



What's New?

CycloLog® 2016

Сиклолог® 2016

During the past year, ENRES's small team of programmers and developers have been working on the release of CycloLog® 2016. This version of CycloLog® includes improvements of existing functionalities as well as interesting and exciting new features, of which some have been developed after requests from our users.

New Features

In CycloLog® 2016, three important new features have been implemented, strongly improving the workflow and time efficiency of the CycloLog® user.

1. Template functionality for generating composite well charts

The major new feature implemented in CycloLog® 2016 is the template functionality for composite well charts. This functionality enables the user to quickly and efficiently generate one or multiple composite well charts using an existing chart thereby tremendously improving the workflow and time efficiency of generating composite well charts. These charts are essential for the correlation and interpretation of well data.

The template functionality is unique in such that it uses an existing composite well chart, made by the user, whose logs and layout properties are cloned (i.e., replicated) to other target wells producing new composite well charts for these target wells.

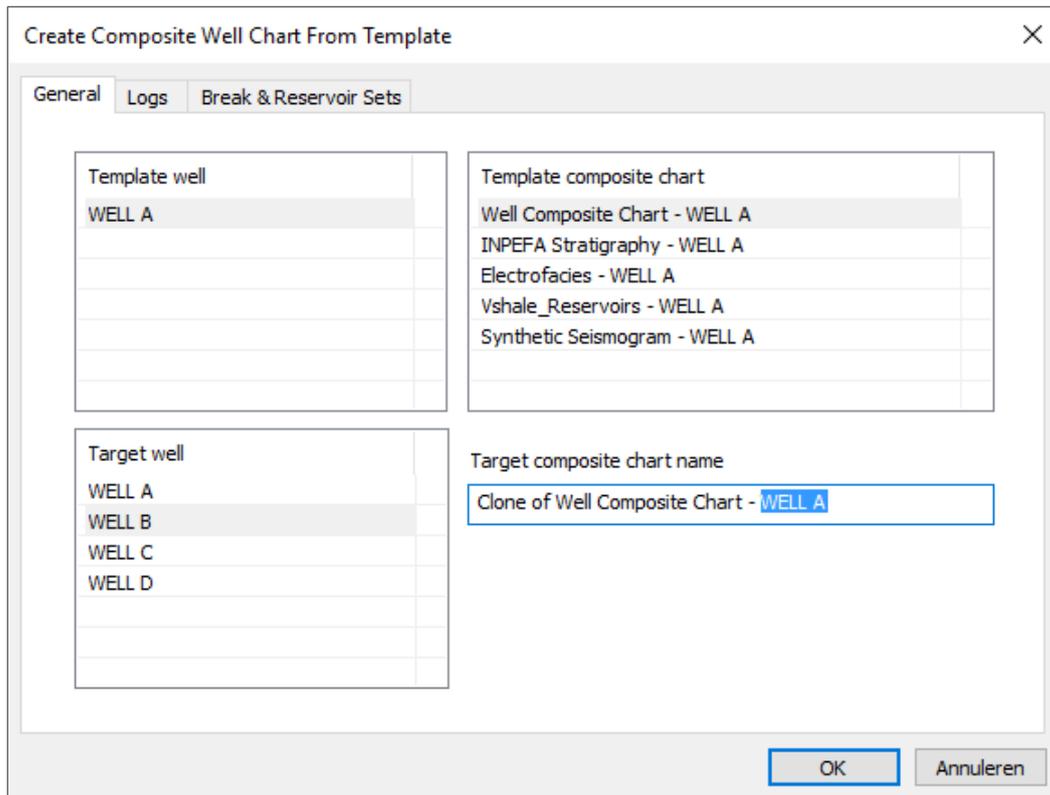
Depending on the user's preference, there are two ways to generate composite well charts from a template chart in CycloLog® 2016.

