
Macro Editor

Editing Equilib and
Phase Diagram Macros

The **Macro Editor**

The **Macro Editor** is a text editor with custom syntax highlighting, improving the readability and interpretation of macros.

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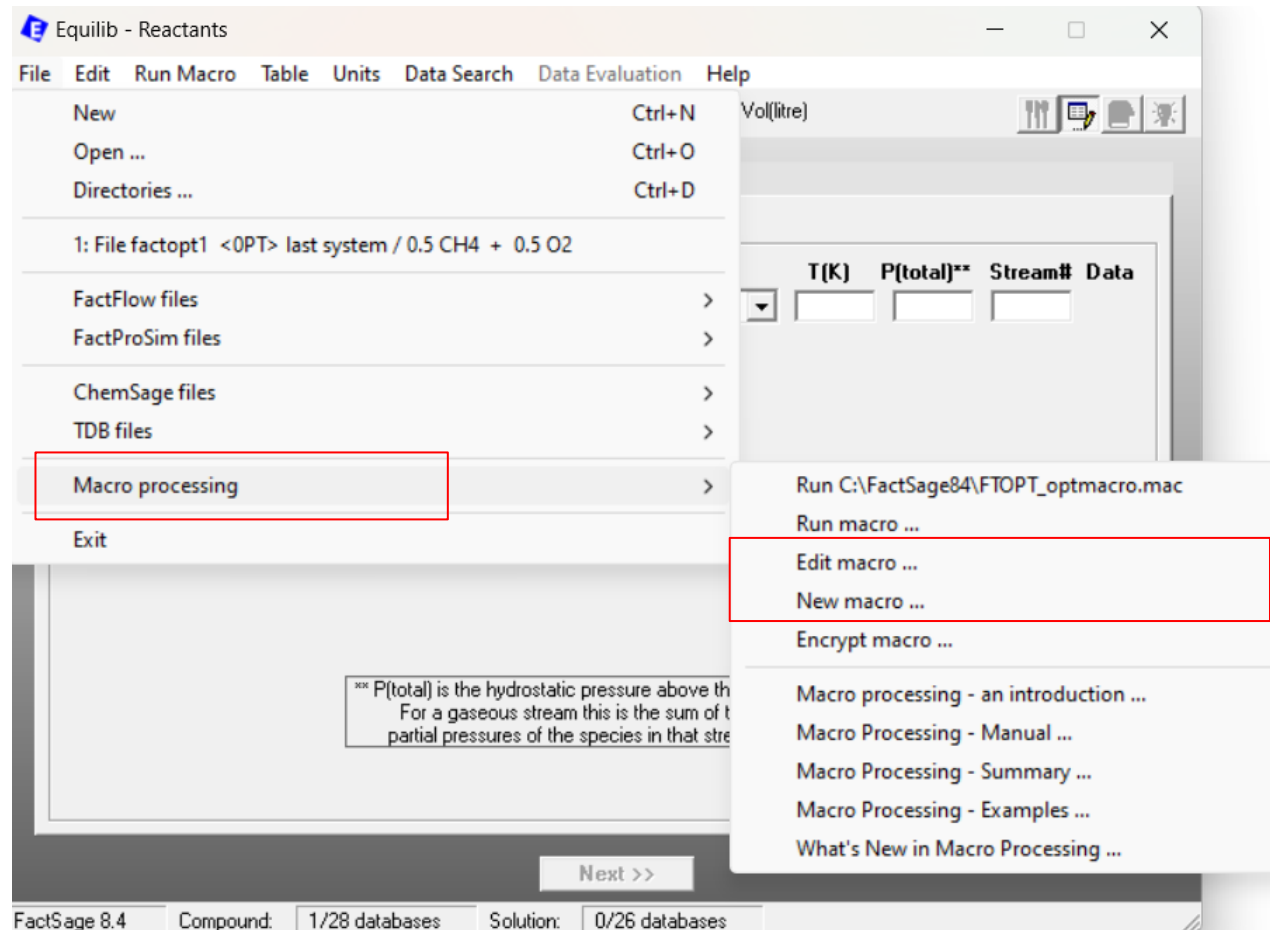
Introduction

The following two slides show you how to access the **Macro Editor**.

Macros can be written to perform *Equilib* or *Phase Diagram* calculations and operations.

