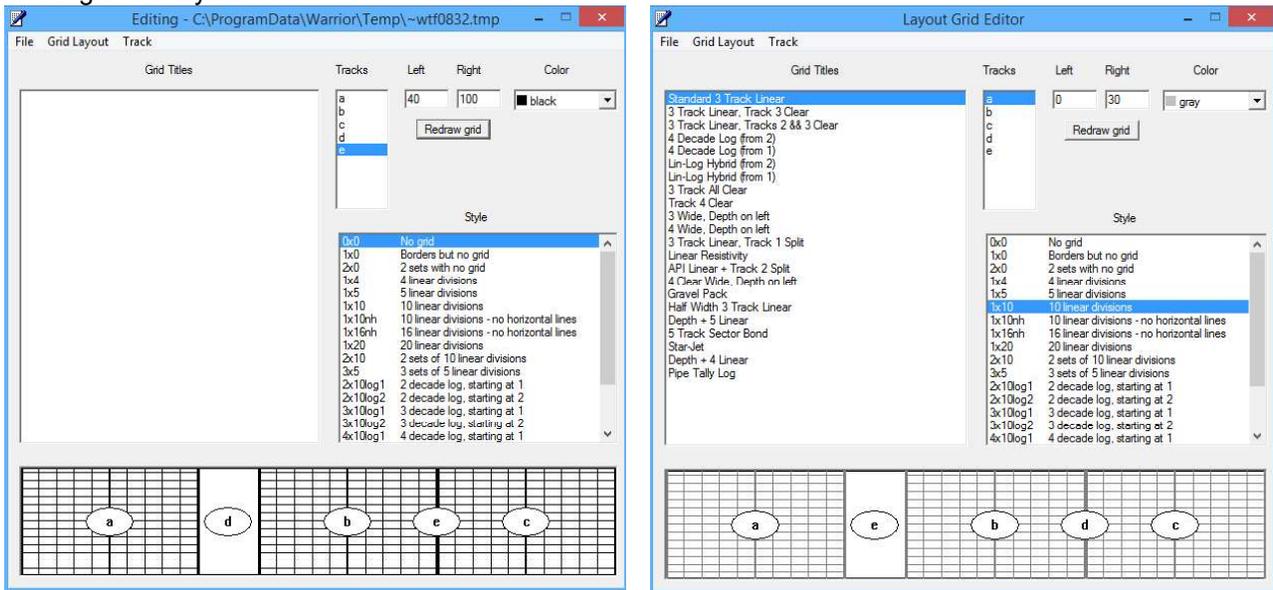


Fig. 6.28 Layout Grid Editor

6.2.1.1 Layout Grid Editor - Editing tracks

The width of the layout goes from 0 on the left to 100 on the right. When the log is plotted, the presentation will cover the width of the plotter regardless of the plotter width. Each track can be specified to be any width and be placed in any position on the page. When the track is highlighted in the Tracks column any of the existing grid styles may be applied to that track.

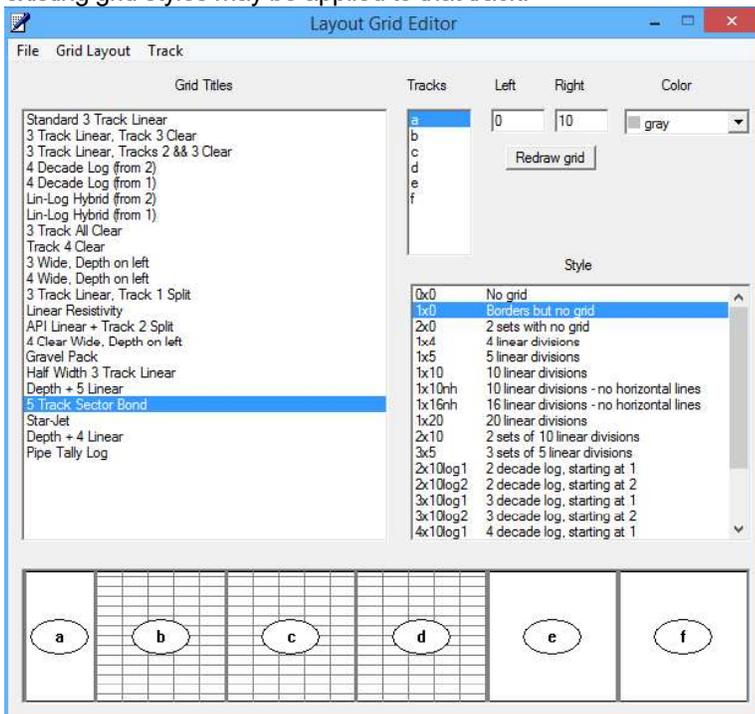


Fig. 6.29 Editing an existing layout

Tracks may be added or removed from the layout by clicking on Track -> Add (or -> Delete). By clicking on the [Redraw grid] button, the grid track changes that have been made.