Single composite well chart from Template

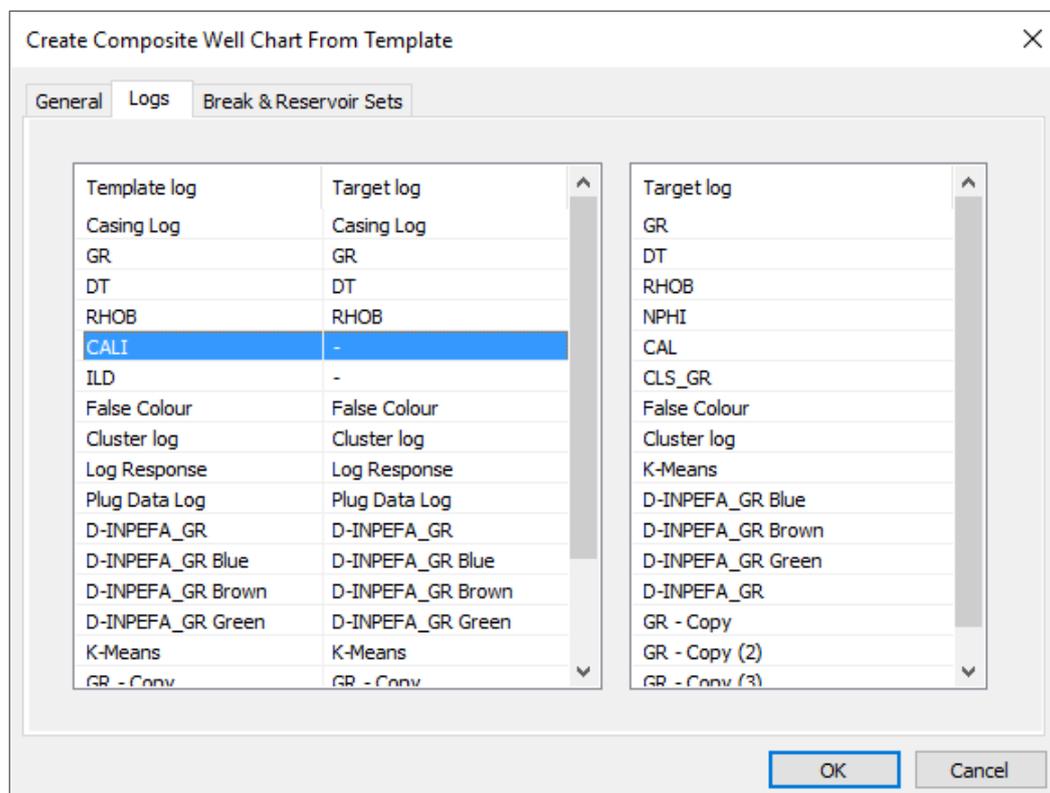
This functionality is especially useful when the user only has a few wells with a lot of different logs, or when he prefers to use different template layouts for different wells.

In the example below, the *General* tab shows a list of 4 wells that can be selected as a *Template well*. Selecting one of these wells will display a list of all composite well charts within this well (in the right field: *Template composite chart*). From this list, the user can select the chart he wishes to use as template and clone to a target well. One target well can be selected at a time.

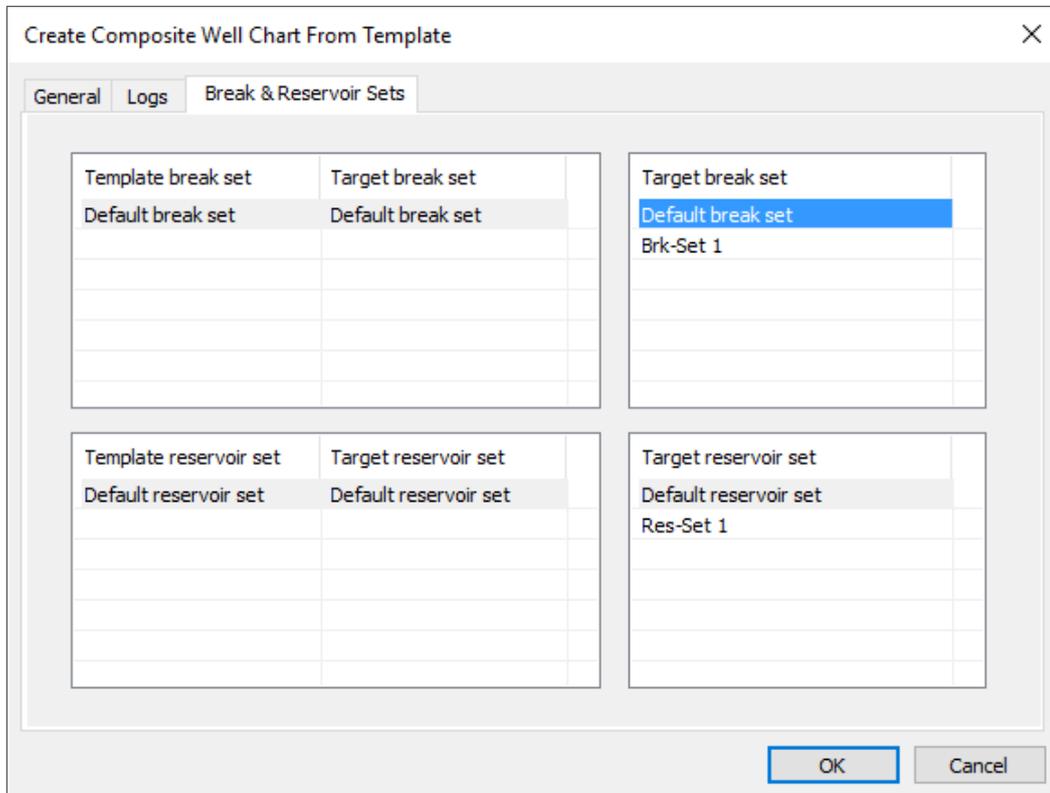
By default, CycloLog will count the number of clones made from the template well and as such it will be reflected in the *Target composite chart name*. However, the name of the new composite chart for this target well can be changed manually according to the user's preference. In the example image below, the user can change the name: *Clone of Composite Well Chart - Depth Domain - WELL A*, for instance into: *Composite Well Chart - Depth Domain - WELL B*.



