D04 • Loading data

Emeraude can load data from **LIS, LAS**, and **Ascii** files. It can also load from the clipboard or manually from the keyboard.
The survey panel allows the load of versus depth logs or stationary data. In versus depth files, depth must either be increasing or decreasing, and no depth inversion is permitted in the same pass. The type is determined from the first 10 valid lines. The load option automatically recognizes the file format and decodes as appropriate. The recognition is based on associating mnemonics with data types to which user defined associations can be added. When anything in the file is not recognized the user is notified and prompted to solve the problem.

D04.1 • Load dialog

The Load dialog is invoked by the Load Well Data option of the Document panel for general well data, and the Load option of the Survey panel for log data. This option is also invoked in the PNL panel for loading of time-lapse surveys.



or


The desired files are selected with this button. Files with different formats can be loaded at the same time. When the file format is defined the available information is retrieved either from the header (LIS, and LAS) or by scanning the first 100 lines (Ascii).
Part of the information sought by the scan is the number of columns and, if available, the mnemonics associated with these columns. If unknown mnemonics are found, a dialog prompts the user to define them before proceeding.
When the scan is completed and user mnemonics defined as required, the top part of the Load dialog shows the list of logical files added at this stage. A logical file corresponds to one pass. There can be only one logical file per Ascii or LAS file, but a LIS file will typically contain several logical files, normally all files of a given survey or job.
When loading the survey Log Data, as opposed to General Well Data, the following information/controls are given for each logical file:

- **File type**: indicated in the line header button.
- **Type**: Up or Down as read in the file (not applicable for stations). If the information is not present in the file or not read properly, click on the type to access a drop list where the selection can be made.
- **Index in type**: A click on the index accesses a control with up/down arrows to increase or decrease the index. It is also possible to directly type in the new index.

When two passes have the same type and number, "!ERROR" appears on the corresponding lines. This indication disappears as soon as the conflict is resolved. A yellow warning may also appear on a given line to indicate that something in the file is incorrect. This can be checked in the "Advanced" option (see also section D04-9).

Loading from clipboard

If the clipboard contains Tab delimited text (typically copied from a spreadsheet) its content is displayed in a grid. The definition of the data Type, Mnemo, Unit is the same as when loading an Ascii file (See below).

Loading from the keyboard

A grid is displayed with originally 2 columns and 5 lines. Data can be typed in directly, and the grid size adjusted. The definition of the data Type, Mnemo, Unit is the same as when loading an Ascii file. (See below).



By default, the lower part of the dialog is in **Field mode** showing, in tabular format, the identified fields in the currently selected file. At the top of each column are 3 buttons indicating the Type, Mnemonic, and Unit. The button content is determined in the following order:



Shows the mnemonic found in the file for each column. For a LAS or LIS file the mnemonics will always be found. For Ascii files there must be a single line at the beginning with the mnemonics for the various columns, separated with the same characters as used between the data (by default spaces or tabs). The mnemonics line must have exactly the same number of fields as identified in the file. In particular a mnemonic cannot include a space. The mnemonics line can be preceded or followed by comment lines.



Shows the mnemonic of user choice and could be different from the file mnemo. In some cases Emeraude will automatically strip trailing characters off a File Mnemo. For instance, if the File Mnemo were PRE_ST, then Emeraude would automatically use the New Mnemo PRE.

Clicking on the New Mnemo button opens a menu with:

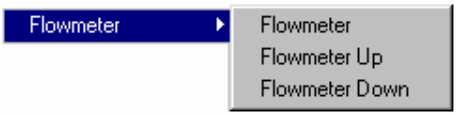
- Define name: Calls a dialog where the mnemonic can be entered or selected from the list of known mnemonic.
- When the File Mnemo has been recognized the menu contains all other known mnemonic for the same data type corresponding to the File Mnemonic.

Skip column: If set to this value, the current column will not be loaded. This applies to the selected file only. To skip a mnemonic in all files, use the Filter options.

