

EASE 4.1



Addendum to EASE 4.0 Tutorial



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Tutorial Addendum

Introduction

EASE 4.1 includes numerous improvements that make it easier to use and improve its accuracy. Many of these improvements are not readily apparent to the user. For example, the *lower Snap Resolution* and the entry precision of coordinates has been improved by a factor of 10. They were 0.1 feet in 4.0 and are now 0.01 feet.

This addendum covers only those changes that significantly affect the operation of the program as described in the Tutorial.

New Key Commands (Hot Keys)

Addition and changes to pages 24 & 25.

The Mouse Wheel is now supported and acts to Zoom in and out.

New shortcut keys for the Edit Project, Area Mapping, Room Mapping and Ray Tracing modules allow you to quickly and easily switch from module to module.

Ctrl + Alt + a	=	Area Mapping
Ctrl + Alt + e	=	Edit Room
Ctrl + Alt + r	=	Room Mapping
Ctrl + Alt + t	=	Ray Tracing

New mouse/cursor shortcut keys make it easy to switch from one mode to another.

d	=	turn on Drag mode
p	=	turn on Pick mode
t	=	turn on Turn mode (use left mouse button to turn model, right button to zoom in and out.
Shift + c	=	turn on spot (center)

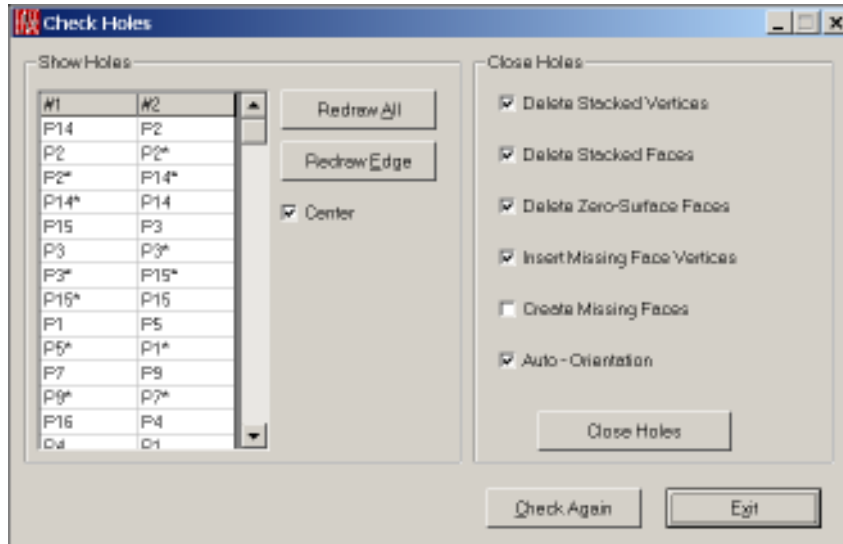
New Edit Project shortcut keys/mouse menu commands.

F2	=	Change Face Material
F3	=	Show all same for Face Materials
Ctrl + F2	=	Change Color (instead of Shift + F2)
Ctrl + F3	=	Change all same for Face Materials
Shift + F2	=	Change Rear Material
Shift + F3	=	Show all same for Rear Materials
Shift + Ctrl + F3	=	Change all same for rear materials
F8	=	Deactivate all active items

New Close Holes Function

Additions and Corrections to pages 105 to 108.

The *Check Holes* function has been significantly expanded and improved in EASE 4.1. It now not only identifies Holes, it fixes almost all of them upon command.



Note that *Create Missing Faces* is not checked in the setup screen shown above. Although the program will identify and add a missing Face, it isn't able to deal with multiple missing Faces. There is a limit to the miracles it can perform and it should be used with care.

If after the initial *Close Holes* operation is completed a long list of Vertices is still showing, your best bet is to use the *Redraw All* command to identify the problem locations (missing Faces) and then add them manually using *Insert Face*.

New Duplicate / Displace Functions

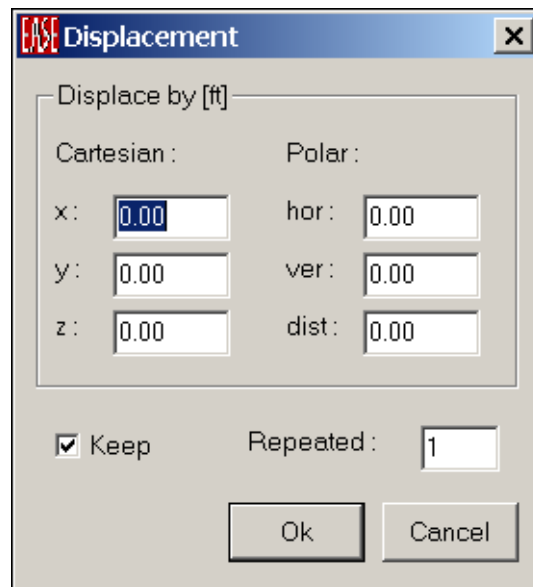
Additions and Corrections to page 71

The *Displacement* feature now accepts both Cartesian and Polar coordinate information.

