Prepare to be MATELYS *approved !*

Version 9.0

Quick start

Ref. 2017-AlphaCell-v9.0-QS

Updated: January 31, 2017

If you think:

Yeah, I know what it's all about, give some fresh meat !
or:
I need these results now !
or:
Just show me, I will get along with it later on.

then this chapter is for you !

More information:

Full User Guide

http://alphacell.matelys.com

training@matelys.com

1 Requirements and installation

You need JAVA© 1.8 or later installed on your computer. If not, follow the instructions given at this address[1] before going any further.

[1] http://www.java.com/fr/download/

Three alternative accesses are available :

- For ALTAIR PARTNER ALLIANCE users[2], add the following environment variable to your path : `ALTAIR_LICENSE_PATH=6200@hostID`.
- For floating licenses provided directly by MATELYS, the license server address is `27000@hostID` .
- Otherwise, you locate the `AlphaCell.exe` file which was provided to you. In this very same folder, place the `license.lic` file which contains the information required to run the software[3].

[2] *Alpha*Cell 8.0 with `AltairSDK_12.0.6` . See also the Full User Guide if you have something like `library not loaded...`

[3] If you do not have it, launch *Alpha*Cell and follow the instructions to get your personal licence file.

You may place the `.exe` file wherever you want, as long as you have the `write` permissions on the folder and that the other associated files are in the same folder.

In addition, you may also have the following optional files in the same folder :

- `AlphaCell_FullUserGuide.pdf` ,
- `AlphaCell_ValidationExamples.pdf`
- `LogoReport.jpg` ,
- `AlphaCell_QuickStart.pdf` ,

and also

- `LogoSwitchNomenclature.png`.

The use of these files are explained in details in the Full User's Guide. In addition, you will find a folder named `Materials/` which contains :

- a material database to start with : `DBref_90.ref`
- two frequency spectra of typical damping loss factors[4].

[4] See Full User's Guide for details.

You may create different material databases corresponding to the different work domains you encounter in your daily work : automotive, aeronautic, equipment, market ... The material database is handled in the dedicated panel as further explained in the Full User's Guide.

2 Prepare a simulation

First, enter your LOGIN if any.

Second, enter the name for a CREATE NEW STUDY or select an existing one in the list and double-click on it to launch it, as shown in Fig. 1 (alternatively, click on the LOAD button).

You are now ready to run a simulation.

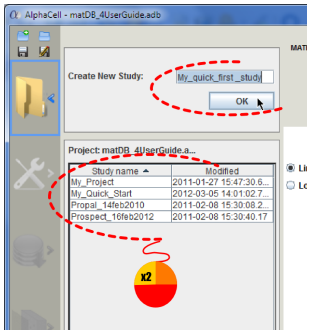

Figure 1: Preparation of a simulation: CREATE NEW STUDY or *Load* an existing one.

3 Run a simulation

Your screen is mainly occupied by the graph area, on top of which lie a schematic tube and a material shelf (see Fig. 2).

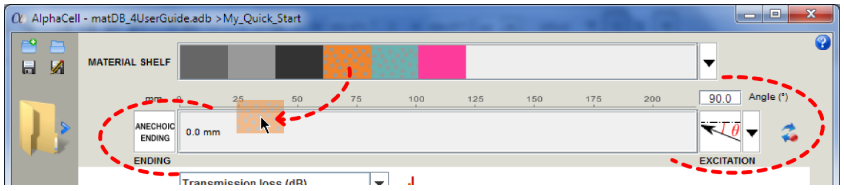

Figure 2: Compose your (multi-layer) system: drag & drop your layer(s), select the sound field.

If your database already contains some materials, they shall appear on the material shelf. Otherwise, click on the PARAMETERS button to design a new one (see Fig. 3).

Insert the layer(s) inside the tube using drag & drop motions from MATERIAL SHELF to the TUBE area. Modify the order of the layers similarly if necessary.

If needed, advanced tunings are available in the left panel shown in Fig. 3:

- STUDY : list of the STUDY(ies) included in the current PROJECT ;
- OPTIONS : frequency (including $n-$octave band analysis, spatial windowing, air properties) ;
- MATERIAL DATABASE : load & import materials into your project ;
- PARAMETERS : for each layer, choose name, thickness, acoustic models, elastic models, double porosity and derivated effects (radiation correction, pressure diffusion, ...) ;
- PDF REPORT : automated report generation with customised informations.
- EXIT : automated report generation with customised informations.