Opening the Macro Editor

From **Equilib** or **Phase Diagram**, in the **Reactants** window,
Click on **File > Macro processing > Edit macro...** (to edit an existing macro) or
Click on **File > Macro processing > New macro...** (to create a new macro)

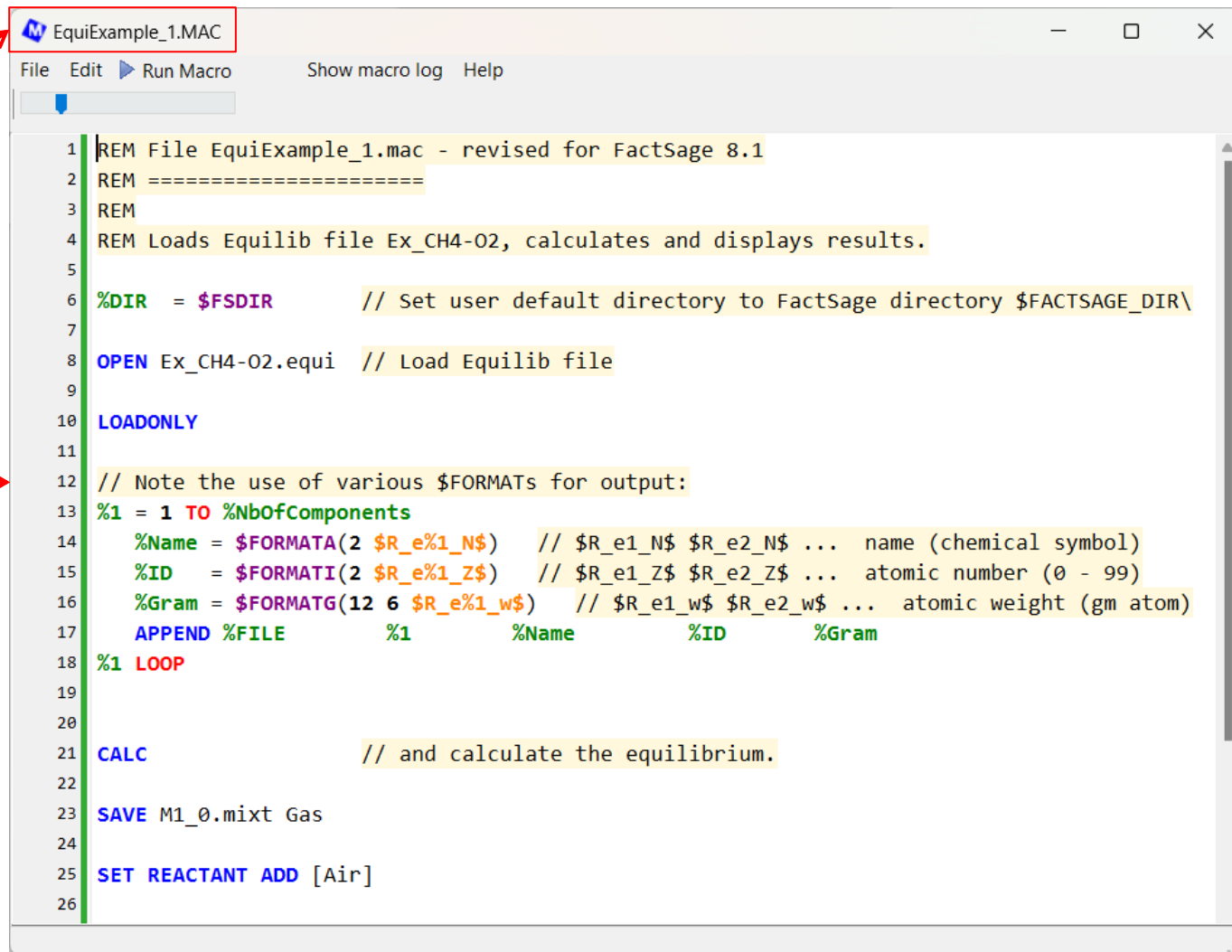


Editing a macro

Let us edit the file *EquiExample_1.mac* with the **Macro Editor**.

