

# WellCAD™

Getting Started

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## Introduction

WellCAD™ is a powerful and interactive PC based well data management tool, developed by Advanced Logic Technology (ALT) sà. ALT is committed to the design and production of specialized but versatile software for the geoscience industry. The company is innovative and progressive in its outlook and is staffed by geoscientists with direct and relevant experience of the petroleum, minerals, geotechnical and hydrogeological industries.

WellCAD has been written in response to the in-house needs of major natural resource and environmental organisations, both from the private and public sectors of the industry. From conception, WellCAD has been designed with the end user in mind, and thus reflects the state of the art in terms of powerful graphics functionality and processing capabilities.

WellCAD has been specifically designed to meet the needs of not only the professional log analyst, but also to meet the needs of the petroleum geologist, sedimentologist, geotechnical engineer, mining geologist and hydrogeologist, in fact anyone who wishes to manage, manipulate or process borehole data and who wishes to produce a professional report quality document.

WellCAD for Win 32 / 64™ operates under Windows NT™, Windows 2000™, Windows 9x™, Windows ME™, Windows XP™, Win7™ and Win8™. The software can also be operated on MACs using an appropriate virtual machine with a supported Windows Operating System installed.

This manual assumes that the user is conversant with MS Windows operating procedures and has knowledge of basic Windows functions.

For additional requests for information on training courses and workshops contact [support@alt.lu](mailto:support@alt.lu).

## License Information

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## WellCAD Workspace

*Sample files used throughout this manual are available on the installation CD of WellCAD or can be downloaded from [www.alt.lu/documentation.htm](http://www.alt.lu/documentation.htm).*

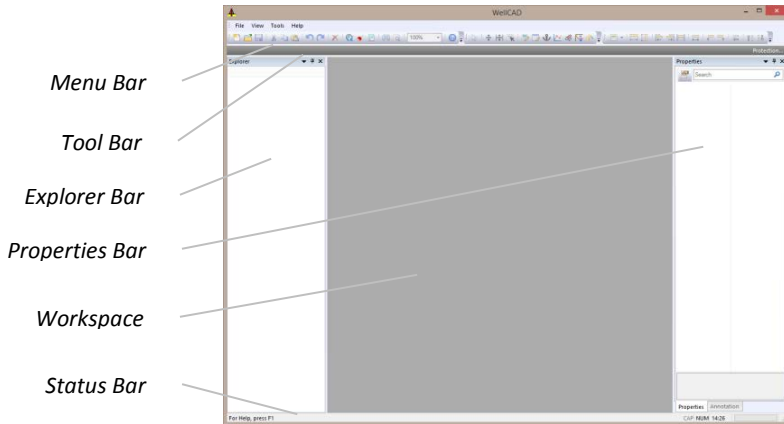
Welcome to this brief tour of WellCAD. The following pages will familiarize you with the basics of the WellCAD software by guiding you through a tutorial covering data loading, presentation and editing tasks. Further specialized tutorials (e.g. for core description or dip picking) are contained within the help file of WellCAD.

It is assumed that you have already successfully installed your software and that you are ready to proceed. If you have not installed your software please refer to the WellCAD Installation Guide contained in the installation CD cover or available from [www.alt.lu/documentation.htm](http://www.alt.lu/documentation.htm) and do so.



*Start WellCAD the way you normally open a Windows application. Either double-click on the WellCAD icon on your desktop or run WellCAD from the Start menu.*

The WellCAD program will start running and you will be presented with the WellCAD workspace.



**Menu Bar:** Contains commands and options to operate WellCAD. The content of the Menu Bar depends on the type of active window (e.g borehole window, editor window, 3D borehole window, ...).

**Tool Bar:** The Tool Bar is made up of individual buttons that provide short cuts to the most commonly used WellCAD commands available in the Menu Bar. If the mouse pointer is positioned over a button, Tool Bar tips will appear that explain the purpose of the button whilst information concerning the functionality of the buttons will appear in the Status Bar. You can right click on a toolbar to customize layout and content.

**Explorer Bar:** The Explorer Bar is an overview and control tool for all items dealt with in a borehole document.

**Properties Bar:** It provides convenient access to all the data presentation settings for the data displayed in the active window.

**Status Bar:** Provides information pertinent to the activity you are carrying out. If the Status Bar shows "Ready" WellCAD has completed the task assigned.

## Using the Help Documentation

WellCAD is installed along with a context sensitive help file (WellCAD.CHM). Contained in the help file is the entire WellCAD documentation including Getting Started and Tutorials.