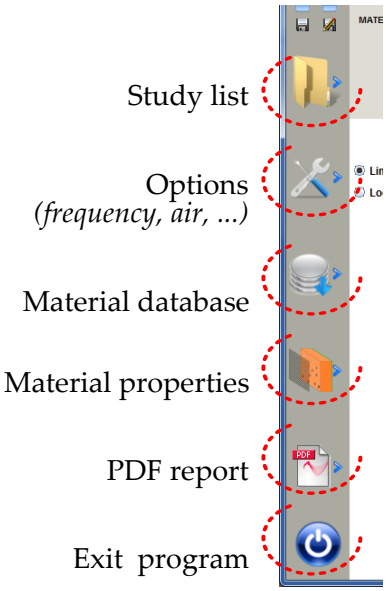

Figure 3: Details on the left panel buttons.

4 Save the results

To save the simulation results, click on the icon as indicated in Fig. 4.

Results are saved as double precision, with `.rok` extension (see Fig. 5), in a tabulated format which allows to open it with any SpreadSheet programmes (MS-Excel, OpenOffice-Calc). The variables are organised in different columns, the headers of which are self explanatory.

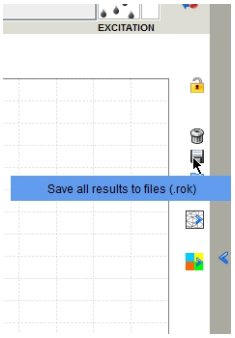

Figure 4: SAVE the results. Double-click on the legend allows to save / hide / remove a previous simulation.

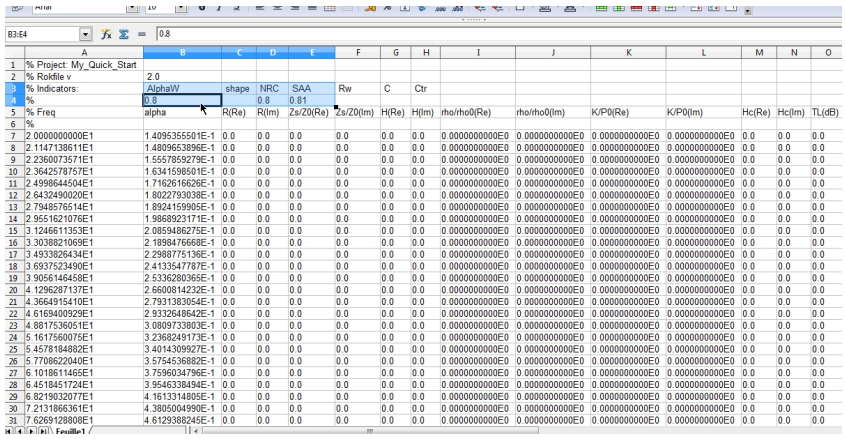

Figure 5: Format of the recorded results as opened using a spread sheet programme.

In the `.rok` file, the top three comments lines start with `%` to allow loading them directly using your preferred calculation software, e.g. SCILAB, OCTAVE, MATLAB...

5 Generate a PDF report

Click on the dedicated icon (see Fig. 3). Enter appropriate REPORT NAME, add useful PROJECT DESCRIPTION and select from the following the informations that you would like to appear in your report (see Fig. 6).

Click on GENERATE to produce a customised two pages' PDF report.

The image located in the file `LogoReport.jpg` is inserted automatically in the report header. You may wish to replace the default image with the logo of your institution. We recommend to select carefully the image size and definition for optimal rendering.

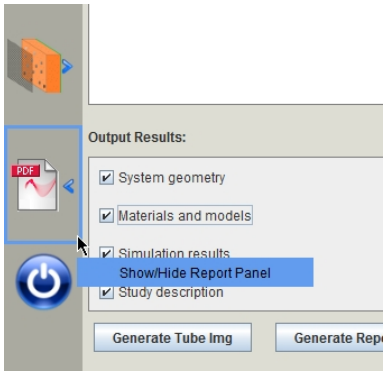

Figure 6: Select *Output Results* to appear in the report.

*Alpha*Cell is a software developped by MATELYS

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Simulations TMM-FTMM

Micro-Macro models

Characterization assistant

ISO 10140 & 354 meas

Pipes charac. & meas

Impedance tube meas

Material database tool

MATELYS - RESEARCH LAB

Ltd liability company with total share 8250 euros
Agrément C.I.R. (Crédit Impôt Recherche) since 2007
Déclaration d'activité de formation
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