The active file name is indicated in the title bar

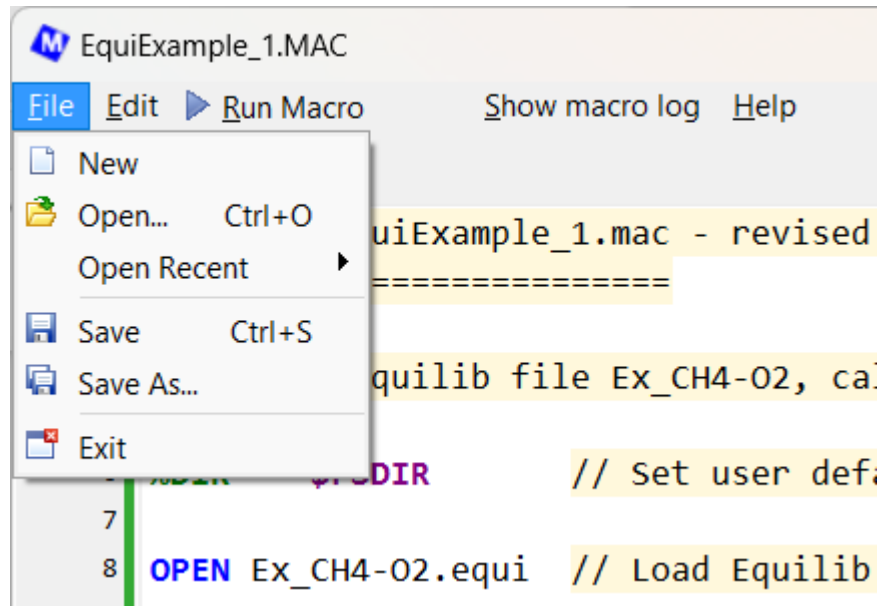
The macro is presented with syntax highlighting



```
1 | REM File EquiExample_1.mac - revised for FactSage 8.1
2 | REM =====
3 | REM
4 | REM Loads Equilib file Ex_CH4-02, calculates and displays results.
5 |
6 | %DIR = $FSDIR // Set user default directory to FactSage directory $FACTSAGE_DIR\
7 |
8 | OPEN Ex_CH4-02.equi // Load Equilib file
9 |
10 | LOADONLY
11 |
12 | // Note the use of various $FORMATs for output:
13 | %1 = 1 TO %NbOfComponents
14 | %Name = $FORMATA(2 $R_e%1_N$) // $R_e1_N$ $R_e2_N$ ... name (chemical symbol)
15 | %ID = $FORMATI(2 $R_e%1_Z$) // $R_e1_Z$ $R_e2_Z$ ... atomic number (0 - 99)
16 | %Gram = $FORMATG(12 6 $R_e%1_w$) // $R_e1_w$ $R_e2_w$ ... atomic weight (gm atom)
17 | APPEND %FILE %1 %Name %ID %Gram
18 | %1 LOOP
19 |
20 |
21 | CALC // and calculate the equilibrium.
22 |
23 | SAVE M1_0.mixt Gas
24 |
25 | SET REACTANT ADD [Air]
26 |
```

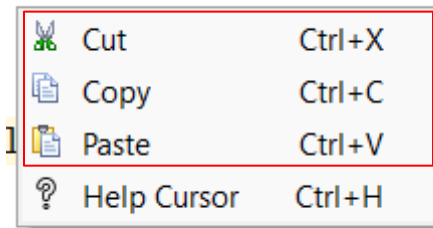
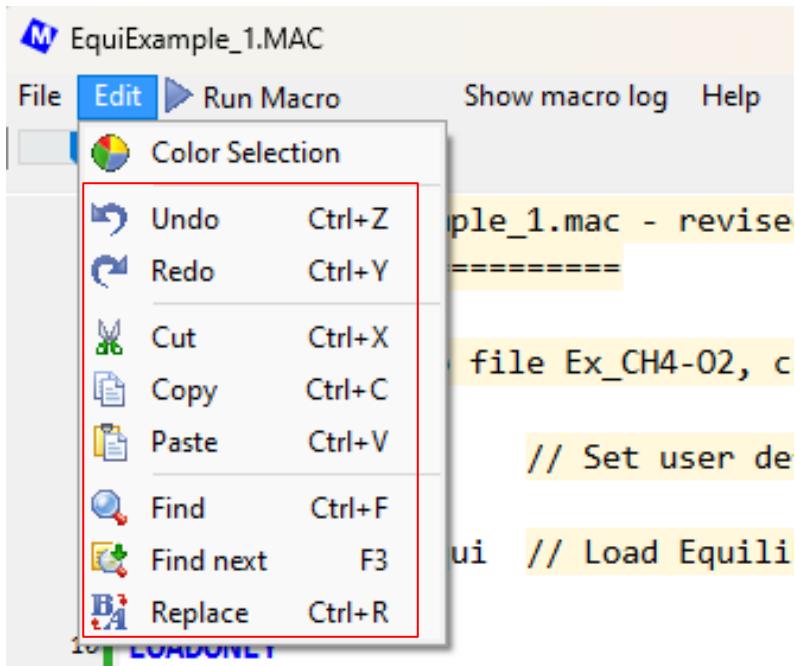
File options

