



Release Notes 2023.1

In 2023 version, the main evolutions have aimed to improve the user experience of Quick Set functionality. The version now enables the storage of synthetic CDP in dynamic traces. Additionally, several bugs have been addressed and corrected.

Enhancement

1. Access to Quick Set in Apply to Multiwells

Users can access to Quickset in the destination wells window. This new functionality allows users, previously, creating a selected group of wells for “Apply to Multiwells” application.

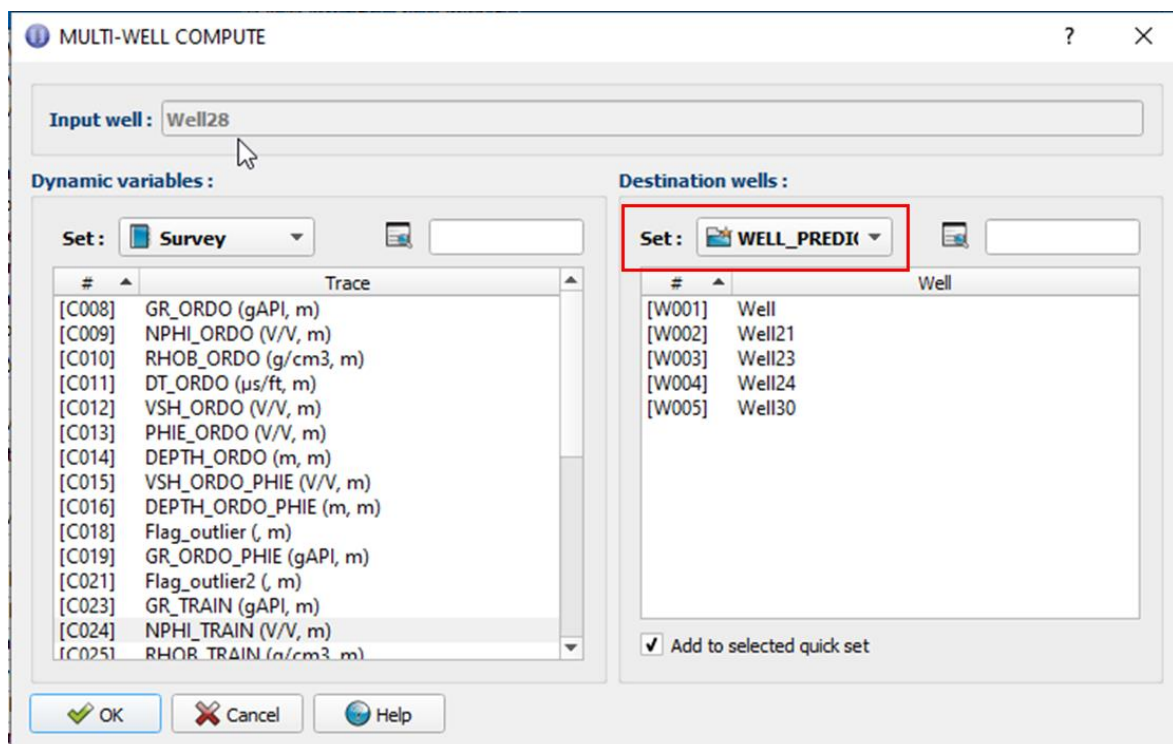


Figure 1 : New interface of Apply to Multiwell module.

2. Access to Quick Set in Correlation Graph

Users can access to Quickset with the Correlation Graph application.

If users want to use the Existing markers Traces, the related markers should be placed in the Quickset.

Users can initialize well display with an existing Multigraph template. There is no need to puts the Traces (logs) displayed in the Multigraph template in the Quick Set folder. Application can look for traces/logs presented in Survey Well folder.