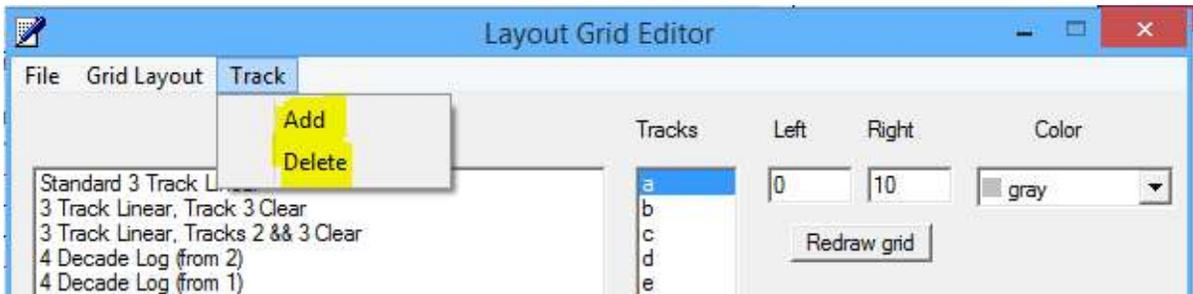


Fig. 6.30 Adding or Deleting Tracks

6.2.1.2 Layout Grid Editor - Editing List of Layouts

By clicking on Grid Layout the User can edit the list of displayed grid layouts.

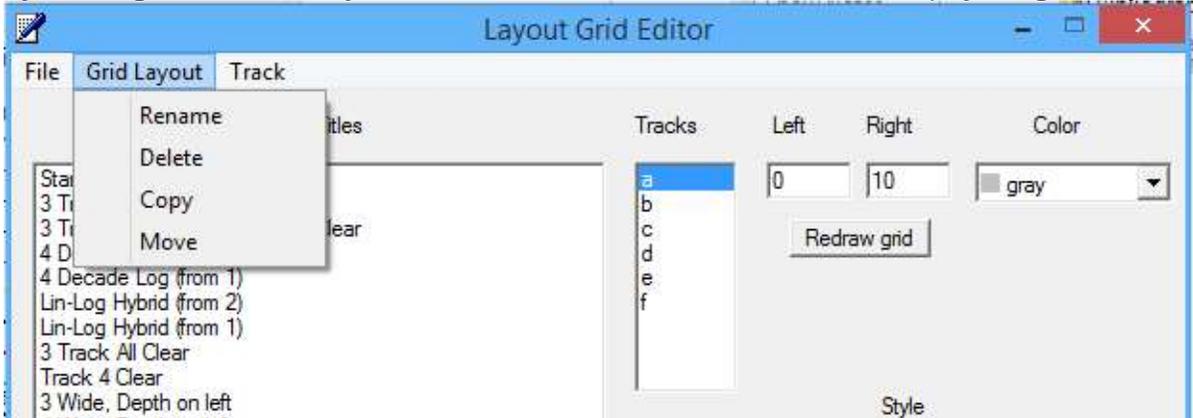


Fig. 6.31 Editing the list of grid layouts

By clicking on "Rename", the current name of the grid selected will be shown. By typing the new name of the grid in the box and selecting [OK] the grid will be renamed.

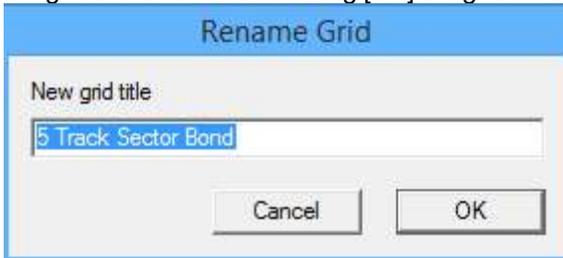


Fig. 6.32 Renaming a grid layout

If "Delete" is selected, a verification window will open to confirm the deletion and to prevent accidental deletions. If [Yes] is clicked, the selected layout will be deleted from the list.



Fig 6.33 Deleting a Grid Layout

If "Copy" is selected, a window will open that the User can type a name for the new layout that will be generated when the existing layout selected is copied. This new layout will then appear at the end of the current list of layouts.