The addition of polar displacement allows users who have measured an existing room with a calibrated range finder (one that provides both horizontal and vertical aiming angles as well as distance) to model the room from a single vantage point using the Duplicate/Displace feature. Place a Vertex at the 0,0,0 vantage point location and then use the Duplicate/Displace function to place the Vertices that define the room and then add the Faces.

Polar displacement also makes it easy to draw an arc using the radius of the arc and center point. Place a Vertex at the center point of the arc and then Duplicate/Displace it by the length of the radius a few degrees at a time to form the arc.

A *Keep* command has also been added. It allows users to lock-in (keep) the displacement settings so they will appear the next time Displace is opened. This can be great time saver when Duplicate/Displace is being used to insert a number of Vertices.



New Extrude Functions

Additions and Changes to page 71 and pages 109 to 103.

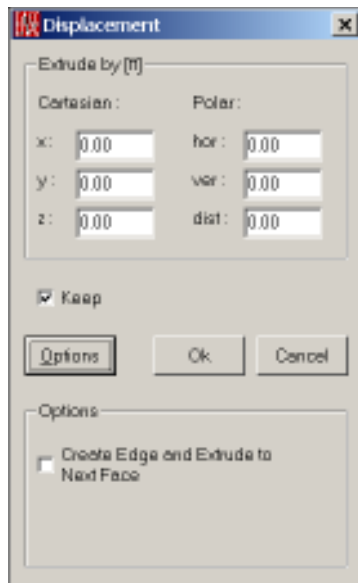
The expanded Extrude function is another time saving feature added to EASE 4.0.

One of the frequently encountered modelling challenges is placing a Vertex in a Face when the exact location is not known because one of the coordinates is unknown (see page 109). The *Create Edge and Extrude to Next Face* option of the new Extrude feature solves this problem.

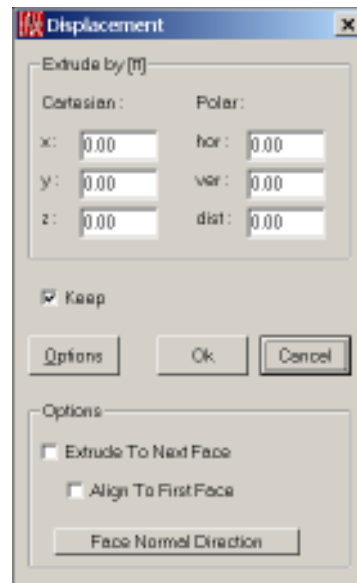
In the Tutorial example, place the Vertices in the floor as outlined in the example. Then use *Extrude* and *Create Edge and Extrude to Next Face* to extrude the Vertex to the Ceiling Face. Select the Vertex, use the Mouse Menu to select *Extrude*, put a check in the *Create Edge and Extrude to Next Face* box, insert 90 into the Vertical Polar field and a positive figure in the Z field and OK. The program will extrude an Edge from the floor to the ceiling. It's that simple.

The same principle applies to extruding Faces. Just check the *Extrude To Next Face* box and the program will extrude the Face to meet the next Face. A typical example would be inserting a floor to ceiling column in the Tutorial example. Use *Create Shape 3D/Cylinder* to place the base of a column with no height. Then use *Extrude* with the *Extrude To Next Face* option to extrude the base of the column to the ceiling. It's a snap.

The *Align To First Face* and *Face Normal Direction* are used to extrude a perpendicular Face off a slanted Face.