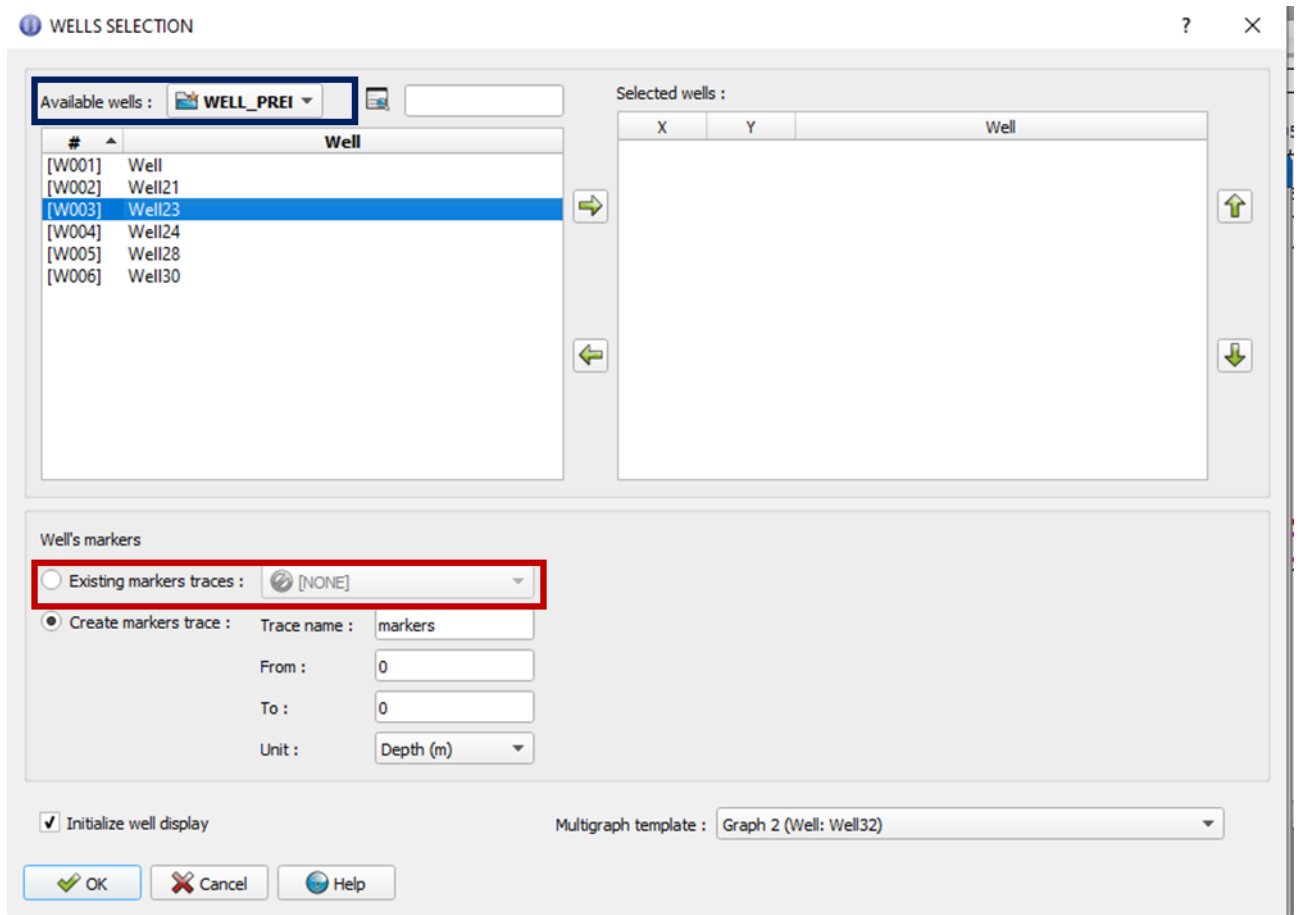


Figure 2: New interface of Correlation Graph module.

3. Save Synthetic CDP in the AVA/AVO module as dynamic trace

From this version, users can save the Synthetic CDP from AVA/AVO application in dynamic traces.

STORE RESULTS

AVA curves to save

	Incident	Average
Zoeppritz (P-P)	<input type="checkbox"/>	<input type="checkbox"/>
Zoeppritz (P-S)	<input type="checkbox"/>	<input type="checkbox"/>
Zoeppritz (S-P)	<input type="checkbox"/>	<input type="checkbox"/>
Zoeppritz (S-S)	<input type="checkbox"/>	<input type="checkbox"/>
Linearization Aki and Richards (P-P)	<input type="checkbox"/>	<input type="checkbox"/>
Linearization Aki and Richards (P-S)	<input type="checkbox"/>	<input type="checkbox"/>
Linearization Shuey (P-P)	<input type="checkbox"/>	<input type="checkbox"/>
Linearization Shuey (P-S)	<input type="checkbox"/>	<input type="checkbox"/>
Shuey / small angles (P-P)	<input type="checkbox"/>	<input type="checkbox"/>

CDP traces to save

☒ Synthetic CDP
☐ External CDP

Attribute traces to save

For synthetic CDP	For external CDP
<input checked="" type="checkbox"/> Stack	<input type="checkbox"/> Stack
<input checked="" type="checkbox"/> Intercept	<input type="checkbox"/> Intercept
<input checked="" type="checkbox"/> Gradient	<input type="checkbox"/> Gradient

☒ Store as dynamic trace (except External CDP traces)

Output base name :

Add to quick set :

D	Name	V. Type	V. Unit	C. Type	C. Unit
9	>>A Porosity	Porosity	%	Depth	m
10	>>A Vs	Velocity	m/s	Depth	m
11	>>C Interfaces	Marker code		Depth	m
12	>C RHOB-i	Density	g/cm3	Depth	m
13	>C Vp-i	Velocity	m/s	Depth	m
14	>C Vs-i	Velocity	m/s	Depth	m
15	>A Ricker	Anonymous		Time	ms
16	>C DT-Law (Vpi)	Time	ms	Depth	m
17	C DT-Law (Vsi)	Time	ms	Depth	m
18	A AVA 1:Stack	Anonymous		Time	ms
19	A AVA 1:Intercept	Anonymous		Time	ms
20	A AVA 1:Gradient	Anonymous		Time	ms
21	A AVA 1:Synth. 0	Anonymous		Time	ms
22	A AVA 1:Synth. 5	Anonymous		Time	ms
23	A AVA 1:Synth. 10	Anonymous		Time	ms
24	A AVA 1:Synth. 15	Anonymous		Time	ms
25	A AVA 1:Synth. 20	Anonymous		Time	ms
26	A AVA 1:Synth. 25	Anonymous		Time	ms
27	A AVA 1:Synth. 30	Anonymous		Time	ms
28	A AVA 1:Synth. 35	Anonymous		Time	ms
29	A AVA 1:Synth. 40	Anonymous		Time	ms
30	A AVA 1:Synth. 45	Anonymous		Time	ms
31	A AVA 1:Synth. 50	Anonymous		Time	ms
32	A AVA 1:Synth. 55	Anonymous		Time	ms
33	A AVA 1:Synth. 60	Anonymous		Time	ms

Figure 3: Outputs of Synthetic CDP are dynamic traces

It is important to note that the dynamic functionality can not be applied on X-axis variable of CDP gather. If users modify step or angle gather, it needs to store the new synthetic traces associated to new angle gathers.