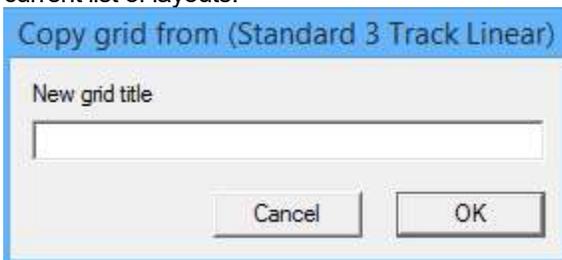


Fig. 6.34 Enter new title for copy of existing layout

If "Move" is selected, the User will be allowed to move the selected layout to any position in the list of layouts. The "Move Grid Layout to" window will open. By selecting a position in the list, the currently selected layout will be moved to that position and all layouts from that position will be moved down.

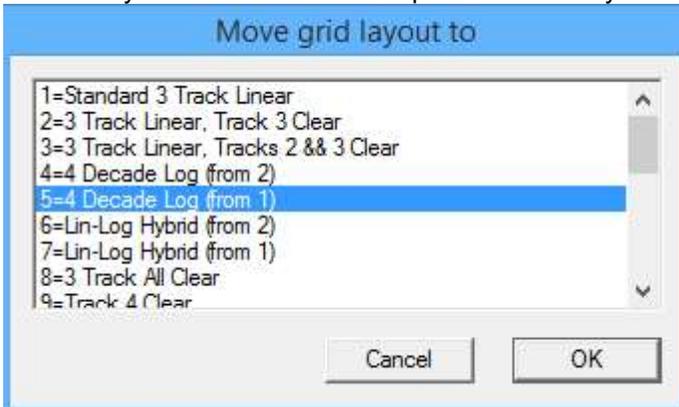


Fig. 6.35 Moving a Layout in the list of Layouts

6.3 Format Editor – Object

By selecting "Object" from the Format Editor the User has several options. The first is "Add Data". This is the same as clicking the [Add] button and allows the User to add information to the presentation. If an item has been selected, the "Change Current Selection" and "Remove Current Selection" choices have the same effect as the [Change] and [Remove] buttons.

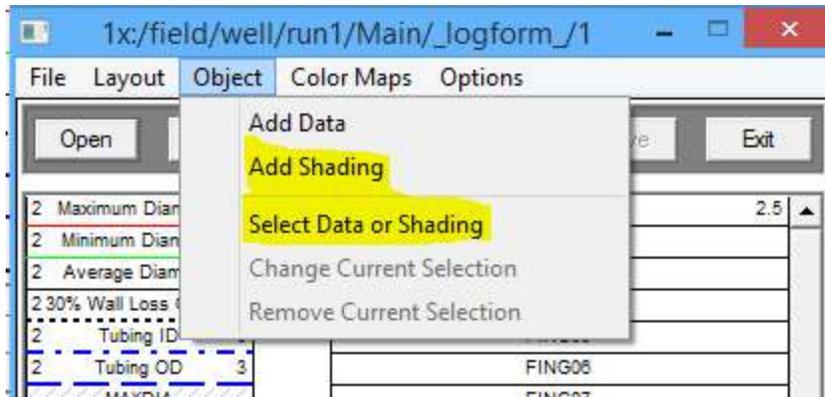


Fig. 6.36 Object Selection of Format Editor

The “Select Data or Shading” Selection allows the User to select any item that has been added to the presentation showing the DB Item type and the Warrior mnemonic. If it is shading, the left and right boundaries will be shown. Once selected the item may be changed or removed.

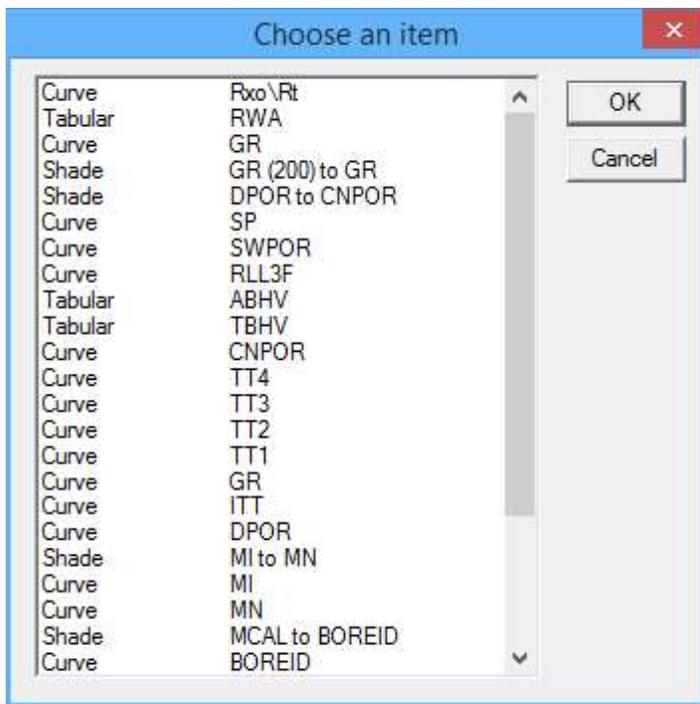


Fig. 6.37 Selecting Data or Shading

6.3.1 Format Editor – Object – Add Shading

Shading may be added to a Warrior Format presentation by selecting “Object -> Add Shading”. The left and right boundaries may be any plotted curve or a constant value of a curve to set the position in the track where the curve is plotted.