Type

The measure type, e.g. Pressure, Temperature, etc. If a mnemonic has been found for the particular column, Emeraude seeks an association between this mnemonic and a data type. If such association exists the resulting data type is indicated in the button. Otherwise a "**?**" appears.
Clicking on the "TYPE" button opens a menu with a list of all the available data types. Selecting a type resets the mnemonic to some default for the new type. *In case of stationary data, the load offers various formats to read the time values.*

For flowmeters, and calipers, which can be stored in more than one column, a type sub-menu is offered, e.g. Flowmeter Up or Down. In this case, Emeraude will construct a single flowmeter channel defined as Flowmeter Up – Flowmeter Down.



For an X-Y caliper, the individual channels are associated with the types: CaliperC1 and CaliperC2. Emeraude will load the two channels and create a caliper curve with values equal to the square root of CaliperC1*CaliperC2.

Skip column: the current column will not be loaded.

Unit

Must be set to the unit of the data in the file. For a LIS of LAS file, the unit information is present and can be recognized. If the unit string contained in the file is unknown to Emeraude it is displayed in the button in red with a question mark. The correct unit can be selected by clicking on the unit button. For an Ascii file, if the data type for the particular column has been identified (or defined), the selection is on the current default unit for the type (as defined in the "Units" option of the "Settings" panel). This should always be checked.

Import

When all conflicts have been resolved, and unrecognized information defined or skipped, the "Import" button is enabled to load the data.

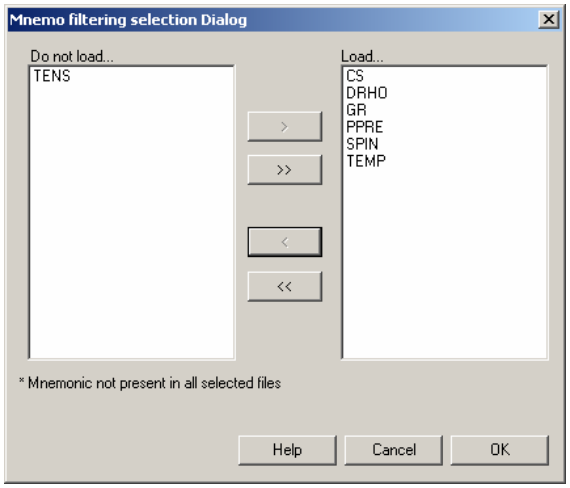
File view mode

Click this button to see the file content if Ascii or LAS.
The next three sections below describe the additional dialog options: Filter, Mnemos, and Advanced.

D04.2 • Filter dialog

Creates a dialog with the list of mnemonics in the file that can be used to quickly define which one to skip or load. It applies to all selected files. This is a temporary feature (i.e. only for the current load) as opposed to defining a mnemonic as “Always filtered” in the Mnemos dialog. The Filter applies to all selected files.

A mnemonic in the Filter dialog is present in at least one of the selected files. When it is not present in all files, its name if followed by ‘**[*]**’.



To the left is the list of mnemonics that will not be loaded (including, if any, the “Always filtered” mnemonics present in the files).
To the right is the list of mnemonics that will be loaded.

Mnemonics can be moved from one side to the other with the buttons:

> Move the selected mnemos from left to right.

>> Move all mnemos to the right.

< Move the selected mnemos from right to left.

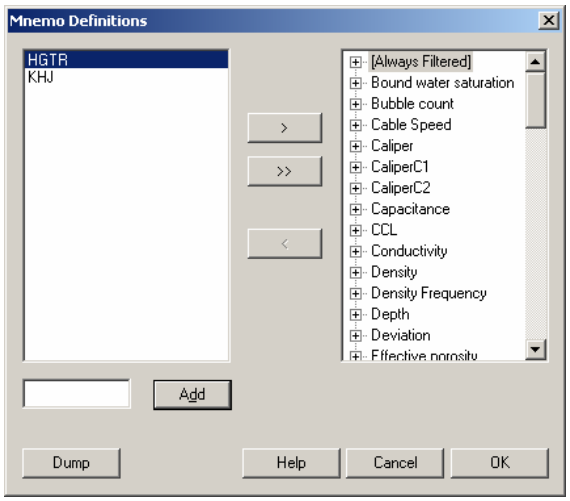
>> Move all mnemos to the left.