SYNTHETIC CDP GATHER

Target zone for detailed modeling

From start depth (m) : To end depth (m) :

CDP gather Y-axis variable

☒ Time (ms) Step :
☐ Depth (m)

CDP gather X-axis variable

☐ Offset (m) From :
☒ Average angle (deg) To :
Step :

Reflectivity type

	Incident	Average
Zoeppritz (P-P, P-S)	<input type="checkbox"/>	<input type="checkbox"/>
Zoeppritz (S-P, S-S)	<input type="checkbox"/>	<input type="checkbox"/>
Linearization Aki and Richards (P-P, P-S)	<input type="checkbox"/>	<input type="checkbox"/>
Linearization Mukerji (P-S)	<input type="checkbox"/>	<input type="checkbox"/>
Shuey / small angles (P-P)	<input type="checkbox"/>	<input type="checkbox"/>

Wave

☒ P-P wave
☐ P-S wave
☐ S-P wave
☐ S-S wave

Synthetic type

☒ Plane wave
☐ NMO corrected
☐ Add random noise
S/N ratio (%) :

Depth to time laws

Depth to Time law (P-wave)
[C016] DT-Law (Vpi) (ms, m)

Depth to Time law (S-wave)
[...] <Select trace...>

Signal options

Wavelet
[A015] Ricker (, ms)
Convolution origin (ms) :
☒ Normalize signal

Figure 4: Internal inputs for generation of CDP gather.



Bug correction

The following bugs have been fixed for this update:

- Bug regarding Crash when selecting Multiwells in application MultiGraph-AddTrace
- Bug regarding the Display Marked Samples between the cross-plot and Multigraph
- Bug regarding the loss of dynamics link to variable in Quick set in Apply to Mutiwells application
- Bug regarding the conversion between Sw in % to Sw in v/v in Water Calculation with Pc
- Bug regarding using formular on Pc data has been fixed.

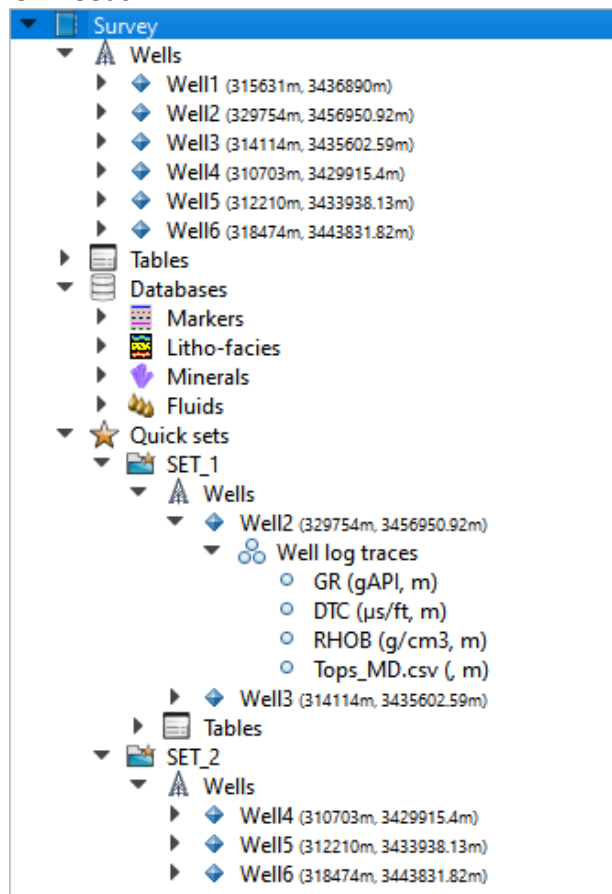
Release Notes 2021.1

In this new version of EasyTrace, the main enhancements are:

- Evolution of Quick Set functionality: use for all EasyTrace applications.
- Enhancement of Interactive trend curve parameters for construction of **Rock Physic Model**
- Interactive of sample selection between the cross-plot and multigraph at well level

Bug concerning the modification of trace type: from Regular to Irregular grid using Compute >> Apply to Multiwell has been fixed.

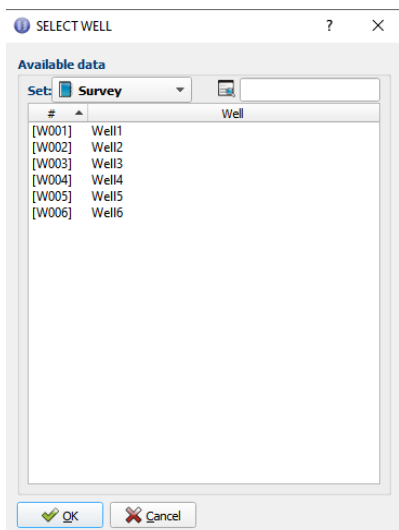
1. **Quick set** is a new functionality that allows users to organize data into different sub-folders following their needs.



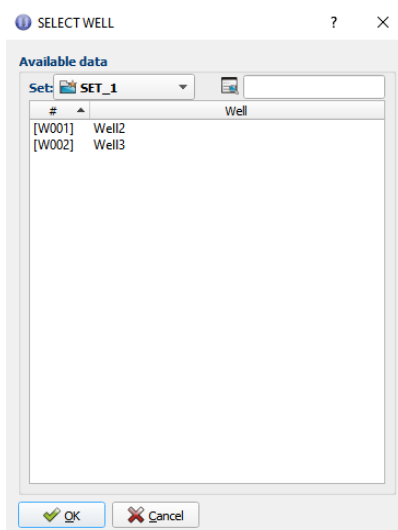
Organize data in different sub-folders.

In 2021 version, this functionality is expanded to all the applications in EasyTrace (RUN). It is possible to access to data organized in sub-folder to run the application and to save the results in sub-folder.

When running an application, users can choose different folders to get access to the data.