In the *Logs* tab, logs with the same name in the template and the target well are shown. 'Missing' logs in the target well can be replaced with another suitable log using the *Target log* list on the right hand side. In the example below, CALI in the template log was not matched by name to a target log. The user can select the appropriate log from the *Target log* list on the right: in this case the CAL log.



The final tab is the *Break & Reservoir Sets* tab. If the user has defined break and/or reservoir sets in the template **and** the target well, CycloLog will automatically match the set name. If there is no name match, the user can select the appropriate set for the target chart from the *Target break (reservoir) set* list on the right side.



By clicking on OK, a new composite well chart will be created for the defined target well and automatically saved to the workspace.

Batch composite well charts from Template

The batch generation of composite well charts is very useful for users who wish to generate composite well charts for as many wells as possible. An existing composite well chart can be used as a template to create composite well charts for (all) other wells in the CycloLog project file. Creating multiple charts from a template is based on cloning this template whereby the logs in the template chart are matched to logs available in the target well. If a match is found, then all layout properties of the template are applied to the target log.

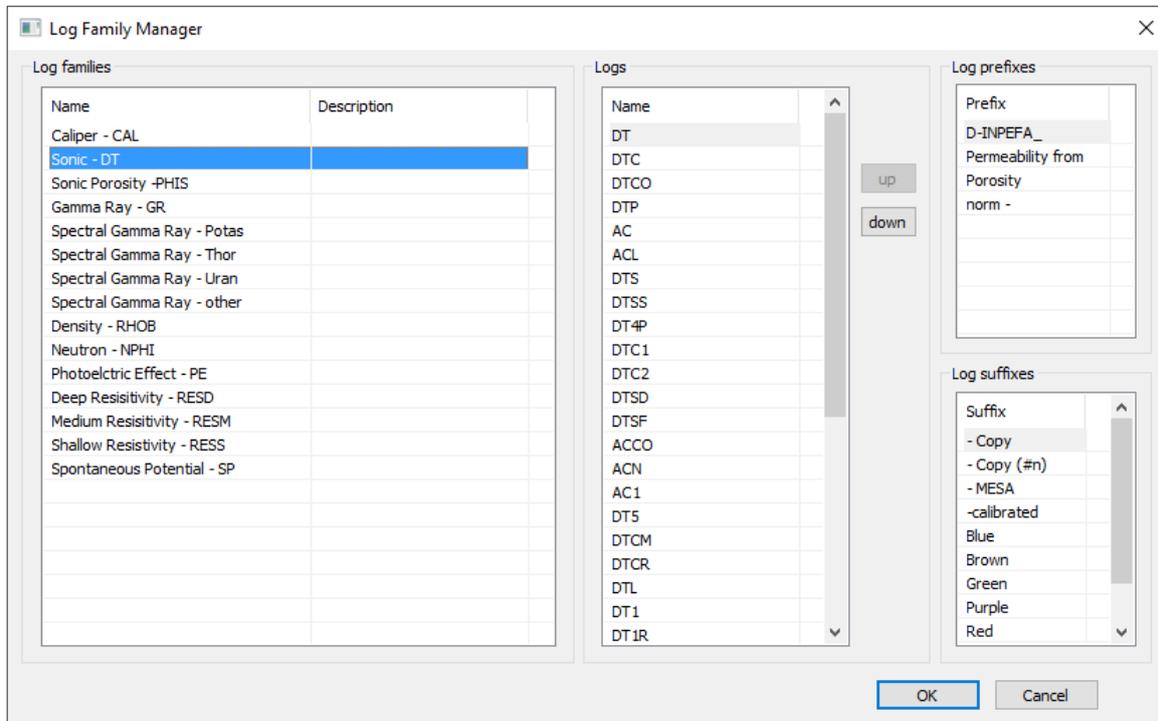
To create a batch of composite charts for multiple wells, the following two steps are essential:

- Step 1: Log Family Manager: consists of a default list of log families, logs and/or affixes
- Step 2: The Batch Composite Well Chart Template functionality

Step 1: The Log Family Manager

The Log Family Manager can be opened from the main menu: Tools -> Log Family Manager.

The Log Family Manager shows a default list of *Log families* defined by ENRES. Each log family consist of a list of geophysical well *Logs*. On the rightmost side of the Log Family Manager, a default list of *Log prefixes* and *suffixes* fields are displayed.



A *Log family* consist of a suite of geophysical well *Logs* that generally measure the same property characteristics of a rock sequence. The *Log family* and the *Logs* list are default lists defined internally by ENRES and can be changed any time according to the user's preferences.

The settings in the Log Family Manager are essential for a successful matching of logs and the generation of composite well charts. Therefore, if the user has substantially different logs than the default defined by ENRES, he should carefully consult the Help Manual in CycloLog.

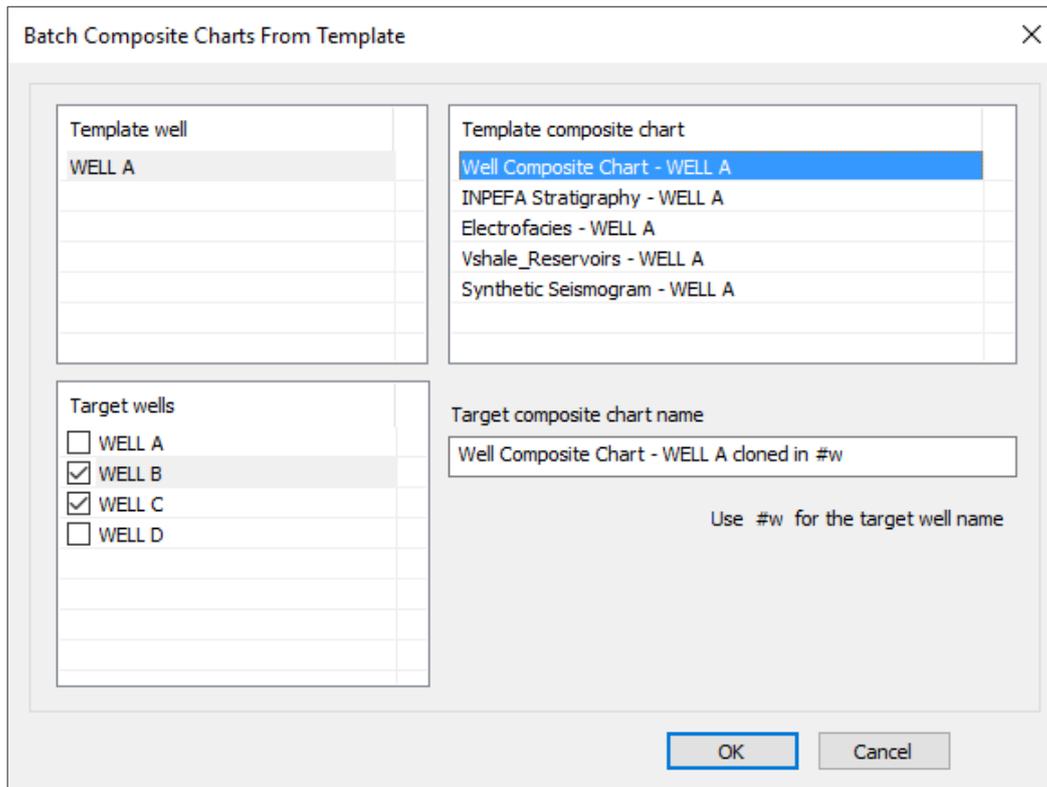
The user can edit, add or delete:

- Log families and their description
- Logs
- Log prefixes
- Log suffixes

Step 2: The Batch Composite Well Charts From Template functionality

For this functionality, at least one composite well chart should be present in the CycloLog project file, which then can be used as template.

The functionality can be opened from the main menu: Output -> Batch Composite Well Charts From Template.



From the *Template well* and the *Template composite chart*, the well and corresponding composite well chart can be selected to generate charts for the other, i.e. target, wells. Note that no *Template well* will be listed if no composite well chart has been generated beforehand.

The user can select the *Target wells* for which he wishes to have a composite well chart.

The *Target composite chart name* can be changed, however, we advise to keep the wildcard #w at the end (or within) of the text so that the name of the target well is added to the chart name in the Workspace. This is especially convenient when distinguishing between composite charts of different wells in the workspace, or when charts are open in the main window.

By clicking on OK, the template composite chart will be cloned to the selected target wells and saved to the CycloLog workspace.

Always check if the log columns in the newly created charts have been cloned properly especially when logs, prefixes or suffixes are different from those in the standard (default) Log Family Manager list. Note that if CycloLog does not find a match between one (or more) logs in the template and target well, then the log column(s) in the target chart will be skipped.

Cloning of breaks and reservoirs sets

If a break (and/or reservoir) column is present in the template composite well chart then this column and its related break (and/or reservoir) set will ***only be cloned if the name of the break (and/or reservoir) set in the target well exactly matches the name in the template well.*** If not the case, then the break, or reservoir, set will be skipped.

Important to know

Log Families

It is not possible to have logs of the same name in different log families. For example, if SGR should be in the *Spectral Gamma Ray* log family, then it must be deleted from the *Gamma Ray - GR* log family.

Wildcards

A wildcard is a single character, or a group of characters, used to represent a number of characters. In CycloLog, only one wildcard is defined for log names inside log families, named the "counter wildcard" and defined as #n. This counter wildcard corresponds to a positive integer number (greater than zero).

A log family may contain both wildcarded log names and non-wildcarded log names.

A wildcarded log name is a log name which contains exactly one wildcard; for example GR (#n), which will match log names such as GR(1), GR(3), GR(15), etc.

A non-wildcarded log name contains no wildcards.

Affixes

The user can define as many affixes for any log family as he wishes. An affix consists of set of characters (one or more) and a type: either prefix (before the log name) or suffix (after). If a log name in a template composite well chart cannot be found in a family (including using wildcard matching) then CycloLog will attempt to match it against the members of that family, including the affixes defined for the family.

So, how does the cloning work in CycloLog?

When CycloLog attempts to clone a log from the template composite well chart to a target well, the following algorithm is applied:

1. If the target well contains a log with exactly the same name as in the template well, it will be chosen as the target log.

2. If the target well does not contain an exact match of the log name in the template well, then CycloLog will search in the log families to for a log name which matches the log in the template chart. The name in the log family may include a wildcard:

- 2a. If a match (wildcarded or not) with the template log name is found in a log family, then CycloLog will go, in order, through each log name in this family and look for a matching log in the target well. The first time a good match is found in the target well, the matching log will be chosen as the target log. A good match for a family log name means:

- If the log name in the log family is a non-wildcarded name, then an exact match of that log name (case-sensitive) in the target well;
- If the log name in the log family is wildcarded, then the first match (alphabetically) of the wildcarded name in the target well.

2b. If no family is found which contains a name matching the template log name, then CycloLog goes through each family and tries to find a match by adding any of the prefixes and/or suffixes defined for that family to the template log name and comparing the result with all names in the family. If such an affixed match is found, then CycloLog combines the prefix and/or suffix which yielded the match with each log name in the family, and checks each resulting name against the log names in the target well.