D04.3 • Mnemo definition dialog

Accessed:

- With the “Mnemonics” button of the Settings panel (chapter D06)
- With the “Mnemos” button of the Load dialog
- Automatically by the Load option, when a file is added that contains undefined mnemos.

The Mnemo definition dialog can be used to extend the built-in list of mnemonic/data type association. New mnemonics can be defined as “Always ignored” or associated with a particular data type. These definitions are then stored in the registry table and are then recovered automatically from one session to another.



On the left of the dialog is the list of mnemonics to be specified. When the dialog has been called automatically in the Load option after adding a new file, the list shows all the unrecognized mnemonics in the file(s). On the right side is a list of valid data types for Emeraude, and the mnemonics associated with those types. The first item in the list, called “Always filtered”, contains the mnemonics that are systematically ignored. At installation, the “Always filtered” node is empty and the other items contain the Emeraude built-in list of mnemonics.

All manipulations in this dialog box are done in the same manner:

> Move a selected list of mnemonics to a selected data type. Requires both selections active.

>> Move all mnemonics on the left side to a selected data type. Requires a non-empty left window and right selection active.

< Remove a user-defined mnemonic. Note: Emeraude internal definitions cannot be removed.

Add

Manual addition. After typing the desired name in the edit field next to the “Add” button, clicking on “Add” moves the name to the top list. To be used when the Mnemo definition dialog is called from he Mnemonic option of the Settings panel.

To make an association

Choose the mnemonic in the left side of the dialog, click on the desired data type in the right side and use the “**>**” to include this Mnemonic in the list. This is a permanent association. To remove it, select the mnemonic on the right side of the dialog, then use “**<**”.

To exclude Data Types

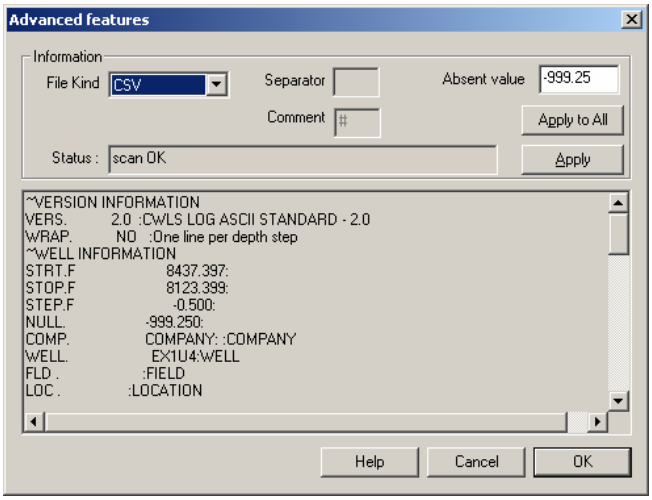
Choose the appropriate mnemonics in the left side of the dialog, then click on the "[Always filtered]" item on the right and move the mnemonics using the ">" button. The mnemonic will be ignored in future loads. The Load dialog will not display a grid column for this mnemonic. The only location where it will be seen is in the Filter dialog.

Other Data Types

"Other" is used to load and display any log that does not correspond to an Emeraude data type.

D04.4 • Advanced dialog

The bottom part of the dialog shows the file content if Ascii or LAS format (not LIS).

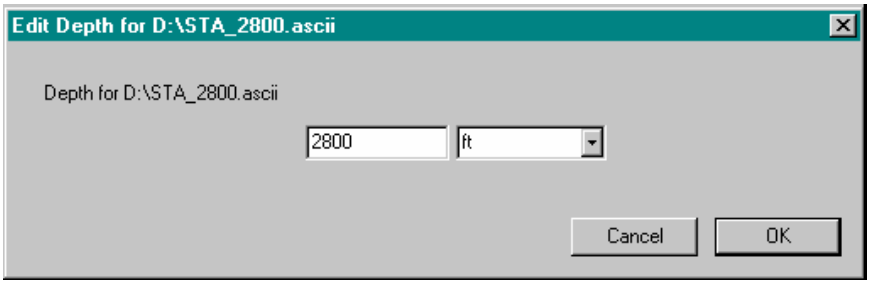


The following information can be viewed and edited in this dialog:

- File type: LIS, LAS, or Ascii. For an Ascii file, this drop list can be used to change the mode in which the file content is interpreted. This is to be used with great caution and only as a workaround, typically if a LAS format is not picked automatically.
- Comment: Change the comment header character – Ascii file only.
- Separator: Ascii file only
- Absent value: default is –999.25 but can be redefined.
- Status of file scan: indicates eventual errors, in particular a depth that is not strictly increasing or strictly decreasing.
- Apply: invokes the scan for the current settings
- Apply to All: set to all files the absent value

D04.5 • Loading stations

Loading stations is very similar to loading versus Depth data, the main difference being that no specific "X" column is required by Emeraude. If a Depth column is found in the file, Emeraude will use this information to assign the appropriate depth to the measurements. When no depth information is found, a dialog box prompts the user to enter the station depth when Import is selected. For LAS files with the keyword STRT in the WELL INFORMATION section, the depth is automatically retrieved:



When it is present in the file, a TIME channel can be imported, and it can be visualized inside the data browser. A plot of the station data versus time is available in the browser.
Specific processing applies to Stationary passes.

D04.6 • Built-in mnemonics

Emeraude recognizes automatically the mnemonics below. User mnemonics can also be added.

Bound water saturation	SWB
Bubble count	DFB1, DFB2, DFB3, DFB4, DFB5, DFB6, DFB7, DFB8, GHB1, GHB2, GHB3, GHB4, GHB5, GHB6, GHB7, GHB8, DFBM, DFBM2, GHBM, GHBM2
Cable speed	LS, CSPE, CS&&, CVEL, VEL, RCVE, CS, LSPD, SCVL
Caliper	CALI, CAL, PFC12
Caliper C1 **Caliper C2**	C1, XCAL, PFC1 C2, YCAL, PFC2
Capacitance	CAP, HUMC, CAPI, DIEL, FCAP, HUM, WHM, CN1, CN2, CN3, CN4, CN5, CN6, CN7, CN8, CN9, CN10, CN11, CN12, CWHNR
CCL	CCL_, CCL, RCCL, ACCL, CCLC, CCLD
Conductivity	COND
Density	UWFD, WFDE, UPRH, PRH, GRAD, DRHO, RHOB, GRHO, RGRH, FWFD, DENS, RFD, MWFD, DENR, FDDENS
Depth	DEPT, DEPTH

Deviation	DEVI
Effective porosity	PHIE
Flowmeter	FLOW, FFLO, SP, SP01, SPIN, RSPI, RSP1, RSP2, SPI1, SPI2, S1F, S2F, CFB, ILS, FFM, CFSRATE, ILSRATE, CFBRATE.
Free water saturation	SWF
Gamma Ray	CGR, GR, GAMM, GR2, RGR, SGRU
Gas holdup	YG, GHH1, GHH2, GHH3, GHH4, GHH5, GHH6, GHH7, GHH8, GHHM, GHHM2
Gas rate	QG
Gas saturation	SG
Gas velocity	VG
Geothermal temperature	TGEO
Hydrocarbon saturation	SHYD
Internal diameter	ID
Mixture velocity	VT
Mixture rate	QT
Near to far gate counts	RATIO, TRAT
Neutron porosity	PHIN
Oil holdup	YO
Oil rate	QO
Oil saturation	SO
Oil velocity	VO
Other	OTHR
Pressure	MP, RMP, PPRE, HPF, HPGP, IHPG , WPRE, PRES, P1, P2, QP
Roughness	RUGO
Salinity	SALT
Sigma borehole	SIBH, SIBF
Sigma formation	SIF, SIGM
Sigma hydrocarbon	SIHYD
Sigma matrix	SIMA, SIGMAT
Sigma shale	SISH
Sigma water	SIW
Sigma water bound	SIBW
Sigma water free	SIWF
Temperature	TEMP, PTEM, HPT, WTEP, Tf, DTEMP
Tension	TENS, RTEN
Time	TIME
Tool bearing	D1RB, RELB, RB, D1RB2
Total porosity	TPHI
Total water saturation	SWT
True vertical depth	TVD
Volume dry clay	VK
Volume shale	VSH
Water holdup	YW, DFH1, DFH2, DFH3, DFH4, DFH5, DFH6, DFH7, DFH8, DFHM, DDFHM, DFM2
Water rate	QW

Water saturation	SW, SIGPRED
Water velocity	VW

In addition to the basic Flowmeter data type, Emeraude includes a Flowmeter Up and a Flowmeter Down. These two types can only be used together, and are restricted to Lee tool data files where a single spinner response is defined by 2 channels.