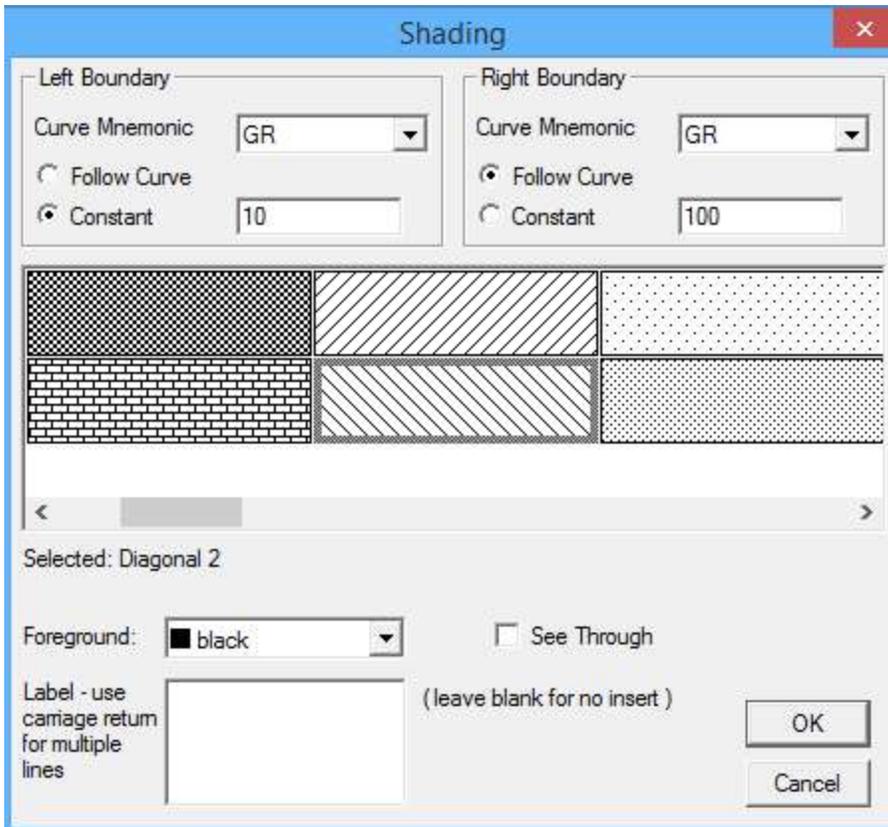


Fig. 6.38 Adding Shading

In the example shown in Fig. 6.38, the left boundary is set to a constant of 10 in the GR track, so if the GR scales were 0 to 100 then the shading would occur from 1 division in the GR track on the left to the GR curve on the right.



Warning!

Be aware that it is the position of the curve in the track that is being shaded, not the value of the database item. The use of wrapped curves may cause unexpected results when shading. As an example if you have a GR from 0 to 100 as a curve and you wish to shade from a GR constant value of 100 to the curve, you will get no shading since the GR has to wrap to get to the greater than 100 value. To shade something like an off scale Gamma Ray, a second instance of the GR data item should be added (the user may want to use different lettering to identify the curve, such as Gr or gr) to the plot with the appropriate off scale left and right values with no wrap and then shade that curve from a constant that is the left boundary to the curve as the right boundary.

There are 25 different styles of shading that can be used. Note that there is a horizontal scroll bar to provide access to all of the different patterns available. The color of the shading can be selected by clicking on the drop down list labeled as "Foreground:" If "See Through" is not checked, then the shading will cover all of the presentation behind it. If "See Through" is checked, then grid lines and curves will show through behind the shading pattern. A label may be used to identify the shading in the format editor. Not that the label does not show on the plot itself unless it is selected in the Options, as discussed shortly.

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6.4 Format Editor – Color Maps

Color maps are used to present variable density, 3D Images, and some pattern strips in Warrior. Each printing device and the screen can have its own presentation for a color map. If no presentation is available

for the device, the software interprets the screen presentation and uses it for the device. The User can create and/or edit his own color maps by clicking on "Color Maps -> Edit" from the Format Editor.

