Release Note

Automated MultiLevelSubstructuring

Version 5.0r120

Fast Frequency Response Solver

Version 2.0r113

November 5, 2013

CDH AG

INTRODUCTION

AMLS is available for MSC and NX Nastran, Altair OptiStruct, and ESI VPS. For the current AMLS release, Delivery Data Bases will be provided for:

MSC	V2011, V2012r1 and V2012r2
NX	V8.5 and V9.0

Both short and long integer versions (i4, i8) are provided for each version of MSC and NX. If there is a need for another version of either MSC or NX, please contact: support@cdh-ag.com

Starting with this version, AMLS will be supported only on the linux_x86_64 operating system.

Users are reminded that each CDH/AMLS delivery package, amls_pack* also contains an executable program CDH/FastFRS (Fast Frequency Response Solver).

It is a completely separate program that solves modal frequency response problems very efficiently. Even though it is separate from AMLS it is used in conjunction with AMLS. In other words, it cannot be executed by itself when the modes are calculated via other methods, e.g., Lanczos. To execute it with AMLS, the user must have a proper license feature that is in the same license file as that used by AMLS. For further information about FastFRS, please contact: support@cdh-ag.com.

AMLS ENHANCEMENTS

CDH/AMLS V5.0.r120 contains a number of enhancements as described below:

1) Documentation: Both the User Guide and the output messages written to the *.log file have been improved. Please refer to the User Guide, which is maintained online at ftp.cdh-ag.com, for thorough explanations of the enhancements listed here.

2) Performance is significantly improved in V5.0. Parallel performance is improved as a result of better management of data and disk access. AMLS operates in memory and reads data in advance to eliminate I/O as a bottleneck to the extent possible.

3) A limit on the memory used by phase 3, which is ordinarily where the greatest amount of memory is required by AMLS, can optionally be specified by the user. See the User Guide for more details.

4) When the stiffness matrix for a substructure is found to be singular (not invertible), AMLS automatically determines whether the singularity is associated with a "massless mechanism" or a rigid body mode. If it is a "massless mechanism", AMLS applies a constraint appropriately. If it is a rigid body mode, AMLS automatically reorders the model so that all rigid body modes are handled when behavior of the structure as a whole is considered. Appropriate messages are written to the *.log file for the user. See the User Guide for more details.

5) The automatic selection of an appropriate value of the global structural damping parameter "g" in MSC Nastran V2012 for use with ACMS has been made available for use with AMLS, with MSC Nastran V2012. Hence, this version is recommended for use with AMLS. However, this does not work properly with MSC V2013.0 or with NX Nastran, or with Altair's OptiStruct. See the User Guide, or contact CDH, for more details.

6) An ability to generate Operational Deformed Shapes (ODS) in SOL 111 has been developed that requires significantly less disk space and CPU time. However, it does require both AMLS and FastFRS. It is only available for MSC and NX Nastran, owing to new requirements in the Delivery Data Base. For more details consult the AMLS User Guide.

7) From the user's point of view the only change from V4.2 to V5 is that the parameter "disjoint" is now an integer whereas before it was a real number.

FastFRS ENHANCEMENTS

CDH/FastFRS V2.0.r113 contains a number of enhancements shown below:

1) Documentation: Both the User Guide and the output messages written to the *.log file have been improved. Please refer to the User Guide, which is maintained online at www.cdh-ag.com for thorough explanations of the enhancements listed here.

2) Parallel performance is improved significantly in V2.0.

3) A limit on the memory used by FastFRS can optionally be specified by the user. If necessary, the number of cores used by FastFRS is automatically reduced to satisfy the limit on available memory. See the User Guide for more details.