Built-in mnemonics are continuously updated with new Emeraude releases/upgrades. Also, new version implement data types that may have been absent before. For instance v2.30 implements bubble counts and tool bearings as explicit types. It may happen, for this reason, that you have defined on your machine a user mnemo that is now built–in. When this situation occurs you typically will see a message in the Load and Export dialog indicating that mnemonics have multiple definitions. Emeraude 2.30 takes the following actions when this situation is encountered:

Case 1
A file contains a channel with data type TYPE_A and mnemo “MNEMO”. A built-in mnemo “MNEMO” exists, and it belongs to the same data type as A.
⇒ The user mnemonic is deleted and replaced by the built-in one.

Example: You loaded water holdup data with mnemo DDFHM with Emeraude 2.20 and defined the corresponding user mnemo as a water holdup mnemo. When you open your file with 2.30 Emeraude switches to the internal mnemo. The user mnemo is discarded.

Case 2
A file contains a channel with data type TYPE_A and mnemo “MNEMO”. A built-in mnemo “MNEMO” exists, and it belongs to a different data type TYPE_B.

Case 2a: TYPE_A and TYPE_B use the same physical property.
⇒ Conversion from TYPE_A to TYPE_B keeps the internal values. The user mnemo is discarded and replaced by the built-in one.

Example: You loaded bubble count data with mnemo DFB1 with Emeraude 2.20 and defined the corresponding user mnemo as a mnemo of type “Other”. When you open your file with 2.30, Emeraude replaces the original channel by a channel of type “Bubble count” with the built-in mnemo for DFB1, and the same values as in your original channel.

Case 2b: TYPE_A and TYPE_B use different physical property. TYPE_A has no unit associated with it.
⇒ Conversion from TYPE_A to TYPE_B is done assuming that the original values are in the current unit for TYPE_B.

Example: You loaded tool bearing with mnemo D1RB with Emeraude 2.20 and defined the corresponding user mnemo as a mnemo of type “Other”. When you open your file with 2.30, Emeraude replaces the original channel by a channel of type “Tool bearing” with the built-in mnemo for D1RB. The values of the new channels are the original ones converted from degrees to radians, the internal unit for bearing channels.

Case 2c: TYPE_A and TYPE_B use different physical property. TYPE_A has a unit associated with it.

⇒ Since there is no safe way to make a conversion from type A to type B, nothing is done in this case. Most likely, and unless there is a specific processing associated with the new type/mnemo you can leave the file as is. Otherwise you may have to export/reload the incriminated channel .

D04.7 • Reserved types/mnemos

Some data types and mnemonics are reserved for internal usage in Emeraude:

Water rate	Can be loaded	QWAT, QWZT, QWZI
Oil rate	Can be loaded	QOIL, QOZT, QOZI
Gas rate	Can be loaded	QGAS, QGZT, QGZI
Mixture rate	Can be loaded	QTOT, QTZT
Water ratio	Can be loaded	QWZTR
Oil ratio	Can be loaded	QOZTR
Gas ratio	Can be loaded	QGZTR
Mixture ratio	Can be loaded	QTZTR
Velocity	Can be loaded	VAPP, VMIX
Perfos		ZPRF
Spinner calibration zones		SCZ
Rate calculation zones		QCZ
Corrected density		DENC
Pressure derived density		DPDZ