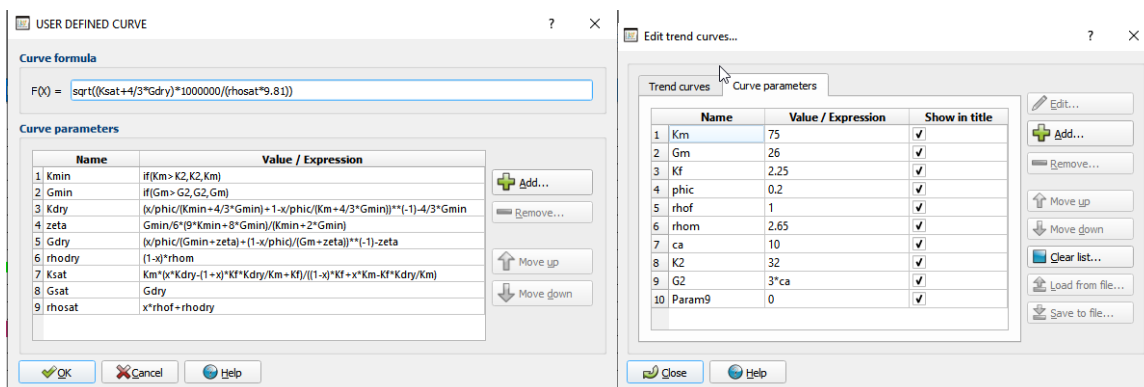


Access to data in the Survey level

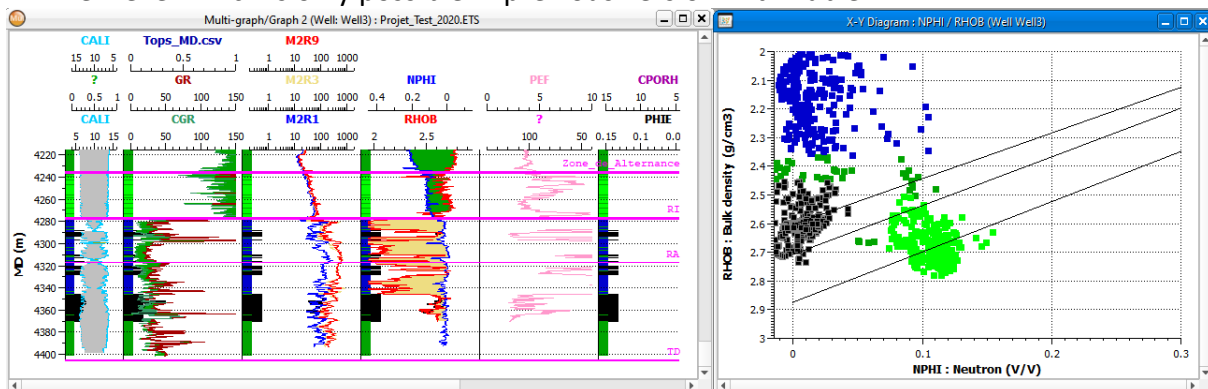


Access to data in Sub-folder level

2. Second enhancements concern the **new functionalities** of Interactive Trend Curve. In the 2021 version, users can implement many rock-physics models using the Interactive Trend Curves. Two levels of variable (Global and Local) have been introduced in the application, facilitating the implementation of all complexed equations.



3. Interactive selection of samples from cross-plot and multigraph is from now possible at well level which is only possible in previous version with Table

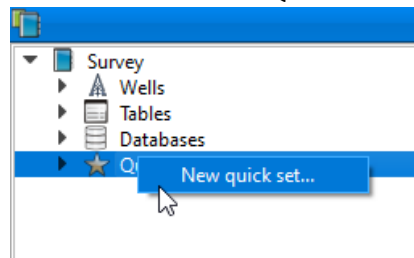


QUICK SET FUNCTIONALITY

Quick set functionality is an important development in EasyTrace 2020 and 2021. This application allows users to organize different types of data into the sub-folders. This functionality has led to several changes in the ways to select the data, make a graph, a cross-plot, store the results and export the data. The following chapters present some details about this functionality.

Creation of sub-folders

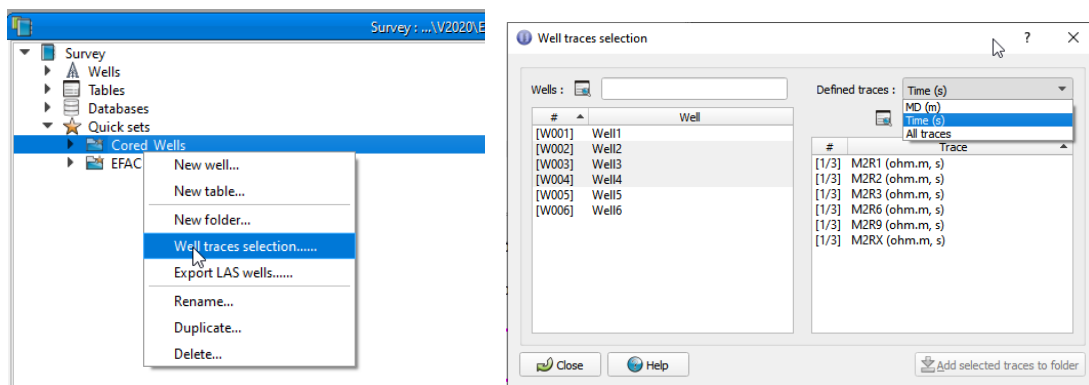
Users can right click on Quick sets and select New Quick Set...