As above, the first time a good match is found in the target well, the matching log will be chosen as the target log.

A final important note is that whatever the algorithm yields, **the target log will only be used if it has the same log type as the template log** (i.e., only a regular log can replace a regular log, only a plug log can replace a plug log, etc.).

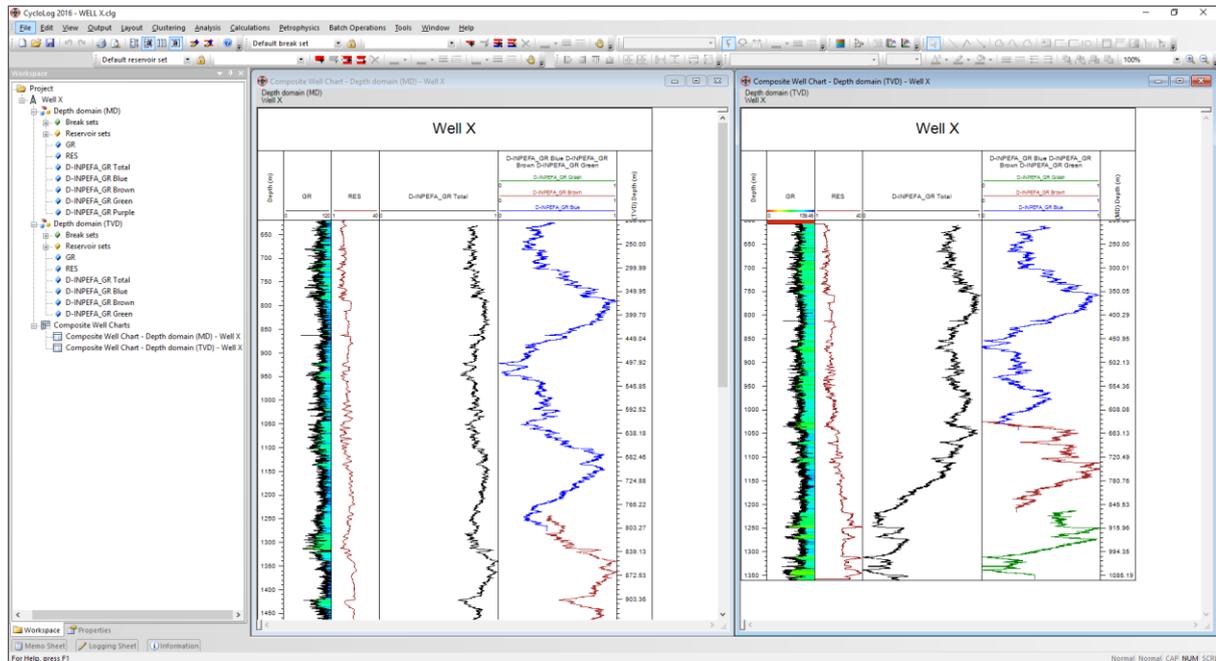
In the table below, some examples are given showing how the log matching functionality works in CycloLog® 2016.