A good way to start as a new user is to work through this Getting Started manual and check the Tutorial chapter in the help file afterwards for more specific information related to the envisaged task.

The help file can be accessed any time WellCAD is running by selecting the **Index** option from the **Help** menu. You can also press the **F1** key whenever a dialog box is displayed to access the corresponding chapter in the help documentation.

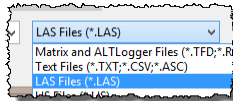
## Borehole Documents and Logs

The borehole document is the foundation document and general-purpose worksheet. It is displayed within a separate window and holds and graphically displays data, performs the file I/O, allows graphical editing with the mouse and generates the printed report. A borehole document file has the file extension “.WCL”.

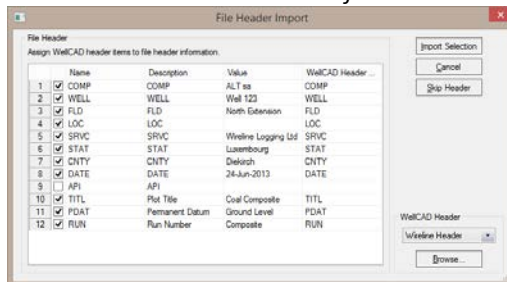
As part of this tutorial we will create a new Borehole Document by importing a LAS file.



- Open the **File** menu and select the **Import > Single File** option.
- The file **Open** dialog box will appear. From the file extension filter select **LAS Files (\*.LAS)**.



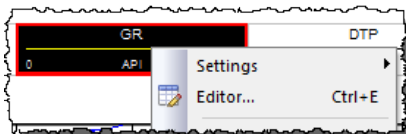
- Browse to the folder containing the Getting Started sample files and select the **Wireline Log.las** file. Click on **Open** to start the import.
- The **File Header Import** dialog box opens. Click the **Browse** button in the lower right corner of the dialog box and browse for the header design named **Wireline Header.WCH**. Click on **Open** to load the new header.
- Except for the **API** mnemonic from the LAS file all other LAS header mnemonics are assigned a keyword in the WellCAD header now. Click on **Import Selection** to load the header information.



- The **LAS v2.0 Import** dialog box opens next. Select all data channels and click on **OK**.

A new borehole document has been created with a header – containing the LAS header information - on top and all imported data channels displayed in individual but randomly arranged data containers, which are named **logs** in WellCAD. Each **log** stores its own data and provides an individual set of data presentation settings.

- Position your cursor on the log title of the **GR** log and **right click**. A context menu will open.



- Select the **Editor** option.

A new window with a spread sheet view of the log's data – the **Tabular Editor** – will open. The data displayed in the spread sheet is in real time linked to the graphical display of the data.

You can easily swap between the **Borehole View** window and the Tabular Editor window by clicking on the tabs displayed in the upper part of the windows.



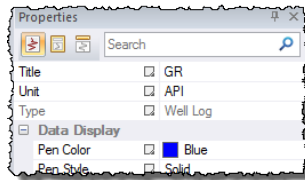
Or right click on the window tab and select **New Vertical Tab Group** to show the windows side-by-side.

For this particular log type you can only edit the data values, but not the depth. Other log types allow editing of the depth and adding new data rows. Please note also that the contents of the menus changes. E.g. the Edit menu contains a Find / Replace option if the Tabular Editor window is active.

Close the Tabular Editor by clicking on the little X displayed in the window tab.



- Ensure the Borehole View is active. Right click on the **GR** log title and choose **Settings > Main Settings** from the context menu.
- If not already shown the **Properties Bar** will be displayed on the right hand side of the WellCAD workspace.



- Left click in the **Pen Color** cell from the **Data Display** group and click the little arrow that appears in the color preview field to show the color picker.
- Select for example a red color. (You will notice that the settings are applied to the GR curve right away).
- In the upper part of the Properties Bar you can see three icons: Main Settings, Base Settings and Title Settings.
- Click the Base Settings icon (middle one). The Properties Bar now shows settings related to the log column. Change the unit in which the left and right position is measured to **mm** and set the value for **Left** to **20 mm** from the left hand side of the document and the value for **Right** to **60**. The log column will be positioned accordingly.
- Select the Depth Axis (left click on the depth axis log title) and set its position in the Base Settings from 0 (**Left**) to 20 (**Right**) **mm**.

