CDH/VAO 5.0
Release Notes

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Introduction

The previous release of CDH/VAO (V4.2) included several enhancements to simplify creation of the VAO database files and loading of the database files when starting the CDH/VAO program. The V5.0 release continues this theme with additional enhancements to improve the CDH/VAO user experience.

System Requirements

Linux:
Operating System: Red Hat 5 Release 3 or newer
Graphic: OpenGL Driver

Windows:
Operating System: Windows XP (64bit) und Version 7 (64-bit)
Graphic: OpenGL Driver

Supported MATLAB Version: R2009b

New Features

VAO 5.0 has the following new features:

Interface Enhancements

1. *New Menu System* – The menu system now consists of a cascading menu system. This new interface allows easier access to all VAO features.

2. *User Specified Defaults for Participation Factor Menus* – In the 'vao_defaults.m' file, the user can specify the default selections for the Participation Factor menus.

```
%Setting inputs and selections for Participation Factor plotting
%
% Scaling Factor
Defaults.Participation_Factor.Scaling_Factor=1;
%
% Number of participations in 1 graph
Defaults.Participation_Factor.Nr_of_Participations=20;
%
% Number of graphs
Defaults.Participation_Factor.Nr_of_Graphs=5;
%
% Plot Selection:
%   'A'  - Argand
%   'XY' - XY Plot
%   '3D' - 3D Argand
Defaults.Participation_Factor.Plot_Selection='A';
%
% Sort Selection:
```

```
%   'D' - Sort by Direction
%   'M' - Sort by Magnitute
%   'N' - Don't Sort
Defaults.Participation_Factor.Sort_by='D';
%
% Separation Flag for "3D Argand"
%   'Y' - Yes
%   'N' - No
Defaults.Participation_Factor.Separate='Y';
%
% Align Flag for "3D Argand"
%   'Y' - Yes
%   'N' - No
Defaults.Participation_Factor.Phase_Aligned='Y';
```

3. *Retention of Participation Factor Menu Changes* – User input on the Participation Factor menus are retained and redisplayed when the menus are reactivated. For example, the default selection for the plot output may be 'ARGAND' and the user changes it to 'XY', the next time the menu is displayed, 'XY' will be the default value.

New Capabilities

1. *Fluid Boundary Grid Participation Factors* – Determines the participation factors of acoustic boundary grids for a selected acoustic grid. The participation factors are displayed as a contour plot on the fluid model. This new features allows the user to more easily determine areas that contribute to the acoustic response.

2. *Brake Squeal Calculation* – The brake squeal calculation was previously an option that required additional interfaces file from CDH. This option in now included as standard in the VAO system. Users are still required to obtain from CDH the Nastran interface DMAP alters needed to generate the input for the brake squeal option.

Output Options

1. *Save ERP Plots in TIFF format* – The Equivalent-Radiated-Power plots can now be output from the menu in TIFF format.

2. *Save ERP data in Single or Multiple Files* – The Equivalent-Radiated Power data can now the output in a single file containing all panels or multiple files with one panel in each file.

3. *BOF output of RMS shapes directly from Menu* – Binary Output File (BOF) format of Root-Mean-Squared shapes can be selected from the menu. Previously, BOF output could only be done using the CDH/VAO Viewer. This capability allows BOF output to be specified using the batch operation option.

Animation Enhancements

1. *Animation of Complex Mode Indicator Function shapes* – Allows visualization of the Complex Mode Indicator Function shapes. The complex mode indicator function is useful in determining the dominant excitation shapes for multiple excitations. This allows the user to concentrate design changes on areas that can more significantly affect important responses.

Sub-Model Enhancements

1. *Interactive Sub-model Menus for CROD, CVISC, CBUSH, and Solid Elements* – In VAO 4.2, support of sub-models consisting of CROD, CVISC, CBUSH, or solid elements was supported only using the ASCII sub-model definition. These sub-mode types are now fully supported by sub-model menus.

2. *Load Sub-models directly from ASCII File Definition* – Sub-models can be defined using an ASCII file definition for use in CDH/VAO. Previously, these ASCII files needed to be converted into a new format for direct use in CDH/VAO. Both the CDH/VAO and ASCII file formats can now be used directly for sub-model definitions.

3. *Parameters WTMASS, K6ROT, and SNORM passed for Sub-model Generation* – Nastran parameters that could affect sub-model generation are not passed from Nastran into CDH/VAO for use in generating Sub-models. Previously, the user was required to add these parameters to the sub-model input before generating the sub-models.

4. *Select/Deselect option for Sub-model selection* – Menu option now allows easier selecting and deselecting of Sub-models, including Select All and Deselect All.

Viewer Enhancements

1. *Hide Multiple PIDs* – New option to hide elements with the same property ID. This option allows the user to continually select element sets to hide from view. This option simplifies clearing the model view of elements that may obscure viewing areas covered by several layers of structure.

Miscellaneous Enhancements

1. *License Server Checked before Viewer start-up* – This provides a more user friendly termination of the code if a CDH/VAO license could not be found.

2. *Matlab Version Checked* – Matlab version is checked when using VAO with Matlab and a message given that indicates whether the version used to compile the CDH/VAO code is the same as the Matlab version available for CDH/VAO. Normally, CDH/VAO will run correctly using a higher Matlab version. Using a lower version may cause execution errors.