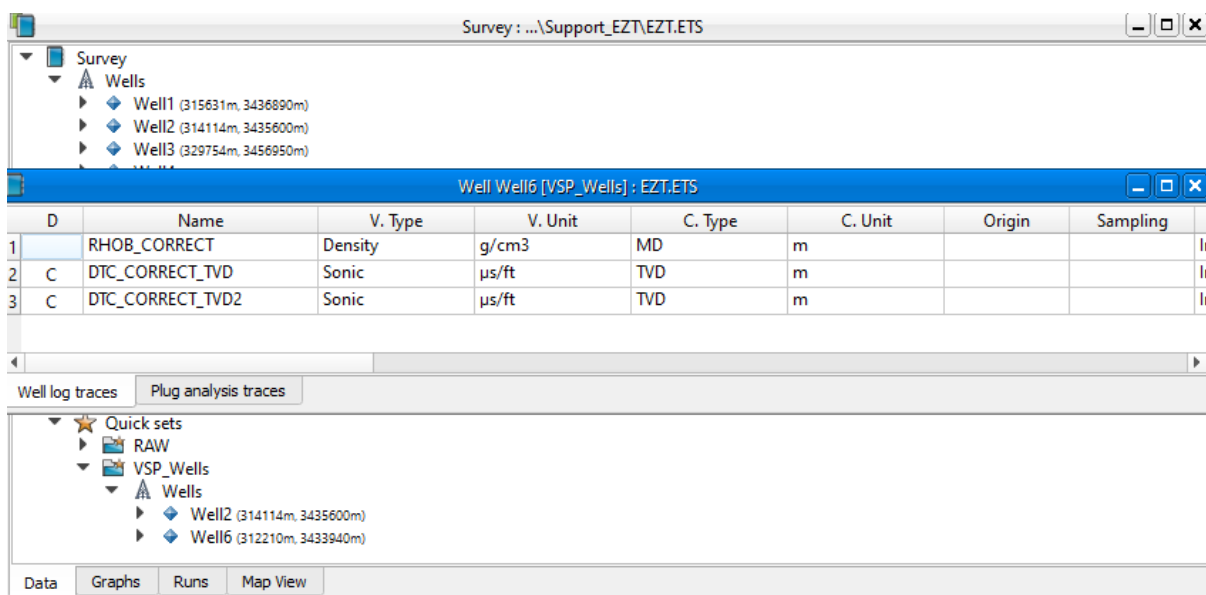
Add Data into the Subfolder

Right click on the new sub-folder and select Well Traces selection.

From Well Traces selection, it is possible to select the different traces to place in the sub-folders. Users can also make a filter between two trace types: Depth or Time



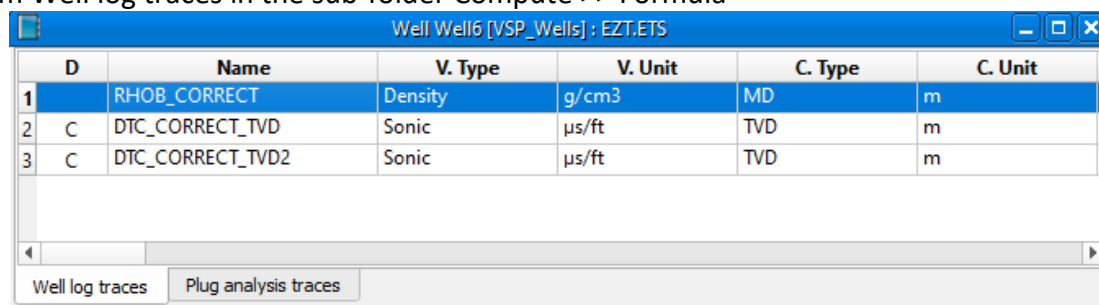
The display of data in the sub-folder is as follow:



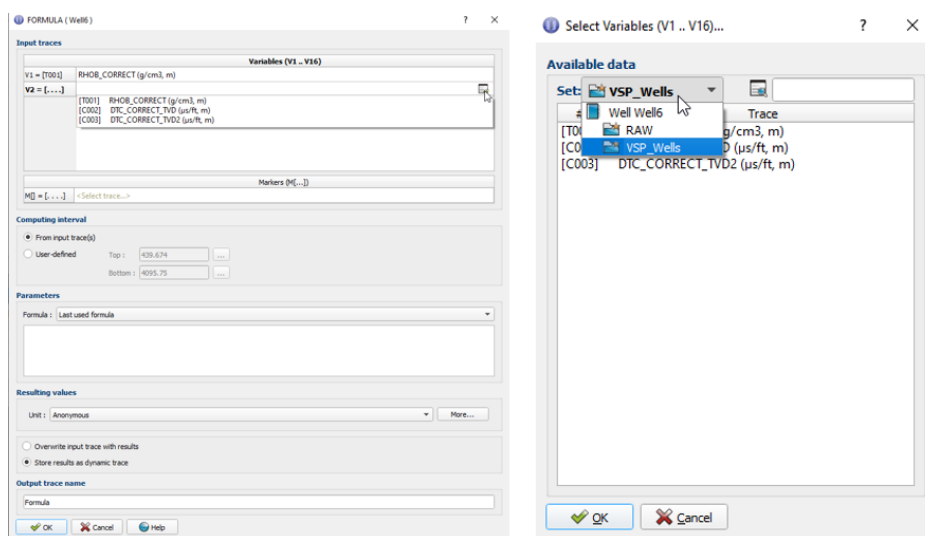
Compute Module

User can run all applications in **Compute** menu from the sub-folders for example:

From Well log traces in the sub-folder Compute >> Formula

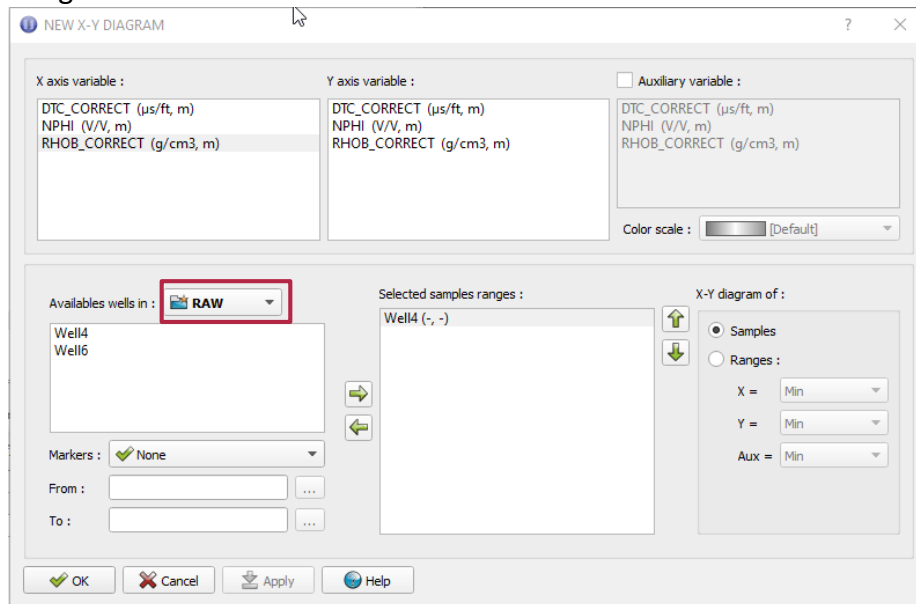


We can use the trace data in the same sub-folder or in other sub-folder in the same well by clicking on