The Properties bar provides access to the data presentation settings of the selected log (i.e. log title displayed with black background). Once the Properties Bar is visible you only have to select a log (left click on the log title) to gain access to its presentation settings.

The Properties Bar gives access to:

**Main Settings:** Data presentation settings depending on the log type.

**Base Settings:** Log column related settings.

**Title Settings:** Title box related settings.

When changing settings in the Properties Bar you will see a small symbol being highlighted. It appears next to the parameter that has been changed.




When left clicking on the symbol a context menu will be displayed allowing you to **Reset** the changed parameter to its former value.

If you are looking for a general **Undo** functionality you can open the **Tools** menu and select **Options**. In the dialog box use the navigation tree on the left and select the **Undo** option. Enable the Undo functionality by checking the corresponding box.

- To position the remaining data columns we will use the **Document Layout Bar**. (If it is not displayed check **View > Toolbars > Document Layout**).
- Select the **GR** log (left click on the log title), hold down the **CTRL** key and select the **CAL** log. (Note: Multiple logs can be selected while holding down the CTRL key).
- You will notice that most of the icons in the Document Layout Bar became active.



- When moving the cursor onto an icon a tool tip will be displayed explaining the purpose of the icon. In general the icons allow arrangement of the log columns relative to each other. The first log selected is used as reference (note the red frame around the title box).
- Click on the **Align Left and Right** icon  to superimpose **GR** and **CAL** logs.



- Select the **GR** log again and select the **DENS** log while holding down the **CTRL** key.
- Click the **Make Same Width** icon followed by the **Insert After** icon . The **DENS** log column becomes the same width as the reference column (**GR**) and will be positioned behind it.
- Select the **DENS** log and the **DTP** log. Make the **DTP** log the same width and move it behind the **DENS** log.

Depth	CAL	DENS	DTP
1m=200m	110	180	180
	mm	GR/CCW	US/PT
	GR		
	API	20.0	

- To close the gap to the right of the **DTP** log click the **Auto Fit** icon.
- To move the **GR** log title above the **CAL** log title select the **GR** log and click the **Move Up** icon .
- You will notice that the width of the document does not match the extension of the header. To fix this open the **File** menu and select **Page Setup**. Set the **Units** to **mm** and enter a value of **210** for the **Width**. (Default units can be set under **Tools > Options > Ruler**.)
- Save your document using the **File > Save As...** option.

When saving a borehole document the file extension **\*.WCL** will be used. All data, header design and document layout information will be saved within the **WCL** file. Users can open a WCL file only in the WellCAD Reader (free data viewer) or in a regular release version of WellCAD. If opened in a regular release version the user gets access to all data, layout and header again, unless the document has been password protected by its author.

To protect a document select **File > Protection**. The **Protection** dialog box will open.


To protect a document check the **Protect Document** box and select the actions you would allow others to perform on your document. Enter a password and click on **OK**. You will be asked to confirm the password before the document is finally protected.



## Depth Axis

All data in a WellCAD Borehole Document is displayed against a linear reference axis. Most of the time this will be depth, but could also be date/time. It is possible to handle different depth / time systems side-by-side (e.g. MD and TVD).

The depth axis is no log since it does not store any data. But it provides **Main**, **Base** and **Title Settings**, which can be changed from the Properties Bar once the Depth Axis has been selected.

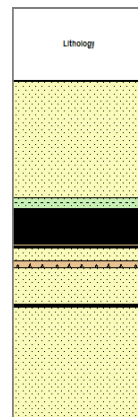
- 
- We will continue with the Borehole Document we just saved. If you closed it, open the **File** menu and select it from the **Recent File** list or use **Open** to locate and load the WCL file.
  - Left click on the title of the **depth axis** to **select** it. In the **Properties Bar** ensure the **Main Settings** are displayed.
  - The **Title** of the depth axis can't be changed but you can decide in which units the depth indicators are displayed. The **Unit** in our sample should be set to **meters**. (Switching units on the fly is possible because the internal base for depth in WellCAD is meter).
  - In the **Scale** group set the **Scale** value to **100** (i.e. a 1:100 scale).
  - In the **Data Display** group set the number of displayed **Digits** to **0** and choose a font style for your depth strings (**Depth Font**) – e.g. Arial (24).
  - In the **Grids** section set the **Spacing** to **1** (meter) and allow **1 Indicator per Spacing** (i.e. one depth string displayed every full meter).
  - **Display Ticks** on **Both** sides of the depth strings.
  - In the **Major** and **Minor** depth grid (horizontal grid lines) groups enable the **Display** allowing **1** major grid line per spacing and **2** minor separations per spacing (resulting in a minor grid line every 0.5 m).
  - Click on **File > Save** to store the changes.