Extrude Vertice Menu



Extrude Face Menu

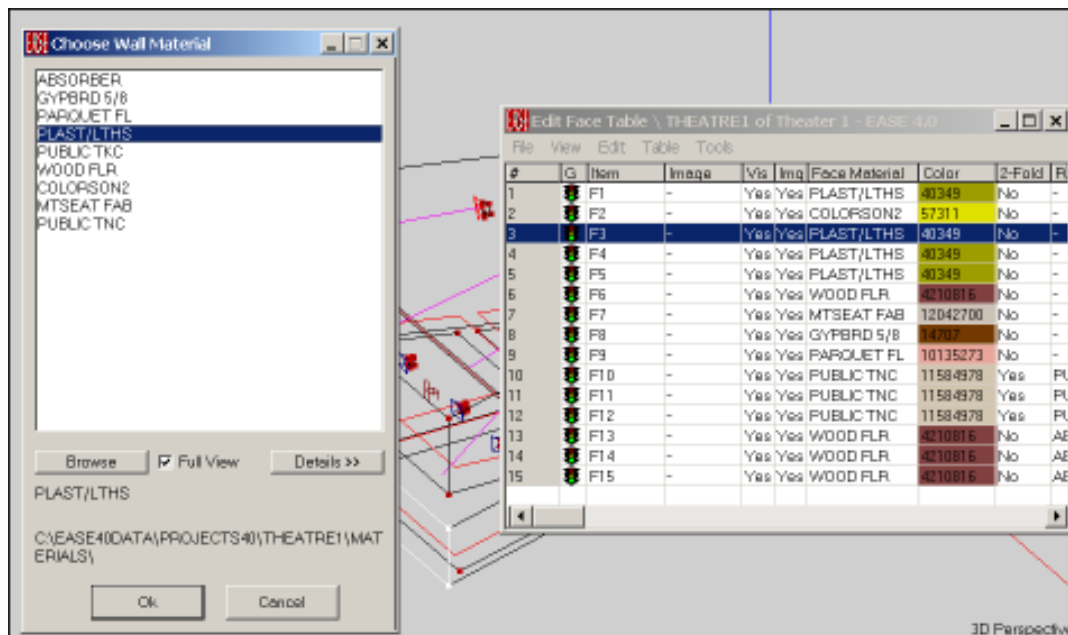
Improved Table Operation

Additions to Page 97

An often overlooked modeling tool is the Tables section. The *Face Table*, for example, makes it easy to assign materials to or change the materials of a number of Faces.

Just open the Face Table, select the desired Face and click on its material listing. This opens the *Choose Wall Material* screen and all you need to do is pick the material and *OK* it. You will find this is a lot faster than selecting each Face individually and opening its Properties folder to gain access to the *Choose Wall Material* menu.

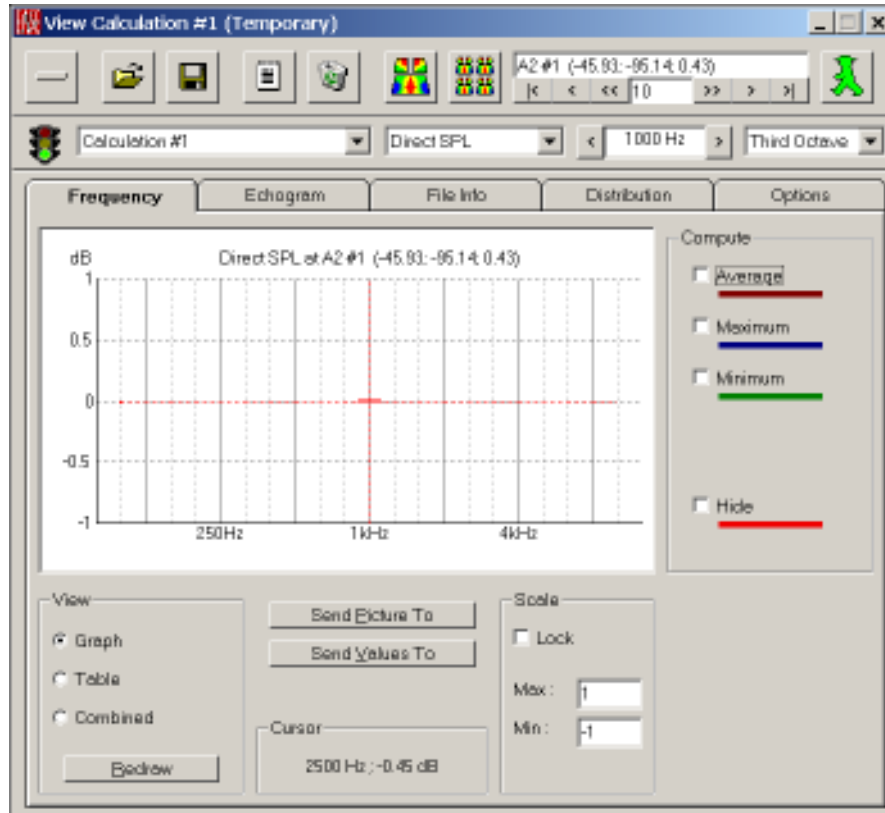
EASE 4.1 and EASE JR 4.1 now highlight the selected Face in the drawing to allow you to identify the selected Face.



Mapping Module Improvements

Additions and Changes to Page 199.

The basic EASE and EASE JR mapping module has also been improved. The View Calculation screen shown below includes an extra feature, a *Distribution Tab*.