Usual functionalities can be found in the *File* menu item, such as *New*, *Open*, *Save* and a list of recent file.



Editing options

Usual functionalities can be found in the *Edit* menu item, such as *undo*, *redo*, *cut*, *copy* and *paste*, and *search* options. Some of these functions can also be found in a popup menu when right clicking in the editor.



Right click in
the editor

Zooming

The **zoom** slider can be used to magnify the text :

The image displays two side-by-side screenshots of the FactSage Macro Editor interface, demonstrating the zoom slider's functionality. Both windows show the same macro file, 'EquiExample_1.MAC', with a zoom slider highlighted by a red box. The right window shows the text magnified, with a red arrow pointing from the zoom slider to the text. A text box explains: 'Slide to the right to zoom in and to the left to zoom out'. The macro code is as follows:

```
1 REM File EquiExample_1.mac - revised for FactSage 8.1
2 REM =====
3 REM
4 REM Loads Equilib file
5
6 %DIR = $FSDIR //
7
8 OPEN Ex_CH4-02.equi //
9
10 LOADONLY
11
12 // Note the use of various $FORMATs for output:
13 %1 = 1 TO %NbOfComponents
14 %Name = $FORMATA(2 $R_e%1_N$) // $R_e1_N$ $R_e2_N$ ...
15 %ID = $FORMATI(2 $R_e%1_Z$) // $R_e1_Z$ $R_e2_Z$ ...
16 %Gram = $FORMATG(12 6 $R_e%1_w$) // $R_e1_w$ $R_e2_w$
17 APPEND %FILE %1 %Name %ID %G
18 %1 LOOP
19
20
21 CALC //
22
23 SAVE M1_0.mixt Gas
24
25 SET REACTANT ADD [Air]
26
```


Syntax highlight

The syntax highlight **colors** can be easily changed by clicking, in the menu bar, on *Edit > Color Selection*.

The screenshot shows the Macro Editor interface for 'EquiExample_1.MAC'. The 'Edit' menu is open, and the 'Color Selection' option is highlighted. A red arrow points from this menu item to the 'Color Selection' dialog box. The dialog box contains five color selection options: 'Advanced Commands' (blue), 'Base Commands' (red), 'Functions' (purple), 'Variables' (green), and 'Variables of thermodynamic properties' (orange). A 'Default' button is located at the bottom left of the dialog, and a 'Save' button is at the bottom right. A red arrow points from the 'Save' button to a text box on the right. Another red arrow points from the 'Default' button to a text box at the bottom.