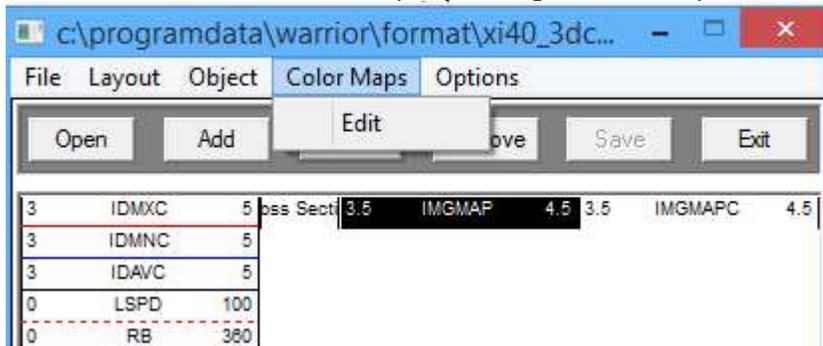


Fig. 6.39 Edit Color Maps

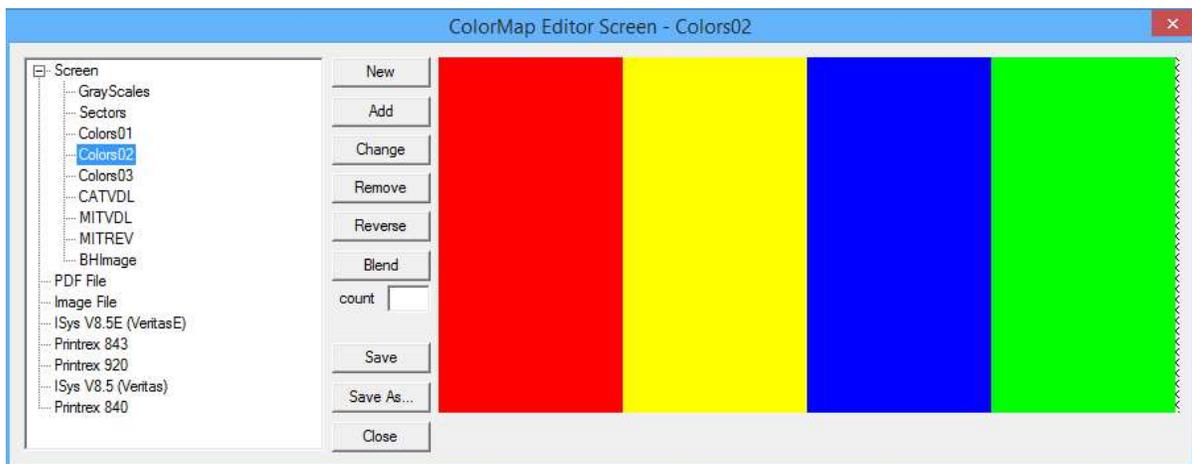


Fig. 6.40 Color Map Editor

6.4.1 Format Editor – Color Maps – Creating and Editing

To create a new color map, first click on the device or screen that you want to create the color map for. Then click the [New] button to ensure a new map. Now click the [Add] button to bring up the Windows color palette. You can select any color and /or adjust the settings for the color. When you click [OK], that color will be added to your color map. You can continue adding colors, with each additional color placed to the right of the existing ones.