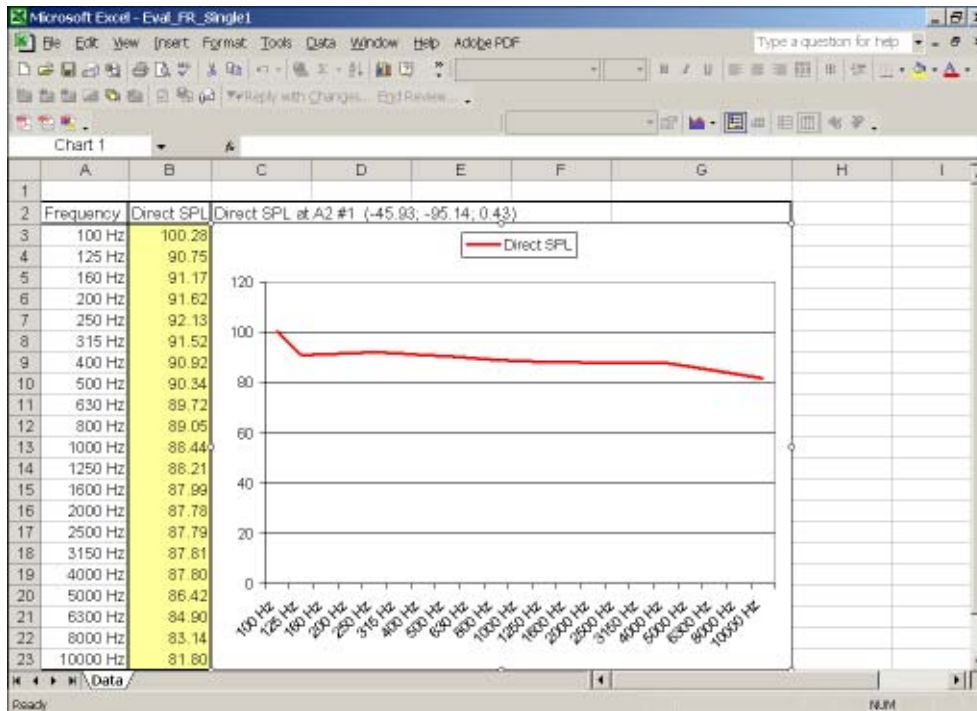
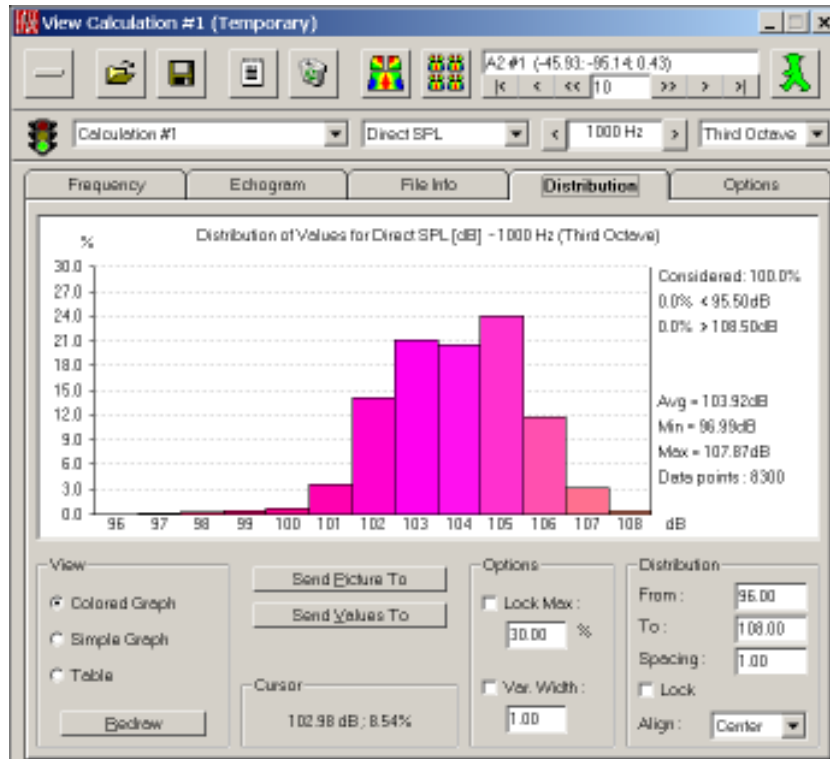


Selecting the *Distribution Tab* will open the Distribution Statistics graphic shown on the next page. As you can see, it shows the Direct Sound Level distribution.

The *Send Values To* button under the *Frequency Tab* now offers two options when opened, *Clipboard* and *MS Excel*. Previously, only the *Clipboard* option was available.

The *MS Excel* option sends the Frequency information directly to Microsoft Excel. Refer to the graphic on the next page for details.

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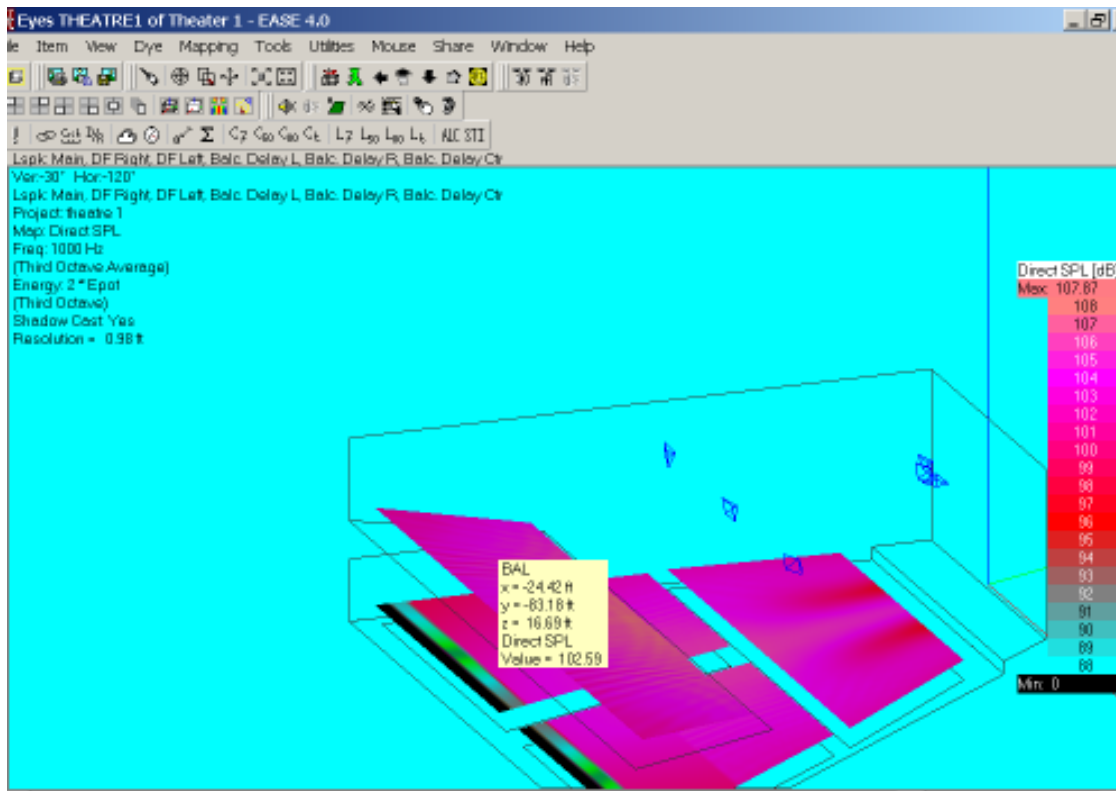
Enhanced Mouse Functions