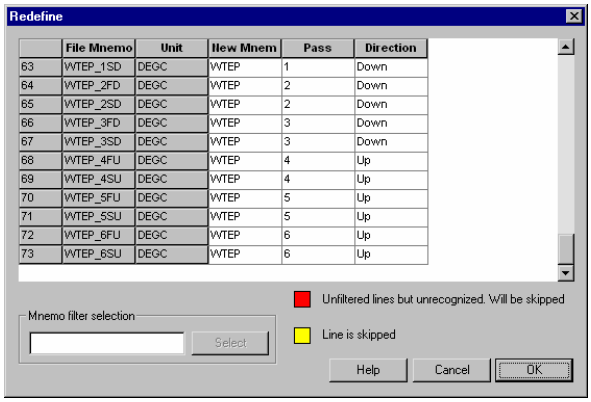
The second column indicates the data types that could be loaded with different mnemonics. For instance, Emeraude does accept rates as input measurements and they can be loaded with, say the mnemonics QO, QW, QG. In particular, if one desires to use a result channel as an input to another interpretation, it is necessary to Export the channel first, and then reload to change the mnemonic. There is no mnemonic change once a channel is loaded inside the document.

For the types that are non loadable, it is always possible to define a special mnemonic to load the channel as “Other”. The resulting channel is displayed on automatic plots with the newly defined mnemonic, and can be added to user views. Note however that for a channel of type “Other”, unit conversions are not possible.

D04.8 • Merged file

The Load dialog contains an explicit option for Merged files. When this option is selected a first dialog permits the redefinition of all the mnemonics, and the choice of the destination pass.

In this routine, an “intelligent” scan of the mnemonics is performed so that trailing characters can be removed automatically, and relevant info, such as pass type and number, extracted from them.



In a standard load, it is assumed that a file contains data for one pass only. In the case of LIS format, the former assumption applies to the logical files inside the physical LIS file. A further requirement for a correct identification of curves is that the same mnemonic be used for a given tool in all the files.

Both assumptions are typically violated in the case of a merged file, where curves from several passes are present, and the mnemonics carry specific information relative to the pass type/number. For instance, a merged file may contain spinners for 4 different passes carrying the mnemonics: SPINU1, SPINU2, SPIND1, SPIND2. With such a file, it is necessary to use the **Merged File** button of the Load dialog. The objective of this option is to define the unique tool mnemonics and the destination passes so that Emeraude can create temporary files for each pass, and invoke the usual Load facilities.

After selecting the Merged file name, the pre-processing dialog is displayed with a grid showing in order:

- The File mnemonic
- The File unit string
- The New mnemo
- The destination pass index
- The destination pass type

Emeraude attempts to make an automatic recognition. For instance, if the file mnemo is WFDE_4FU, then it will automatically recognize the basic WFDE and decode in the trailing characters the “U” for Up and “4” for the pass index. The line for this particular mnemonic will thus be:

WFDE_4FU	G/C3	WFDE	4	Up

Survey selection

The Merged File load can be used to re-assign the mnemonics/destination pass for all curves of a single survey. In fact retained curves will be loaded in the current survey. When data for several surveys are present in the same file, the Merge File option must be used repeatedly in each of them.

Skip line/ read line

If you right click on the header button of any line a popup menu appears with the options to skip or read the particular line. A line that is skipped is displayed in yellow. The skip/read options can be used after a selection is made using the “mnemo filter selection” (see below).

Mnemo filter selection

Several lines can be selected at once using usual wildcards:
* = any string
? = any character
Lets assume that we have a merged file containing together passes for a Flowing survey and a Shut-in survey. All flowing curves end with the string _nFX where n is the pass index, and X is the pass type (U or D). Similarly, all shut-in curves have mnemonics ending with _nSX where S stands for shut-in. The mnemo filter selection option can be used to select at once all the flowing curves with the filter:
*_?F?