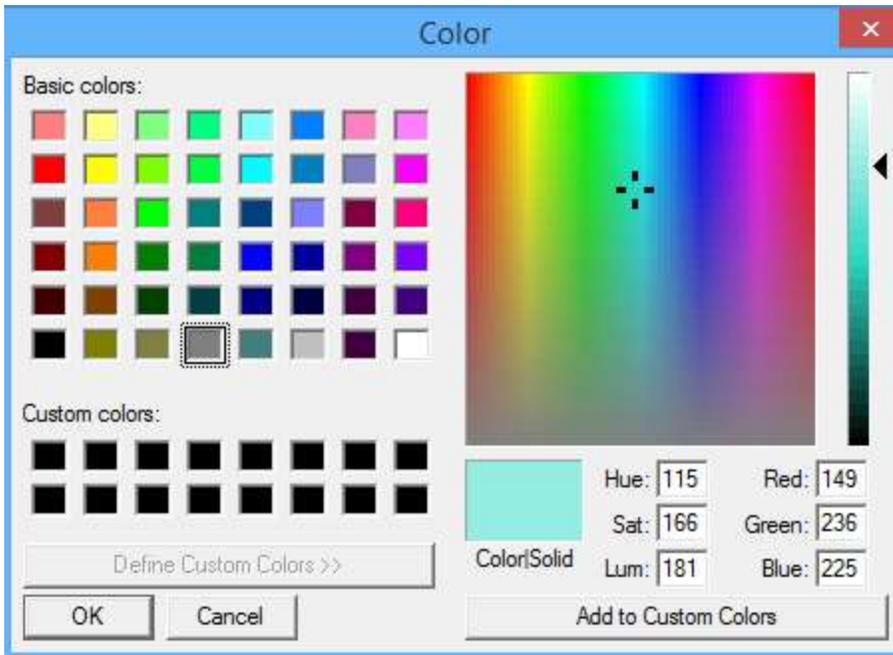


Fig. 6.41 Windows color palette

At any time, on new or existing color maps, if you click on a color and click [Change], that color can be edited again to replace the existing color.

Similarly, by clicking on a color and clicking the [Remove] button, that color can be removed from the color map. Care should be taken when doing this as the [Remove] button will give the option to remove the color map if no color has been selected for removal.

The [Reverse] button allows the User to reverse the order of the colors shown in the color map.

The [Blend] button can function in two different ways. If the "count" box has a number in it, then clicking on [Blend] will cause that many new shades blended between the existing colors to be inserted between every pair of colors. If no count is in the box, the colors will be blended to a maximum of 256 different shades of colors.

Clicking the [Save] button will save any changes made to existing color maps (same as . The [Save As ...] button will allow the User to save the color map with a new name that will then appear in the colormaps list.

[Close] will close the color map editor reminding the User of any unsaved changes.