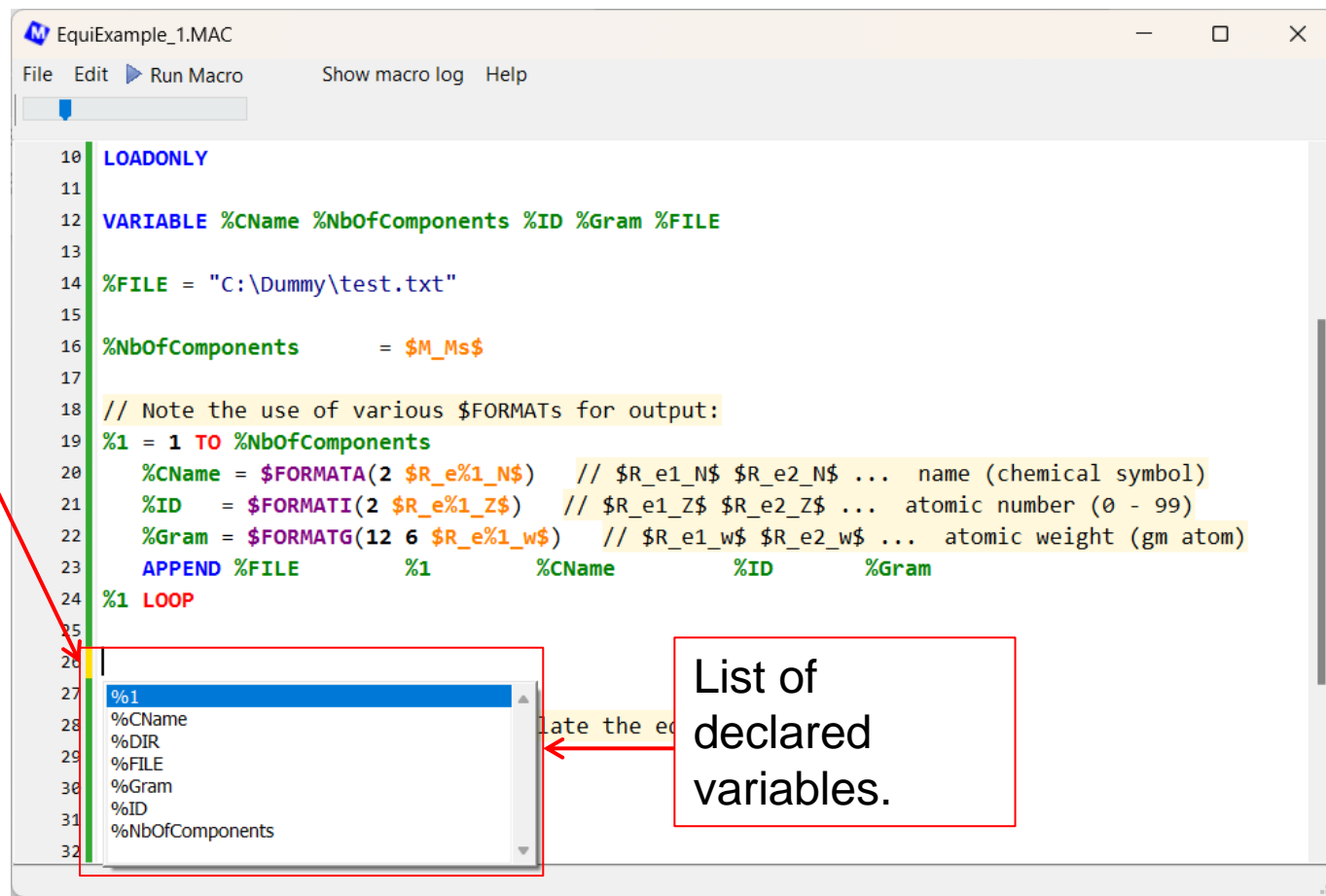
Custom colors can be selected in the **Colors Selection** Window. Click on **Save** when finished.

To revert to Default colors, click on the Default button.

Shortcut to the list of variables

When typing in the **Macro Editor**, use the shortcut **Ctrl + Space** to get a list of declared variable. Click on one item in the list to insert it in the text.

Note the different color in the margin when lines are modified, allowing a quick glance at latest modifications. They turn green when the file is saved.



The screenshot shows the Macro Editor window titled "EquiExample_1.MAC". The menu bar includes "File", "Edit", "Run Macro", "Show macro log", and "Help". The code in the editor is as follows:

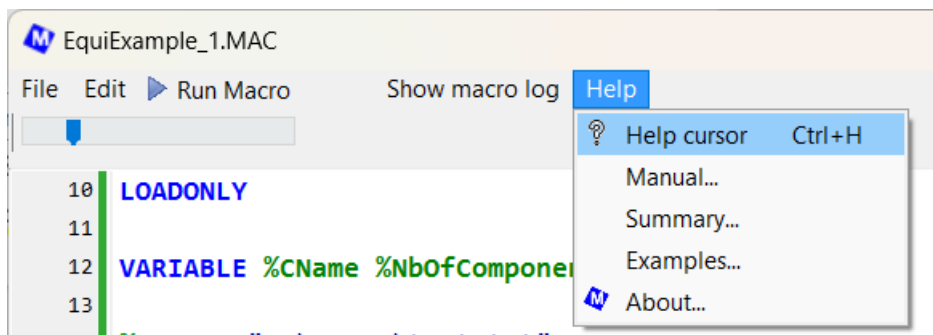
```
10 LOADONLY
11
12 VARIABLE %CName %NbOfComponents %ID %Gram %FILE
13
14 %FILE = "C:\Dummy\test.txt"
15
16 %NbOfComponents = $M_Ms$
17
18 // Note the use of various $FORMATs for output:
19 %1 = 1 TO %NbOfComponents
20 %CName = $FORMATA(2 $R_e%1_N$) // $R_e1_N$ $R_e2_N$ ... name (chemical symbol)
21 %ID = $FORMATI(2 $R_e%1_Z$) // $R_e1_Z$ $R_e2_Z$ ... atomic number (0 - 99)
22 %Gram = $FORMATG(12 6 $R_e%1_w$) // $R_e1_w$ $R_e2_w$ ... atomic weight (gm atom)
23 APPEND %FILE %1 %CName %ID %Gram
24 %1 LOOP
25
26
27
28
29
30
31
32
```