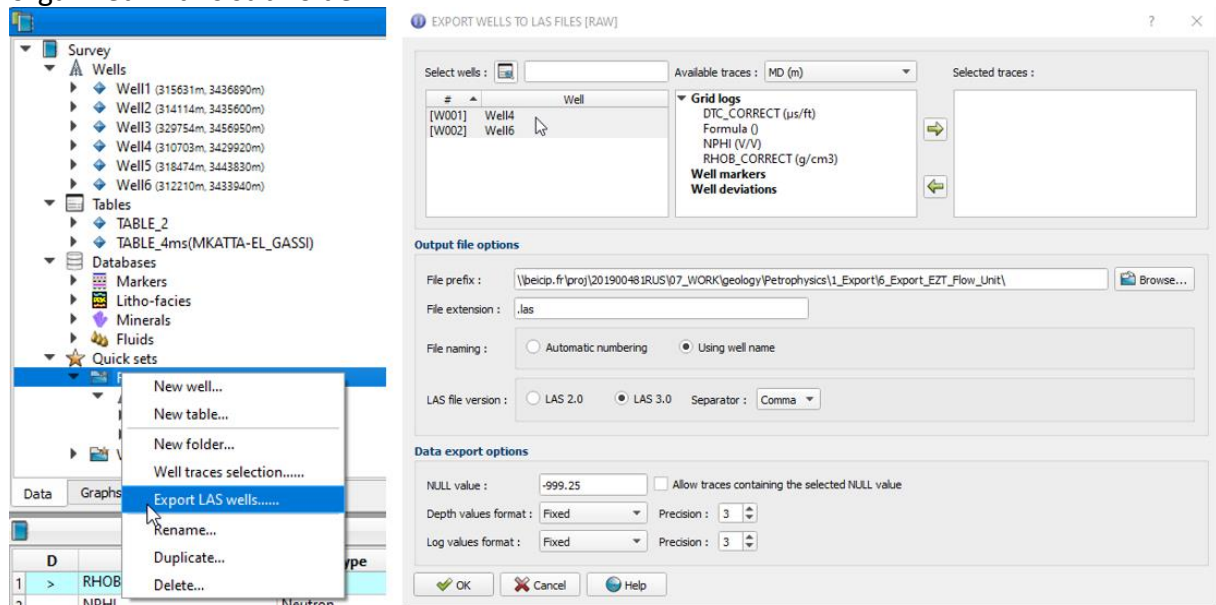
Make a plot from sub-folder.

Users can make a cross-plot from data in sub-folder. The associated Window shows only the data in the level organized in the sub-folders. Users can also change to other sub-folder level or return to original level.



Export las data in the sub-folder

From the sub-folder, right click and select Export Las wells, Users can export all las that are organized in this sub-folder.



Store results in the sub-folder

For all the module Application menu, when making a store result, Users can select a different folder to save the result.



STORE RESULTS

Traces to save

☐ PHIE from DEN ☐ PHIT from DEN

☐ PHIE from SON ☐ PHIT from SON

☐ PHIE from N-D ☐ PHIT from N-D

☐ PHIE from NPHI ☐ PHIT from NPHI

☐ Final recombined PHIE ☐ Final recombined PHIT

☐ Compute intervals (as interfaces)

☐ Store as Dynamic traces

Output base name :

Add to quick set :

Run the applications

Multiwell applications (Interval Computation, Pore Pressure Prediction and Rock Type classification)

The new development allows selecting the intervals in both sub-folders and Survey levels. Users can create a sub-folder grouping all wells that contains a specific interval or data. Hence user can quickly generate a computation table, select desired curves for classification or directly access the arranged data in the sub-folder. **In case the users select Data in the Sub-Folder, users can only access the data in the Sub-Folder.**

Interval Computation

ADD INTERVAL COMPUTATION

Select well(s)

Set :

#	Well
[W001]	Well1 (3985.51, 4106)
[W002]	Well2 (3939.26, 4050.1)
[W003]	Well3 (3976.72, 4405.9)
[W004]	Well4 (4056.59, 4169.2)
[W005]	Well5 (3991.14, 4095.9)
[W006]	Well6 (4007.77, 4097.7)

Interval selection

☒ Using interfaces :

From marker :

To marker :

Depth unit

Unit :

Data selection at Survey Level

ADD INTERVAL COMPUTATION

Select well(s)

Set :

#	Well
[W001]	Well2 (3939.26, 4050.1)
[W002]	Well3 (3976.72, 4405.9)

Interval selection

☒ Using interfaces :

From marker :

To marker :

Depth unit

Unit :