The functionality of the mouse has also been improved in 4.1.

New mouse/cursor shortcut keys make it easy to switch from one mouse mode to another.

d	=	turn on Drag mode
p	=	turn on Pick mode
t	=	turn on Turn mode (use left mouse button to turn model, right button to zoom in and out.
Shift + c	=	turn on spot (center)

The *Mouse Peek* feature has also been improved. When the *Peek* mode is selected (under the Mouse pull down menu) using the left mouse button to select any spot in an Audience Area will produce a readout showing the SPL level at that point and the points exact location. See graphic below.

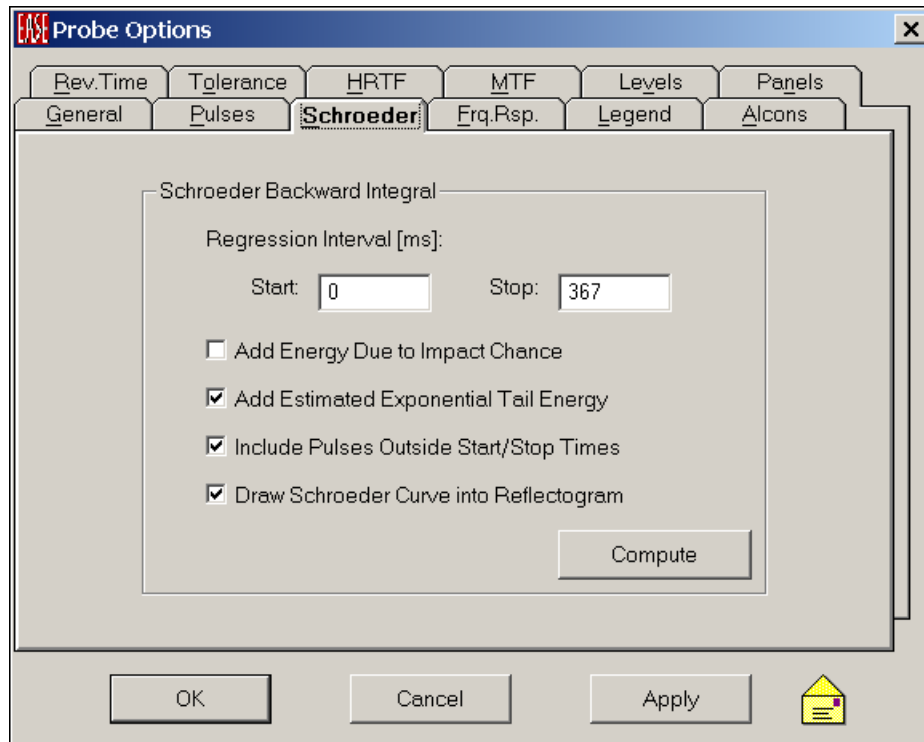


Acoustical Probe Improvements

Additions and changes to pages 277 and 278.

The *Probe Options* folder includes several significant changes designed to make the program more user friendly.

The *Spinning Tab* was renamed the *Schroeder Tab* and the Spinning options placed under the *General Tab*. The Schroeder options were then removed from under the *Pulses Tab* and placed in the *Schroeder Tab*. See Graphic below.