A dropdown menu is open at line 26, showing a list of declared variables: %1, %CName, %DIR, %FILE, %Gram, %ID, and %NbOfComponents. A red box highlights this list, and a red arrow points to it from the text "List of declared variables." Another red arrow points from the text "Note the different color in the margin..." to the green margin of line 12.

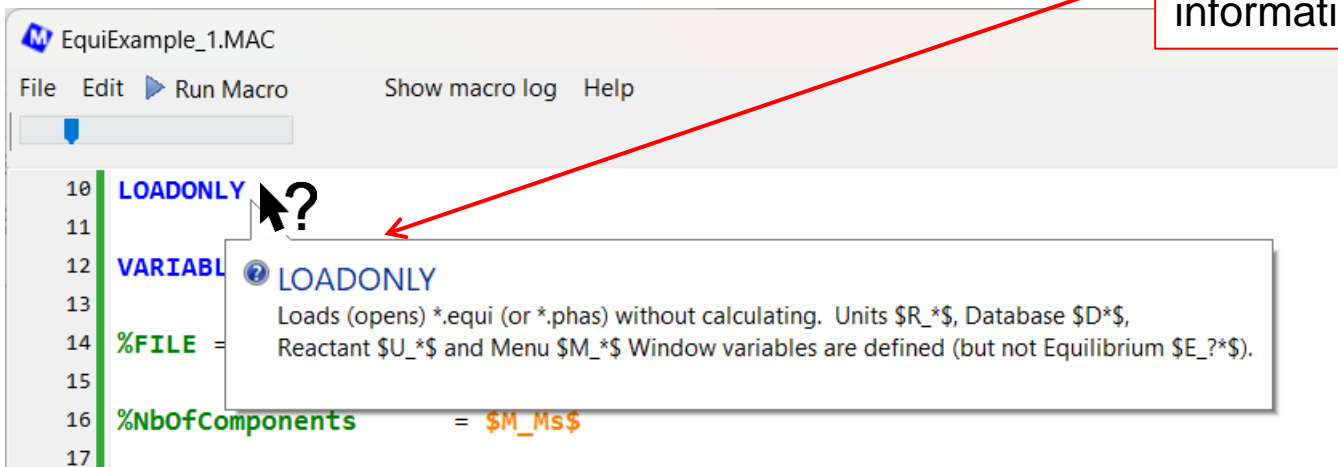
List of declared variables.

Help cursor

To obtain help on functions and commands, click on *Help > Help cursor* from the menu bar, or from the popup menu when right-clicking in the main window. To deactivate the help cursor, press the **Esc** key or click again on the *Help cursor* menu item.