## Adding Data and Loading a Template



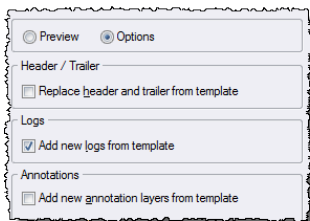
- We will continue with the Borehole Document we just saved.
- From the **File** menu select the option **Import Into Current Document > Single File**.
- In the file **Open** dialog box set the file extension to **Text Files (\*.TXT; \*.CSV; \*.ASC)**.
- Locate and select the **Lithology.CSV** file. Click on **Open**.
- For the import of ASCII files (or data copied from EXCEL and inserted via **Edit > Paste Special as Text**) WellCAD provides the Text File Import Wizard.
- In the **Column Delimiters** section select only the **Comma**. The data preview on the left separates the data set into three columns.
- Leave the **Lines to Skip** parameter set to **0** and click on **Next**.
- In Step 2 of the Import Wizard select the options **Next Line is Titles** and **Following Line is Units**. The **Allow Multiple Logs** option stays unchecked. Click on **Next**.
- In the 3<sup>rd</sup> and last step of the Import Wizard select the **Lithological Log** from the **Log Type** drop down list. Leave the **Axis as Default Depth** and ensure the **Import Unit** is set to **meter**. Click on **Finish** to commence the import.
- When asked whether to merge incoming and existing logs leave the option unchecked and click on **OK**.

A new log of the type Lithological Log has been added to your document. Lithology Logs store depth intervals (top and base) along with an alpha-numerical litho code (plus some optional data columns). When the data is displayed the depth intervals will be filled with a graphical pattern, which is specific to the stored litho code. The conversion from code to pattern fill is made using a symbol dictionary - a lookup table matching code against pattern design. Symbol dictionaries can be created and customized using the LithCAD application, which has been installed along with WellCAD. Once created the dictionary (\*.LTH file)



must be loaded into the corresponding Lithology Log in order to be used. This can be done from the log's Main Settings (Pattern Dictionary) or by applying a layout template.

- To apply a layout template to our current document open the **View** menu and select **Apply Template....**
- In the **Apply Template** dialog box click the ... button and select the folder containing the sample files for this tutorial.
- The **Templates** list will be refreshed. Select the **Composite Template**.
- Click the **Options** button to switch between template preview and the import properties. Check only the **Add New Logs from Template** option and click **OK**.



- The document should show your data in a new layout with additional data columns added. A pattern dictionary compatible with the imported litho codes has been imported by the template as well. If you get an additional dialog box asking you to assign logs from your document (left column) to logs expected by the template it is likely you changed one or more log titles.


**About the importance of log titles:** Log titles – even though easy to change in the Main Settings of a log – should be seen as **unique identifiers** of a data set. References to e.g. templates, formulas, symbol legends, cross plots and others are made using the log titles. It is recommended practice to choose sensible log titles and keep them constant if workflows involving templates and other dependencies are developed.

Template files carry the file extension \*.WDT and can easily be created from any borehole document. Simply open the **View** menu and choose the **Save Template** option to create a layout template file (\*.WDT). Please note that templates do not store data. Only layout information is saved when using the View > Save Template option.

When applying a template the log titles and the log types contained in the borehole document are matched against logs contained in the template. Only if log type and title correspond the layout settings will be applied.

Logs contained in the template, but not in the current document, will be loaded only if the **Add new logs ...** option in the **Template** import dialog box is checked.

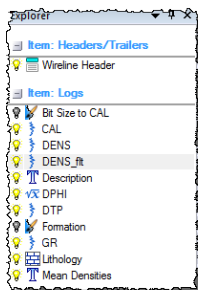
We would like to investigate in more detail the changes the template made to our borehole document. First of all we will change the way the document can be viewed. Currently the header is visible, the true width of the document is shown\* and when scrolling the document the log titles are outside the visible area. The so called **Page Layout** mode is good to apply last changes and layout corrections to a document before printing it. The **Draft** and **Draft and Fit** modes, hide the header display and freeze the title area when scrolling on top of the Borehole View, which makes these modes more appropriate for e.g. data interpretation. With **Draft and Fit** enabled the width of a document is scaled to fit into the workspace window.