EARS Enhancements

Real-Time Stereo Convolver

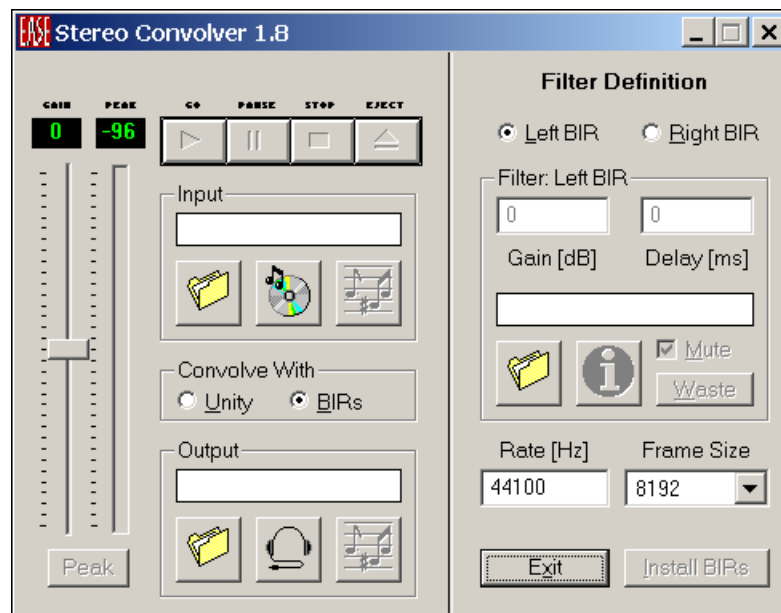
Additions to page 307

An important addition to EARS RT 4.1 is the Real-Time Stereo Convolver. It allows the auralization of stereo signals in “real time”.

Both EARS and the normal Lake convolution filters used in EARS RT produce a Binaural auralization from monaural signals.

The Real-Time Stereo Convolver auralizes a stereo signal in “real-time”.

Operation is quite simple. Select Stereo Convolver from the Tools pull down menu. When the screen show below opens, choose the Input signal (probably a stereo CD) and choose the Output signal (probably Audio). Next use the File icon in the Filter section to select the BIR's for the right and left ears.. Then press to Go button.

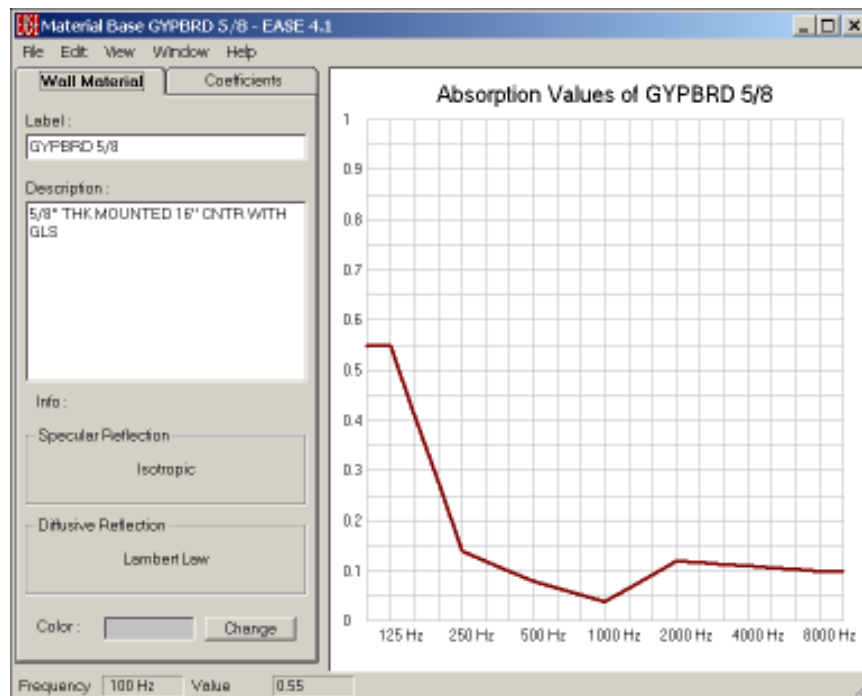


AURA Improvements

Wall Materials Database Scattering Wizard

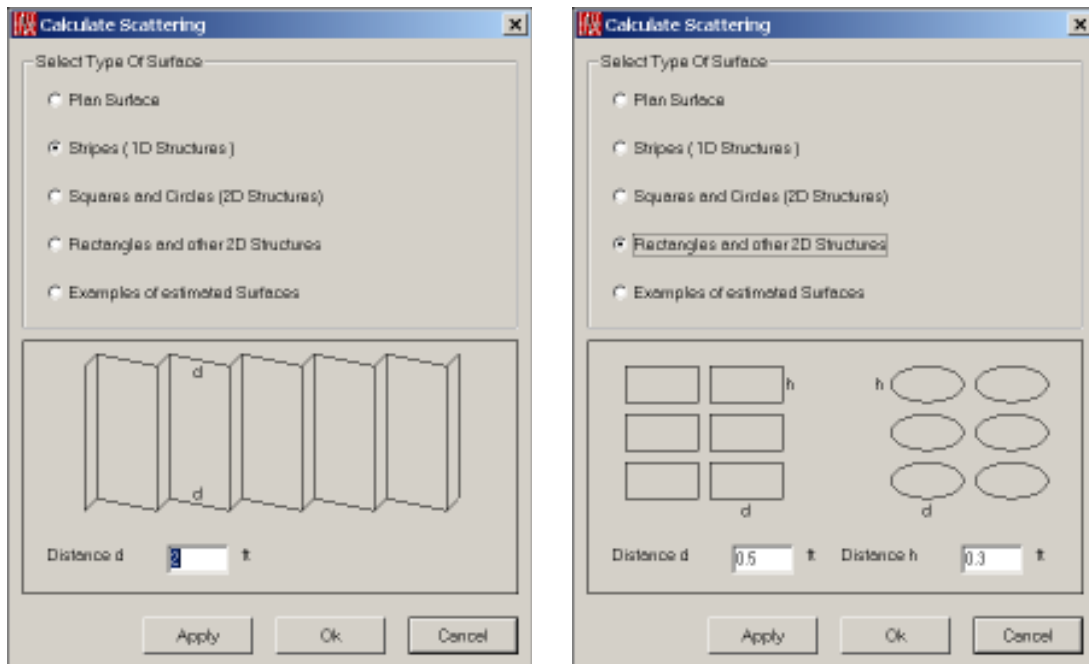
The EASE 4.1 Wall Materials database includes a Scattering Wizard that allows real-life approximations of scattering coefficients.