After entering the filter criterion, the **Select** button is enabled, and on the example just discussed, the result would be:

47	SPIN_5SU	CPS	SPIN	5	Up
48	SPIN_6FU	CPS	SPIN	6	Up
49	SPIN_6SU	CPS	SPIN	6	Up
50	WFDE_1FD	G/C3	WFDE	1	Down
51	WFDE_1SD	G/C3	WFDE	1	Down
52	WFDE_2FD	G/C3	WFDE	2	Down
53	WFDE_2SD	G/C3	WFDE	2	Down
54	WFDE_3FD	G/C3	WFDE	3	Down
55	WFDE_3SD	G/C3	WFDE	3	Down
56	WFDE_4FU	G/C3	WFDE	4	Up
57	WFDE_4SU	G/C3	WFDE	4	Up
58	WFDE_5FU	G/C3	WFDE	5	Up

By a right click on the header of any selected line, the skip/read line will apply to the entire selection. Skipped lines are displayed in yellow:

47	SPIN_5SU	CPS	SPIN	5	Up
48	SPIN_6FU	CPS	SPIN	6	Up
49	SPIN_6SU	CPS	SPIN	6	Up
50	WFDE_1FD	G/C3	WFDE	1	Down
51	WFDE_1SD	G/C3	WFDE	1	Down
52	WFDE_2FD	G/C3	WFDE	2	Down
53	WFDE_2SD	G/C3	WFDE	2	Down
54	WFDE_3FD	G/C3	WFDE	3	Down
55	WFDE_3SD	G/C3	WFDE	3	Down
56	WFDE_4FU	G/C3	WFDE	4	Up
57	WFDE_4SU	G/C3	WFDE	4	Up
58	WFDE_5FU	G/C3	WFDE	5	Up

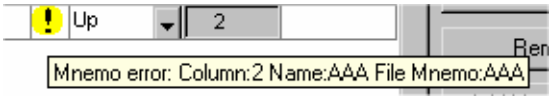
D04.9 • Load troubleshooting

For any column to be loaded, the data type, mnemonic and unit must be recognized/defined before **Import** can be authorized. In addition, the following constraints must be satisfied:

- When loading versus depth data, each pass must have an associated depth column
- Two curves with the same mnemonic cannot be loaded inside the same pass

Errors and how to resolve them

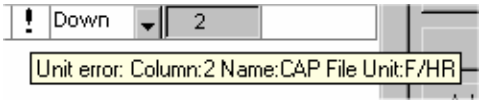
When errors are encountered in a file, special icons appear on the corresponding line. You can get an explanation by simply moving the mouse cursor on top of this icon.



Cause: Next to a file name, this warning indicates that at least one column of the file is undefined (mnemo+type). Once the particular file is activated, the column can easily be spotted in the grid below as it is colored in yellow. *Use the horizontal scrollbar if necessary to locate the column(s).*

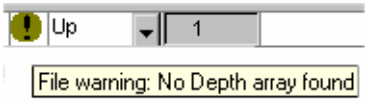
Solution :

- skip the column (use any of the column header buttons or the Filter option)
  or
- define/ replace the mnemonic (click on the mnemonic itself, or on the Mnemos button). You can also define the type manually (click on the column topmost button, **?**)



Cause: Indicates one undefined or unrecognized unit : the failing unit is then colored in red.

Solution: Click on the unit button itself and redefine from the available list. Note that the “unit” is grayed when no unit is available for the defined data type.

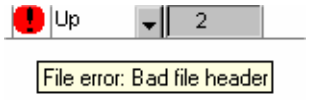


Cause 1: Indicates that you are using the “Load versus Depth” option and no Depth column was found in the file.

Solution: You may be attempting to load a station, in which case the proper option is “Load Stations”. Otherwise, you did not define the depth column properly.

Cause 2: Indicates that the depth values in the file are not constantly increasing/decreasing.

Solution: The indication is only a warning in this case and the Load can proceed. A dialog will prompt the user to skip the trailing points going “backwards”.



Cause: Bad file header, Error reading values, User break, Unexpected EOF, No data found in file, Error reading file





Cause: reveals that you are attempting to load in the defined destination pass the same mnemonic twice, or a mnemonic that is already present.

Solution: Check and redefine the destination pass if erroneous. If the pass is correct, then you will need to change the mnemonics of the duplicate curves.

Other potential problem:

Problem: The load dialog will not let you select multiple files when you are trying to load the log data.

Solution: You are in the “Load Well Data” dialog which function is to load the General Well Data only. You should use the “Load” option of the Survey panel instead.