To switch between **Page Layout**, **Draft** and **Draft and Fit** view select the corresponding option from the **View** menu or use the icons .

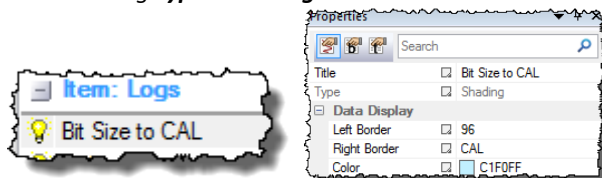
\*If you think the width of the document as indicated by the ruler bar is not what your screen displays you can adjust the display scale under **Tools > Options > Display Scale**. This simple dialog box allows you to adjust the measures displayed on screen to e.g. a ruler held against the screen. Change the display scale by dragging it with your mouse or enter a percentage value.



- Open the **View** menu and select **Draft and Fit**.
- The **Explorer Bar** docked to the left of the workspace provides an overview of the items the document is made of. Currently there is only one header (named Wireline Header) and 11 logs. The logs are listed showing their log titles (i.e. unique identifier) and icons corresponding to the log type.



- The **light bulbs** next to the log titles indicate whether the log title and/or the data of the log is hidden or shown. (You can hide title and data independently using the Base Settings **Title** display and **Data** display options or by clicking on the light bulb.)
- Select the **Bit Size to CAL** entry from the **Explorer Bar**, hold down the **CTRL** key and select the **Formation** entry.
- Left click into the light bulb of one of the selected logs. The two hidden log titles will show up under the **CAL** log in the Borehole View.
- Select only the **Bit Size to CAL** entry in the **Explorer Bar**. Note that clicking the log title(s) in the Borehole View or the entries in the Explorer Bar will select the log(s).
- The **Main Settings** for this log displayed in the **Properties Bar** indicate that the selected log **Type** is **Shading**.



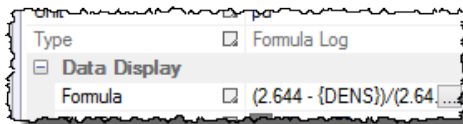
- *Shadings fill the area between two references (e.g. two curves, a curve and a constant) with the selected color. In this case the bluish shading color is applied between the constant value of **96 (Left Border)** and the **CAL** curve (**Right Border**).*
- *Select **Bit Size to CAL** and **Formation** log again. Show the Base Settings in the Properties Bar and set the Display **Title** option to **FALSE** to hide only the titles. The data (here the shading color) should still be visible.*


Shadings are also the tools of choice when filling the overlap of two curves with a color (e.g. Neutron Density overlay). To insert new **Shading** open the **Edit** menu and select **Insert New Log**. Then use the **Properties Bar** to select the boundary logs and position the new Shading.

To delete a log from the document right click on the log title (in Explorer Bar or Borehole View) and select **Delete** from the context menu.

Note: Shading is stored as part of the layout template and will be applied when the template is loaded (**Add new logs ...**) and the boundary logs exist.

- *Select the **DPHI** log and have a look at the Main Settings in the Properties Bar. You will notice that the **Type** of the log is a **Formula Log**. The formula used to calculate the data displayed in the log column can be found in the Main Settings. Check out the **Formula** option in the **Data Display** group.*



- *Click the Edit button  to display the **Formula Editor**. Note the link to the **DENS** log made in the formula syntax by placing the log title between braces. Close the **Formula Editor** by clicking on **OK**.*

**Formula Logs** can be inserted from the **Edit > Insert New Logs** menu. The **Formula Editor** will open automatically and you can compose your own formula. Currently only logs of type Well Log can be used as data sources.

Formula Logs will recalculate their data when changes are made to the source logs.

Formula Logs are saved within layout templates and will recalculate their data as soon as the template is applied (**Add new logs...**) and the source log(s) exist.

## Title Settings and Groups

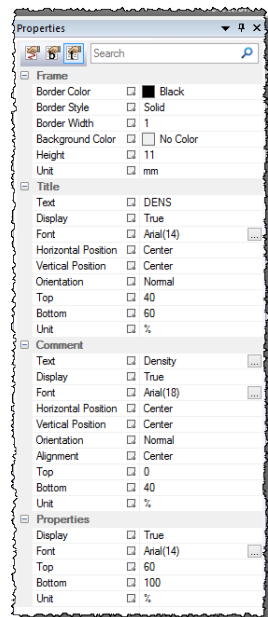
- Select the **DENS** log and show the **Title Settings** in the **Properties Bar**.