Opening a Wall Material in the 4.1 Database brings up the graphic shown below. Note that it includes a graph of the Absorption Coefficients. Selecting the Coefficients Tab introduces a new screen with a tabular listing of the Absorption Coefficients and a column for the Scattering Coefficients.

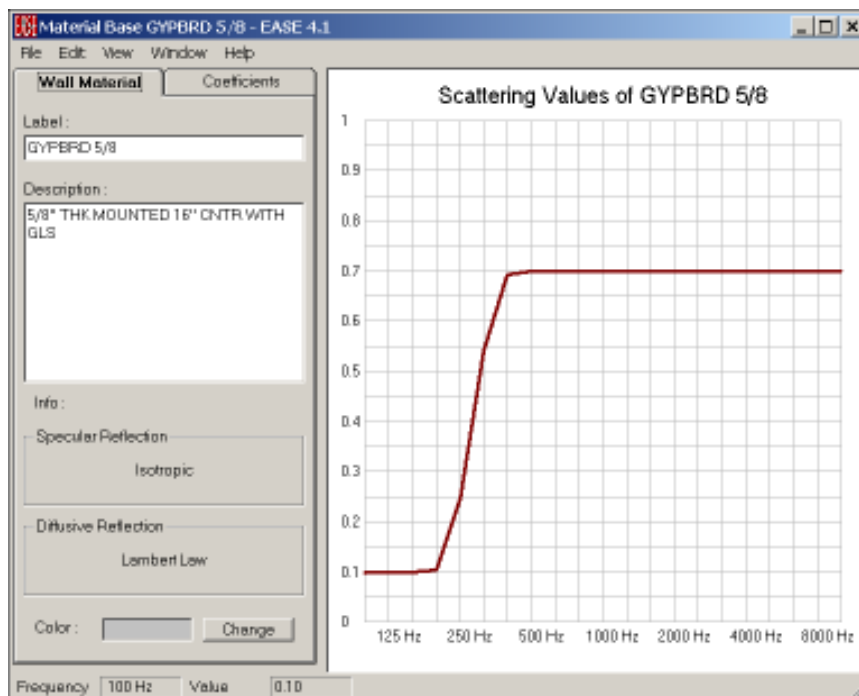


Selecting *Calculate Scattering* from the *Edit* pull down menu will open a setup screen that allows you to calculate the scattering characteristics based on the materials absorption coefficients and its size and shape. The new file including the Scattering Coefficients can then be saved and used in AURA simulations.

Note that the setup screens shown on the next page give you the opportunity to select from a variety of surface shapes and to define its size.



The following graphic shows the Scattering Coefficients using a 2 Ft. Square.