Data selection at Sub-folder level



Rock Type classification

Data selection at Survey Level

Data selection at Sub-folder level

Pore Pressure Prediction

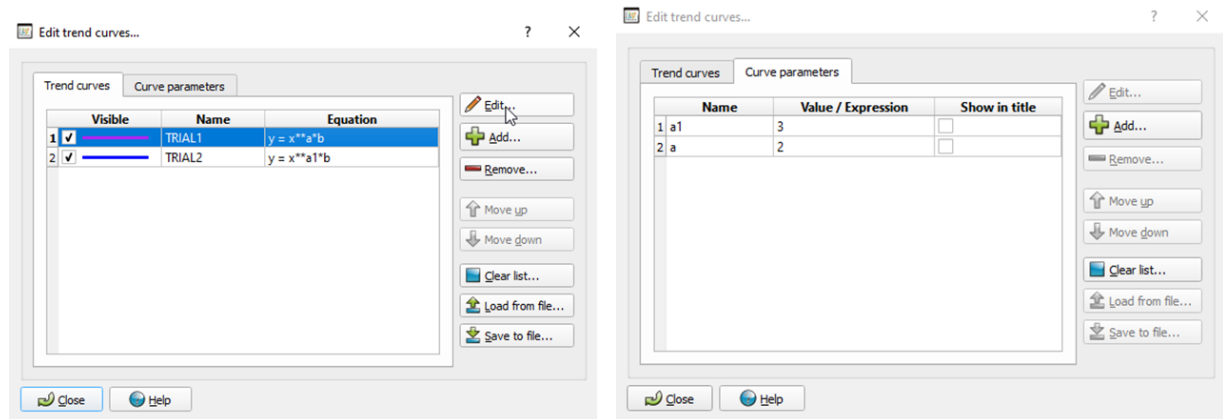
Data selection at Survey Level

Data selection at Sub-folder level

Rock Physic Model interactive curves

In the 2021 version, we introduce a global and local parameters and variables concepts to enhance the Interactive Parameters trend curves. A parameter of an equation can be

defined as a function of different local parameters or variables. An example can be illustrated as below.

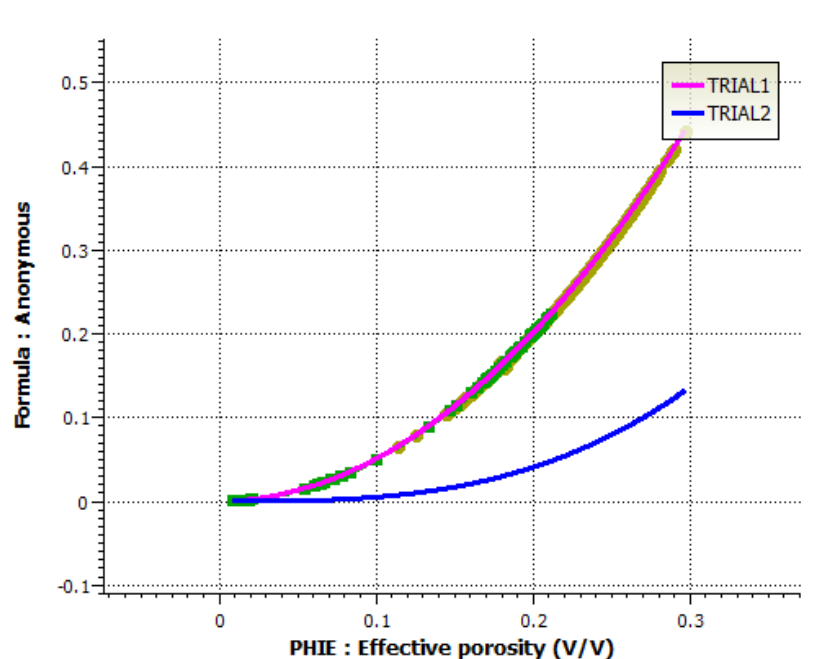


There are two functions in this example:

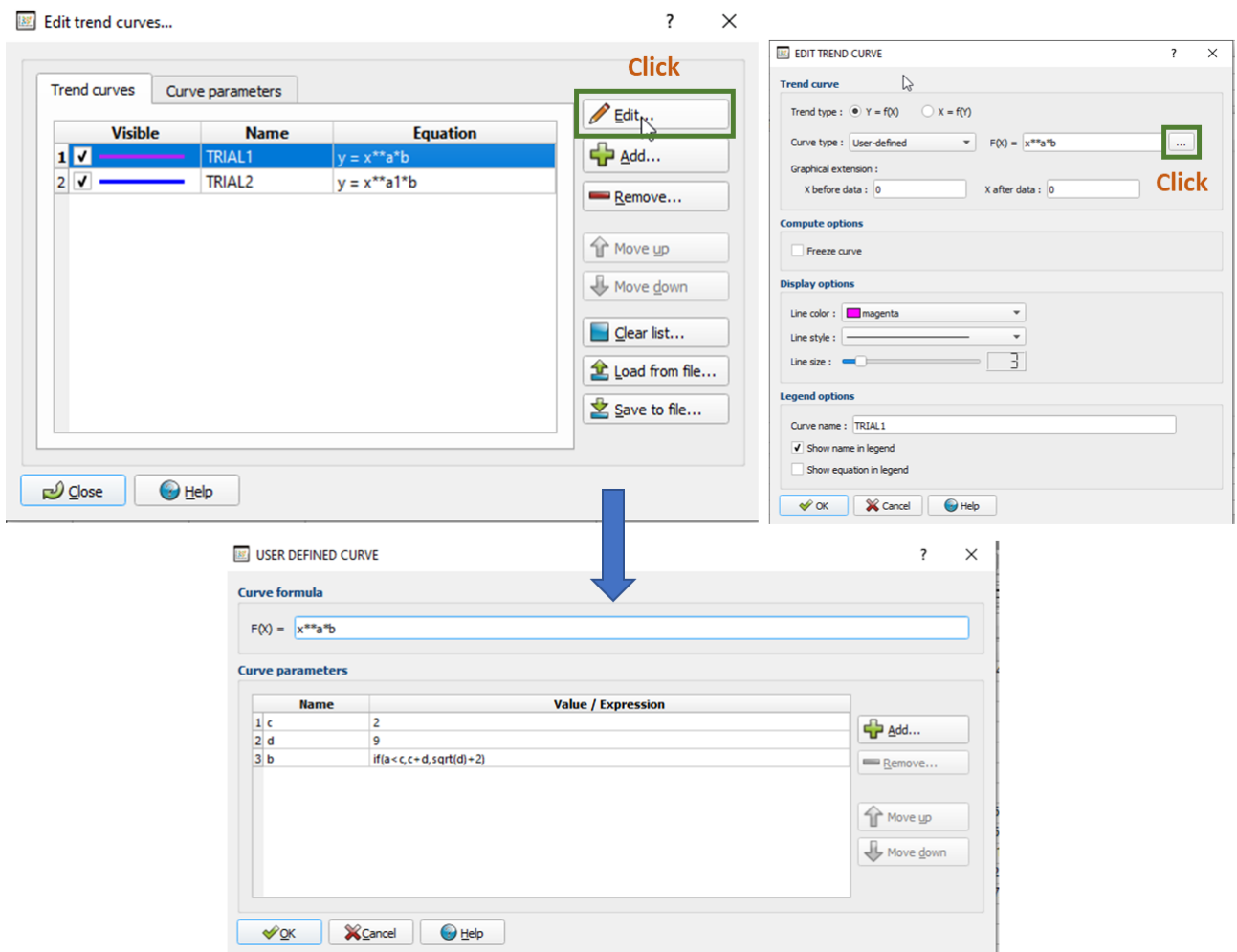
Function 1: $y = x^{**}a * b$

Function 2: $y = x^{**}a1 * b$

Where a and a1 are two global parameters in which users can modify. This modification can lead to the modification of graphical models.

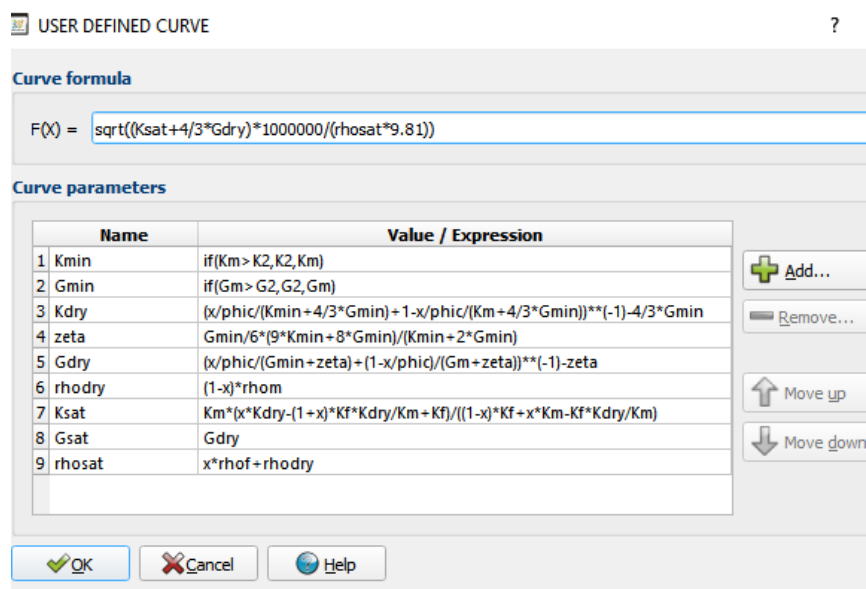


In this example, b is not a modified parameters as b is not present in the **Curve parameters** **tab**. Users can define b as a function of other local parameters that users do not want to show up in the Curve parameters tab.



In this example, b is now defined as a function of local parameters c and d.

This new functionality allows users to implement the different rock physic model as below:





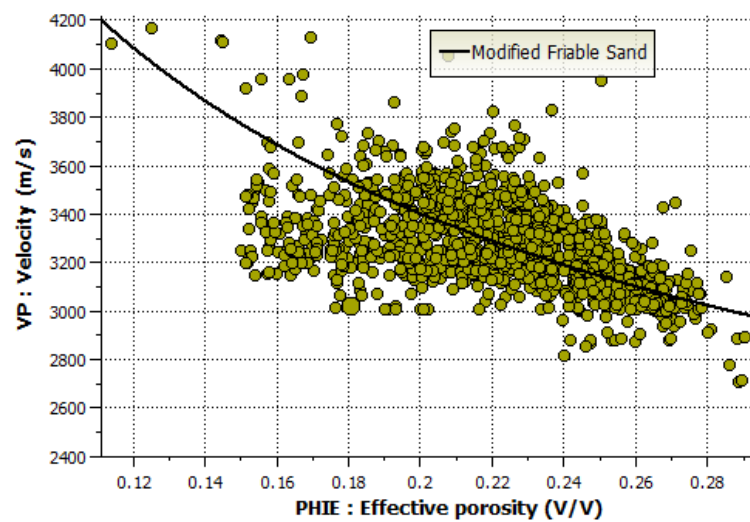
Edit trend curves... ? X

Trend curves Curve parameters

	Name	Value / Expression	Show in title
1	Km	75	<input checked="" type="checkbox"/>
2	Gm	26	<input checked="" type="checkbox"/>
3	Kf	2.25	<input checked="" type="checkbox"/>
4	phic	0.2	<input checked="" type="checkbox"/>
5	rhof	1	<input checked="" type="checkbox"/>
6	rhom	2.65	<input checked="" type="checkbox"/>
7	ca	10	<input checked="" type="checkbox"/>
8	K2	32	<input checked="" type="checkbox"/>
9	G2	3*ca	<input checked="" type="checkbox"/>
10	Param9	0	<input checked="" type="checkbox"/>

Edit...
 + Add...
 - Remove...
 ↑ Move up
 ↓ Move down
 Clear list...
 Load from file...
 Save to file...

Close Help



Graph analyses interactivity

In this version, the interactivity between cross-plot and Multigraph is developed at well level.

From Muti-Graph, Display >> Marked Samples>>Well Samples