You may have noticed that since we applied our layout template the appearance of the log title boxes look slightly different.

As you can see from the Title Settings we can differentiate four parts:

**Frame:** Settings concerning the entire title box. You can set parameters like the total **Height** and style for the border around the box.

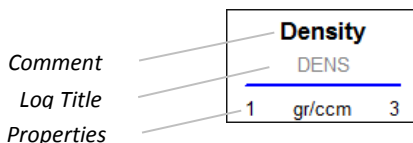
**Title:** This is the zone within the title box displaying the log title (unique identifier; **Text**). The vertical position and extension of this zone can be determined by adjusting the **Top** and **Bottom** values. The current example deals with relative units (%). The total title box height is 100% of which the **Title** zone covers the interval from 40% to 60%. Alignment and display style of the **Text** can be adjusted using the remaining parameters in this group.



**Comment:** This is a zone in which an optional comment can be displayed. For the selected log we are displaying the more meaningful name **Density** above the mnemonic imported from the LAS file and used as log title.

**Properties:** This zone contains the line style preview, scale and units chosen for the curve display.

Please note the **Load / Save Defaults** options at the bottom of the Properties Bar to store your title box layout as default for your next document. Independent from these default settings the layout template will overwrite these settings when applied.

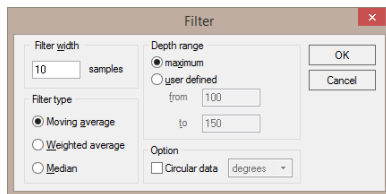


## Data Manipulation and Conversion

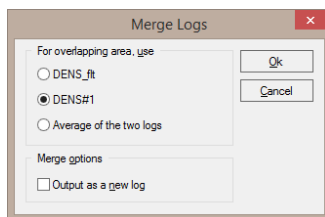
WellCAD offers a wide range of data processing options, which are assembled under the **Process** menu. Some of the processing option may be part of an add-on module and not activated on your license. Options in **Process > Common** belong to the WellCAD BASIC package and are always available.

As a simple exercise we would like to filter the data of the DENS log.

- Select the **DENS** log from the Explorer Bar or with a left click on the corresponding log title.
- Open the **Process > Common** menu and select the **Filter Logs** option.



- In the **Filter** dialog box set the width of the filter window to **10** samples and the **Filter Type** should be set to **Moving Average**.
- Ensure the **Maximum** depth range will be filtered and click the **OK** button.
- A new log containing the filtered data set will be created and added to the Borehole Document.
- In the next step we would like to move the data from the new log into the empty data column named **Density (DENS\_fit)** that was loaded from the template. To do so select the **DENS\_fit** log from the **Explorer Bar**, hold down the **CTRL** key and select the newly created log named **DENS#1**. It is important that the **DENS\_fit** log has been selected before the **DENS#1** log as the data will be moved from **DENS#1** into **DENS\_fit**.
- Right click on one of the selected logs (in Explorer Bar or Borehole View) and select **Merge** from the context menu.



- In the **Merge Logs** dialog box ensure the **DENS#1** log is selected should the **For Overlap Use** section be active. Click on **OK**.
- All data has been moved into the **DENS\_fit** log now.

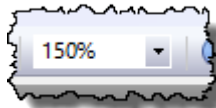
Take a moment to examine the color palette used for the **DENS\_fit** log (click on the little arrow in the Main Settings > Palette options and select Edit at the bottom of the palette list). Please note that colors have been assigned to discrete data values. The final color palette is composed of multiple sub palettes consisting of one or multiple colors. Each of the sub palettes provides up to 64 color slots to fill. Refer to the help file for more details.


Besides editing, adding or deleting data in the Tabular Editor of a log WellCAD provides the ability to edit data right away in the graphical presentation (Borehole View).

We would like to correct the misalignment between the coal seam shown in the lithology log and the responses from the wireline logs.



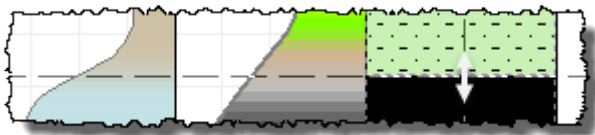
- Select the **Lithology** log.
- Scroll the Borehole View down to see the depth interval 118m to 120m.
- Use the zoom option in the toolbar to enlarge the area by setting the zoom factor to e.g. 150%.