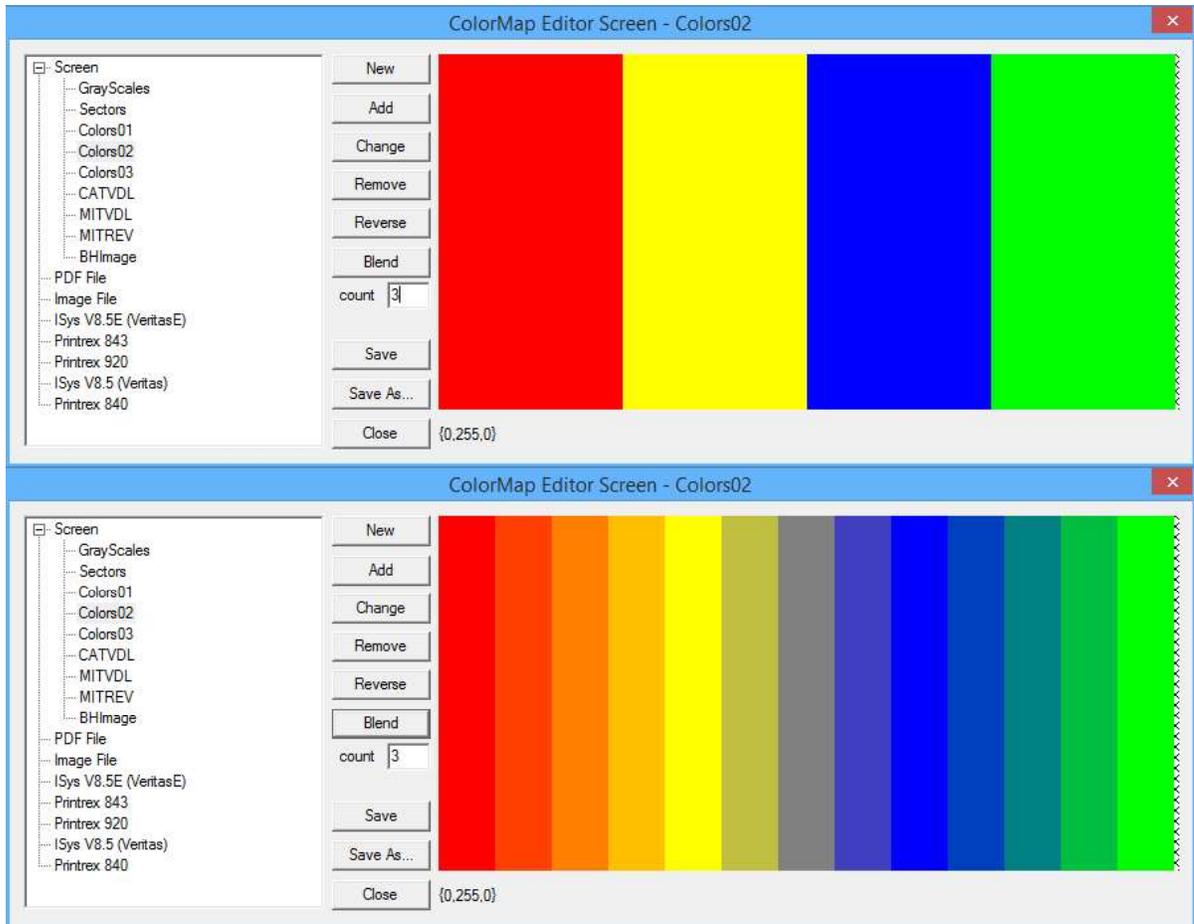


Fig. 6.42 Blending colors in color map

6.4.2 Restoring Color Maps from other systems

The Warrior 8 software now allow for the transferring of color maps between systems. On the system that has the color maps that you wish to use, go to Warrior Backup and do a backup to a file. Transfer the file to the system that you want to put the color maps on, and then run Warrior Backup on it.

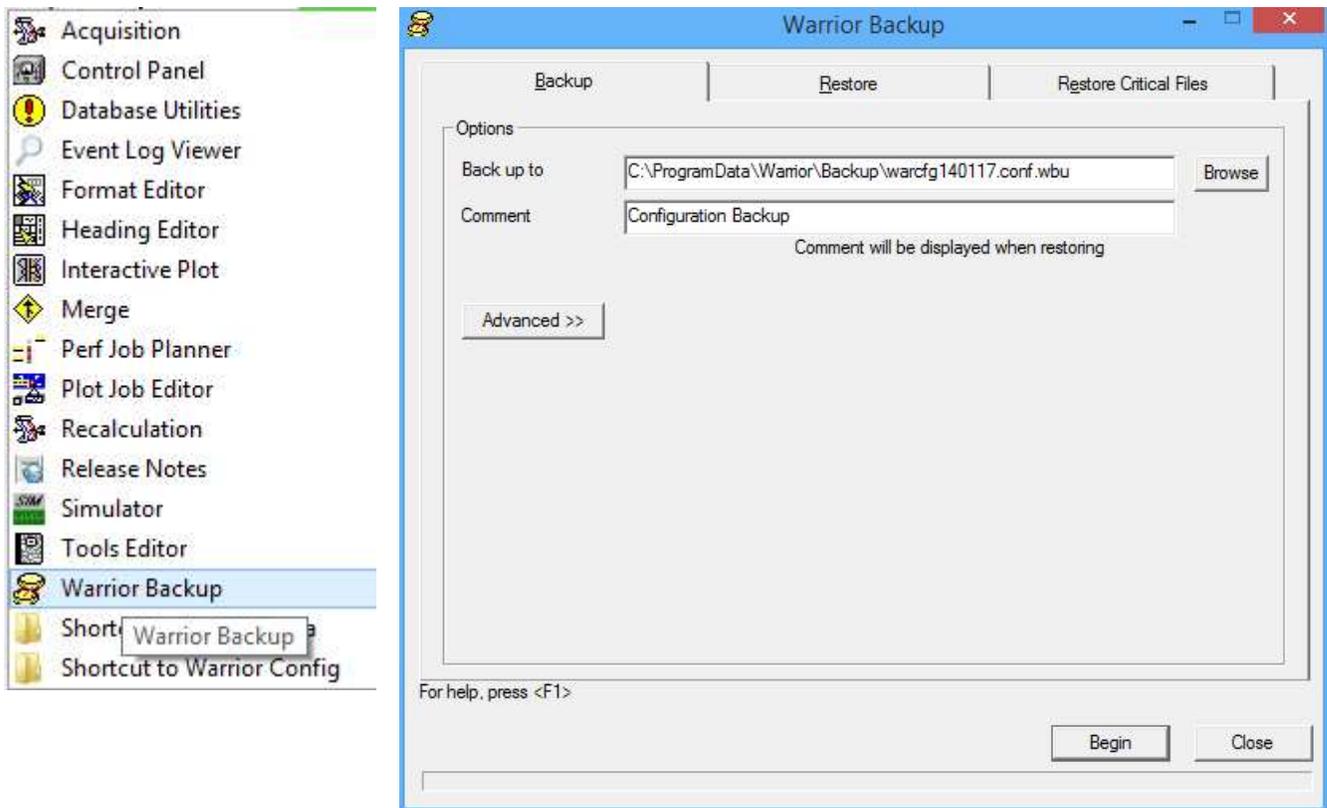


Fig. 6.43 Using Warrior Backup to backup files from a system

Go to the Restore page and use the [Browse] button to select the file. Click the [Advanced >>] button to see a list of the files in the backup file. Uncheck the uppermost check box to un-select all files in the backup. This prevents doing a complete restore from the first system. Click on the [+] beside configuration. Click on the [+] beside Color Maps. You should now see the list of color maps from the first system. Check the box beside each color map that you wish to restore.