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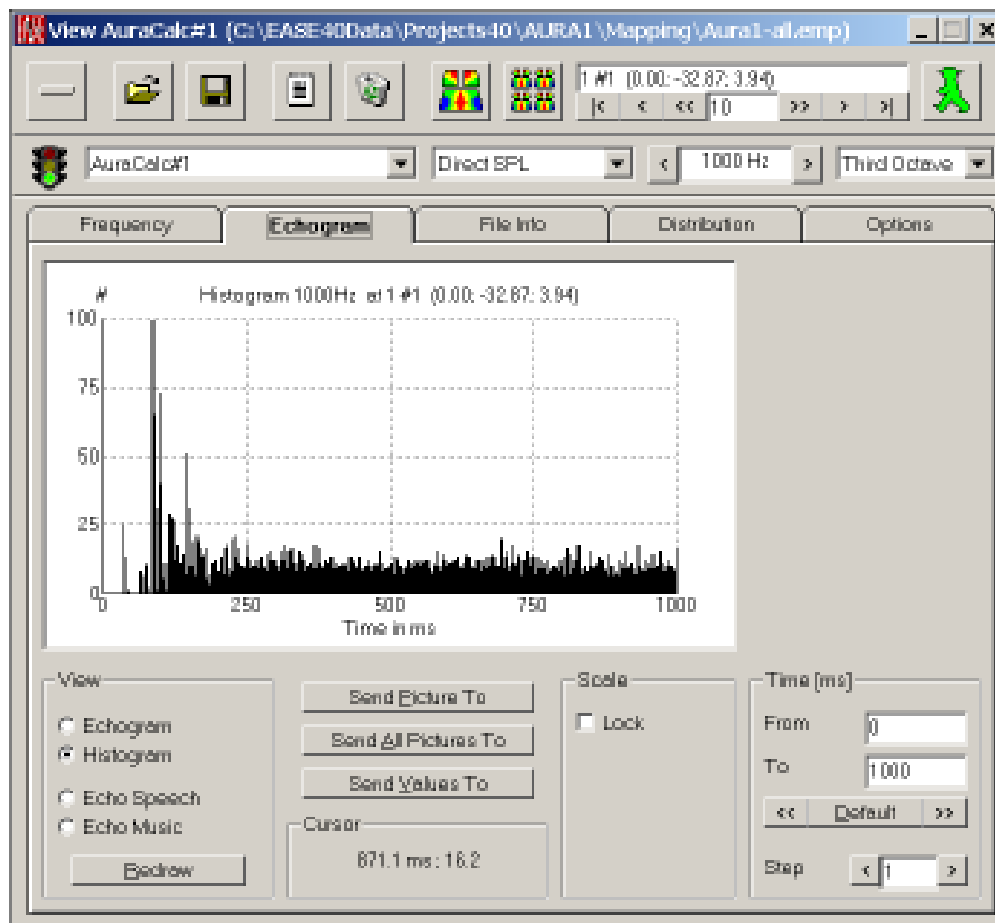
At this point you can save the file under a new name and then use it in your room models just as you would any other material. AURA can then use these Scattering Coefficients in its calculations

Try out this section using different materials, sizes and shapes. Note that you can also look at a number of examples that have been created to help you become familiar with this portion of the program. You'll find them interesting.

Histogram

Comments on pages 332 and 333.

AURA now includes a Histogram as a means of quickly checking the validity of an AURA simulations. Refer to pages 332 and 333 of your Tutorial for further details on this unique feature.

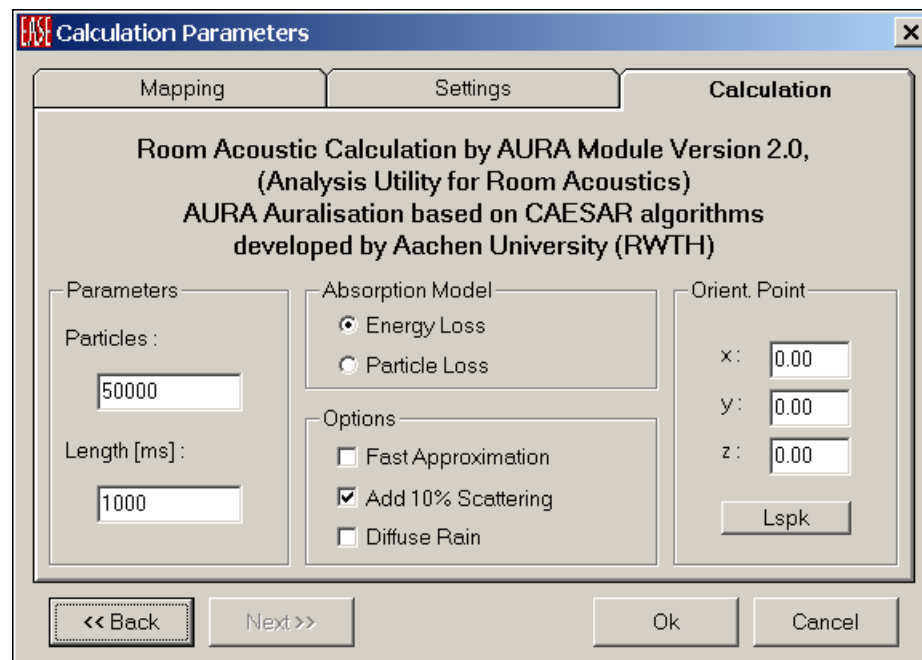


Diffuse Rain

Additions and changes to page 318

An exciting new Diffuse Rain feature has also been added to the AURA module to improve the programs handling of diffusion. The new algorithms that support Diffuse Rain generate new rays whenever a ray strikes a surface and follows these new rays until they impact upon a Listeners Seat. The energy level of the new rays takes into account the surface's scattering coefficient as well as the surface's absorption. The energy level of the primary specular reflected ray is, of course, reduced by the energy absorbed by the surface and the amount lost through scattering.

The new Calculation Parameters screen now includes a Diffuse Rain option that should be used whenever you want AURA to include the effects of diffusion in the simulation.



You will note that the Add 5% Scattering option has been replaced with an Add 10% Scattering option. The experience ADA has gained over the past year with AURA indicates that 10% scattering is more realistic than 5% when this feature is used.

Note that if the Scattering Coefficients of any of the wall materials used have been defined, this option will be grayed out and not available. It is for use only when none of the materials used include Scattering Coefficients.