- It may also be helpful to toggle the cursor mode and show it as cross-hair. To do select **View > Toggle Cursor Mode** or click the corresponding icon  in the toolbar.
- Ensure the **Lithology** log is still selected. Move the cursor on top of the boundary between Coal and Siltstone at ~118m.



- The cursor changes to a double sided arrow. Hold down the left mouse button and drag the bed boundary to align it with the midpoint of the shoulder seen in the Density log at about 119.4m.



- Release the mouse button. This will cause the data table of the lithology log to be updated with the new depth information.

You can also exchange litho types by left clicking into the corresponding bed and selecting a new type from the dialog box that


pops up. To add a new litho bed, hold the SHIFT key and left mouse button down while dragging the mouse.

To delete a bed simply hold the CTRL key down while left clicking on to the litho bed.

All changes will cause the data table accessible through the Tabular Editor of the log to be updated.

You can also use the Litho Bar to drag and drop patterns.

Next we would like to convert the lithology log into a Comment Log type. During the conversion the litho codes will be replaced by the names of the litho types. This is defined in the pattern dictionary as well. The depth intervals of the litho beds will be maintained in the new log.

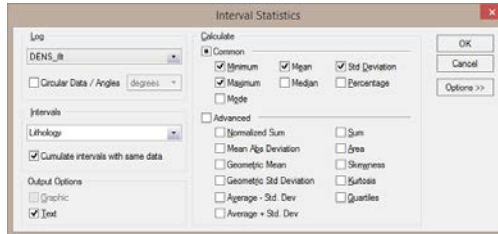
- 
- Select the **Lithology** log.
  - From the **Edit** menu select **Convert Log To and Comment Log**.
  - A new Comment Log named **Lithology#1** will be added to your document (#1 is added to the title because the name Lithology is already in use as unique identifier).
  - Select the log named **Description**, hold down the **CTRL** key and select the **Lithology#1** log.
  - Right click on one of the selected logs and select the **Merge** option from the context menu.
  - Choose **Lithology#1** for the overlap if necessary and click on **OK**.

Keep the **Description** log selected and left click into one of the text boxes to edit the text. In the Main Settings you can swap the **Text Format** from **Plain Text** to **Rich Text**, which will provide additional formatting options for each text box.

In a last step we will compute some statistics. We are interested in the min, max and mean density value per lithology type.



- From the **Process > Common** menu select **Interval Statistics**.



- In the **Interval Statistics** dialog box select **DENS\_fit** as the log to process (**Log** drop down list).
- In the **Intervals** drop down list select the **Lithology** log.
- Ensure the **Cumulate intervals with same data** option is checked to compute the statistical values per litho type and not per litho interval.
- As parameter to **Calculate** check the **Mea, Maximum, Minimum and Std. Deviation** from the **Common** section.
- As **Output Options** check **Text** and click the **OK** button to start the computation.
- A new Comment Log will be created showing for each litho type the cumulated thickness and density statistics.
- Select the **Mean Densities** log and the **DENS\_fit (Text)** log resulting from the process. Select the logs in this order to move the data into the first selected one. Right click on one of the logs and merge the data.

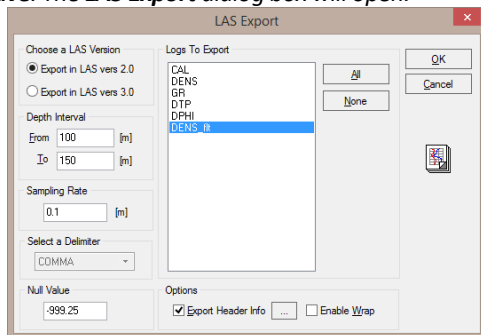
The Interval Statistics can be used with other log types as well. E.g. if you would like to compute an average density for each lithology interval and output an average lithology curve simply uncheck the **Cumulate intervals with same data** and select **Graphic** as **Output Option**.

## Export and Printing

Before losing any of your data you should save your borehole document (File > Save or Save As...).

We would now like to describe the export of the filtered density curve into a LAS file, the export of the entire document into a JPEG graphic file and the way to generate a PDF file from our work.

- From the **File** menu select **Export > Single File**.
- In the file **Save As** dialog boxes select **LAS Files (\*.LAS)** as file type.
- Set the file name to **DENS\_Flt** and find an appropriate location.
- Click on **Save**. The **LAS Export** dialog box will open.



- Choose and export as **LAS version 2.0** over the interval 100 – 150m at a sample step of 0.1m.
- From the **Logs to Export** list select the **DENS\_Flt** entry.
- Click on **OK** to write the data of the selected log into the **LAS** file.