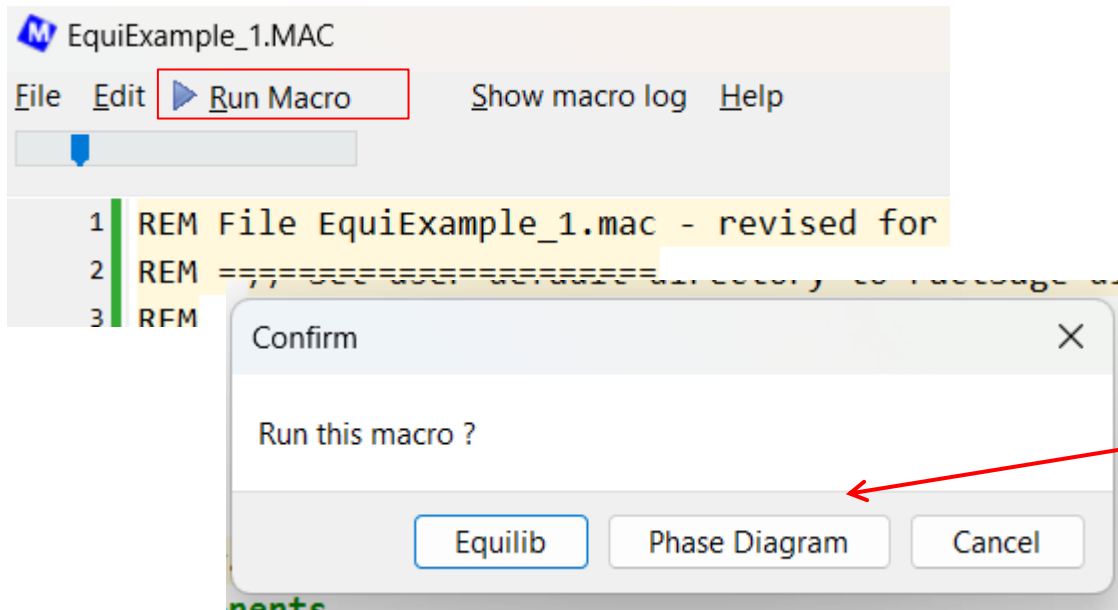


After activating the **Help cursor**, the mouse cursor turns to . Moving the mouse over functions and commands provides more information.



Running a macro

One can run the macro directly from the **Macro Editor**, by clicking on *Run Macro* in the menu bar. Note: on confirming to run the macro, the file is **saved** and the full path is displayed in the status bar, for example : `File C:\FactSage83\MACROS\EquiExample_1.MAC saved.`



Here one can choose to run the macro in **Equilib** or **Phase Diagram**.

Viewing the macro log

After running a macro, the **log** file can be displayed by clicking on *Show macro log* in the menu bar:

EquiExample_1.MAC

File Edit Run Macro Show macro log Help

```
1 REM File EquiExample_1.mac - revised for FactSage
2 REM =====
3 REM
4 REM Loads Equilib file Ex_CH4-02, calculates
5
6 %DIR = %FSDIR // Set user default directory
7
8 OPEN Ex_CH4-02.equi // Load Equilib file
9
10 LOADONLY
11
12 VARIABLE %CName %NbOfComponents %ID %Gram %FI
13
14 %FILE = "C:\Dummy\test.txt"
15
16 %NbOfComponents = %M_Ms$
17
18 // Note the use of various $FORMATs for output
19 %1 = 1 TO %NbOfComponents
20 %CName = $FORMATA(2 $R_e%1_N$) // $R_e%1_N$
21 %ID = $FORMATI(2 $R_e%1_Z$) // $R_e%1_Z$
22 %Gram = $FORMATG(12 6 $R_e%1_w$) // $R_e%1_w$
23 APPEND %FILE %1 %CName
24 %1 LOOP
25
```

Log file :

```
C:\FACTSAGE84\eMacro.log - 2024-12-05 2:03:27 PM
C:\FactSage83\MACROS\EquiExample_1.MAC
00:00:00 REM File EquiExample_1.mac - revised for FactSage
00:00:00 REM =====
00:00:00 REM
00:00:00 REM Loads Equilib file Ex_CH4-02, calculates
00:00:00 %DIR %FSDIR
00:00:00 %DIR C:\FACTSAGE84\
-----> %DIR = C:\FACTSAGE84\
00:00:00 OPEN Ex_CH4-02.equi
00:00:00 LOADONLY
00:00:00 VARIABLE %CName %NbOfComponents %ID %Gram %FI
00:00:00 %FILE "C:\Dummy\test.txt"
-----> %FILE = C:\Dummy\test.txt
00:00:00 %NbOfComponents %M_Ms$
00:00:00 %NbOfComponents 40
-----> %NbOfComponents = 40
00:00:00 %1 1 TO 40
-----> %1 = 1
00:00:00 %CName $FORMATA(2 $R_e%1_N$)
-----> $FORMATA(2 0) -> <ç0>
00:00:00 %CName ç0
-----> %CName = ç0
00:00:00 %ID $FORMATI(2 $R_e%1_Z$)
-----> $FORMATI(2 8) -> <ç8>
-----> ..
```

File C:\FactSage83\MACROS\EquiExample_1.MAC saved.

Double click on a line in the left pane to find the corresponding line in the log on the right pane.