Template composite well chart	Target well	Required (in the Log Family Manager) *			Target composite well chart	Tips and comments
Log in well chart column	Available log(s) in target well	Logs	Prefixes	Suffixes	Result log in well chart column	
GR	SGR, GRS, SGR - Copy (1)	-	-	-	SGR	If GRS should be in the column instead of SGR, then move this log in the Log Family Manager upward, above SGR, using the Up button.
GR (1)	GR (22)	GR (#n)	-	-	GR (22)	
GR	GR (1), SGR	GR (#n)	-	-	GR (1)	GR (#n) is in the log family list, and higher ranked than SGR.
GR	GR (1), SGR	-	-	(#n)	SGR	Compare with above: note that there is no wildcard (#n) in the log family list.
GR - Copy	SGR, GRS, SGR - Copy (1)	-	-	- Copy (#n)	No match	For a match with target log SGR - Copy (1) then delete (1) in target.
GR - Copy (9)	SGR, GRS, SGR - Copy (1)	-	-	- Copy (#n)	SGR - Copy (1)	
GR - Copy	GR	-	-	- Copy	No match	For a match with GR append - Copy to GR in the target log name.
GR - Copy	SGR, GRS, CGR	-	-	- Copy	No match	For a match with SGR append - Copy to SGR in the target log name.
NPHI	NPHI	-	-	-	NPHI	
Grain size	Grain size	-	-	-	Grain size	
GR - MESA	SGR - MESA, GRS - MESA	-	-	- MESA	SGR - MESA	
Permeability from NPHI	Permeability from SNP	-	Permeability from	-	Permeability from SNP	
Porosity RHOB - NPHI	Porosity DRHO - NPHI	-	Porosity	- NPHI	Porosity DRHO - NPHI	CycloLog cannot match logs across log families, therefore add - NPHI as a suffix in the Density log family.
Porosity RHOB - NPHI	Porosity DRHO - SNP Porosity RHOB - SNP	-	Porosity RHOB -	-	Porosity RHOB - SNP	CycloLog cannot match logs across log families, therefore add Prorosity RHOB- as a prefix in the Neutron log family.
D-INPEFA_GR Blue	D-INPEFA_GR Blue (1) D-INPEFA_SGR Blue (2) D-INPEFA_GRS	-	D-INPEFA_	Blue, Blue (#n)	No match	For a match with target log D-INPEFA GR Blue (1), then delete (1) in the target log name.
D-INPEFA_GR Blue (1)	D-INPEFA_SGR Blue (2) D-INPEFA_SGR Blue (66) D-INPEFA_GRS	-	D-INPEFA_	Blue (#n)	D-INPEFA_SGR (2)	
D-INPEFA_GR Blue (1) - Copy	D-INPEFA_SGR Blue (4) - Copy (2) D-INPEFA_SGR Blue (2) D-INPEFA_SGR Blue (99) - Copy	-	D-INPEFA_	Blue (#n) - Copy	D-INPEFA Blue (99) - Copy	

* Note that the prefixes: *D-INPEFA_*, *Permeability from*, *Porosity* and suffixes: *- Copy*, *- Copy (#n)*, *- MESA* and *Blue* are default in CycloLog and are as such indicated in *italics* in the table.

2. TVD and MD depth bar displayed simultaneously in a composite well chart

In CycloLog® 2016, it is now possible to have a TVD (or MD) depth column as well as MD (TVD) depth column displayed in the same composite well chart. This functionality applies when a deviation survey has been loaded in CycloLog whereby the MD and TVD data are stored in the CycloLog workspace.

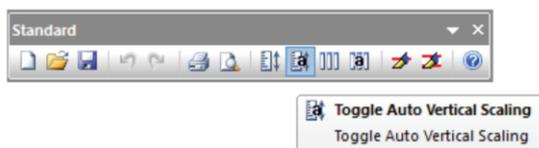


An example of a deviated Well X. The two windows show composite well charts in the MD and TVD Depth domains. Note the respective 'additional' TVD and MD Depth bar columns on the right side of the charts.

In addition, two MD (or TVD) depth columns can be displayed at either ends of a composite well chart, which can be useful in the case that composite charts are exceptionally wide and hence greatly exceeding the size of the user's PC screen.

3. Toggle between independent and dependent vertical scaling of well data panes and composite charts

The vertical scaling of log data panes and composite well charts of different wells can now be adjusted independent from each other. A button has been added to the standard toolbar allowing the user to turn the vertical scaling dependency of the wells' data panes and charts on or off.



This feature, which has been developed after requests from our users, allows the user to analyse his data with more flexibility thereby increasing productivity and time efficiency.

Other features

1. Compatible with Windows versions 7 and 8, including Windows 10

The CodeMeter and AxProtector technology developed by WIBU-Systems is used for licensing as well as protection of ENRES's CycloLog® 2016 software. The latest version of AxProtector Software Development Kit is used to encrypt CycloLog® 2016 making it also compatible with Windows 10.

2. Many other improvements and bug fixes

A detailed list of improvements and bug fixes can be found in the CycloLog 2016 Release Notes document that can be downloaded from: <http://enresinternational.com/software/cyclog/>

Contact

Please contact the ENRES Support team for any questions about the CycloLog® software or for suggestions that help us to improve our software. ENRES International strongly relies on its users to provide suggestions for improvements, not only to the software but also to all related documentation.

Contact our support team at: support@enresinternational.com, or call: +31 (0) 30 227 0137

Our normal office hours are CET, from 9 AM to 6 PM, Monday to Thursday.

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