Release Notes

CDH/VAO Software
Version 2014

February 2014

Introduction

All features described in these VAO Version 2014 release notes are supported for Linux (64 bit) and Windows (64 bit) platforms.

System Requirements

- **Linux:**

  Operating System: CentOS Release 5.7 or newer
  Graphics: OpenGL Driver

- **Windows:**

  Operating System: Windows (64 bit)
  Graphics: OpenGL Driver

- **Supported MATLAB Versions:**

  VAO MATLAB Version requires MATLAB Version R2013a.
  VAO Compiler Version does not require a MATLAB License.

New Features in the VAO Release Version 2014

New Capabilities

- **CDH/BEM**

  CDH/BEM is a boundary element method tool for the exterior acoustic problem. CDH/BEM is fully integrated into VAO and may be used to calculate Acoustic Transfer Vectors (ATVs) for the structural radiation problem. ATVs may also be output in Nastran op4 format for use in CDH/RADOPT, a Nastran-based optimisation technique for minimisation of radiated noise. This unique feature provides the possibility to perform structural optimization using acoustic radiation as a response quantity in NASTRAN, thus taking full advantage of the versatile and powerful design-model in NASTRANs SOL 200.

- **VAO/RADOPT**

  ATVs calculated from CDH/BEM may also be output for VAO/RADOPT, an optimisation tool for minimisation of radiated noise in VAO. The use of VAO/RADOPT is similar to existing BETA optimisation method in VAO.

- **Random Analysis**

  The VAO user may calculate the auto-power spectrum for structural and acoustic responses. Please see menu ***<Full Model>/<Structural Only Operations UO>/<Frequency Response UO>/<Random Analysis>*** and menu ***<Full Model>/<Structure/Fluid Operations CO>/<Frequency Response CO>/<Random Analysis>***.

Interface Enhancements

- **Participation factor *X-Y* plot improvement**

  In **Panel Participation, Grid Participation Factor** plot, the user is able to select the following options

  1) Line thickness
  2) Font size in figure
  3) Figure window size (width and height)
  4) Option to plot in dB with option for input of dB Ref

Output Options

- **Create Submodel ASCII File (from main menu)**

  The user may create a Submodel ASCII File for all pids (PSHELL, PBUSH, PDAMP, PROD, PSOLID, PELAS and PVISC) in the menu ***<VAO Main Menu>/<Submodel>/ <Submodel Definition>/<Write Submodel Ascii-file>.***

  The dialog box 'Write SM-Ascii-file' includes two entries 'Variable-Option' and 'Limit of Modification'.

  'Variable-Option':
  - 'absolute' for property as design variable
  - 'relative' for relative change of property as design variable

  'Limit of Modification' is used as percent of original value of property. It has default value 0.2, i.e. 20% of original value, which will be used as the maximal modification for the design variable.

- **Nastran OP4 format**

  This feature allows generation of an OUTPUT4 file containing the Acoustic Transfer Vectors (ATVs) generated in CDH/BEM described above. In addition, the solution vectors generated in VAO may be output in VAO for use in a CDH data recovery DMAP in NASTRAN. This feature provides the VAO user access to NASTRANs element based data recovery.

Animation Enhancements

- **VIEWER V14**

  The latest version of VAO/VIEWER gives enhancements in following aspects:
  - Fixed bug in export as universal file
  - Much lower memory required in fluid-related animation
  - Fixed bug in perspective projection
  - Fixed bug in coordinate axes
  - Fixed bug in color plots
  - Fixed problem with function keys (F1 – F12) in animation mode
  - Selection routines much faster
  - Fixed bug in centre of rotation with multiple views
  - Some default preferences adjusted to give user-friendly settings