If you would like to export the data of a selected log into an EXCEL spread sheet you can simply **Copy** the data in WellCAD and **Paste** it into the spread sheet in EXCEL.

Please refer to the Data Import / Export chapter in the WellCAD help file for more details about supported data export formats.



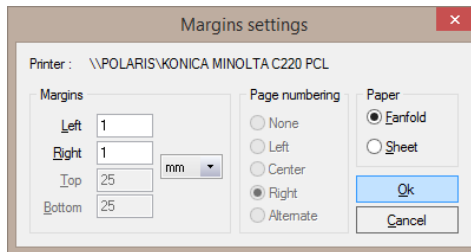
- To export the entire graphical presentation of your data into a JPEG file first ensure no log has been selected.
- From the **File** menu select **Export > Single File**.
- In the file **Save As** dialog boxes select **JPEG File... (\*.JPG;\*.JPEG)** as file type.
- Set the file name to **DENS\_Flt** and find an appropriate location.
- Click on **Save**. The **WellCAD Image Settings** dialog box will open.
- Leave the resolution set to **Screen** and the depth interval set to the proposed defaults (i.e. maximum).
- Click on **OK** to create the file.

Screen resolution is sufficient if you would like to place your plot into a Power Point slide or report in Word format. Higher resolutions (300 dpi or 600 dpi) are recommended to generate plots to be used on posters where resizing the original image would be required to enlarge the plot. Higher resolution images consume much more memory during their creation.

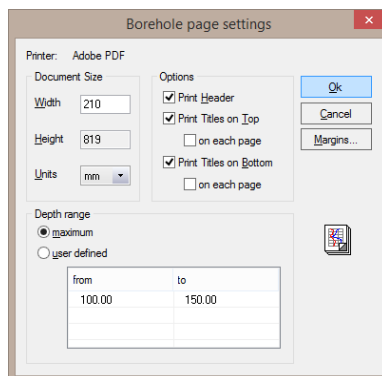
Last but not least you may want to send your borehole document to a printer or use a printer driver (such as Adobe PDF) to generate a PDF. For our sample data we would like to generate a continuous PDF.



- From the **File** menu select **Page Setup**.
- Click the **Margins** button and set the **Paper** type to **Fanfold**, which means the document will be printed as a continuous section and not page by page.



- Set a **Left** and **Right Margin** of **0 mm**. Click **OK**.
- Back in the **Borehole Page Settings** dialog box check the options **Print Header** and **Print Titles on Top and Bottom**.
- Make a note of the final **Document Size**. If the **Units** are set to **mm** we should see a **Width** of **210mm** and **Height** of **819mm**.

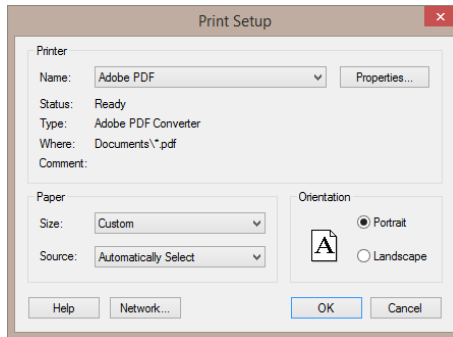


- Click on **OK**.

The document height is automatically determined from the document's depth range, depth scale and extensions of the header and title areas. The document width can be set by the user. If you want to print user defined intervals separated by an unscaled gap you can enter the depth intervals in the **Depth Range, User Defined** list.



- From the **File** menu select **Print Setup**.



- In the **Print Setup** dialog box select your PDF printer driver from the **Name** drop down list. If you have Adobe Acrobat installed choose **Adobe PDF** and click on **Properties**
- Define a custom page size of 210mm by 819mm. For the Adobe PDF you simply insert a new **Adobe PDF Page Size** by clicking on the **Add** button Enter the **Width**, **Height** and a **Paper Name**. Click on **Add/Modify**. Ensure the new page size is selected and close the **Adobe PDF Document Properties** dialog box with **OK**.
- Back in the **Print Setup** dialog box ensure your custom Paper **Size** is selected and click on **OK**
- Finally select **File > Print** and print/save your PDF file.

Please note that the above instructions are given for Adobe PDF file. If you use another PDF creator the steps may be slightly different.

This Getting Started ends here. For further reading we recommend the help documentation and tutorials section therein. The help file is accessible from the WellCAD **Help** menu.