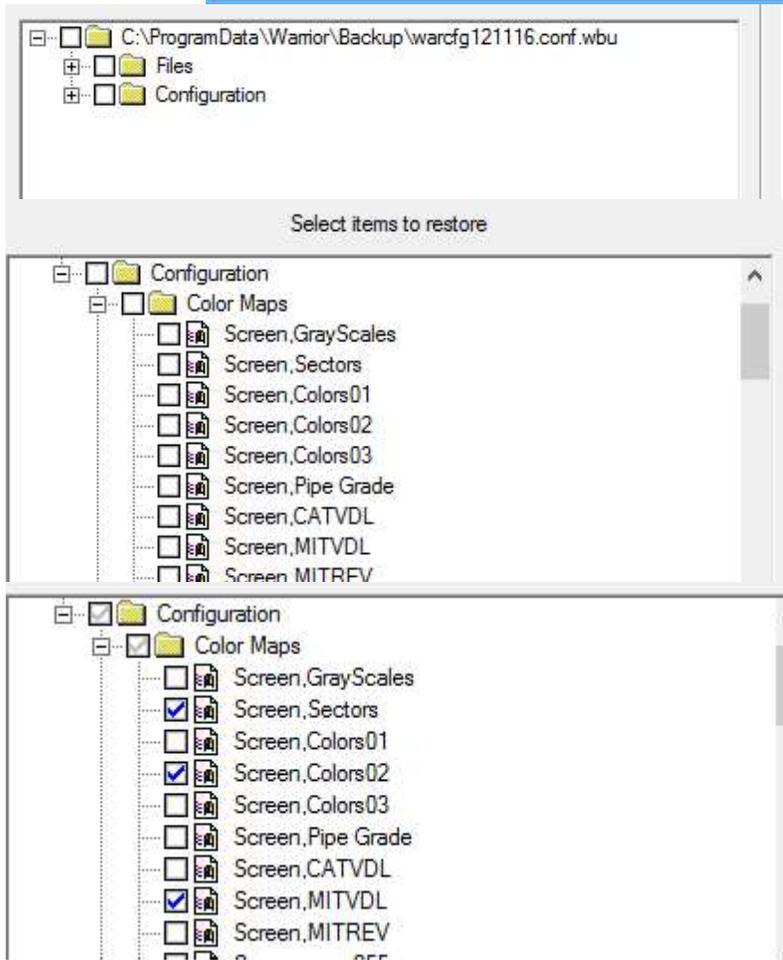
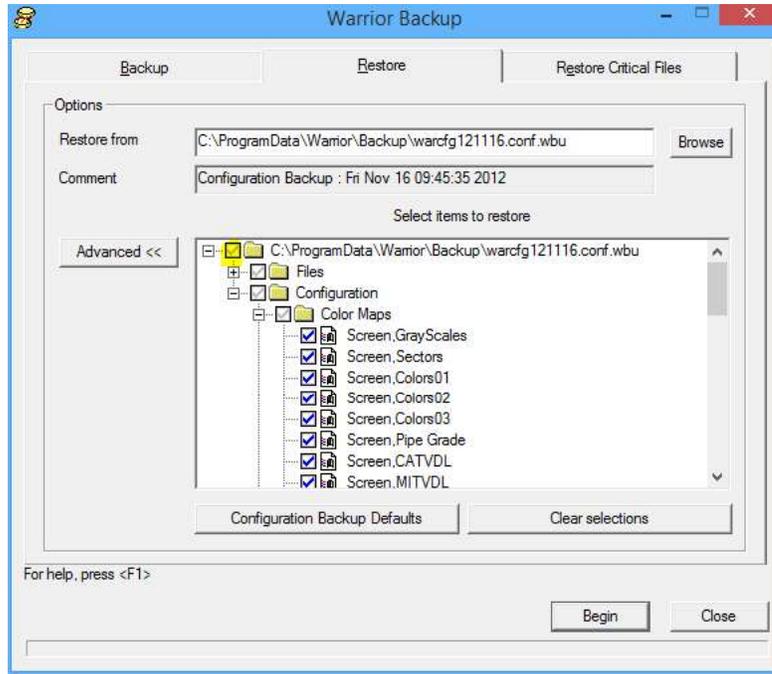


Fig. 6.44 Restoring Color Maps

6.5 Format Editor – Options

The options that are available in the Format Editor are to show a tool image on the side of the presentation during logging passes. To show the shading labels in interactive plot and on prints, similar to what is shown in the format editor. Bore Hole Image presentations can be attached to a presentation format so that when the presentation is called up the borehole image presentation also come up provided valid data values are available.



Fig. 6. 45 Format Editor Options